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Review

Towards a unified theory of task-specific motivation

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ABSTRACT

This study aims to integrate the current proliferation of motivation theories in a Unified Model of Task-specific Motivation (UMTM). According to this model readiness for action results from an interaction between four relatively independent types of valences that can be classified as affective or cognitive, and positive or negative. Affective valences are expectations about feelings while doing an activity; cognitive valences are expectations about the value of the consequences of an activity. In current theories these types of valences are designated as intrinsic, respectively extrinsic motives. Valences, furthermore, can be positive, but also negative. Positive valences give rise to approach motivation, negative valences to avoidance motivation. Important factors that influence valences are autonomy, feasibility expectation, and relatedness, each of which can be distinguished in a personal and a contextual facet, and subjective norm. In conclusion, some theoretical and practical implications are suggested and some issues for future research are proposed.

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Contents

1. Introduction	28
2. Conceptualizations of task-specific motivation	29
2.1. Self-determination theory	29
2.2. Flow theory	29
2.3. Expectancy * value theory of achievement motivation	30
2.4. Social cognitive theory	30
2.5. Theory of planned behavior	31
2.6. Person-object theory of interest	32
3. Affective and cognitive valences	33
3.1. Conceptual relation between affective and cognitive aspects	34
3.2. Evidence from neuroimaging research	35
3.3. Empirical relation between affective and cognitive measures	35
3.4. Affective and cognitive regulation systems	36
4. Task-specific immediate antecedents of valence expectations	36
4.1. Expected feasibility	37
4.2. Autonomy	37
4.3. Social factors	38
5. Positive and negative valences; a fourfold classification	38

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6.	Outline of a Unified Model of Task-specific Motivation (UMTM)	39
6.1.	Valence expectation	39
6.2.	Immediate task-specific antecedents	40
7.	Concluding remarks	41
	References	42

1. Introduction

In the field of educational psychology, and not only there, we find a vast proliferation of theories of motivation (Boekaerts, Van Nuland, & Martens, 2010; Schunk, Pintrich, & Meece, 2008). Current theories often partly overlap, sometimes implicitly, sometimes explicitly. This makes it difficult to draw conclusions or to combine insights derived from various studies in the field of motivational science. At first look, these theories in many ways may appear to conflict. To advance the field it is important to reconcile their apparent contradictions and to reach consensus on a number of central concepts. This article aims to contribute to this integration by developing an outline of a Unified Model of Task-specific Motivation (UMTM).

Since motivation is a very broad concept, this model does not cover all aspects of motivation. We use a narrow definition of motivation, namely a certain level of readiness to take action. Moreover, the model focuses on task-specific motivation, which is a readiness for a relatively specific action option available to the actor. And, for the moment, we will restrict ourselves to motivation in foresight: what motivational processes determine people's readiness for action when they consider activities that are open to them in the near future? Our objective here is to delineate the theoretical constructs that are indispensable to describing the formation of people's readiness for action at the moment a specific course of action appears as an option on their action horizon. This undertaking can be divided into at least three sections: the conceptualization of so-called intrinsic and extrinsic motivation, the identification of important task-specific, immediate antecedents of motivation, and the distinction between approach and avoidance motivation. The major part of our argument is devoted to some apparent controversies among task-specific theories of motivation, namely the nature of what is generally called intrinsic and extrinsic aspects of motivation, the interrelation between these aspects, and their immediate antecedents. First, we selected six theories that bear on the relation between intrinsic and extrinsic aspects of task-specific motivation. The selection was guided by classifications and overviews of contemporary motivation theories in educational psychology (Boekaerts et al., 2010; Brophy, 2004; Schunk et al., 2008; Wentzel & Wigfield, 2009). Two important theories in which intrinsic motivation has a central significance are the self-determination theory (Deci & Ryan, 1985, 2000; Ryan & Deci, 2000a, 2000b) and the flow theory (Csikszentmihalyi, 1990; Schmidt, 2010). Of the expectancy * value theories Wigfield and Eccles's (2000) expectancy * value theory of achievement motivation is identified as the most influential in this group (Schunk et al., 2008). We added another variant, the theory of planned behavior (Ajzen, 1991; Ajzen & Fishbein, 2008). Although this theory is relatively unfamiliar in the educational domain (for an exception see Kyndt & Baert, 2013), it is widely used to explain human social behavior, especially in the health, sports, and leisure domains (Armitage & Conner, 2001; McEachan, Conner, Taylor, & Lawton, 2011). We included this theory because it has contributed significantly to the development of our argument. By devoting a separate chapter to Bandura's the social cognitive theory of (Bandura, 1977, 1986, 1992, 1997) Schunk et al. (2008) position the social cognitive theory more or less in a category of its own. We completed the selection with the person-object theory of interest that Krapp (2002, 2005) developed, working in the interest research tradition (Renninger, Hidi, & Krapp, 1992). The person-object theory of interest is particularly relevant to the objective of this article, namely to construct a unifying proposal. Each of these theories will be reviewed briefly, not in its own right, but merely to collect the theoretical notions that are relevant to our discussion. Therefore, the length of our reviews is by no means proportionate to the richness and scope of the theory in question. Subsequently, we scrutinize the nature of extrinsic and intrinsic components of motivation and their interrelation and propose a solution to the controversy surrounding them. Furthermore, all theories reviewed suggest one or more task-specific factors as the immediate antecedents of motivation. We will inventory these antecedents and propose a conceptualization in which the distinction between person and context plays an important role. Next, we will address the much less controversial distinction between approach and avoidance motivation, and draw the consequences for the identification of essential constructs in task-specific motivation. To conclude, we will sum up our argument by drawing an integrated model of task-specific motivation.

Our focus on task-specific motivation implies that we have to leave aside a significant fraction of the available motivation theories. We will not address stable or relatively stable dispositions towards certain types of motivation. For instance, we do not go into motivation for broad fields of action such as sports or mathematics, nor into, as interest theorists (Renninger et al., 1992) would call them, personal or individual interests, which have a relatively enduring significance to a person. Such more stable interests evidently have an impact on motivation for specific actions, but for now we will only consider in what form they are actualized in a specific situation. Also, we will leave aside what is known about relatively stable dispositions that are not or less directly related to the content of actions, such as performance versus mastery orientations (Elliot & Thrash, 2001), causal attribution (Weiner, 2010), implicit theories (Dweck, Chiu, & Hong, 1995), or about feedback loops that produce such dispositions. Theories about these phenomena explain how persons adopt certain types of motivations, but they do so based on preexisting dispositions or on feedback from past actions. Again, here we are only concerned with

the specific form in which they appear in a concrete action situation. This focus on the constructs required to describe the formation of a readiness for action also implies that we discard theories addressing processes that are contingent on this process, such as intention formation, action initiation, and action sustainment (Corno & Kanfer, 1993; Husman & Corno, 2010; Kuhl, 1987).

Though focusing on task-specific motivation, we will refrain, furthermore, from discussing the content of activities. Content differences evidently have motivational consequences. Dishwashing is motivationally completely different from writing a novel, which in turn is very dissimilar to playing a tennis match. While these differences deserve to be treated in their own right, we hope that the constructs we develop will eventually prove to be broad enough to accommodate them.

2. Conceptualizations of task-specific motivation

2.1. Self-determination theory

Self-determination theory (Deci & Ryan, 1985, 2000; Ryan & Deci, 2000a, 2000b) is built on the dimension extrinsic versus intrinsic motivation. Traditionally in education, extrinsic sanctions such as grades or impositions are widely used as means to encourage learning (Deci, Koestner, & Ryan, 2001; Jackson, 1968; Silberman, 1970). As early as the 1970s, Ryan and Deci observed that the use of controlling measures to motivate learning has negative effects on a range of important indicators, such as performance quality, self-esteem, and general well-being (Ryan & Deci, 2000a, p. 69). Numerous studies have been carried out on the effect of extrinsic rewards on intrinsic motivation. And although the issue was sometimes fiercely debated (Eisenberger & Cameron, 1998; Hennessey & Amabile, 1998; Lepper, 1998; Sansone & Harackiewicz, 1998), from the available meta-analyses (Cameron & Pierce, 1994; Deci, Koestner, & Ryan, 1999; Deci et al., 2001; Rummel & Feinberg, 1988; Tang & Hall, 1995; Wiersma, 1992) it can be concluded that extrinsic rewards, when they are perceived to have a controlling character, can diminish (intrinsic) motivation (Ryan & Deci, 2000c). Extrinsic motivation was contrasted with intrinsic motivation, which capitalizes on the natural curiosity people possess. Intrinsic motivation represents a drive from within instead of external pressure. Though self-determination theory is not unanimously adhered to, the positive effects of this type of motivation are currently broadly agreed upon and are hardly subject to debate (e.g., Alexander & Murphy, 1998; Brophy, 2004; Hidi, 2001, 2006; Martens, Gullikers, & Bastiaens, 2004; Schunk et al., 2008; van Nuland, Dusseldorp, Martens, & Boekaerts, 2010).

According to self-determination theory, motivation is intrinsic when an activity is driven by inherent satisfactions provided by the activity itself and not by an external positive or negative reward that is contingent upon the completion of the activity. Motivation is extrinsic when an activity is adopted to acquire an outcome that is separable from the activity itself. The notion that humans have an internal need or drive to learn (Deci & Ryan, 1985; Ryan, Kuhl, & Deci, 1997) is associated with a very different philosophy of man than most parents or teachers have. A student is not regarded as an empty vessel that needs to be filled up, but more as a sponge that naturally sucks up the liquid that is available. The learning environment should prevent any disturbances and must provide enough 'tasty' liquid to enable the learning process to continue.

Deci and Ryan (2000) identify three basic psychological needs that must be met to foster intrinsic motivation, namely the need for autonomy, competence and relatedness. Autonomy relates to the absence of external forces and the opportunity to be self-responsible. Competence is connected to the experience to undertake activities that are within the reach of a person's capacity. Relatedness refers to a feeling of connectedness to fellow human beings who are part of the activity context.

Ryan and Deci (2000b) argue that extrinsic motivation emphasizes a separate reward, for instance a grade, prestige, or a financial return. They stipulate, however, that not all forms of extrinsic motivation contrast so sharply with intrinsic motivation. For instance, a person who is not interested in learning mathematics may generate enough motivation to acquire the necessary mathematical competencies in order to fulfill his or her deepest desire to become a physician. To counteract this problem, self-determination theory provides for a continuum of motivation types, which is characterized by the increasing internalization of an initially extrinsic motive (Ryan et al., 1997). At the lowest level on the scale, the motive for action is purely external, e.g., compulsive force or a fully unrelated reward. At the highest level the reward is still not the inherent satisfaction provided by the activity itself, but this reward is optimally congruent with the goals that the person sets for him/herself as fully compatible with his/her identity. A state of amotivation exists at one extreme and a state of intrinsic motivation exists at the other to complete this one-dimensional scale of motivation.

2.2. Flow theory

Flow is a phenomenon that everybody is familiar with from personal experience. Flow is the common experience people have of being completely absorbed in an activity, of losing track of time and all things around them. This state of utmost concentration is characterized by a loss of self-consciousness in the sense that the person becomes one with his or her activity. Csikszentmihalyi (1990) established flow as an object of scrutiny. In a sequence of studies flow was explored. LeFevre (1988) revealed, for instance, that flow, in contrast to what intuitively might be assumed, occurs more frequently with work than with leisure. Csikszentmihalyi (1990) theorized that flow comes about when an activity represents a challenge to the person and the performance of this activity is within the reach of his/her competence. Level of challenge and level of competence define roughly four types of states (Table 1). Flow arises from a high challenge and a high level of competence.

Table 1
Possible states produced by level of challenge and level of competence.

		Challenge	
		Low	High
Competence	High	Boredom	Flow
	Low	Apathy	Anxiety

However, when no challenge is present and the level of competence is low, the person is sentenced to apathy. When the challenge is low, but the level of competence is high, the person is likely to experience boredom. And a high challenge and a low level of competence is an anxiety-provoking combination. Unfortunately, Csikszentmihalyi identified level of challenge and level of competence as the defining elements of the flow construct. To our understanding, challenge and competence are causal factors and, consequently, flow should be understood as a state, namely of highest concentration, that springs from these factors.

In order to investigate flow, Csikszentmihalyi developed the Experience Sampling Method (ESM, Csikszentmihalyi & Larson, 1987; Hektner, Schmidt, & Csikszentmihalyi, 2007; Kubey, Larson, & Csikszentmihalyi, 1996). Participants were given a pager that would signal them to fill out a questionnaire at predetermined times. The questionnaire contained various questions. We mention those questions that are relevant for our enterprise. The subjects were asked to describe the activity that they were engaged in at the specific point in time when the pager signaled. Second, they were asked to indicate to what extent they considered this activity challenging and how competent they felt while performing it. The flow index was determined by taking the geometric mean of both estimates (the square root of the product of challenge and competence). The subjects were also asked additional questions with respect to their emotional state, level of intrinsic motivation, level of concentration, and, rather surprisingly, the relevance of the activity for their future goals.

2.3. Expectancy * value theory of achievement motivation

Expectancy * value theories explain the development of motivation essentially as the result of two factors, namely expectancies about the performance of an activity and expectancies about the value of the activity's outcomes. In the expectancy * value theory of achievement motivation (Wigfield & Eccles, 2000), the expectancy part is distinguished in ability beliefs, i.e., the individual's perception of his/her competence for an activity, and expectancy of success, i.e., the estimate of the level of performance on an activity in the future. However, Wigfield and Eccles found that empirically these two constructs were not distinguishable (Wigfield & Eccles, 2000; Wigfield, 1994). In principle, expectancy is task-specific, but the level of specificity can vary. The value aspect (subjective task value), on the other hand, can be separated into attainment value, intrinsic value, utility value, and cost. Attainment value is defined as the importance of performing well in a given task. This aspect of subjective task value appears to be connected to the identity of the person. In other words, the attainment value becomes higher when the outcome of a task is more relevant to one's identity. Intrinsic value is the enjoyment one gains from performing a task. Utility value refers to the relevance of the accomplishment for future activities. Wigfield and Eccles (2000) explicitly refer to the resemblance of intrinsic value and utility value with the concepts of intrinsic and extrinsic motivation in self-determination theory, but they do not seem to suffer from cognitive dissonance as a result of this comparison. Cost refers to the emotional burden and the depletion of other resources used to perform the task, as well as to the exclusion of alternative options for action. Yet in the research based on this conceptualization, aspects of cost are seldom discussed. The three other remaining aspects proved to be empirically distinct in confirmatory factor analyses, though it was found that very young children do not usually differentiate between attainment value and utility value (Eccles & Wigfield, 1995; Eccles, Wigfield, Harold, & Blumenfeld, 1993; Wigfield, 1994; Wigfield & Eccles, 2000). Although different variants of value thus can be identified, all are considered to represent value of *outcomes* and therefore they simply add up to a total value.

2.4. Social cognitive theory

Bandura (1986, p. 412) rejects expectancy * value theories because of their supposedly Tolmanian roots, which is to say that the concept of outcome expectancy was developed to explain how animals learn to solve mazes. In contrast, Bandura proposed self-efficacy as the chief factor in motivated behavior, because humans in contrast to animals have the possibility of reflecting about what they can or cannot do. However, in an earlier presentation of his social cognitive theory, Bandura (1977, p. 193) makes a distinction between efficacy expectation and outcome expectancy. Outcome expectancy is defined as a person's estimate that a given behavior will lead to certain outcomes. Efficacy expectation is the conviction that a person can successfully execute the behavior required to produce these outcomes. Bandura (1997) criticizes expectancy * value theorists for focusing on outcome expectations, since in his view efficacy expectations are more predictive of choice and -performance. The attribution of value to expected outcomes also remains implicit in Bandura's definitions. Nevertheless, Bandura's conceptualization is yet another representative of expectancy * value theory. Bandura underplays the role of outcome expectancies, but implicitly he distinguishes them from efficacy expectations, when he writes: "In social, intellectual,

and physical pursuits, those who judge themselves highly efficacious will expect favorable outcomes, self-doubters will expect mediocre performances of themselves and thus negative outcomes.” (Bandura, 1986, p. 392). Thus, Bandura supposes a sequence of efficacy expectations that determine outcome expectations, which in turn determine behavior (see also Schunk & Usher, 2012).

2.5. Theory of planned behavior

The theory of planned behavior (TPB) of (Ajzen, 1991; Ajzen & Fishbein, 2008) is the third branch on the expectancy * value theory tree. This theory offers a fruitful perspective with respect to behavioral change (Ajzen, 2001; Armitage & Conner, 2001; McEachan et al., 2011). We will spend relatively more time examining this theory not only because it is complex, but also because some characteristics in the theory, especially the operationalized variables, play a pivotal role in the development of our Unified Model of Task-specific Motivation. According to the TPB, behavioral intentions are affected by three factors: attitude toward the behavior, subjective norms, and perceived behavioral control. A concise summary of the theory is presented in Fig. 1. To understand the theory, it is important to realize that it originates from research into the problematic relationship between attitudes and behavior (Ajzen & Fishbein, 1977). An attitude toward a behavior is conceptualized as the subjective value of likely outcomes of that behavior. Every behavior has multiple consequences. A subjective probability that the behavior will have a particular consequence is linked to each of them. Furthermore, every consequence has a subjective value. True to the expectancy * value tradition (Vroom, 1964), the attitude toward a behavior is proportional to the sum of products of subjective probability and subjective value across all consequences. For a typical TPB-study, important consequences that respondents associate with an attitude object are inventoried in a pilot investigation. In the main investigation subjects are asked to rate these outcomes on a 7-point scale according to how probable they are and how valuable. An attitude measure can then be obtained by summing the products per outcome of probability and value. Moreover, the attitude toward a behavior can also be measured globally. For that purpose often a semantic differential is used with bipolar items such as: bad – good, harmful – beneficial, useless – useful, unpleasant – pleasant, unenjoyable – enjoyable, and boring – exciting. A global attitude score is calculated as the mean score on these items. A validation of the multiplicative measure of attitude is provided by the correlation with this global measure (e.g., Ajzen, 1991; Ajzen & Madden, 1986; Brenes, Strube, & Storandt, 1998).

Attitudes toward behaviors are just one factor that influences behavioral intentions. Subjective norm and perceived behavioral control are two other factors that determine the development of intentions to perform behaviors (Ajzen, 1991). These two concepts are also explained as multiplicative relationships between more elementary constructs. A subjective norm stems from normative beliefs and the tendency to comply with them. Normative beliefs represent the perceived likelihood that important others would approve or disapprove of a given behavior. Important others can be, for instance, friends, parents, a spouse or colleagues. In other words, the concept of important others refers to any referent or group of referents whose relationship with the actor is meaningful in the performance context. Perceived likelihood is expressed as a proportional value for each relevant referent. Next, the theory holds that the person’s tendency to comply is also specific for each referent. The subjective norm is then defined as the sum of these tendencies to comply with individual referents, each in proportion to the corresponding likelihood of their approval. In practice, each referent’s likelihood of approval is multiplied with the actor’s corresponding tendency to comply. The subjective norm is directly proportional to the sum of these products. Usually, also a global measure of the subjective norm is obtained by asking respondents to rate the extent in which important others would approve or disapprove of their performing a given behavior.

The third factor that influences the development of behavioral intentions has to do with the presence or absence of requisite resources and opportunities. Once again this factor, which is labeled as perceived behavioral control, is conceptualized as the sum of products of likelihood beliefs and corresponding valuations (Ajzen, 1991, 2002). In this case, likelihood beliefs are beliefs about the presence of opportunities and impediments, while the valuation aspect involves an estimate of the power of a control factor to facilitate or inhibit the performance of a behavior. Multiplying each likelihood belief by the

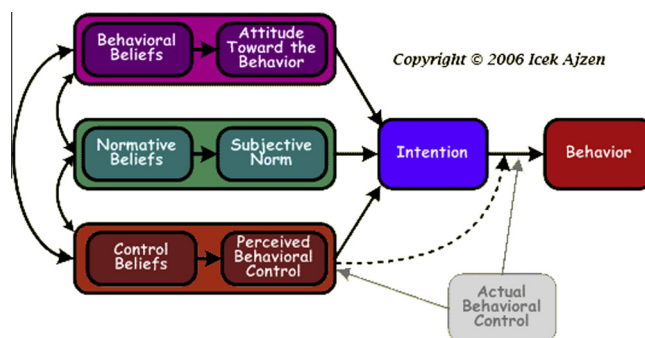


Fig. 1. Theory of planned behavior (Ajzen, 2006).

perceived power of a control factor and summing across all the control factors results in a measure that is directly proportional to perceived behavioral control. Once again, a global measure is also possible and simply involves an assessment of the ease or difficulty of engaging in an activity. Control factors can be external, such as, action opportunities, dependency on other people, obstacles in the context, and time restrictions, as well as internal, such as, knowledge and skills, intellectual capacities, emotional stability, and anxiety. In the literature about the theory of planned behavior comparisons are frequently made to the self-efficacy concept of Bandura (Ajzen, 2002; Bandura, 1992). Ajzen (1991, p. 184; 2002, p. 668) more or less equates perceived behavioral control to self-efficacy. Armitage and Conner (1999, 2001) claim that self-efficacy emphasizes internal factors, whereas perceived behavioral control, though broadly defined, appears to stress external factors. We encounter here a variation on the distinction made between personal and contextual efficacy as proposed by de Brabander, Rozendaal, and Martens (2009).

Although a full scale application of the theory of planned behavior thus requires an elaborate measurement procedure to obtain an estimate of the three factors of attitude, subjective norm and perceived behavioral control with respect to a specific behavior (Ajzen, 1991; Ajzen & Fishbein, 2008), studies that use global and extremely short questionnaires to measure the three factors are not uncustomary either (Armitage & Conner, 2001; McEachan et al., 2011). For instance, Bamberg, Ajzen, and Schmidt (2003, p. 178) measure attitude toward behavior simply with two items: “For me, to [perform a specific behavior] would be *good – bad*”; and “For me, to [perform a specific behavior] would be *pleasant – unpleasant*.” Responses are collected on a 5-point scale. Subjective norm is also measured with two items: “Most people who are important to me would support my [specific behavior]”; and “Most people who are important to me think that I should [perform a specific behavior].” A 5-point scale follows these items with endpoints labeled *likely* and *unlikely*. And finally, perceived behavioral control was also assessed by two items using a 5-point scale: “For me to [perform a specific behavior] would be *easy – difficult*”; and “My freedom to [perform a specific behavior] is *high – low*.” This last question might very much surprise a follower of self-determination theory. What is relevant here, however, is that a TPB-study does not necessarily involve a complex procedure, which is the more reassuring, because the expectancy * value formulations of the TPB-constructs are not straightforward (Ajzen, 1991; Ajzen & Fishbein, 2008).

In our opinion the relation between likelihood estimates of behavioral consequences (outcomes) and perceived behavioral control is problematic. To understand these notions it is important to keep in mind their origin. The theory of planned behavior was developed to solve the problematic relation between attitude and behavior. In short, this relation entails that people often do not act in agreement with their attitude (Ajzen & Fishbein, 1977). Now, attitude objects were often taken from some ongoing social debate like abortion, race discrimination or global warming. To take global warming as an example, the attitude is defined by the products of beliefs about the likelihood of outcomes, such as, the sea level rising, the expansion of subtropical deserts, and more frequent occurrence of extreme weather conditions, and their valuation. In the theory of planned behavior, which succeeded the theory of reasoned action, perceived behavioral control was introduced because it was believed that intentions could only find expression in behavior if that behavior was under volitional control (Ajzen, 1991). The relation between beliefs about the likelihood of outcomes and perceived behavioral control becomes problematic, when the attitude object is not an issue in a social debate, but a person's activity. If we take sport activities as an example, relevant outcomes are, for instance, weight control, physical fitness and good health. In this case, the likelihood of these outcomes is dependent on perceived behavioral control, i.e. available internal and external resources and the opportunities the person sees at his/her disposal to actually bring forth these outcomes. This conceptual problem is only resolvable by an adjustment to the theory. For our purpose, we will solve it by loosening the tight bonds of the expectancy * value construct, which is already provided for by the global attitude measure by means of a semantic differential.

2.6. Person-object theory of interest

Person-object theory of interest (Krapp, 2002, 2005) defines interest as a relational concept. Interest is understood as a specific relationship between a person and an object in his or her life space. This object can refer to concrete things, but also to a topic, an abstract idea or any other cognitively represented content. The relationship between person and object can be conceived of as a focused attention to and/or engagement with the affordances of a particular content (Hidi, Renninger, & Krapp, 2004). An interest can vary in scope (for instance light refraction by lenses versus understanding physics) and in stability (momentary versus lifelong). Interest researchers distinguish between situational and personal or individual interest. A situational interest is primarily caused by factors external to the individual, whereas an individual interest stems from internal factors. This distinction is not the same as the distinction between state and trait, since a working interest as a state may be induced both by situational conditions and by individual interest (Schiefele, 2009).

Krapp (2002, p. 388) makes a distinction between two facets of an interest. Any interest, whether situational or individual, is composed of value-related and feeling-related valences. Value-related valences refer to the personal significance of an interest. An activity gains in value to the extent its goals and intentions are relevant to his or her personal identity. Feeling-related valences refer to experiential states while being engaged in an activity, such as feelings of pleasure and being focused. Krapp refers explicitly to flow as an extreme form of positive feeling. Certainly, the resemblance with intrinsic motivation as defined in self-determination theory has also not escaped him.

As a foundation for the two facets of interest, Krapp (2002, p. 401), following Epstein's cognitive-experiential self-theory (Epstein, 1973, 1994), postulates the existence of two interacting, but separate systems of behavior regulation. The first system is said – rather oddly – to have a strong biological component. It is based on emotions that provide the individual

immediate feedback in dealing with the requirements of his or her action situation. The action tendencies that arise from this regulation system may be subjected to critical reflection, but they do not *require* conscious and active self-regulation. The second system is cognitive and conscious by nature. This system is responsible for the cognitive-analytic development of behavioral intentions. Since time immemorial, people's common sense has provided labels for these two systems, namely heart and head, feeling and knowing (cf., Epstein, 1994, p. 710).

The two regulation systems are fundamentally independent. To what extent an activity provokes positive feelings is not necessarily related to its cognized value and vice versa. In general, however, positive feelings will be coupled with high value expectations and negative feelings with low value expectations. Yet conflicts between feelings and value expectations are by no means exceptional. It might be hypothesized that positive feelings and low valuation are not a problem for the individual, unless under conditions of time pressure. Another case, however, is the combination of negative feelings and high values, which, as all of us know from personal experience, is not uncommon in educational settings. In this case, high valuation might still lead to behavioral intentions, but only by way of exception to persistent behavior.

Krapp (2002) theorizes about the development of interests and tries to relate the "concertation" between situational and personal interest to the development of a personal identity. In this context, he discusses several questions, such as, whether the development of stable interests is stage bound, or how and under what conditions situational interests actually evolves into personal interests.

3. Affective and cognitive valences

We compiled an inventory of the motivational concepts and ideas summarized above in order to collect some of the building blocks necessary to construct a unifying theory of task-specific motivation. The first step towards this goal concerns the relationship between intrinsic and extrinsic components in task-specific motivation.

The theories that we have just reviewed can be categorized as affective and cognitive theories. Boekaerts et al. (2010) describe these two broad categories as theories with a focus on intrinsic motivation and theories with a focus on expectancy and value. The difference is that affective theories emphasize the affective experiences of an activity, namely being interested and having pleasure while performing, whereas cognitive theories stress rational reflection concerning the consequences of an activity. Self-determination theory and flow theory belong to the first group and expectancy * value theories to the second. Person-object theory of interest is generally viewed as an affective theory (e.g., Boekaerts et al., 2010), but actually proposes an integration of both.

Our examination of the theories has shown, interestingly, that hardly any 'one-sided' theory could avoid also taking into account the neglected or less emphasized aspect of motivation. The self-determination theory poses that intrinsic motivation is the ultimate driving force of motivated action, but creates an elaborate structure of categories of extrinsic motivation to be able to keep apart detrimental from less detrimental or even beneficial extrinsic motives. The flow theory does not refer to the cognitive aspects of motivation. However, the Experience Sampling Method, which is the research instrument that represents the flow paradigm, includes a question that invites the subject to reflect about the significance of current activities for future goals. The social cognitive theory discards outcome expectations as unimportant, and consequently does not pay attention to the nature of outcomes. Yet the examples of outcomes used in the theoretical arguments, represent all the various kinds of outcomes, including affective experiences as well as cognized consequences, for instance, wreckage, bodily injury or enjoying sweeping panoramic vistas while navigating winding mountain roads (Bandura, 1986, p. 392). The expectancy * value theory of achievement motivation addresses affective aspects explicitly, but simply as just another (cognitive?) kind of subjective value.

The theory of planned behavior provides also a very illustrative case. Ajzen (1991, p. 200) states that in the theory of reasoned action (which is extended subsequently into the theory of planned behavior) there is no clear distinction between affective and evaluative responses with respect to a given behavior. Nevertheless, he immediately goes on to report on a study in which the relation between the two is further investigated. The semantic differential that is customarily used as a global measure of attitude, contains bipolar scales that clearly classify either as "affective" (pleasant – unpleasant) or "evaluative" (good – bad). Based on factor analysis of these items, two global attitude measures were built. One was labeled as affective and the other as evaluative. Furthermore, the salient consequences of behavior, that were obtained using the standard TPB-procedure of a pilot study, where respondents generated possible outcomes for the behavior under study, could also be classified as more affective or more evaluative. With respect to spending time at the beach, for instance, "developing skin cancer" and "meeting people of the opposite sex" were assessed as evaluative, while "feeling the heat and sun on your body" and "watching and listening to the ocean" were categorized as more affective. By means of the standard multiplicative procedure, two multiplicative attitude measures were constructed based on this distinction, an affective version and an evaluative version. Global and multiplicative attitude measures turned out to correlate significantly and substantially only when of a corresponding nature. We may conclude, therefore, that, at least implicitly, the theory of planned behavior, although categorized as a cognitively oriented theory, also includes both affective experiences and evaluated consequences as motivating factors. For our argument, furthermore, it is relevant that, according to the study referred to here, affective experiences and evaluated consequences to some extent at least behave independently. The appearance of affective and cognitive components in different theories is concisely summarized in Table 2.

Table 2

Comparison of central concepts in motivation theories.

Theory	Affective notions	Cognitive notions
Social cognitive theory		Outcome expectancies
Self-determination theory	Intrinsic motivation	Extrinsic motivation
Expectancy * value theory of achievement motivation	Intrinsic value	Attainment value, utility value, cost
Person-object theory of interest	Feeling-related valence	Value-related valence
Flow theory	Flow	Importance to future goals
Theory of planned behavior	Affective judgments	Evaluative judgments

Note: As explained in paragraph 2.4., outcome expectancies can be affective but also cognitive.

The reader might surmise that our argument is moving towards a conception that understands affective and cognitive aspects of motivation not as opposing endpoints on a single dimension, nor as additive components, but as relatively independent factors. Before we arrive at such a definite conclusion, we have to deal, however, with the emphatic claim of self-determination theory that intrinsic and extrinsic motivation are each other's opposites (Deci & Ryan, 2000) and with the more implicit additive hypothesis of expectancy * value theories (e.g., Wigfield & Eccles, 2000). Most of the arguments we have to offer run counter to both conceptions. We start, however, with the opposition between intrinsic and extrinsic motivation.

We attributed the origin of the oppositional interpretation of self-determination theory to the disclosure by self-determination researchers of the detrimental effects of sheer pressure and completely unrelated rewards that were (and are) typical in traditional educational practices and the beneficial effects when people learn out of interest. As noted at the start of our enterprise, the validity of these insights has been confirmed sufficiently and is hardly open to debate anymore. However, opposing effects do not imply conceptual opposition. And three lines of argument will lead us to conceptual independence.

3.1. Conceptual relation between affective and cognitive aspects

The first part of our argument is theoretical. Self-determination theory defines intrinsic motivation as motivation which flows from inherent satisfactions that stem from performing an activity. Furthermore, strictly speaking, no consequence that is separable from the activity proper may play a role in the motivation for that activity (Ryan & Deci, 2000b). In the first place, it is unlikely that this second requirement could ever be met. A large part of what is moving humans is hidden from consciousness (Aarts & Custers, 2012). Recently, a body of research, for instance, is published on goal contagion. This research evidenced that people, without being aware, adopt goals that are prevalent in their social environment and that these subconscious goals guide action in the same way as consciously chosen goals would (for an overview see Eren, 2009). Goals adopted from the social context would certainly have to be categorized as extrinsic, and they appear to be intrinsic only as long as the actor does not realize their hidden existence.

Indeed, it is not difficult to bring up examples of cases in which people affectively are totally involved in an activity and only much later become aware of the 'separable consequences' that contributed significantly to their endeavor. Imagine, for instance, the anecdotal, but nevertheless true story of a shy young man, gifted with a talent for playing piano. There is no reason to doubt that he has been experiencing a lot of pleasure in his youth while playing beautiful pieces of music. Otherwise it would have been very difficult for him to persist in mastering complex techniques to become a proficient player. However, presumably equally valid is his personal conclusion as an adult that *in hindsight* he realized that his persistence partly stemmed from a desire to impress women with his fabulous play, such that eventually one of them would be enticed to swim in his arms. Equally easy to imagine are cases in which expected and intended profits contribute to positive feelings while acting. A classic example here is the share broker at the stock exchange. Financial profit is the separable consequence par excellence. Nonetheless, there is nothing that prevents a share broker from liking his job a lot and the activities it requires. From these two examples, we conclude about separable consequences that one may never fully know whether they play a role in motivation and that they do not by definition impair motivation.

In the second place it remains in the dark what "inherent satisfactions" might mean. The definition already uses a plural and indeed, taking a closer look at the origin of our pleasure in an activity quickly reveals that the inherent satisfactions of doing an activity are not necessarily a unitary construct. It is possible to like different aspects of, for instance, playing tennis. One may like the effort and exertion that tennis requires, or the feeling of placing the ball exactly at a particular spot on the court, or putting one's opponent on the wrong leg, or being part of a team, to name a few possibilities. And indeed, people apparently value (!) these different aspects differently. Therefore, what in self-determination theory passes for inherent satisfactions of doing an activity very well may be a composite of distinguishable elements. However, as soon as these different satisfying components are identified, they turn out to be extrinsic motivators, because now the activity appears to be done to acquire separable outcomes. And, as a result, intrinsic motivation vanishes out of sight. So it is unclear what it could mean that an activity is done for its own sake. To put it differently, the fact that an activity is satisfying necessarily implies the existence of a need and the satisfaction of that need is separable from the activity itself. Therefore, the hypothesized condition of pure inherent satisfactions is not possible and separable consequences presumably play always a role in motivation.

According to this line of argument, intrinsic motivation as defined by the self-determination theory is conceptually not maintainable, and in practice unworkable. It is impossible to determine in any concrete situation whether a condition of pure intrinsic motivation actually exists. And, indeed, when it comes to concrete investigations (e.g., Deci, Ehgrari, Patrick, & Leone, 1994; McAuley, Duncan, Tammen, 1989; Ryan, Koestner, & Deci, 1991), intrinsic motivation is simply operationalized as feelings of pleasure that come from acting, while the concomitant criterion of the absence of extrinsic motives is dropped. Obviously, this is not an argument to disregard intrinsic motivation. On the contrary, feelings of pleasure play a pivotal role in motivation. However, they are more adequately conceptualized just as feelings about doing an activity. These feelings simply coexist with thoughts about the values of outcomes of that activity. And feelings and thoughts are not necessarily opposed, though sometimes they are.

3.2. Evidence from neuroimaging research

A second and persuasive argument comes from neuroanatomical research. Already in the second half of the previous century, some evidence has been presented about separate brain structures for affect and cognition (Zajonc, 1984). Recent neuroimaging research convincingly supports the existence of two separate regulation systems. With respect to cognition, which in the context of this research is labeled “cognitive control”, Van Leijenhorst (2009, p. 10) refers to estimating the probability of positive and negative outcomes and weighing the potential benefit against negative consequences among others. According to this research, the most important brain structures for cognitive control appear to be cortical regions like the prefrontal and the parietal cortex. Affect, on the other hand, is associated with “reward” and “motivation systems” as they are labeled in neuroimaging research and these systems rely on subcortical (evolutionary older) regions of the brain, like the amygdala, the nucleus accumbens and the ventromedial prefrontal cortex. These descriptions are certainly too rough to do justice to the very complicated processes that take place in the brain (Reeve & Lee, 2012), but they strongly favor the hypothesis of interacting, but basically separate regulation systems. A corroboration of their independence is provided by research on risky behavior of adolescents. Among others, this research tries to explain why adolescents are easily lured into hazardous situations where they do not pay sufficient attention to (possibly detrimental) consequences. Initially, the protracted development during adolescence of the cognitive capacity to value consequences of activities in concertation with a heightened sensitivity toward rewards was held responsible for this (Van Leijenhorst, 2009). Accumulating evidence indicates, however, that an already existing capacity for cognitive control can be overridden by a heightened sensitivity to social and affective impulses (Crone & Dahl, 2012). For our argument it is relevant that either explanation almost by necessity implies separate and relatively independent regulation systems.

3.3. Empirical relation between affective and cognitive measures

Our final argument is also empirical. In all investigations that we know of, in which the expected profit of an activity is related to the pleasure of performing the activity, there is always a positive correlation between both factors (de Brabander & Martens, 2013; Eccles & Wigfield, 1995; Eklöf, 2006; Eklöf, 2007). Jacobs, Lanza, Osgood, Eccles, and Wigfield (2002) did not report correlations, but the high internal consistencies of the subjective task value scale in different domains and different data waves in their longitudinal study suggest strong positive associations between different components of subjective task values. Thus, Wigfield and Eccles (2000) were able to identify intrinsic value and utility value as different components which still both contribute to subjective task value. When empirically extrinsic and intrinsic motivation correlate substantially, it is difficult to stick to a conceptual opposition.

In self-determination theory, the remedy for this problem is to split the scale of extrinsic versus intrinsic motivation in two parts: controlled motivation, comprising external regulation and introjected regulation, and autonomous motivation, comprising intrinsic regulation and identified regulation, which is the ‘higher’ level of extrinsic motivation (Vansteenkiste, Sierens, Soenens, Luyckx, & Lens, 2009). According to this view, identified regulation implies that an activity has personal significance, which is why people experience a sense of psychological freedom while acting. However, identified regulation still is a suboptimal type of motivation, because only intrinsic motivation “is fully autonomous or self-determined” (Vansteenkiste et al., 2009, p. 672). We have no problem with all the beneficial effects of so-called autonomous motivation which the authors claim. However, their conceptual manipulations fail to address the distinction between different types of regulation fundamentally. The differences between them are simply blurred.

The research on the effects of extrinsic rewards on intrinsic motivation also provides empirical support for the independence of intrinsic and extrinsic motivations. If extrinsic versus intrinsic motivation is a one-dimensional contrast, we would expect more autonomous types of extrinsic motivation to have *less impeding* effects than more controlled types of extrinsic motivation. However, several meta-analyses show that verbal rewards (positive feedback) that are experienced as autonomy supportive can actually substantially *enhance* intrinsic motivation (Deci et al., 1999, 2001).

In a recent reformulation of self-determination theory (Deci & Ryan, 2012) the strict definition of intrinsic motivation appears to shift in the direction of the experience of being in control: “. . . inherent satisfactions (experienced directly as interest and enjoyment) derive primarily from experiences of competence and autonomy as well as, in some cases, from relatedness” (p. 88). However, extrinsic motivation is still defined in terms of separable consequences and the conceptual opposition between intrinsic and extrinsic motivation is maintained.

3.4. Affective and cognitive regulation systems

In conclusion, intrinsic and extrinsic motivation cannot be conceptualized as opposing endpoints on one single dimension. It is likely that each and every activity is accompanied by both a feeling about performing it and a valuation of its expected consequences. The person-object theory of interest (Krapp, 2002) already traced both aspects back to two basically independent systems of behavior regulation. We separate like Krapp the two aspects into two separate constructs. These could be labeled intrinsic and extrinsic motivation respectively. However, in order to avoid unwanted connotations and to be more precise, we will use the terms affective and cognitive valences. We define affective valences as positive feelings one expects to experience when performing an activity. Affective valences arise from an emotional behavior regulation system. They are produced in an automatic (unavoidable) and mechanical, that is unintentional, response to an action 'object' the person apperceives (Epstein, 1994). Any action that comes to mind immediately brings about feelings about that action. One may have neutral feelings about an activity, but one cannot have no feelings. The important characteristic of affective valences in our model is not that the action has no reasons or functions, but that its reasons or functions are not necessarily recognized consciously and are often not known or consciously present. Cognitive valences, on the other hand, imply an articulation and valuation of expected consequences of activities. Cognitive valences are explicit and brought about through active reflection by the prospective actor (Epstein, 1994). The quality of cognitive valences, of course, depends on the actor's anticipatory competence and his or her experience with a specific field of action. Affective and cognitive valences of a course of action are independent in principle, but because the two systems interact they will often correspond substantially. One can think of several reasons why this must be the case. In the first place, there is no reason why affective valences and cognitive valences should necessarily be incongruent and most of the time, what one likes or dislikes to do will also be profitable or unprofitable, respectively. In the second place, the need for closure and meaning can induce people to rationalize (the lack of) affective valences into (a lack of) cognitive valences. However, incongruities between affective and cognitive valences are equally possible. Every person knows of instances when actions may not be profitable or may even be harmful, but are still nevertheless very attractive. Conversely, any person who has experienced our educational system knows firsthand that some activities are utterly boring yet they promise benefits in great abundance.

Expectancy * value theories presume that affective and cognitive aspects of subjective value are variants of the same process, which simply add up to a total subjective value. Indeed, affective and cognitive valences eventually lead to a resultant value that is the immediate antecedent of readiness for action, but the examples provided above show that the resultant value is produced by at least two different processes and is therefore not a simple addition. The resultant value of high affective valence and low cognitive valence is different from the resultant value of low affective valence and high cognitive valence. Based on the primacy assumption of affect (Epstein, 1994; Zajonc, 1984) weak affective valences will presumably have a stronger (limiting) effect.

Thus, produced by separate but interacting behavior regulation systems, the specific configuration of affective and cognitive valences connected to a course of action produce a specific resultant value, which we label as the valence expectation of that course of action. Valence expectation is high when both affective valences and cognitive valences are strong, and low when both are weak. When the affective or the cognitive valences are weak, but the others are strong, then the valence expectation will be mitigated accordingly. Valence expectation corresponds roughly to the concept of attitude in the theory of planned behavior, subjective task value in expectancy * value theory of achievement motivation, outcome expectancy in social cognitive theory and to intrinsic and extrinsic motivation in self-determination theory. Flow theory has no corresponding concept. This is presumably because flow is not an expectation, but an actual state.

4. Task-specific immediate antecedents of valence expectations

All theories on task-specific motivation suggest one or more factors as the immediate task-specific antecedents of what in the previous section we have come to call valence expectations. These theories agree on one factor: expected success of performance on a specific task. In all theories expected competence in a certain course of action is basic to the valuation of its outcomes. Self-determination theory, followed by person-object theory of interest, offers a broader view by adding autonomy and relatedness as valence-determining factors. From the theory of planned behavior we adopted one other factor, namely subjective norm.

It is important here to note that we are restricting our discussion to the task-specific level. Vallerand (1997) proposed a hierarchical model of basic need satisfaction that distinguishes between three levels of generality: global, contextual, and situational. There is much to explore concerning the relations of competence, autonomy, and relatedness to motivation at the global and contextual levels, but that is outside the task-specific scope of this article. Thus, our focus here is on autonomy, competence, and relatedness at the situational level, that is, *with respect to a specific course of action*. At this level autonomy, competence, and relatedness are state-like constructs that, admittedly, receive input from superordinate, relatively more stable levels.

In the conceptualization of some of these factors we will propose to distinguish between conditions internal and conditions external to the prospective actor. In the next paragraphs we will discuss the task-specific aspects of competence, autonomy, relatedness, and subjective norm in succession.

4.1. Expected feasibility

There is a broad consensus about the role of competence. A prerequisite for motivated action is that people expect to complete the action successfully. However, instead of using the term ‘competence’, we would rather use the concept of ‘expected feasibility’, to express that this concept actually is a combination of two separate estimates. Naturally, one is inclined to think of the personal capacities that are required for the course of action in the first place. And most investigations exclusively take personal competence into consideration. However, expectations about the possibility of success are not only dependent on personal capacities, but also on the context. Are the circumstances favorable for a certain course of action or are there obstacles that block or hinder this course of action? The two estimates are very different and have different consequences, for instance, in terms of attribution. Perceived behavioral control in the theory of planned action (Ajzen, 1991) deals explicitly with all relevant factors and not only with personal capacities. In the context of education, de Brabander et al. (2009) argue for the necessity of separating perceived efficacy into personal efficacy and organizational efficacy. Personal efficacy matches with the usual question: does the person feel capable of successfully completing this activity. Organizational efficacy refers to the capacity of the organizational context to facilitate successful performance. Their investigation shows that organizational efficacy is distinct from personal efficacy. In an analysis of efficacy expectancies of primary teachers and principals, Imants and de Brabander (1996) showed that the distinction between personal and school efficacy sheds an interesting light on the position of male versus female teachers and of teachers versus principals with respect to instructional and school-related tasks. They found that for different types of tasks the proportional relation between both types of efficacy expectancies appeared very different in different groups. It is necessary, therefore, to define feasibility as a combination of two aspects. The first aspect is personal. This aspect involves the sense of personal competence. It describes the extent in which one estimates that one is capable of successfully performing an action scheme. The other aspect is contextual and is identified as perceived external support. This aspect includes the extent in which one expects the context to help facilitate the performance of an action scheme. Expected feasibility is the resultant of both estimates in which presumably the sense of personal competence is more important than the perceived external support.

4.2. Autonomy

Self-determination theory has shown that exercising autonomy with respect to a specific task enhances action motivation (Deci & Ryan, 2000, pp. 233–244). However, there is considerable confusion about the concept of autonomy. Here also, the distinction between person and context is helpful. It is remarkable that the majority of investigations deals at the operational level only with the contextual aspect and neglects the personal aspect. Although the concept of autonomy is often defined in personal terms, for instance, as the extent in which one experiences oneself as the origin of one's behavior, the measurement of autonomy is most of the time based on questions about the freedom one has to act as one desires. Such questions, however, do not refer to personal autonomy, but to the perception of the level of autonomy that is granted by the context. On another account, Reeve, Nix, and Hamm (2003, pp. 376–377) even distinguish between three aspects of the autonomy construct: locus of causality, volition, and perceived choice. The locus of causality can be internal or external and refers to the question of whether a person's behavior is experienced as initiated and regulated by a personal or environmental force. The second aspect is volition. Volition centers on how free or forced people feel when doing what they want to do. The third aspect is perceived choice, which refers to the subjectively perceived extent in which the environment allows the individual decision-making flexibility and opportunities to choose among options. The difference between locus of causality and volition is perhaps easiest to show in the case of addiction. The regulating force is internal for an addict, but certainly volition is not free. A series of investigations concerning the relation between these concepts and intrinsic motivation, as conceived and measured in the tradition of self-determination theory (Reeve et al., 2003), has shown that locus of causality and volition contributes to the personal aspect of autonomy, but that perceived choice does not. A preliminary test of our model in the context of professional development of teachers (de Brabander & Martens, 2013) showed that sense of freedom of action had only indirect effects on valence expectation.

However, the necessity of dividing autonomy into three aspects is questionable. In the structural equations models used to analyze the relations between their three aspects of autonomy, Reeve et al. (2003) employed a priori-measures as indicators of the three autonomy aspects. The question remains open as to whether a confirmatory factor analysis would have indeed confirmed these three factors. And if so, whether that might have been caused by distinctive item-formulations. And, concluding, it is possible that the concept of volition in its operationalized form was degraded into a hybrid concept, because of the use of elements both of locus of causality and of perceived choice in one item: “While. . ., I felt a relaxed sense of personal freedom”, “During. . ., I felt free” and “During. . ., I felt pressured”. Conceptually, the distinction between locus of causality and volition may be sustainable. It is possible, after all, to establish whether the force that initiates and regulates an activity is internal or external and to investigate in a second step whether this force can be diagnosed as pressure-free volition. However, whether this is practical is another matter. A more useful conceptualization of the personal aspect of autonomy is volition as such. The question is whether an activity is initiated and regulated by a force that represents the center of an individual's personality or any other external or *internal* force that the person feels subject to.

We restrict our concept of autonomy to two aspects. The first aspect is a sense of personal autonomy, which is defined as the extent in which one experiences oneself as the origin of choosing and performing an action scheme. The second aspect is the perceived freedom of action which refers to the extent in which one experiences the freedom to make decisions about

the selection and performance of an action scheme. The relation between both aspects is not the same as between a sense of personal competence and perceived external support, where both are necessary for a successful performance. Obviously, in a context where freedom of action is completely and always absent it would be difficult to develop self-responsible activities, but not impossible. Activities that are chosen and designed not by the actor, but by others in his or her context can nevertheless be performed in a self-responsible manner. Already in 1976, deCharms clarified this apparent contradiction by pointing out that “origins” and “pawns” do not in the first place have different amounts of constraints imposed on them, but rather handle these constraints differently. While “pawns” primarily complain about their impotence and feel condemned to slavish behavior, “origins” choose their personal goals and design a course of action to realize them through the requirements and restrictions they encounter. Admittedly, deCharms had stable characteristics in mind. However, his observation can easily be translated into a task-specific version: having no choice in a certain action situation does not by definition mean that the actor cannot experience self-responsibility in that situation.

Katz and Assor (2007) discuss the inconsistent findings concerning the benefits and drawbacks of providing choice on motivation. They refer to studies demonstrating positive and negative consequences of choice. They point out that a sense of autonomy and perceived choice are different constructs and tentatively conclude that “what students perceive as being highly valuable is probably not the mere act of choosing, but mostly the value of the options to the participants’ self and personal goals” (p. 432). It is not the freedom of action that is important as such, but the possibility it offers to select actions that have self-realizing and self-determining potential. For our theory, these arguments suggest that the influence of the perceived freedom of action on motivation is mediated by the sense of personal autonomy. The sense of freedom of action only enhances motivation to the extent it reinforces a sense of personal autonomy. Furthermore, not all forms of freedom of action appear to have a positive effect on the sense of personal autonomy, since freedom can also be too much.

4.3. Social factors

Other people who participate in the context of a specific course of action can and often will have motivating effects – but not always. This depends on the nature of the activity in question. For activities that are done in solitude and do not derive their significance from any relationship with other people, whether before or after performance, social factors have no immediate motivational relevance. Furthermore, the social context is often not task-specific. When the relations with other people do not vary enough over different tasks or activities, their influence actually becomes a rather stable characteristic of a certain context and loses consequently its task-specific character. However, in situations where others are involved in the performance of an activity, the relations with these specific people may become in fact important task-specific factors. Very often, however, the social context will be relatively stable.

The first social factor is relatedness. Relatedness refers to the bonds between people who participate in the context of a specific course of action. In principle, relatedness can also be divided into personal and contextual aspects. The personal aspect, the sense of personal relatedness, is the extent in which one personally feels connected to other people who participate in the context of an action scheme, while the contextual aspect of perceived relatedness would be the estimate of the measure of connectedness between the people who belong to the context of the action scheme. However, this distinction is very subtle and we do not know of any research that has taken this into consideration. For the time being, we do not recognize the relevance of this distinction to our object of task-specific motivation. Therefore, we ignore the contextual aspect and choose to focus only on sense of personal relatedness.

There exist in principle as many senses of personal relatedness as there are people in the action context. In general, however, the sense of personal relatedness is a variable on the group level. In the theory of planned behavior the measurement procedure would involve an aggregate based on the measurement of relatedness with different people moderated by their perceived importance. When the people populating the action scene are clearly classifiable in different categories, such as fellow teachers and students, then different categories of relatedness are relevant.

From the theory of planned behavior we adopt the construct of subjective norm as a second social factor that has an impact on motivation for a specific action. Subjective norm is defined as the tendency to abide by the approval or disapproval of significant others in the particular action context of a given behavior. Research on the theory of planned behavior has shown that subjective norm can have important motivational consequences (Armitage & Conner, 2001; Schepers & Wetzels, 2007). Evidently, subjective norm is related to relatedness. The tendency to abide by the approval of others will be dependent on the level of relatedness with these others.

5. Positive and negative valences; a fourfold classification

A non-controversial or at least less controversial distinction in motivation theory is that between approach and avoidance motivation (Elliot, 2006; Elliot & Church, 1997). This contrast actually refers to the possibility of valences being negative which has not explicitly been addressed by our argument so far. Negative valences call for refraining from an action in order to prevent their realization. In contrast, positive valences call for activities that promise to realize them. There are several arguments that support viewing the distinction between approach and avoidance motivation as a second dimension in the differentiation of valences, next to and independent of the distinction between affective versus cognitive valences. Approach and avoidance motivation are believed to be managed by “two partially distinct self-regulatory systems” (Carver,

2006, p. 105; cf. also Lang, Bradly, & Cuthbert, 1998). Carver also refers to the presumption, which first emerged in the 1940s and 1950s, that these systems are based on different structures in the nervous system. This is as yet the most popular hypothesis, even though it is still only partially supported by the literature (Elliot & Covington, 2001). Moreover, the effects of the two types of motivation are very different. Avoidance motivated action can maximally result in maintenance of the status quo and is generally stressful, whereas approach motivated action leads to enrichment and is generally pleasant (Carver, 2006). If the distinction between approach and avoidance motivation is combined with the proposed distinction between affective and cognitive valences, it allows for four relatively independent forms of behavior regulation. These four basically independent forms of behavior regulations include: approach motivation for positive affective valences and for positive cognitive valences and avoidance motivation for negative affective valences and for negative cognitive valences. This conceptualization implies that it is necessary to separate both affective valence and cognitive valence into two components: the level of positive valence and the level of negative valence. There is not a single dimension from positive to negative, but there are actually two dimensions. These two dimensions include the level of positive valence, from neutral to high, and level of negative valence, also from neutral to high, and these dimensions are relatively independent. Such a conceptualization is very much compatible with the notion of multiple consequences (including costs!) combining into the cognitive valence of an act or a course of action. And as noted above, affective valence presumably also has multiple aspects. Some aspects of an act may be pleasurable, while other aspects may be less pleasurable and even unpleasant (in varying degrees). This fourfold conceptualization thus promises to provide more and better possibilities for the explanation of complex motivational phenomena.

6. Outline of a Unified Model of Task-specific Motivation (UMTM)

We have collected and defined the elements above that make up our initial model of task-specific motivation. A depiction of the UMTM is presented in Fig. 2. We have discussed the relation between many of these elements already, but some of them have yet to be explicated. Motivation was defined as readiness for action. Readiness for action is a prerequisite for the implementation of, but by no means a sufficient condition for actual behavior. Obviously, there are still many more factors that determine actual behavior that we do not address here, because they are outside the scope of our argument.

6.1. Valence expectation

Readiness for action is in the first place influenced by valence expectation. A valence expectation is the outcome of the interaction between the positive and negative, affective and the cognitive valences of the intended action. This interaction is not a simple addition. How all these valences produce a valence expectation depends on how the intended course of action is defined, for instance, in terms of goals and concrete activities. A pleasurable activity, as a completely free option to choose, is already different from that same activity when accompanied with the promise of monetary reward if completed successfully, which is again very different from the very same activity when accompanied with the prospect of a penalty if not completed successfully. Therefore, we envisage valence expectation as the result of an intricate interplay of affective and cognitive, positive and negative motivators.

There is still one aspect of the conceptualization of cognitive valences that we did not address earlier. The distinction between person and context is also relevant for the conceptualization of cognitive valences (de Brabander et al., 2009). Naturally, when reflecting on profits and losses from action schemes, the first thought is on the actor personally. And personal consequences are presumably the most important determinants of motivation. However, this does not preclude people from considering outcomes for other people. Reflecting on possible courses of action, people do take into account non-personal results, results for their social support group, for the organization they work for, or even planet earth. Indeed, in many contexts, action schemes that people undertake are not primarily for their personal benefit, but for the benefit of other people. Teaching, for instance, is a pre-eminent example in this regard. It is to be expected that personal profit and non-personal outcomes are to some extent related. Sometimes non-personal profit can be conceived as well understood personal interest. In other cases non-personal benefits might actually be rationalized masquerades of personal needs that the person may very well be unaware of. And sometimes, they may be only facades the person puts forward to consciously hide his or her socially less acceptable objectives. Related as they are, however, personal cognitive valence and non-personal cognitive valence are theoretically distinct categories. In what ways they are related is a matter for further research. Personal cognitive valence is the value a person expects to acquire for him/herself from the performance of an action scheme, while non-personal cognitive valence is the value for other people or entities beside the person that is expected from performing the action scheme. Non-personal cognitive valence again is an umbrella concept. It may encompass different types depending on who or what is the recipient of the expected value.

It may not go without notice that the distinction person-context is not relevant for affective valence. One can only experience one's own feelings. Evidently, feelings can be induced by external sources, but by definition they are one's own: one cannot have non-personal or contextual feelings in addition to one's own feelings. Furthermore, if feelings of other persons are taken into account, that is, if a person thinks that the intended activity might be pleasurable or not pleasurable for somebody else, then this is a cognition that must be characterized as a cognized consequence, which, therefore, is part of the non-personal cognitive valence of that activity. If, on the other hand, one likes or dislikes very much to do something together

with somebody else, this anticipation is part of affective valence, because that other person becomes part of the activity. In conclusion, affective valence has no contextual aspect.

There are many aspects of valences that need to be further explored. Neither affective valences, nor cognitive valences are necessarily a unitary construct. Action schemes are multifaceted. They contain certain activities, but also goals. The same activity can serve different goals for different persons or for the same person at different times. A cyclist can, for instance, ride around the mountains during his whole vacation to enjoy sweeping panoramic vistas or to merely test his athletic prowess. Vansteenkiste, Simons, Lens, et al. (2004) convincingly show that, when framing students with different types of goals for a study course on recycling, the quality of the goals does affect the resulting motivation. When goals of the course were framed in terms of a contribution to one's community alone, then student motivation for recycling increased more than when they were framed in terms of monetary benefit or in terms of both types of goals. There is also ample evidence for the fact that the promise of unrelated rewards to be earned by performing an otherwise interesting activity actually diminishes ('intrinsic') motivation (Deci et al., 2001). Such findings can be explained very well within the framework of positive and negative, affective and cognitive valences as the result of relatively independent regulation systems. They make it perfectly clear that combinations of different types of goals can have different effects on valence expectation. Thus, positive and negative, affective and cognitive valences are indeed very broad categories that can accommodate many more distinctions. From achievement goal theory we adopted the approach-avoidance dimension as a defining construct. The second dimension, types of goals, whether based on a threefold (Elliot, Muruyama, & Pekrun, 2011) or a twofold (Cury, Elliot, Da Fonseca, & Moller, 2006) categorization, offers information that is relevant for motivation, but does not require new constructs: types of goals are incorporated into the model because they appear as positive or negative valences. The same applies to distinctions based on causal attribution theory (Weiner, 2010) or 'implicit theories theory' (Dweck et al., 1995). An 'entity' or 'incremental' view, for instance, leads to different interpretations of actions, but these interpretations appear as different valences and require no fundamentally new constructs.

6.2. Immediate task-specific antecedents

The theory of planned behavior would hypothesize that the readiness for action is directly determined not only by valence expectation, but also by the expected feasibility and subjective norm. According to self-determination theory, however, the influence of competence is mediated by the level of (intrinsic) motivation. In other words, and translated into the UMTM, the self-determination theory would hold that the expected feasibility contributes to the readiness for action to the extent that it contributes to the valence expectation, while the theory of planned action maintains that the expected feasibility directly adds to the readiness for action. The same type of relations might be formulated with respect to subjective norm. The question is whether the willingness to abide by the norms of other people that are important in the context of the intended course of action adds directly to the readiness for action or indirectly, because, for instance, it strengthens the expected value of outcomes. We think that the mediated effect of both variables is the more likely case. However, for the time being, we incorporate both paths of influence into our model.

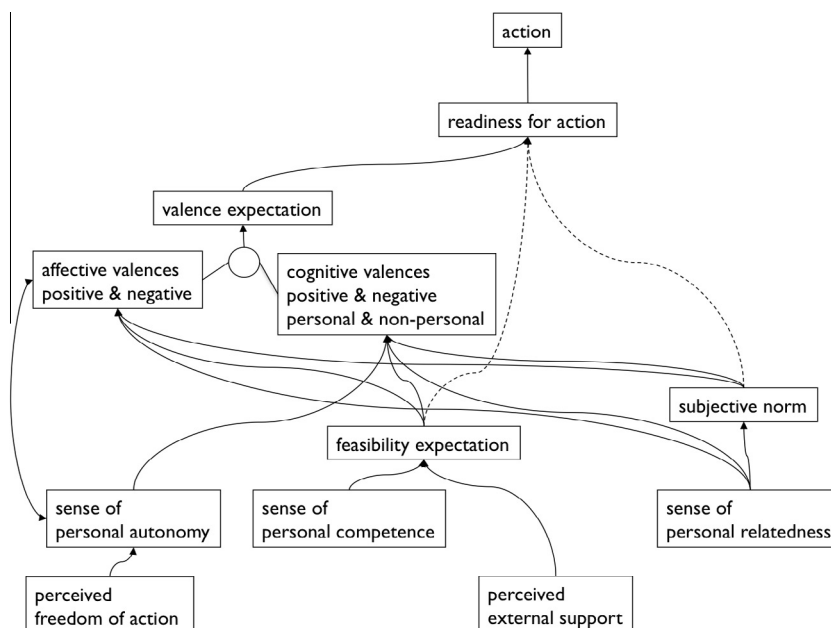


Fig. 2. Outline of a Unified Model of Task-specific Motivation (UMTM).

The theory of planned behavior would suggest that the expected feasibility influences actual behavior. This may or may not be the case, but we leave what happens after the decision to act has been taken, to the further development of our model, as it exceeds the present scope of the enterprise in this article.

Furthermore, we theorize that need-related aspects in the model affect not only affective valences, but also cognitive valences. We address some peculiarities of these influence paths rather speculatively. As noted before, we surmise that the sense of freedom of action is relevant to the extent that it supports the sense of personal autonomy. From early empirical data of yet unpublished research, we speculate that the sense of personal autonomy and the affective valence are reciprocally related. If I experience myself as the origin of my actions, it is very likely that I also experience pleasure while I am performing the activity, and the other way around, if I experience pleasure while performing an activity, it is very likely that I feel personally responsible. In concrete situations, one's sense of personal autonomy and the affective valence act like communicating vessels. This view is compatible with recent developments in the conceptualization of intrinsic motivation in self-determination theory referred to above (Deci & Ryan, 2012). Apart from feedback effects from actual performance, there is presumably no such reciprocal relation between the sense of personal autonomy and cognitive valences.

Expected feasibility is conceived as the result of two factors: the sense of personal competence and the sense of external support. Presumably, one's sense of personal competence will prove to be the most important determinant. This hypothesis has been confirmed in the first empirical test of the UMTM (de Brabander & Martens, 2013). Expected feasibility influences both affective valences and cognitive valences. Therefore, whether brought about by personal competence or by external support, better performance expectations will lead to higher pleasure expectations and better profit expectations. The same relations apply to a sense of personal relatedness. Closer bonds with people that participate in the context of a specific course of action, will make performing the activity more pleasurable, but also more profitable.

The possible complexities and intricacies of the process of developing a feasibility expectation are well illustrated by research on positive and negative effects due to stereotypes. Fear of confirming a negative ingroup stereotype (stereotype threat), which is a negative stereotype about the group one belongs to, has a negative effect on performance. A positive ingroup stereotype (stereotype susceptibility) and a negative outgroup stereotype (stereotype lift) on the other hand enhance performance (e.g., Moè & Pazzaglia, 2006; Steele & Aronson, 1995; Walton & Cohen, 2003). Stereotyped performance effects are assumed to be mediated among others by feasibility expectations, such as performance expectancy (Maas & Cadinu, 2003; Moè, Meneghetti, & Cadinu, 2009), self-efficacy (Walton & Cohen, 2003), and beliefs about the difficulty of the task at hand (Moè, 2009). The processes that underlie stereotype effects are far from fully understood (Smith, 2004). For instance, not everyone is equally susceptible (Maas & Cadinu, 2003). Also the possible role of goal orientations needs to be clarified (Smith, 2004). However, this research demonstrates that a feasibility expectation is not created through a simple estimate. In view of our unified model it is important to note that stereotype effects involve the introduction of positive or negative valences that may be absent when stereotype effects are not activated. Activation of a stereotype threat, for instance, introduces loss of face as a possible outcome of an activity.

7. Concluding remarks

Human motivation is complex. To date, the vast proliferation of theories of motivation, is hampering progress in theory formation. The Unified Model of Task-specific Motivation developed in this article presents a rough outline and provides no more than the principal factors that have proven to be relevant for motivated choice and performance of activities. There is much left that still requires further investigation. Evidently, the first issue in future research will be the relative independence of the four types of valences. Research on the effects of extrinsic rewards on intrinsic motivation already suggests that affective and cognitive valences reinforce each other if the reward is autonomy supportive (positive feedback) and that they counteract each other if the reward has a controlling character (tangible rewards). Research on reward effects has produced more relevant distinctions in types of tangible rewards: for instance, between task non-contingent, engagement contingent, completion contingent and performance contingent rewards (Deci et al., 2001). Much has yet to be discovered about other kinds of valences, especially negative valences. Martens, de Brabander, Rozendaal, Boekaerts, and van der Leeden (2010), for instance, found that verbal feedback could not be conceived as a single dimension running from positive through neutral to negative: multilevel analysis showed that students feeling relatively more autonomous, whether as individuals or as members of a cooperative group, showed higher interest scores, *both* after receiving positive feedback *and* after receiving negative feedback as compared with neutral feedback. Apparently, these students perceived negative feedback in the first place as informational. A special role in future research on the relation between different types of valences is reserved for a combination of behavioral and neurological research. A recent attempt in the tradition of research on the effect of tangible rewards on intrinsic motivation showed that the expected decrease of intrinsic motivation also surfaced in distinctive patterns of brain stimulation (Murayama, Matsumoto, Izuma, Matsumoto, 2010, p. 20,914): "Our findings clearly indicate that value-driven and cognitive processes are involved in the undermining effect, and they are linked". And to explain the undermining effect, these authors call for more research into the hypothesized function of a brain structure called the striatum, namely that of aligning incommensurable subjective values on a unidimensional common scale. Though definite conclusions are not warranted yet, these statements are very much compatible with the conceptualization of different valences being combined into a single level of expected valence in the UMTM.

A second area that needs to be addressed both theoretically and empirically is the concept of action. Any activity indeed is a complex. A description of an activity refers to what is being done. However, what is being done derives its meaning from at least one proximal goal. Reading a book allows a person to build a representation of a story. Furthermore, activities are, hierarchically organized (Miller, Galanter, & Pribram, 1960). Any action can be disassembled into smaller parts and also fits into a larger whole. Building a representation of a story involves, for instance, grasping the meaning of sentences and forming relationships between them. And in a wider sense, getting to know this particular story could serve a person's wish to become educated. And to complicate matters even more, it is not rare for an activity to have multiple goals, and for a goal to have multiple means of attainment, as Shah and Kruglanski (2000) convincingly argue in the context of intrinsic motivation. Reading a book is not only educating, but also helps to relax, and both of these ends could also be served by viewing a film.

Although self-determination theory maintains that the satisfaction of the basic needs of autonomy, competence, and relatedness facilitates intrinsic motivation (Deci & Ryan, 2000), the concept of autonomy plays a pivotal role (Ryan et al., 1997). At least in The Netherlands, this emphasis has been very influential in attempts at education innovation. Schools that pursue 'the new learning' share the view that children have an inherent tendency to learn: "a natural wellspring of learning and achievement that can be systematically catalyzed or undermined by parent and teacher practices" (Ryan & Deci, 2000b, p. 55). This view easily leads to the belief that children simply need to be given the opportunity to shape their development based on their own needs. The person-object theory of interest makes clear that the roots of a learning need are not purely internal by stressing that an interest originates from the interaction between a person and the environment (Krapp, 2002, 2005): without an environment, there will be no interest. This interaction between person and environment is at the heart of our Unified Model of Task-specific Motivation. One of its implications could be a restoration of the importance of relatedness, though not at the expense of autonomy i.e. without returning to the use of pure compulsive measures and directives and to strict hierarchical student–teacher relations.

The central emphasis on autonomy may very well have been inspired by the individualization tendencies in modern western societies since World War II (Beck & Beck-Gernsheim, 2002). At the same time, however, self-determination theory tended to underplay the importance of the social functions that the educational system fulfills in modern western societies. One of these functions is to allocate people to different positions in an inherently stratified society (Bourdieu & Passeron, 1970/1990; Collins, 2009). The power differences that accompany this stratification pose boundaries to people's autonomy. And these boundaries are narrower for some than for others (Bowles & Gintis, 1976; Willis, 1978). The individualization tendency referred to above may have a mitigating effect, but will not abolish the hierarchical nature of society (Saunders, 1990; Tumin, 1985). We may therefore conclude, that there is room for more autonomy in education than in previous centuries, but an educational system exclusively based on autonomy is illusory. Acknowledging that the important role of 'proximal' and 'distal' social contexts has gained a stronger foothold in recent formulations of the self-determination theory (Deci & Ryan, 2012) is only fair and opens the door to further development.

Though our model is just a rough outline of the principal factors that play a role in the buildup of task-specific motivation, it may provide a genuine integration of various theories. By characterizing positive and negative, affective and cognitive valences as evolving from different and separate processes, the UMTM has the potential to accommodate both the effects of different and often contradictory types of motives and the additive effects in situations where affective and cognitive valences, whether positive or negative, reinforce each other. All of these phenomena have in the past attained substantial empirical support, but were never integrated.

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