Chapter 9: Autotelic Personality

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Abstract

This chapter reflects the search for more stable causes of flow experiences such as "flow personality" or "autotelic personality". Although flow research is primarily concerned with flow as a motivational state, Csikszentmihalyi has introduced the concept of an autotelic personality, that is, a disposition to actively seek challenges and flow experiences. This chapter starts with an overview of Csikszentmihalyi's conceptual ideas and phenomenological descriptions of autotelic personalities. Unfortunately, the rich concept was not complemented by an adequate operationalization. The chapter continues with a review of personality dispositions which can be conceived of as boundary conditions for flow experience. They reflect differences either in the *need* (achievement motive) or in the *ability* (self-regulation) to experience flow. The concept of an autotelic personality should encompass both aspects simultaneously. Next, the achievement flow motive (*n*AchFlow) is introduced which integrates need and ability aspects. As such, *n*AchFlow will be proposed as a way to operationalize an autotelic personality. Finally, the chapter offers a functional analysis of flow in achievement contexts within the framework of personality systems interaction (PSI) theory and gives an outlook.

9.1 Csikszentmihalyi's Concept of an Autotelic Personality

9.1.1 General idea

Flow is a state of intrinsic motivation in which a person is fully immersed in what he or she is doing for the sake of the activity itself (Csikszentmihalyi, 1975/2000, 1990). It is characterized by a merging of action and awareness, sense of control, high concentration, loss of self-consciousness, and transformation of time (Csikszentmihalyi, 1975/2000, 1990; Csikszentmihalyi & Larson, 1987; Csikszentmihalyi & LeFevre, 1989; Nakamura & Csikszentmihalyi, 2002). Although flow research has so far been primarily concerned with flow as a motivational state, Csikszentmihalyi and colleagues also suggested the idea of an au-

totelic personality: Autotelic personalities tend to position themselves in situations which enable frequent experiences of flow states (Csikszentmihalyi, Rathunde, & Whalen, 1993; Nakamura & Csikszentmihalyi, 2002). They have a greater capacity to initiate, sustain, and enjoy such optimal experiences.

Box 9.1

Csikszentmihalyi's Definition of an Autotelic Personality

"'Autotelic' is a word composed of two Greek roots: *auto* (self), and *telos* (goal). An autotelic activity is one we do for its own sake because to experience it is the main goal. [ ] Applied to personality, autotelic denotes an individual who generally does things for their own sake, rather than in order to achieve some later external goal" (Csikszentmihalyi, 1997, p. 117).

"The mark of the autotelic personality is the ability to manage a rewarding balance between the 'play' of challenge finding and the 'work' of skill building" (Csikszentmihalyi et al., 1993, p. 80).

Csikszentmihalyi's concept of an autotelic personality is derived from his flow model. According to his original model (Csikszentmihalyi, 1975/2000), flow is experienced when an actor perceives a balance between the challenge of an activity and his or her own skills. In the revised model, Csikszentmihalyi and Csikszentmihalyi (1988) proposed that flow is experienced when both, challenges and skills, are high. Most flow research to date has started from these assumptions and operationally defined flow as experiences of balance (or high/high combinations; cf. Chapter 2). Only recently have researchers begun to measure and experimentally manipulate challenges and skills separately and to test their relation to flow experience (Engeser & Rheinberg, 2008; Rheinberg, Vollmeyer & Engeser, 2003; Keller & Bless, 2008; Keller & Blomann, 2008; cf. Chapter 3). Csikszentmihalyi's definition of an autotelic personality was guided by the same balance assumption: Autotelic personalities have a greater ability to manage the intricate balance between the play of challenge finding and the work of skill building (see box 9.1; Csikszentmihalyi et al., 1993).

According to Csikszentmihalyi, challenge finding and skill building are supported by different, sometimes even opposing traits or processes which are simultaneously present in autotelic personalities: pure curiosity and the need to achieve; enjoyment and persistence; openness to novelty and narrow concentration; integration and differentiation; independence and cooperation (Csikszentmihalyi et al., 1993; Nakamura & Csikszentmihalyi, 2002). For example, the pleasure and fun associated with flow may be highly desirable. Nevertheless, flow activities also require concentration and a willingness to learn about the limits of one's skills. Where non-autotelic individuals may see only difficulty, the deep sense of interest aids autotelic individuals to recognize opportunities to build their skills. They

open their attention to new information (the play of challenge finding) and focus it on those units of information just far enough ahead of current skills to be manageable (the work of skill building).

The autotelic personality is a conjunction of receptive (e.g., openness) and active qualities (e.g., engagement and persistence). The openness to detect and become interested in new challenges is receptive yet not entirely passive. It also involves active engagement and persistence in highly challenging activities. However, the engagement is not a mean to a specific goal. Csikszentmihalyi (1997) summarized these qualities as a capacity for "*disinterested interest*". The term "disinterested" emphasizes a focus on task-inherent as opposed to purpose-related incentives as well as an orientation towards mastery as opposed to performance. Nakamura and Csikszentmihalyi (2002) describe similar core characteristics of autotelic personalities (i.e., curiosity and interest in life, persistence, and low self-centeredness) as metaskills. However, the relationship of such skills or traits with the frequency or intensity of flow experiences has rarely been tested.

Csikszentmihalyi et al. (1993) proposed that these complementary (receptive and active) qualities in tandem produce a powerful autotelic combination. The simultaneous presence of complementary or even opposing traits fosters a dynamic, dialectical tension which is conducive to "optimal" personality development and the evolvement of complex individuals. Therefore, autotelic individuals should have a clear advantage in realizing the development of their talents to the fullest extent (Csikszentmihalyi, 1996; Csikszentmihalyi et al., 1993). The dialectical principal and the complexity inherent in autotelic experiences are often not only stimulated through the traits of a person but also through the environment: Autotelic personalities tend to have family and school environments which simultaneously provide challenge and support, independence and cooperation, flexibility and cohesion, integration and differentiation.

9.1.2 Measurement

Whereas the description of autotelic personalities and their developmental contexts is very rich and integrates general principles of self-growth from different theories, the operationalization of the construct is rather poor. There are two different approaches towards measurement. In the first approach, autotelic personalities are identified through frequency and intensity of characteristic experiences. Csikszentmihalyi (1997) assessed the frequency of high-demand, high-skill situations over longer periods of paging with the Experience Sampling Method - a technique developed for the purpose of obtaining self-reports of thoughts and feelings at random intervals during ongoing activities (cf. Chapter 2). Individuals whose frequency of high-demand, high-skill experiences is in the upper quartile of the distribution (autotelic) are compared to those in the lower quartile (non-autotelic) in other outcomes of experience and behavior (Csikszentmihalyi, 1997). Findings indicate, for example, that autotelic individuals are not necessarily hap-

pier, but more often involved in complex activities which, in turn, make them feel better about themselves and increases their self-esteem (cf. Csikszentmihalyi, 1997). This measure of autotelic personality is problematic because high-demand, high-skill situations do not necessarily elicit flow (e.g., Engeser & Rheinberg, 2008).

Additionally, Csikszentmihalyi and colleagues developed a flow questionnaire that assesses the frequency (0 = *'not at all'*, and 1 = *'few times a year'* to 7 = *'few times a day'*) of three flow characteristics (Asakawa, 2010; Csikszentmihalyi 1975/2000, 1982; Csikszentmihalyi et al., 1993; cf. Chapter 2). More recently, Jackson and colleagues (Jackson & Eklund, 2002; Jackson, Martin, & Eklund, 2008) developed a dispositional flow scale which assesses the frequency with which individuals experience the full range of typical flow characteristics (loss of self-consciousness, transformation of time, sense of control, concentration on a task, etc.) within specified activities in general (cf. Chapter 2). The scale is not only validated in physical activity settings but also in other performance-related domains as well (Jackson & Eklung, 2004; Wang, Liu, & Khoo, 2009). Nevertheless, mere frequency (as well as intensity) measures do not contribute to an understanding of the underlying causes of flow experience as has been the case for the conceptionalizations above.

In the second approach, autotelic personalities are determined through their expected outcome of full talent development. Csikszentmihalyi et al. (1993), for example, derived autotelic personality patterns from traits that distinguish talented from average individuals: Autotelic (i.e., talented) personalities have traits conducive to concentration (e.g., achievement, endurance) as well as openness to experience (e.g., sentience, understanding). The traits were assessed with the Personality Research Form (PRF; Jackson, 1984). However, little is known about the role of such personality factors with respect to flow experience. More importantly, the measure is confounded with the outcome (i.e., talent development) which it was originally designed to explain (Csikszentmihalyi et al., 1993).

Taken together, the search for stable causes behind flow experience is appealing and has interested flow researchers from early on. However, the concept of an autotelic personality is awaiting a clear operationalization that is not confounded with its to-be-explained outcomes. Before offering such an operationalization, the existing literature on the relationships between personality traits and flow experience is reviewed in more detail. This review is designed to provide more insights into functional underpinnings of a flow personality.

9.2 Personality Traits as Boundary Conditions of Flow

By introducing the concept of an autotelic personality, flow theory has acknowledged that some people are more likely to experience flow than others (Csikszentmihalyi, 1975/2000, 1990). Nevertheless, flow researchers have only recently begun to empirically test the relationship between personality traits and

flow experience. The recent findings clearly support the assumption that flow experiences are systematically related to individual differences, for example, in the achievement motive (Eisenberger, Jones, Stinglhamber, Shanock, & Randall, 2005; Engeser & Rheinberg, 2008; Schüler, 2007) and in self-regulatory competencies (Keller & Bless, 2008; Keller & Blomann, 2008).

9.2.1 Achievement motive

Among the many traits proposed to be conducive to autotelic experiences, the achievement motive is a strong candidate for several reasons. First, Moneta and Csikszentmihalyi (1996) proposed that "the flow model may be more applicable to social contexts and activities where achievement plays a dominant role" (p. 393). Second, a consistent finding in motivation research is that the achievement motive moderates whether people perceive a challenge-skill balance (i.e., medium task difficulty) as positive or negative. According to Atkinsons's (1957) risk-taking model, only individuals high in hope for success prefer medium task difficulty (balance) whereas individuals high in fear of failure even try to avoid such balanced situations. The moderating role of the achievement motive has been empirically supported by findings from Eisenberger et al. (2005), Engeser and Rheinberg (2008) as well as Schüler (2007): Individuals high in hope for success and low in fear of failure do not only experience more flow, they especially experience more flow when they perceive a challenge-skill balance (medium task difficulty).

The findings support the assumption that a high need for achievement (*n*Ach) in its hope of success component is an important prerequisite for flow. In the studies cited above, hope for success was assessed with projective or semi-projective motive measures which tap into implicit (operant) motives. In contrast, questionnaire measures of achievement assess explicit goals orientations or self-attributed needs for achievement (*san*Ach). Congruence between these two distinct systems has been associated with self-determination and well-being (Brunstein, Schulheiss, & Grässmann, 1998; Thrash & Elliot, 2002) whereas incongruence has been identified as a hidden stressor associated with volitional depletion and psychosomatic symptoms (Baumann, Kaschel, & Kuhl, 2005; Kehr, 2004). Recent findings show that incongruence also has a negative impact on flow experience (Rheinberg, 2008), especially when the potential conflict between *n*Ach and *san*Ach is aroused by achievement incentives (Schüler, 2010). Taken together, the findings suggest that flow experience does not only depend on a strong need for achievement but also on its approach-oriented and self-determined implementation.

9.2.2 Self-regulation

The important role of self-regulation in flow can not only be indirectly inferred from goal-motive congruence. In studies by Keller and Bless (2008) as well as

Keller and Blomann (2008) the role of self-regulation has been directly tested by assessing individual differences in self-regulation competencies such as action orientation (Kuhl, 1994) and internal locus of control (Rotter, 1966).

The volatility-persistence component of action orientation reflects the ability to stay immersed in an ongoing activity (Kuhl, 1994). Whereas state-oriented individuals get quickly tired of interesting activities, take breaks or work on other things in between (volatility), action-oriented individuals get fully immersed into interesting activities and persist for a long time with high concentration (persistence). Keller and Bless (2008) found this disposition to moderate the impact of challenge-skill balance on flow experience: Action- compared to state-oriented participants experienced significantly more flow when the task difficulty was dynamically adjusted to participants' skill levels. This finding is especially noteworthy because challenges and skills were equally matched for state- and action-oriented participants and therefore skill levels per se could not explain the differences. Nevertheless, only action-oriented participants showed increased flow experience under balanced compared to unbalanced conditions.

Similar findings were observed for an internal locus of control (Keller & Blomann, 2008). Individuals with an internal locus of control believe that outcomes are generally contingent upon the work and effort put into them and not so much on powerful others or chance (Lefcourt, 1991; Levenson, 1981; Rotter, 1966). Internal locus of control moderated the impact of a dynamically adjusted challenge-skill balance on flow experience (Keller & Blomann, 2008): Only individuals high in internal locus of control experienced higher flow under balanced compared to unbalanced task conditions (i.e., boredom or overload). In contrast, individuals low in internal locus of control had low levels of flow across all conditions. The findings confirm the assumption that flow does not arise for everybody as a result of optimal task conditions. Conceivably, it requires self-regulatory abilities to detect and utilize optimal task conditions even when they are externally provided. In flow theory, skills have been typically described as person factors and challenges as environmental factors. However, the findings by Keller and colleagues suggest that the perception and regulation of task demands may be a person factor as well.

To summarize, the self-regulation findings suggest that autotelic personalities have a high ability to detect and utilize a challenge-skill balance when they encounter it (i.e., *ability* for flow). This is a necessary but not a sufficient prerequisite for frequent and intense flow experiences. In addition, the achievement motive findings suggest that autotelic personalities also have a strong motivation to actively seek and produce flow experiences (i.e., *need* for flow). Thus, a measure of an autotelic personality should integrate both, need and ability aspects: the need to seek difficulty (challenge) and the ability to master it.

9.3 The Achievement Flow Motive Behind Flow Experience

Baumann and Scheffer (2010) proposed a stable motive disposition behind frequent and intense flow experiences in achievement contexts: the *achievement flow motive* (*n*AchFlow). It is the amalgam of the aroused need to master challenging tasks (seeking or seeing difficulty) and its mastery-approach implementation (mastering difficulty). The latter part of the definition reminds of Elliot's 2 x 2 conceptual framework of goal striving which combines mastery versus performance goals with approach versus avoidance orientations (Elliot & McGregor, 2001). In contrast to Elliot, however, *n*AchFlow is not directly assessed via self-report but with operant measures which are based on apperception.

The general idea is that in the process of apperception (e.g., when inventing stories to ambiguous pictures) people do not only give need-related interpretations of perceptual input which can be coded as need content (affiliation, achievement, power). In addition, they provide implementation-related information on how they satisfy their needs (e.g., mastery-approach oriented in case of flow). The implementation component can be inferred from the mood of the protagonist and affective tone of the story. The assumption is based on research indicating that moods and affective processes are critical indicators for enactment-related determinants like mastery-approach or -avoidance, especially with regard to behavioral facilitation or inhibition (Baumann & Kuhl, 2002; Gray, 1987; Kazén & Kuhl, 2005; Kuhl, 2000; Kuhl & Kazén, 1999). As such, *n*AchFlow allows to operationalize the autotelic personality because it integrates ability and need aspects of flow.

*N*AchFlow is conceived of as the intrinsic component of the achievement motive. The core aspect of the general achievement motive is to deal actively with an internal or external standard of excellence by changing an object towards a quality standard, improving it with respect to certain criteria, learning something or meeting a requirement (Kuhl & Scheffer, 1999; McClelland, Atkinson, Clark, & Lowell, 1953). The intrinsic component of the achievement motive is characterized by mastery- and approach-oriented strivings to meet internal standards of excellence (i.e., difficulty). These strivings are experienced as curiosity and interest in learning something.

9.3.1 Measurement

*N*AchFlow can be assessed with the Operant Motive Test (OMT; Kuhl & Scheffer, 1999; Kuhl, Scheffer, & Eichstaedt, 2003) which is a refined version of projective techniques like the Thematic Apperception Test (TAT; Murray, 1943; cf. Schultheiss & Brunstein, 2010) and other picture story exercises. Participants are asked to write stories in response to ambiguous pictures which are coded for need- and implementation-related information. Sample pictures are presented in Figure 9.1 and samples responses for coding *n*AchFlow are given in Box 9.2.

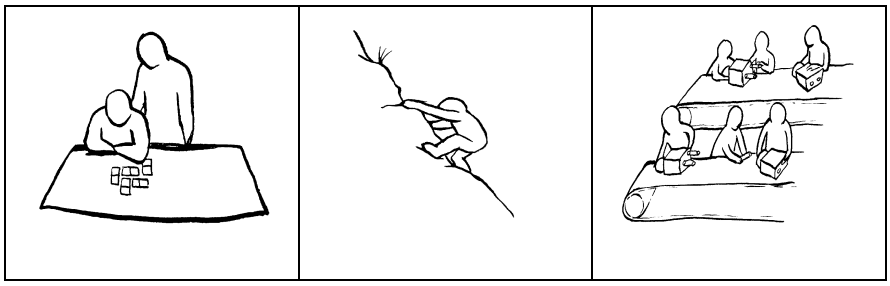

Figure 9.1. Three samples pictures of the Operant Motive Test (OMT).

The OMT differentiates four hope components (approach behaviors) for each motive on the basis of crossing two affective sources of motivation (positive vs. negative) with self-determined versus incentive-focused forms of motivation (see Table 9.1). For the achievement motive, the two components driven by positive affect/approach motivation can be described as self-determined *(1) flow* (*n*AchFlow) and incentive-focused *(2) standards of excellence*. The two components driven by negative affect/avoidance motivation are self-determined *(3) coping with failure* and incentive-focused *(4) pressure to achieve*. For example, a story in which the protagonist feels relief after success indicates latent negative affect as a source of motivation for approach behavior (i.e., active avoidance). In contrast, positive affective as source of motivation would trigger feelings of pride instead of relief (see Box 9.3 for further details of the coding procedure). For the assessment of *n*AchFlow, only flow (component 1) is relevant.

Table 9.1. Four hope components of the achievement motive in the OMT

	Affective Source of Motivation	
	Positive Affect	Negative Affect
Self-determined	**(1) Flow** – being immersed in a task – interest, curiosity, fun – learning something new	**(3) Coping with Failure** – perception of threat associated with active coping – learning from failure – disengagement
Incentive-focused	**(2) Standards of Excellence** – inner standards – doing something well – being proud	**(4) Pressure to Achieve** – social standards – being the best – relief after success – meeting requirements

Box 9.2

The Operant Motive Test (OMT): A Measure of Autotelic Personality

In the OMT, participants are presented with 15 pictures like the ones depicted in Figure 9.1. Participants are asked to choose a main character, invent a story and give their spontaneous associations to the following four questions:

(1) What is important for the person in this situation and what is the person doing?
(2) How does the person feel?
(3) Why does the person feel this way?
(4) How does the story end?

The first question is likely to elicit need descriptors (i.e., affiliation, achievement, power). The second and third questions are likely to elicit implementation descriptors (e.g., mastery-approach, positive affect). The fourth question is often not considered for coding the OMT because it elicits happy endings out of the blue. Only if responses are coherently connected to and an integral part of the whole story, they can be used to define the implementation strategy. Typical answers for coding the achievement flow motive are:

Left picture in Figure 9.1 (sitting person):
(1) The fun of the game. The person is concentrated on the puzzle
(2) Concentrated, elated
(3) The person likes to solve difficult puzzles
(4) The puzzle is solved

Middle picture in Figure 9.1:
(1) High concentration is important. The person is totally involved in climbing the steep mountain and focuses on holds
(2) Invigorated, focused, and happy
(3) Because the person is confident to master this challenge
(4) The person reaches the top

Right picture in Figure 9.1 (person in the upper right):
(1) Learning how to assemble the box; she is trying to do it on her own
(2) Curious, absorbed in her work
(3) The person wants to know what the thing is when assembled
(4) She assembles it on her own and finds out it's a jack-in-the-box

Only if participants show both types of answers, that is, indicate a need to get involved in challenging tasks and an implementation sequence characterized by positive affective and self-determination (i.e., mastery-approach), the score on achievement flow motive is given.

In addition to achievement, the OMT differentiates four hope components for affiliation (*intimacy; sociability; coping with rejection; affiliation/familiarity*) and power (*guidance; status; self-assertion; direction/inhibited power*). Although the intrinsic components of affiliation (*intimacy*) and power (*guidance*) may indicate tendencies to seek and experience flow in social domains, they have different functional underpinnings compared to flow in the achievement domain (e.g., less difficulty orientation). This assumption will be elaborated in the final section of this chapter.

Finally, there is a classical fear component indicating a passive instead of an active avoidance for each motive (*fear of failure; dependence; subordination/powerlessness*).

Box 9.3

The Four Steps of the OMT Coding Procedure

(1) The OMT coding procedure starts by checking whether one of the three basic motives is present. If no need becomes obvious in the picture story, a "zero" is coded.

(2) If a motive is present, the coding procedure continues by checking whether approach behavior (hope) or avoidance behavior (fear/passive avoidance) is present (components 1–4 vs. 5, respectively). Passive avoidance can be inferred from explicitly reported negative affect which is not counter-regulated.

(3) If an approach behavior is apparent, the next step is to code whether more internal, self-regulatory processes or more external triggers (e.g., incentives present in the situation) are involved in the motive-specific approach tendencies (components 1 and 3 vs. 2 and 4, respectively). For example, when a person in the story is confronted with a threat to need satisfaction, participation of the self is coded if he or she generates a creative solution.

(4) The final step in the assessment is to code whether approach behavior is based on positive or negative affect (components 1 and 2 vs. 3 and 4). The affective source of motivation does not have to be explicitly reported in the story. Latent negative affect (active avoidance) which is not associated with self-determination (component 4), for example, can be inferred from rather "tight" or rigid forms of behavior even if negative affect is not directly mentioned (e.g., "she wants to be close to the other person"; "he just wants to beat his competitor").

In many cases, it may be easier to perform step 4 prior to step 3. See Kuhl and Scheffer (1999) for an elaborated coding manual.

9.3.2 Descriptives and Stability

Scale Range. In the OMT, no correction for length of story is necessary because only one of the 15 categories (3 motives x 5 components) or a zero is coded per picture story. Thus, achievement flow motive scores could theoretically range from 0-15.

Distribution. Empirically, the distribution of OMT scores is rather screwed. Most people do not show a score on achievement flow motive at all (about 65-80%). Only a quarter of a sample shows scores of one (10-30%), two (5-10%), three (0-5%), or four (0-5%). The sensitivity of the OMT could be increased by adding pictures that stronger stimulate the achievement flow motive and removing those designed to assess other motive categories. To this point, it has to be left open if the flow motive is not distributed proportionally in the population indeed.

Stability. Flow research has paid only little attention to stable dispositions behind flow experience. Frequency and intensity measures of flow such as the Experience Sampling Method (Csikszentmihalyi, 1995/2000, 1997) as well as the dispositional flow scale (Jackson & Eklund, 2002) have rarely been assessed repeatedly over longer test intervals. Thus, little is known about the stability of an inclination towards flow. Other personality traits which influence the need and ability to experience flow have only recently become the focus of attention.

Taken together, there is little empirical research on stable causes of flow. Investigating the stability of *n*AchFlow would therefore be an important contribution to flow research. Preliminary evidence by Baumann and Scheffer (2011) indicates that *n*AchFlow has a significant stability over a period of two years, $r_{\text{Kendall's Tau}}(27) = .50$, $p < .007$. This finding is an encouraging starting point when considering the length of the retest-intervall. However, it would be desirable to replicate the stability of *n*AchFlow in larger samples which do not only consist of psychology undergraduates.

9.3.3 Validity

The assumption that *n*AchFlow offers a way to operationalize the autotelic personality was supported by its significant relationship with flow experiences using the experience sampling method. In a sample of 40 business students, there was a significant correlation between *n*AchFlow and flow experience across various tasks during an outdoor assessment center ($r = .37$, $p < .05$; Baumann & Scheffer, 2010). The finding was replicated in a sample of 33 army officers ($r = .37$, $p < .01$; Baumann & Scheffer, 2011). Neither the other OMT components of the achievement motive (see Table 9.1) nor a TAT measure of *n*Ach were significantly correlated with flow experience. Furthermore, *n*AchFlow remained significant when controlling for the other achievement variables. Thus, *n*AchFlow is more than just *n*Ach (seeking difficulty). It also comprises the ability to implement achievement needs in a self-regulated and affectively positive way (mastering difficulty).

The findings link *n*AchFlow with past flow research which emphasizes frequent and intense flow experiences as a core element of an autotelic personality. However, in contrast to past flow research, *n*AchFlow is correlated but not confounded with the to-be-predicted outcome of frequent flow experience. Remember that the OMT assesses the *need* and *ability* to seek flow in the achievement domain and not the actual experience. In Csikszentmihalyi's concept of autotelic personality, need characteristics may have been implied. However, they have not been assessed.

Like other implicit motives, *n*AchFlow is based on extended cognitive-emotional networks of possible actions (derived from autobiographical memory) that can be performed to satisfy needs in a context-sensitive way across a variety of situations (Baumann, Kazén, & Kuhl, 2010; Heckhausen, 1991; Kuhl, 2001; McClelland, 1980; Winter, 1996). Because of the extended nature of the underlying networks, they are not (or only partially) consciously accessible. Therefore, the need to seek flow has to be assessed by apperception instead of self-report. Questionnaires assessing intrinsic interest in achievement may already tap into self-concepts of the need to experience flow. However, such explicit measures are conceptually distinct from implicit motives and rarely correlate with implicit measures (McClelland, Koestner, & Weinberger, 1989; Spangler, 1992).

Taken together, the available findings support the assumption that *n*AchFlow offers a way to operationalize an autotelic personality. Before looking at first empirical findings on trait configurations and behavioral outcomes associated with *n*AchFlow, the functional basis of flow in achievement contexts will be analyzed within the framework of personality systems interaction (PSI) theory (Kuhl, 2000, 2001).

9.4 A Functional Approach to Achievement Flow [1]

9.4.1 PSI theory

In a nutshell, PSI theory (Kuhl, 2000, 2001; Kuhl & Koole, 2004, 2008, 2011) describes personality as the typical interaction between cognitive and affective systems: Positive and negative affects modulate the interactions among two high- and two low-level cognitive systems. The first modulation assumption explains how changes from low to high positive affect foster volitional efficiency: a smooth transition of intentions (*intention memory*) into action (*intuitive behavior control*).

[1] Consistent with flow theory, we do not propose different types of flow. The label *achievement flow* is simply used to indicate that our analysis is restricted to flow experiences in achievement contexts.

The second modulation assumption explains how changes from high to low negative affect foster self-growth: an integration of new, unexpected or even threatening experiences which are often represented as isolated "objects" (*object recognition*) into an extended, holistic, experiential network system (*extension memory*).

Within the framework of PSI theory, achievement flow can be described as a smooth transition of intentions into action through positive affect. In the following paragraphs, the terms intention, action, and positive affect will be elaborated. The general idea is depicted in Figure 9.2

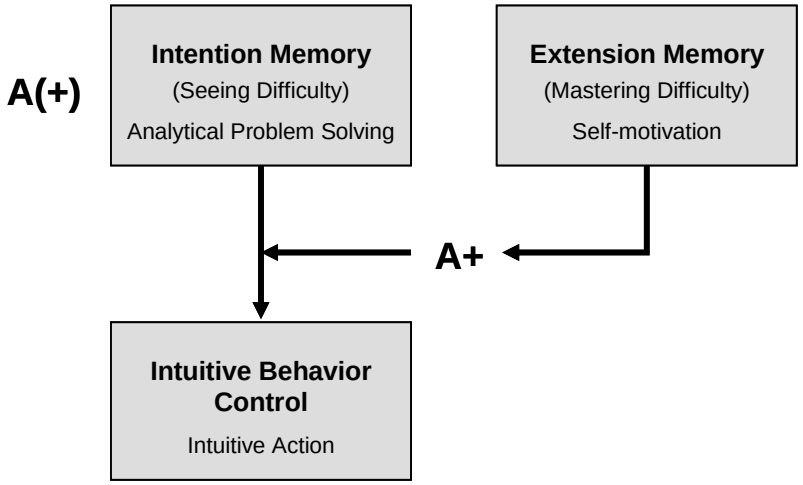

Figure 9.2. Functional explication of achievement flow within the framework of Personality Systems Interaction (PSI) theory. A+ = positive affect, A(+) = reduced positive affect

Achievement flow involves intentions. One does not form an intention unless there is some difficulty associated with performing an activity. Without any difficulty one would simply go ahead and do it. Because flow activities are difficult and challenging (Atkinson, 1957; Csikszentmihalyi, 1990; Kuhl, 1978; Rheinberg & Vollmeyer, 2003), they activate an intention memory system (seeing difficulty). According to PSI theory, *intention memory* is a network of central executive functions involving active maintenance of an intention in working memory and inhibition of premature initiation of action in order to mentally simulate possible solutions to a problem (Goschke & Kuhl, 1993; Jostmann & Koole, 2006; Kazén & Kuhl, 2005; Kuhl & Kazén, 1999). It is supported by planning, analytical-sequential (left-hemispheric) information processing as well as convergent thinking and problem solving. The confrontation with difficulty (which is characteristic

of achievement-related contexts) is typically associated with an initial dampening of positive affect (see Figure 9.2). Vice versa, dampened positive affect (listlessness, frustration) activates intention memory and analytical problem-solving.

Intentions are transferred into action through positive affect. According to PSI theory, it takes positive affect (e.g., anticipation of success) to overcome the inhibition of action and recouple intention memory with its output system: intuitive behavior control (see Figure 9.2). *Intuitive behavior control* is characterized by an execution of learned behavior sequences that combine information across multiple sensory modalities and integrate the finer details of sequential motor programming (e.g., Anderson et al., 2008; Doya, 2000; Lehéricy et al., 2006). In addition to the execution of automatic, pre-programmed behavioral routines, it consists of spontaneous, rather elaborated and flexible patterns, for example, intuitive parenting programms observed in early parent-child interactions (cf. Papoušek & Papoušek, 1987). Positive affect can activate intuitive behavior control and stimulate a smooth transmission of intentions into action.

Positive affect is self-generated in extension memory. One might argue that, at least in achievement flow, positive affect is inherent in the activity itself because flow activities are fun and interesting. And indeed, positive affect is typically increased *after* flow activities (e.g., Rogatko, 2007). However, flow activities are also difficult and challenging. These characteristics might as well reduce positive affect *during* flow activities. According to PSI theory, a participation of extension memory in action control is necessary in order to maintain confidence in the ability to master difficulty and to self-generate positive affect (see Figure 9.2). *Extension memory* is a network of central executive functions that is way more extended than intention memory. It operates according to connectionist principles (Rumelhart, McClelland, & the PDP Research Group, 1986) and is supported by intuitive–holistic (right-hemispheric) information processing (Beeman et al., 1994). This system gives an overview of extended semantic fields (Rotenberg, 1993), relevant episodes experienced (Wheeler, Stuss, & Tulving, 1997), and integrated self-representations (Kuhl, 2000). The self-related part of extension memory can be regarded as the implicit self (Greenwald & Banaji, 1995).

There is accumulating evidence that the self is a strong source of affect-regulation (Linville, 1987; Rothermund & Meiniger, 2004; Showers & Kling, 1996) which can even operate intuitively and outside of individuals' conscious awareness (Jostmann, Koole, Van der Wulp, & Fockenberg, 2005; Koole & Coenen, 2007). Action orientation, for example, is the ability to activate the implicit self in order to regulate affect - especially under difficult conditions (Jostmann & Koole, 2007; Koole & Jostmann, 2004). Thus, although individuals do not engage in conscious self-reflections during flow experiences, the self may be highly active on an implicit level. There is first evidence that the self is indeed more active in autotelic personalities (Baumann & Scheffer, 2011): Individuals with *n*AchFlow had a significantly reduced tendency to confuse unattractive assignments as self-selected goals compared to individuals without *n*AchFlow. Stated differently, they have better self-access and do not introject social demands.

There are notions of Extension Memory in flow theory. Access to extended associate networks of action alternatives derived from autobiographical memory may be the functional basis of a sense of control and a confidence in the mastery of difficulty inherent in flow experience (Nakamura & Csikszentmihalyi, 2002). Furthermore, extension memory is the basis for detecting semantic coherence (Baumann & Kuhl, 2002) and forming coherent, motive-congruent goals (Baumann et al., 2005). Thus, the experience of coherent, non-contradictory demands which is a defining component of flow (Csikszentmihalyi, 1975/2000) may not only be a function of the activity but also of the individual's way of information processing. The parallel-holistic information processing format of extension memory and the extended nature of its associative networks enables individuals to satisfy multiple constraints simultaneously and to integrate even conflicting demands.

9.4.2 Achievement Flow Definitions

The foregoing analysis shows that PSI theory explains the phenomenon of flow through specific interactions of cognitive and affective systems. Because of the mutual modulation of affect and cognition, there are several ways to summarize the functional analysis of achievement flow within the framework PSI theory. In Box 9.4, three summaries (definitions) are offered that emphasize different aspects of the cognitive-affective underpinnings of flow.

Box 9.4

Three Definitions of Achievement Flow According to PSI Theory
(1) *General*: Achievement flow is a smooth transition of intentions into action through self-motivation.
(2) *Cognitive*: Achievement flow is an optimal coupling of intention memory and intuitive behavior control through extension memory.
(3) *Affective*: Achievement flow is based on dynamic changes in positive affect.

The three definitions are not in contrast to each other but interchangeable. The first, more general definition is not a mere reiteration of the phenomenon because the foregoing analysis shows that the terms intention (e.g., its association with difficulty and its inhibitory component), action (i.e., intuitive behavior control), and self-motivation (e.g., the implicit self as an agent of affect regulation) can be functionally elaborated within PSI theory.

The second definition focuses on the cognitive systems involved in achievement flow and is rather dense in jargon. The third definition offers a more parsi-

monious description of the functional underpinning of achievement flow by focusing solely on affect. It contains the same information as the other definitions because, according to PSI theory, cognitive systems are modulated by affect, and vice versa.

The third definition of achievement flow in terms of affective change is in accordance with Csikszentmihalyi's (1975/2000) conceptualization of flow as a motivational state which comes into play in situations which are neither overexciting nor boring, and thus yield an optimal arousal range. The affective change assumption is also compatible with classical conceptualizations of achievement motivation. According to McClelland and colleagues, hope for success and fear of failure are based on affective changes early in life that accompany doing well or failing to do well in various learning situations (McClelland, 1985; McClelland et al., 1953). Furthermore, achievement-related episodes typically start with a phase of reduced positive affect (when a person is confronted with difficulty) which turns into positive affect when the person anticipates or obtains success (Kuhl, 2001, p. 551; McClelland, 1985; McClelland et al., 1953). Finally, affective change is also inherent in the conceptualization of *n*AchFlow. Remember that the need to achieve encompasses a focus on seeing difficulty which is associated with reduced positive affect (cf. Kuhl, 2000, 2001; Kazén & Kuhl, 2005) whereas its mastery-approach implementation is the ability to restore positive affect and enjoy difficulty (Baldwin, 2001; Harackiewicz, Barron, Tauer, & Elliot, 2002; McGregor & Elliot, 2002). In the next section, empirical findings on trait configurations associated with *n*AchFlow are reviewed.

9.4.3 Trait configurations

Baumann and Scheffer (2010) started to test Csikszentmihalyi's assumption of a dialectical principle inherent in autotelic personalities. More specifically, they tested the assumption that individuals high in *n*AchFlow have a combination of two kinds of traits. On the one hand, traits are needed that support an inhibition of positive affect and a focus on seeing difficulty. On the other hand, traits are needed that help to restore positive affect and to master difficulty. This specific combination of traits is proposed to stimulate an emotional dialectics that forms the functional basis of achievement flow.

Reduced positive affect. Examples of traits associated with a chronic inhibition of positive affect are introversion, an independent, schizoid-like personality style (Kuhl & Kazén, 1997), and avoidant adult attachment (Brennan, Clark, & Shaver, 1998). Experimental analyses of the Big Five model have systematically demonstrated that introversion is related to a low activity of Gray's (1987) reward system (Diener, Sandvik, Pavot, & Fujita, 1992; Derryberry & Reed, 1994; Gupta & Nagpal, 1978; Nichols & Newman, 1986). Similarly, an independent, schizoid-like personality style is characterized by low sensitivity to positive affect as indicated by reduced reward learning (cf. Baumann, Kaschel, & Kuhl, 2007). Finally,

avoidant individuals emphasize self-reliance and actively distance themselves from social partners and emotions (Bowlby, 1988; Mikulincer & Florian, 1998). Because perceived progress towards intimacy is a strong source of positive affect (Laurenceau, Troy, & Carver, 2005) this active distancing is also associated with an inhibition of positive affect. Taken together, despite their manifold differences, introversion, schizoid-like personality, and avoidance share the functional commonality of low sensitivity to positive affect.

Restored positive affect. An orientation towards mastery-approach (Elliot, 1999) is associated with the ability to restore positive affect. For example, mastery-approach has been found to foster the maintenance of students' interest over their college careers (Harackiewicz, et al., 2002; McGregor & Elliot, 2002). Of course, there are more traits associated with the ability to restore positive affect. The prospective dimension of action orientation (Kuhl, 1994), for example, is most genuinely defined as the ability to self-generate positive affect (for an overview see Koole, Jostmann, Kuhl, 2011). It even helps to counter-regulate the reduced well-being of schizoid-like individuals (Baumann et al., 2007). Similarly, the greater ability of individuals high in performance-related action orientation (persistence) and internal locus of control to actually utilize opportunities for flow also indicates a self-regulatory capacity (Keller & Bless, 2008; Keller & Blomann, 2008). However, their relationship with *n*AchFlow has not been tested so far.

Emotional dialectics. In the studies by Baumann and Scheffer (2010), *n*AchFlow did not significantly correlate with any single trait but only with specific trait configurations conducive to dynamic changes in positive affect. More specifically, neither introversion, schizoid-like personality, and avoidance nor mastery-approach showed a significant relationship with *n*AchFlow. Only the high/high combinations of traits associated with low sensitivity to positive affect on the one hand and mastery-approach on the other hand were associated with higher scores on *n*AchFlow (see row "traits" in Table 9.2). The findings are consistent with Csikszentmihalyi's assumption of a dialectical principle inherent in autotelic personalities.

9.4.4 Behavioral outcomes

The dialectical principle inherent in autotelic personalities has not only been observed on a trait level but also in overt behavior (Baumann & Scheffer, 2011): During an outdoor assessment center, external raters coded participants' behavior along several dimensions. Participants with high scores on *n*AchFlow showed a high/high combination of two sets of behaviors: an analytical focus on problems as well as an optimistic belief in mastery (see row "behaviors" in Table 9.2). Jointly activating or alternating between both sets of overt behaviors partially mediated the direct relationship between *n*AchFlow and flow experience. The finding supports the assumption that autotelic personalities have indeed access to more extended networks of action alternatives. Access to such a rich repertoire should not

only be conducive to frequent flow experiences but also to performance - especially in difficult tasks which require efficient volitional regulation.

Table 9.2. Autotelic trait configurations and behavioral patterns: *N*AchFlow is associated with high values in one of the left in conjunction with high values in one of the right variables. Italicized variables have not been empirically tested so far.

	Seeing Difficulty (reduced positive affect)	**X**	**Mastering Difficulty** (restored positive affect)
Traits	- independent, schizoid-like personality style - introversion - avoidant adult attachment	**X**	- mastery-approach orientation - *action orientation* - *internal locus of control*
Behaviors	- decomposing and structuring tasks analytically - generating hypotheses and plans to solve problems - restraint from task-irrelevant social exchange	**X**	- commitment to tasks and instructions - spreading optimism and motivating the team - staying power, good spirit in face of difficulties

On a macro-analytical level, the relationship between *n*AchFlow and volitional efficiency has been assessed with multisource feedbacks (Fletcher and Baldry, 1999) in actual work settings. According to multiple sources such as supervisors, colleagues, and customers, participants with higher scores on *n*AchFlow were better in decisiveness, doing whatever it takes, customer orientation, and management of resources (Baumann & Scheffer, 2011). Taken together, the findings support the assumption that *n*AchFlow is associated with complex behavioral patterns and high volitional efficiency which, in turn, may further stimulate the development of talent and autotelic personality system interactions in the long-run.

On a micro-analytical level, the relationship between *n*AchFlow and volitional efficiency has been assessed with the Stroop task (Stroop, 1935). In this task, participants are asked to name the color hue of incongruent color words (e.g., naming the blue color hue of the word "RED"). The task is difficult (and stimulates intention memory) because participants have to overcome the automatic tendency to read the word. The increase in reaction times compared to easy trials (e.g., naming the blue color hue of the control stimulus "XXX") is called Stroop interference. Kuhl and Kazén (1999) and Kazén and Kuhl (2005) showed that the presentation of positive prime words (e.g., success) significantly reduces Stroop interference.

The authors concluded that joint activation of intention memory and positive affect facilitates volition (i.e., the enactment of difficult intentions). Exactly this system configuration seems to be predominant and more easily activated in autotelic personalities. In a study by Baumann and Scheffer (2010), participants with high compared to low *n*AchFlow showed a significantly stronger removal of Stroop interference, that is, they had higher volitional efficiency.

9.5 Summary and Outlook

9.5.1 Summary

The present chapter shows that frequent and intense flow experiences may be driven by stable personality dispositions. Individuals do not necessarily experience flow if they encounter optimal task conditions because they differ in the *need* to actively seek and in the *ability* to create their own flow experiences. As such, personality traits are boundary conditions for flow experience. The chapter introduced an implicit measure of achievement flow motive (*n*AchFlow) which integrates need and ability aspects and offers a way to operationalize Csikszentmihalyi's concept of an autotelic personality. The first empirical findings with *n*AchFlow are encouraging because the measure is relatively stable, valid in predicting flow experience, and supportive of central assumptions of flow theory. For example, the assumption of a dialectical principle inherent in autotelic personalities was supported by significant relationships between *n*AchFlow and high/high combinations of complementary or even opposing traits and behaviors. Within the framework of PSI theory, the dialectical principle can be functionally elaborated and parsimoniously summarized as dynamic changes between reduced and restored positive affect.

9.5.2 Outlook

Despite the encouraging first steps in measuring and empirically investigating an autotelic personality, there is a host of open agendas for future research. In my view, important future directions are:

(1) Flow theory. The OMT measure of *n*AchFlow offers the opportunity to systematically test Csikszentmihalyi's rich conceptual ideas about autotelic personalities. For example: What are the central parental practices and environmental conditions that foster the development of autotelic personalities? How do autotelic personalities manage to develop their talent to the fullest extent?

(2) Measurement. Implicit motives are best measured if the ambiguous pictures stimulate the relevant motive. For achievement flow, the arousal potential of

the present picture set is very limited. Only one picture was designed to stimulate *n*AchFlow and actually does arouse flow answers in many people. Thus, the picture set could be improved for researchers who are primarily interested in *n*AchFlow.

(3) Affiliation and power. The present measure of an autotelic personality is restricted to flow in the achievement domain. However, flow experience may also arise from mutually co-ordinating one's own activities with other people. For example, flow frequently occurs while dancing, making love, conversing, and playing games with children. The OMT offers a way to measure the intrinsic components of affiliation (intimacy) and power (guidance) motives. Thus, the question whether there is a stable motive behind frequent flow experiences in the social domains (*n*AffFlow or *n*PowFlow) can be addressed empirically.

According to PSI theory (Kuhl, 2000, 2001), flow in the affiliative domain has different functional underpinnings: Intention memory and reduced positive affect should be less involved because social interactions rely more strongly on intuitive patterns of behavior control which are supported by positive affect (cf. Papoušk & Papoušek, 1987). Individuals who are very analytical, planful or dejected while interacting with other people are perceived as rather stiff, irritating or even manipulative and, thus, disturb a mutual tuning between interaction partners. Consistent with this assumption, Kazén and Kuhl (2005) did not find a removal of Stroop interference after positive affiliation primes (e.g., love). Affiliation does not seem to activate a top-down control of action through intentions.

(4) Negative affect. The analysis of achievement flow focuses solely on positive affect. According to PSI theory, negative affect is not involved in achievement flow. This analysis may be restricted to individuals high in *n*AchFlow. For individuals high in fear of failure, in contrast, negative affect may be present and disturb flow experience. The absence of negative affect (relaxation) may be an additional and necessary prerequisite for them in order to experience flow. This assumption is consistent with the findings by Engeser and Rheinberg (2008) and Schüler (2007) that individuals high in fear of failure are able to experience flow - albeit to a lower degree - when tasks are very easy or very difficult. Both task conditions reduce fear of failure because success is guaranteed (easy tasks) or failure not a shame (difficult tasks). Thus, for some individuals, low negative affect may be an additional prerequisite for achievement flow.

(5) Dynamic processes. The assumption that dynamic changes in positive affect or dialectical processes between opposing traits and behaviors are inherent in autotelic personalities has been analyzed very statically so far (for a notable exception see Ceja & Navarro, 2009). It is not clear whether individuals are able to focus on opposing aspects simultaneously or alternate between foci. What is the time course of alternation? Is there system or chaos behind patterns of fluctuation? These questions are not only of theoretical interest. It has important practical implications when trying to support the development of autotelic personalities. The findings by Oettingen, Pak, and Schnetter (2001), for example, show that positive fantasies about desired futures have to be repeatedly contrasted with reflections on

difficulties in present reality in order to improve goal commitment. If only one component is stimulated or the alternation not started with the right (i.e., positive) component, there is no improvement at all. Thus, it is important to learn more about dynamic process (cf. Ceja & Navarro, 2009).

(6) Outcomes. The operationalization of an autotelic personality with an operant motive measure has consequences for the type of expected outcomes. Operant motives are predictive of spontaneous in contrast to respondent behavior. Thus, experimentally producing an optimal challenge-skill balance (e.g., Keller & Bless, 2008) or providing tasks that elicit moderate flow levels in most people (Baumann & Scheffer, 2010) may not be the best setting to test the predictive power of *n*AchFlow because it has a respondent component. Future studies should investigate if individuals high in *n*AchFlow tend to actively create flow experiences in the absence of such externally provided opportunities. Similarly, when investigating the relationship between *n*AchFlow and motivation, performance, and well-being it will be important to look at outcomes that are less influenced by social demands. Furthermore, it will be important to assess whether the environmental setting (e.g., at school or at work) appreciates or discourages spontaneous behavior, initiative, and open performance-outcomes.

Study Questions

- *Does everybody experience flow if task difficulty matches personal skills?*

Answer. Although many people do experience flow if task difficulty matches skills, not everybody does. Personality traits are boundary conditions for the ability to experience flow under optimal task conditions. The perception and sustainment of balance between challenges and skills is an active, self-regulatory process that some individuals are more capable of than others.

- *Is an autotelic personality just the same as having frequent and intense flow experiences?*

Answer. Frequent and intense flow experiences might be due to lucky circumstances (e.g., living in an optimal environment). Autotelic personalities, however, are not just lucky to be externally provided with optimal challenges. In addition, they actively seek and create optimal challenges (e.g., moderate task difficulty). Thus, autotelic personalities combine a *need* to see(k) difficulty with an *ability* to master it.

- *Why does flow in achievement contexts involve the formation of intentions?*

Answer. Flow occurs during challenging/difficult tasks. Without any difficulty, a task could simply be executed with preprogrammed behavioral routines. If such

routines are not yet available, an intention is formed and premature action inhibited. This allows analytical problem solving (i.e., mental simulation of action alternatives and sequencing of several action steps) in order to prepare behavior.

- *When are intentions transferred into action?*

Answer. Intentions are transferred into action when positive affect (i.e., anticipation of success) indicates that a problem is solved or a difficulty overcome.

- *Why are flow activities not purely positive?*

Answer. Flow activities are not purely positive because they are moderately difficult which is associated with a dampening of positive affect.

- *Where does positive affect during flow activities originate?*

Answer. Positive affect has to be self-generated through a deep confidence in one's ability to master difficulty (i.e., self-motivation).

- *Why do autotelic personalities have high access to the self although flow experience is defined as a state of low self-centeredness?*

Answer. It is important to distinguish between explicit, conscious reflections about the self (self as object) and implicit self-representations of own needs, goals, experiences, and action alternatives (self as subject/agent). Whereas self-reflections are reduced during flow, feelings of self-determination are increased and support the deep confidence in the ability to master challenges.

- *What do a schizoid personality style, introversion, and avoidant adult attachment have in common?*

Answer. These personality traits share a low sensitivity for positive affect which stimulates analytical problem solving and a tendency to see(k) difficulties.

- *Can flow be experienced in affiliation and power contexts?*

Answer. Flow is not restricted to achievement contexts. However, the functional underpinning of flow in social contexts may differ. For example, analytical problem-solving and intentional/planned behavior may be less adaptive during a romantic interaction with one's love.

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