4 Flow Experience in Cyberspace: Current Studies and Perspectives

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Cyberspace constitutes a specific environment; the investigations in this field are based either on the original cyberspace-dependent methods and theories, or on universal theories and methods worked out in diverse areas of knowledge, not necessarily closely connected with cyberspace. A psychological theoretical construct (with vast practical perspectives) introduced by Csikszentmihalyi, (2000/1975) known as optimal, or flow experience, alongside the methods of its measurement, basically refer to the universal, that is, nonspecific theoretical and methodological background. This traditional methodology was adapted and accepted within cyberspace; it represents a growing area of the investigators’ activity in the field.

Like many other investigations of human behavior in cyberspace, flow-related studies are of both practical and theoretical significance. The practical significance is associated with the challenges deriving from business: a large body of research is stimulated by business expectations of acquiring advantages in the quality of offers to be suggested to customers. The theoretical significance stems from a supposition that optimal experience is an important construct mediating human activity in cyberspace, and thus represents a special level of psychological mediation of mental processes. The mechanisms of multiple mediation and remediation of a previously mediated experience are known to affect human psychic development (Cole, 1996; Vygotsky, 1962).

In this chapter, major research directions are presented and discussed, referring to the optimal, or flow, experience studies conducted within cyberspace environments. The chapter starts with a brief description of optimal experience in the context of positive psychology; the origin and the meaning of a relatively new term flow is explained, and several examples are provided. Flow is certainly connected with intrinsic motivation, which is distinguished in the chapter from extrinsic motivation. Some examples are given, and various methods of carrying out flow experience investigations are discussed.

The distinctive characteristics of flow, introduced and validated by Csikszentmihalyi, are presented, alongside several additional characteristics introduced by researchers working in the field of cyberspace-related studies of the optimal experience. Cumulatively, flow characteristics should constitute a valid universal methodological instrument to be used in quantitative measurements. In many cases, though, this is not so, because the sets of flow related characteristics slightly vary in the different empirical studies. In a way, these
variations seem reasonable, if one assumes that task specificity is apt to bring fluctuations into a regular presupposed model. The universality of the flow characteristics as discussed in the chapter is a problem area that needs further research.

Numerous research directions are presented in this chapter: well-developed, less well-developed, underdeveloped, and dead-end research directions. The more or less developed areas of research include, for example, the usage of the optimal experience patterns in e-learning, online instruction and distant education; in computer- and Internet-mediated communication, particularly in instant messaging and chatting, in consuming the web media sources and online entertainments; in web marketing, e-shopping, and business applications of web sources; in playing computer games, video gaming, and online gaming, including online multiplayer games; in web navigation, exploratory online behavior, and search of the content items on the web; in illegal penetrations into cyberspace environments, in hacking, for example, and in computer security regulations; in psychological rehabilitation by the means of the high-tech equipment and programs, such as in immersive systems of virtual reality; lastly, in the measurement of the web-site attraction and its friendliness for consumers, as well as in usability testing and in the adaptation of web sources to target populations.

The dead-end direction is in the search for possible correlations between flow and addiction, based on an argument that both promote repetitive actions. There is no likeness between flow and addiction; these processes are opposites from the psychological standpoint. This is a theoretical consideration, and in this chapter, it is shown that the current empirical studies confirm the correctness of this conclusion. Last but not least, the culture-related flow studies in cyberspace environments are evidently underrepresented: there are almost no intercultural projects in the field. The existing ones are described, including the author’s cross-cultural project, to prove that this trend, in numerous directions of research, is promising and expected.

This chapter characterizes various directions of research and gives a perspective of flow-related studies within cyberspace environments.

### Flow as a Psychological Construct

The optimal experience, also known as flow experience, is a contribution, made over three decades ago, to what is now called positive psychology (Seligman & Csikszentmihalyi, 2000) by one of its leaders, Mihaly Csikszentmihalyi (2000/1975; 1990 and elsewhere). The origin of this new paradigm is described in dozens of Csikszentmihalyi’s and his followers’ published materials. While interviewing certain professional and amateur dancers, chess players, rock climbers, surgeons, and many others who would express a deep devotion to their preferred sort of activity, Csikszentmihalyi selected the
often-reported characteristics of a special feeling common to many of them, which they could estimate very highly. This devotion is undeniably related to what they believe constitute an optimal level of their experience. During the interview sessions, Csikszentmihalyi found that people provide such verbal descriptions, which turned out to be worded almost identically regardless of the particular sort of the preferred activity. Almost everyone mentioned “being in the midst of a flow,” or, to express it in a slightly different manner, “flowing from one moment to the next, in which he is in control of his actions, and in which there is a little distinction between self and environment, between stimulus and response, or between past, present, and future” (Csikszentmihalyi, 2000/1975, p. 36). No wonder, Csikszentmihalyi (2000/1975; 1990 and elsewhere) called this sort of the holistic experience flow.

The interviewed people, regardless of their age, gender and culture, professional competence, or marital and income status, reported flow as an enjoyment: They confessed they enjoyed the process of doing even hard work. They further confessed enjoying doing it nonstop, sometimes for long periods, taking risks, or getting painfully tired and sometimes exhausted. They reported they did enjoy it because in return they felt they had been performing to the utmost. No wonder this sort of experience is often called optimal, within the positive psychology paradigm.

A flow experience takes place when people are engaged in their chosen activity, including work – “often the most enjoyable part of life,” as Csikszentmihalyi (1990, p. 144) puts it – as well as during housework or hobbies and is not likely to occur when the person engaged in the activity is totally relaxed (Csikszentmihalyi, 1990; Massimini & Delle Fave, 2000; Smith & Wilhelm, 2007). Flow cannot be qualified as a regular attribute of one’s engagement and involvement in the preferred activity; instead, every time it is a sort of a happening. Before experiencing this specific enjoyment, a person needs to acquire some competence, not necessarily very high, in the preferred activity. Flow happens irrespectively of the nature of the preferred activity, whether it is creative or routine, unique or known to almost everyone, individual or shared with others.

There is not much evidence, registered or oral, of any enjoyment being felt while doing exhaustingly hard backbreaking work with only little chance to survive. Unprecedented valuable evidences from the gulag labor camps, as described by Alexander Solzhenitsyn (1963, 1974–1978), testify to the moments, which not surprisingly are rare, when what the gulag prisoners’ experience might be called optimal – psychologically optimal in the above-mentioned sense, in no way optimal from the standpoint of economics. Although Solzhenitsyn is a writer, it is widely known that his writings are well-documented, based on someone’s (sometimes the author himself) firsthand eyewitness account. It is not accidental that the subtitle of his major book The Gulag Archipelago is An Experiment in Literary Investigation (Solzhenitsyn, 1974–1978). Contrary to the Csikszentmihalyi’s report of “flow in the most
dismal captivity” experienced mostly by “specialized intellectuals,” masters of the “symbolic world,” like mathematicians or poets (Csikszentmihalyi, 2000/1975, p. 193), or such “people of flow” as pilots, polar explorers, designers, and architects (Csikszentmihalyi, 1990, pp. 90–93), Solzhenitsyn gives evidence that poorly educated people may experience flow while performing hard physical work typical for concentration camps (e.g., cutting wood or building up a brick wall), while feeling cold and hungry.

The processes of achieving a desired result are reported, in the optimal experience context, to be much more pleasing and self-rewarding than the result itself, when and if it is gained (Csikszentmihalyi, 1990, 2000/1975). That enjoyment is associated with the process of goal achievement can lead to the conclusion that repetitions – often, lifelong replications – of these goal-seeking processes, consisting of a special mixture of physical and mental actions, are being expected and welcomed. The feelings of flow, or microflow (Csikszentmihalyi, 2000/1975, p. 141), are not restricted to entirely creative sorts of activities, like composing musical pieces or going into favorite exercises: the optimal experience is reported accompanying a lot of less extraordinary activities, such as during daily routines. Thus, flow might neighbor almost every sort of behavior people are genuinely and deeply involved in.

When a process is self-rewarding and its result might be viewed as irrelevant, one is inclined to label such an activity as intrinsically motivated. In fact, the two major classes of motivations should be differentiated: the extrinsic ones depend on bonuses – usually monetary rewards, attractive sex partners, valuable gifts, and all other sorts of a positive feedback; the intrinsic ones depend on particular human beings’ interests and pleasures, when tasks and trials are taken for their own sake. The former type of motivation was often overestimated, and reciprocally, the latter was often underestimated. Now and then, some industrial and social practitioners spend huge financial resources and give exceptionally high rewards to their subordinates, managers, or voters in the attempt to achieve their goals. When they lose, they often come to know that their competitors have spent much less resources but have been lucky to gain enthusiastic, that is, intrinsically motivated, low-paid, or even nonpaid supporters.

Within the scope of this chapter, we deal exclusively with the intrinsic motivation. Various types of such motivation are known (Csikszentmihalyi, 2000/1975; Malone & Lepper, 1987; Ryan & Deci, 2000) and used in the practice of self-regulation and education. Csikszentmihalyi and Rathunde classify intrinsically motivated actions as pleasures – “positive responses to food, sex, relaxation, and the stimulation of certain chemical substances” (Csikszentmihalyi & Rathunde, 1993, p. 58) and enjoyments that refer to the optimal experience, which we will discuss in more details.

The major difference between extrinsic and intrinsic motivation is that pleasure is a somewhat passive and relaxing feeling, while enjoyment accompanies nonstop efforts to achieve something worth being strived for. Pleasure is
associated with an equilibrium: “let it be as it is,” while prolongation of enjoyment means a long-term activity. Ironically, because of the possibility of getting tired, which is a likely result of being active, enjoyment might be and often is or seems to be less pleasing than pleasure itself. In the life span, however, people tend to remember – and feel proud of – mostly the active styles of behavior they used to practice and the concomitant enjoyments (Csikszentmihalyi, 1990). Of course, any classification in the field should not be taken for granted too rigidly. Csikszentmihalyi and Rathunde do not forget to mention that the alternatively classified motivations cannot be fully and entirely expected to substitute one another: “Pleasure and enjoyment, and indeed intrinsic and extrinsic motivation, are not mutually exclusive, and they can be present in consciousness at the same time” (Csikszentmihalyi & Rathunde, 1993, p. 58). Those who practice transcendent techniques (meditation, yoga, Zen, and the like) find fewer problems, compared with nonpracticing people, in acquiring a kind of optimal experience and enjoyment.

Flow represents one of the two most elaborated theories of intrinsic motivation, developed within the positive psychology (Seligman & Csikszentmihalyi, 2000) paradigm; the other theory was worked out and presented by Deci and Ryan (1985). In fact, the theory of an optimal, or flow, experience is not exclusively motivational. Csikszentmihalyi and his collaborators undertook serious efforts to present a flow experience in a manifold manner: as a cognitive (the starting point is the focus of attention) artifact applied to the holistic description of a personal development (Csikszentmihalyi, 1978, 2000/1975); as a major factor of the biocultural evolution and selection (Csikszentmihalyi, 1990; Massimini & Delle Fave, 2000); as a theory of creativity, good work, and development of talented adolescents (Csikszentmihalyi, 1996; Csikszentmihalyi, Rathunde, & Whalen, 1993; Gardner, Csikszentmihalyi, & Damon, 2001); as a developmental psychology theory (Csikszentmihalyi, 1990; Csikszentmihalyi & Larson, 1984); as a basis for the psychological rehabilitation practice (Delle Fave & Massimini, 2004, 2005); and as a high-level methodological construct applicable within the field of psychology, as well as outside this field (Csikszentmihalyi, 1990, 1993, 2004). In this chapter, despite the variety of interpretations, a flow experience is discussed as a motivational paradigm.

Theoretically and empirically, Csikszentmihalyi (1990, 2000/1975 and elsewhere) selected the following major characteristics of flow: clear and distinct objectives; temporary loss of self-consciousness; distorted sense of time; actions merging with awareness; immediate feedback; high concentration on the task; high level of control over it; balance (precise matching) between the available skills and the task challenges; Lastly, experiences bring full satisfaction and are worth doing for their own sake. The importance of the latter point is marked by the special term coined from Greek: *autotelic* (self + goal), which means that the only goal of doing something is just the act of doing it, regardless of whether external rewards will follow. One may add that doing it brings enjoyment, unlike most of the activities that are exotelic: the meaning of
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doing them is not enjoyment but pursuing some other objectives with external rewards. The majority of human beings’ actions are extrinsically motivated, and processes of goal setting result in a well-established and well-stimulated hierarchy of the goals to be achieved.

According to the standpoint and argumentation presented by Csikszentmihalyi (1990 and elsewhere), a lifestyle that includes a limited number of the exotelic types of activities and is not too restrictive in performance of autotelic types of behavior, has all the reasons to be named among the best ways to feel happy. In a recent web research project – to be discussed in more detail next – the respondents were questioned about the real or imaginable positive effects associated with being online, and an intended causality was formulated in the following words: “Positive affects are not only highly correlated with flow symptoms but also caused by flow symptoms.” A comment is nevertheless made that “further research is needed to verify this declaration” (Chen, 2006, p. 231).

Theoretical and Practical Reasons for Psychological Studies in the Cyberspace

The originator of the “flow experience” theory, Mihaly Csikszentmihalyi, refrains from discussing the possible applications of an optimal experience within cyberspace environments, with the exception of several brief interviews, popular papers (Kubey & Csikszentmihalyi, 2002), and the following statement:

Certain technologies become successful at least in part because they provide flow and thus motivate people to use them. A good example is the Internet... This technology has been adapted to all sorts of unexpected uses, and has made possible an enormous variety of unpredicted experiences. It partly accounts, for instance, for the spectacular success of the Linux open system software, where tens of thousands of amateur and professional programmers work hard to come up with new software for the sheer delight of solving a problem, and for being appreciated by respected peers. In the process, Linux has been making headway against much more formidable competitors such as Microsoft who have to pay their programmers to write software – a clear example of emergent intrinsic rewards actually trumping extrinsic rewards. (Csikszentmihalyi, Abuhamdeh, & Nakamura, 2005)

This statement gives a psychologically adequate explanation of a well-known situation on the software market. A recent work by Luthiger and Jungwirth (2007) shows that open source programmers report fun, or enjoyment, as we have called it, to be inherent to their work, and they provide such reports significantly more often as compared with the developers of commercial software. Luthiger and Jungwirth suggest that programmers engaged in commercial software projects have a good chance, nevertheless, to get involved in
projects that provide both extrinsic benefits and fun – the fun represents a characteristic closely connected with intrinsic motivation and the flow experience. The employers too should be aware of this fact because a programmer’s fun is likely to increase his or her productivity (Luthiger & Jungwirth, 2007). In an earlier study of the open source programmers’ motivation, the researchers report that “an interplay between extrinsic and intrinsic motivations: neither dominates or destroys the efficacy of the other” (Lakhani & Wolf, 2005, p. 19).

To the best of the author’s knowledge, there are no further Csikszentmihalyi’s statements in the field. Csikszentmihalyi’s close follower Delle Fave recently co-authored an article in which she thoroughly discusses some actual perspectives of the optimal experience methodology in the design and use of top-level information technologies related to virtual reality environments (Gaggioli, Bassi, & Delle Fave, 2003). The variety of flow related research in cyberspace environments is certainly much broader. We can suggest three major explanations – from practical to theoretical – to support this fact.

First, the business challenge, coming primarily from the high-tech field: Numerous companies and enterprises are competing in the quality of offers and services they suggest to their consumers. Because of this reason, the expectations of gaining at least the slightest advantages by the application of well-developed psychological measures are a good reason to intensify investigations or applied work to produce certain special services with a potential to determine the optimal forms of the customers’ experience. This challenge stimulates both the marketing research and applied work in the field of flow experience.

Second, the methodology of the optimal experience research matches the framework of the cyberspace studies. Indeed, computers, the Internet, and the World Wide Web provide support to the flow-related fieldwork, which is often rather laborious and time consuming when administered offline but is much less laborious and time consuming when the computer and online facilities are used. As a result, a well-planned online flow-measuring study may be effectively fulfilled within a short period of time and requires a reasonably low budget; what is no less important, it is based on hundreds of publications and teaching courses. Such studies are being administered within numerous samples, including, for example, experts and students in information technologies, as well as the users of diverse social services, that is, e-shoppers, online gamers, chatters, mobbers, web surfers, e-learners, and so on.

Third, the theoretical significance of the investigations of the optimal forms of human behavior within cyberspace environments derives from the importance of mediation and remediation for human psychic development. Because the most important psychic processes, or the higher mental functions, in Vygotsky’s (1962) terminology, are mediated and internalized, their further development is dependent on the effectiveness of the mechanisms of remediation; the latter means acquiring newer and newer ways of mediation – each rests on the multitude of previously internalized sign systems. The importance of remediation processes for current psychological theory and practice is specially
marked by Cole (1996). Thus, a research into the human use of the components of cyberspace, including, for example, personal meanings and connotations, step-by-step objectives, motivated actions, and optimal experience, is at the same time a study of the human psychic development (Arestova, Babanin, & Voiskounsky, 1999; Cole, 1996; Voiskounsky, 1998) and has a “futurological” quality. Many of the novel dimensions of the remediation processes will become, in due course, a common attribute of future generations.

**Characteristics of Flow as Used in Empirical Research**

In this section, we discuss characteristics referring to the optimal experience. The prior set of characteristics, known from Csikszentmihalyi’s works, were often empirically tested and thoroughly discussed in cyberspace environments. Although some scholars consider this set of characteristics, which were introduced and described by Csikszentmihalyi and his followers, as nonpredictive and lacking rigorous operationalizations, there are other investigators who administered surveys and semistructured interviews within the samples of the frequent cyberspace visitors. After they coded, sorted, and analyzed the narratives, they were able to confirm that the characteristics of flow described by Csikszentmihalyi were close to what the competent respondents expressed (Chen, 2006; Chen, Wigand, & Nilan, 1999; Novak, Hoffman, & Duhachek, 2003; Pace, 2004). As a result, the diverse “flow models” are based on the slightly different sets of characteristics, which are sometimes defined differently. Some additional task-dependent characteristics were suggested and validated: for example, “intention to return” (to an e-shop site; Koufaris, 2002). Several authors have discussed the variety of characteristics introduced by numerous researchers, including Csikszentmihalyi, and have presented them in table form (Finneran & Zhang, 2005; Novak & Hoffman, 1997; Siekpe, 2005).

In an influential study (Hoffman & Novak, 1996; Novak & Hoffman, 1997), a model of flow experience in cyberspace was introduced, and it included such characteristics as vividness and interactivity, which cumulatively induce the parameter of “presence,” or “(tele)presence,” formulated as “mediated perception of an environment” (Hoffman & Novak, 1996, p. 61). In subsequent publications (Novak, Hoffman, & Yung, 2000; Novak et al., 2003), the authors empirically validated the inclusion of some of these characteristics (for example, presence and interactivity) into the model, which they developed and later revised. The inclusion of media-specific characteristics referring to the mediated environments seems a reasonable thing to do; moreover, “presence,” or a feeling such as being in a somewhat different place, possibly sharing this place with other people was not once named by respondents in interviews or surveys, among other characteristics (Chen et al., 1999; Pace, 2004; Skadberg & Kimmel, 2004).
The meanings of many terms related to the cyberspace update quickly, some connotations change, and some new ones are acquired. The term *presence* is an example of such a developing parameter with multiple meanings that keep acquiring new connotations. We can readily state it this way, because at the webpage “About Presence” (http://ispr.info) placed by the International Society for Presence Research, this term is explicated in twelve points, with several subpoints. A biocultural view on the multilayer evolution of presence in diverse environments, including the mediated ones, and particularly in cyberspace, has been introduced recently (Riva, Waterworth, & Waterworth, 2004).

The term *interactivity* is often used to distinguish new media from traditional media. Its analysis was first presented by several authors, including Rafaeli (1988). Since that time, the concept of interactivity has not once been investigated in the contexts of sociology, communication science, and psychology (Chung & Zhao, 2004; Sohn & Lee, 2005), nor discussed in the context of the flow experience in cyberspace (Chen et al., 1999; Finneran & Zhang, 2005; Liao, 2006; Nakatsu, Rauterberg, & Vorderer, 2005; Novak & Hoffman, 1997; Novak et al., 2000). The two terms, *presence* and *interactivity*, are probably the best terms to characterize the specifics of flow experienced in cyberspace environments.

Scholars often accept that flow dimensions can be more or less variable, dependent on the particular type of cyberspace-related experience human beings are engaged in. “Not all of them are needed . . . to give users the experience of Flow” (Chen, 2007, p. 32). This is a reasonable argument. To qualify an experience as optimal, one does not necessarily need every particular characteristic that has been introduced by Csikszentmihalyi or his followers. In an analytical article, it is reasonably stated: “These factors may not be the only ones that contribute to flow, but Csikszentmihalyi identifies them as the most commonly exhibited ones” (Finneran & Zhang, 2005, p. 83).

Indeed, the flow patterns inherent in cyberspace-related types of behavior may differ a lot: a sensation of flow experienced while shopping online might be described using a set of characteristics that only partly match the parameters describing flow experienced while gaming online or navigating the web. Rettie states that “while respondents recognized most of Csikszentmihalyi’s dimensions, the merging of action and awareness and loss of self-consciousness were not really relevant” (Rettie, 2001, p. 111). Chen et al. (1999) also report that they faced some problems placing the parameter “actions and awareness become merged” exclusively into the “antecedents of flow” group because this parameter might have partly fallen into several groups. One can easily conclude that possible classifications in the field should not be considered entirely predictable.

It is tempting to admit that the sets of characteristics differ, taken for example less competent (in a particular type of activity) and more competent (in the same type of activity) respondents; with a change of activity, the level of personal competence for the same respondents may turn out to be the opposite,
as is often the case. Taking all the arguments into consideration, there are possibly numerous sets of flow characteristics (sometimes called dimensions, or parameters), which can be informally called flow dialects, and these “dialects” are strongly dependent on the task specificity, personal competence in this or that task, emotional state, quality of computer or web interfaces, particular software applications, type of prior instruction, and many other parameters that have not yet become obvious.

One of the most useful of Csikszentmihalyi’s findings is that flow may be expected and indeed happens when and if the available skills balance – or, better, tightly match – the task challenges a person chooses in his or her activity, provided of course that both the challenges and the tasks are high enough and close to the person’s utmost. Flow is placed at the cutting edge of the person’s skills, and it is a moving target. An increase of the acquired skills leads to an appropriate extension of the challenges, to save the precise matching – and the concomitant enjoyment, too. Reciprocally, any choice of the greater challenges demands an update of the available skills.

As a result, a congruence or a balance of the skills and the task challenges is very often accepted as a major antecedent of flow (Hoffman & Novak, 1996; Pearce & Howard, 2004); some authors, however, report a failure to report this ratio as a significant parameter (Skadberg & Kimmel, 2004). In these empirical studies, the participants often get confused when requested to classify the standard of the skills they possess or the level of the task challenges they choose (Chen et al., 1999; Shin, 2006). The more vaguely the applied activity (related to the use of computers and the web sources) is formulated, the greater the participants’ confusion is, which is probably the reason most of the current research projects in the field refer to the specialized, that is, nonuniversal tasks performed in cyberspace.

The empirical rule that flow (and enjoyment) occurs when and if the task challenges match the skills means that there is a fine and positively estimated perspective for personal growth. Numerous studies held outside the cyberspace field have proved this is true. The mechanism of balance/matching between the task challenges and the skills is fairly easy to investigate and to check. Indeed, the researchers of the optimal experience within cyberspace environments use the tasks/challenge ratio intensely.

Data Collection Methods in the Optimal Experience Studies Related to Cyberspace

The methods of collecting data related to the flow experience in cyberspace environments do not differ too much from the methods practiced outside cyberspace. In general, the data collection methods include mostly surveys, especially online surveys that are becoming intensely used, as well as interviews and semistructured interviews, discussions of narratives describing
certain flow-related cases, open-ended questionnaires, focus groups and group discussions, subjective estimations of the frequency of occurrence of the selected parameters of the optimal forms of experience (Chen et al., 1999; Manssour, 2003; Novak et al., 2000; Pace, 2004; Pearce, Ainley, & Howard, 2005; Pilke, 2004; Rettie, 2001; Shoham, 2004).

The survey is usually qualified as a regular method of measuring the optimal forms of experience. Surveys are administered within particular populations, for example, the subscribers to a special group of online services, visitors of some website(s), learners of a certain software product (Ghani & Deshpande, 1994; Harvey, Loomis, & Bell, 1998; Heidman & Sharafi, 2004; Konradt, Filip, & Hoffmann, 2003; Koufaris, 2002; Skadberg & Kimmel, 2004; Trevino & Webster, 1992; Webster, Trevino, & Ryan, 1993). This style of surveying can be called retrospective because it refers to a habitual behavior, related to the cyberspace, to a favorite type of web source, or to a known software product (Huang, 2006; Korzaan, 2003; Montgomery, Sharafi, & Heidman, 2004; Sharafi, Heidman, & Montgomery, 2006). Most often, the questionnaires measuring flow and nonflow parameters are administered in parallel to separate the flow characteristics from the more traditional behavior patterns.

The Experience Sampling Method (ESM) is believed to be the most accurate method of collecting data in naturalistic environments. Since the ESM has been introduced and validated (Csikszentmihalyi & Larson, 1987), it has been widely used within the positive psychology studies, as well as outside of this field, such as in studies of well-being, stress, time management, coping, and emotional experience. Originally, the ESM procedure involved a pager beeping at randomly selected moments several times a day, often over several weeks: Each time the signal is an invitation to fill in an experience sampling sheet. One advantage of this methodology is that the participant self-reports the characteristics of the actual experience. Thus, it is a dynamic instrument, adapted for administering in natural settings: The self-reports are collected exactly at the moments when the daily experiences take place or just shortly after that. The ESM procedure is not limited to the use of the telephone or e-mail pagers: The preprogrammed electronic wristwatches, randomly sent out Short Message Service (SMS) messages, palm-top computers, PDAs, as well as diverse commercial, or open source, software packages, including the programs that dynamically adapt to the previously provided responses, are widely used in the field (Barrett & Barrett, 2001; Conner Christensen, Feldman Barrett, Bliss-Moreau, Lebo, & Kaschub, 2003; Scollon, Diener, Oishi, & Biswas-Diener, 2005).

The newest step in the application of the ESM methodology in cyberspace environments has been undertaken by Hsiang Chen, who started to survey online participants in 1990s (Chen et al., 1999) and recently reported (Chen, 2006) that he has constructed, tested, and applied the web version, which substitutes the random-time beeper and the ESM booklet to fill in. Specifically, at random moments, a window will pop up at the upper left side of a
participant’s computer screen, activating the questionnaire items. Immediately after the questionnaire is filled in, the record is sent to the researcher’s remote database (Chen, 2006). To acquire a reasonable amount (i.e., no less than three sampling forms filled in) of the flow-related characteristics pertaining to a particular person while he or she stays online, the random-time interval, Chen (2006) reports, is scheduled during a short period, only five to ten minutes, so that even the short-term cyberspace visitors can get at least three signals and thus three runs of the sampling form to fill in. This forethought seems to be reasonable: Some respondents, for example, elementary school students, report extremely short periodic occurrences of flow during the game sessions (Inal & Cagiltay, 2007). As a result, “the on-line ESM tool proved to be reliable and valid” (Chen, 2006, p. 232). This methodology will foster greater cyberspace-related investigations of the optimal experience.

Although the sets of characteristics and the content of the questions related to the optimal forms of experience will vary only slightly, the procedural component of the studies, including the usage of the hardware and software pieces, is likely to be the subject of methodological innovations in the coming years.

Flow in Diverse Cyberspace-Related Activities

The beginning of the optimal experience research in the cyberspace field dates back to the time when the term cyberspace had not yet been fully accepted in the academic glossary. The participants in the earliest studies were competent in the “human-computer interaction,” “computer-mediated communication,” or “computerized exploratory behavior” (Ghani & Deshpande, 1994; Trevino & Webster, 1992; Webster et al., 1993), which is rather general. Participants were also proficient in the use of some particular types of the information technologies, for example, “online gaming,” or “marketing” (Hoffman & Novak, 1996; McKenna & Lee, 1995). Both directions of studies are present in the current publications: the former (“activities involving information technology,” “Internet/Web use,” or “computer-mediated environment”) in the lesser proportion (Finneran & Zhang, 2005; Montgomery et al., 2004; Pace, 2004; Rettie, 2001; Sharafi et al., 2006; Siekpe, 2005) and the latter in the greater proportion – these works are briefly characterized in this section.

A large and growing body of studies is on the online consumer and marketing applications of the optimal experience theory and practice. Researchers are doing their best to find out certain dependencies between the flow characteristics, the behavioral and marketing parameters, and indicators of the computer/web-based skills to develop a hierarchy of the first-order and the higher-order dimensions in the field (Hoffman & Novak, 1996; Huang, 2006; Korzaan, 2003; Koufaris, 2002; Rettie, 2001; Siekpe, 2005; Smith &
Sivakumar, 2004). This direction of research and practice seems to be accelerating, especially with the practice of e-shopping on the rise. The currently available experience leads to useful recommendations aimed at avoiding some possibly restrictive decisions as well as lessening the negative influences on the visitors and customers of the existing e-shops and at perfecting the design and the usability of the would-be e-marketing sites (Pace, 2004; Rettie, 2001; Siekpe, 2005).

The educational applications of the optimal experience methodology have always been thoroughly investigated, and the cyberspace field is not an exception (Chan & Ahem, 1999; Konradt & Sulz, 2001; Konradt et al., 2003; Pearce et al., 2005; Shin, 2006). A flow experience is a significant predictor of the learners’ satisfaction with the teaching courses (Shin, 2006). But the positive effects of the flow experience on a learner’s task, Pearce and Howard (2004) state, need to be differentiated from the possibly interfering effects originating in the use of cyberspace-related artifacts that compete for a learner’s attention (such as webpages, simulation models, etc.). A flow experience in distance education and in individuation of the learning and teaching practice is of growing interest for researchers. For example, Liao (2006) investigated the possible effect of the types of interactions of the distance learners (i.e., learner-learner, learner-instructor, and learner-interface) on their reported flow experience. O’Broin and Clarke (2006) developed a mobile teaching assistant tool that helps plan learning sessions for individual students: when one or more conditions of flow are absent, the tool can suggest modifications to the session so that the conditions may once again be present. More and more advanced applications of the optimal experience theory in the educational practice of the hypermedia use can be expected to follow (Konradt & Sulz, 2001; Konradt et al., 2003).

The practice of playing computer, video, and online games is also a growing area of flow-related investigations (Chen, 2007; Chen & Park, 2005; Chiu & Wan, 2006; Choi & Kim, 2004; Chou & Ting, 2003; Hsu & Lu, 2004; Inal & Cagiltay, 2007; Jegers, 2006; Kim, Oh, & Lee, 2005; McKenna & Lee, 1995; Sweetser & Wyeth, 2005; Voiskounsky, Mitina, & Avetisova, 2004, 2005; Wan & Chiu, 2006). Characteristics of flow have been found usefully realized in a gaming environment for the computer-learning courses adapted for the students of a primary and secondary school (Andersen & Witfelt, 2005). Such parameters as a design for a game, including well-organized feedback, and the appropriateness of the gamers’ goals have been found to be important for the occurrence of flow (Choi & Kim, 2004). A kind of enjoyment related to a flow experience is introduced to explain that certain text-only games have remained attractive for players over several decades (Voiskounsky et al., 2004; Voiskounsky et al., 2005). Flow is one of the reliable predictors of the players’ acceptance of a new online game (Hsu & Lu, 2004); Jenova Chen (2007) proposes an adaptive strategy of a game design, which would let diverse players experience flow in their own personal way and thus enjoy the
game. Many studies involve multiuser games such as MMORPGs (Massively Multiplayer Online Role-Playing Games) and MUDs (Multi User Dungeons): a flow experience is found to correlate inherently with the social interactions taking place within the playing sessions (Chen & Park, 2005; Kim et al., 2005; McKenna & Lee, 1995; Voiskounsky et al., 2004; Voiskounsky et al., 2005). Sweetser and Wyeth (2005) and Jegers (2006) introduce a GameFlow. This model of computer gaming is presumably based on the characteristics of flow and includes such constructs as “social interaction” and “immersion” – the latter is an advanced version of the abovementioned parameter “presence.” Wan and Chiou (2007) find the flow theory useful for advanced studies, to be carried out in the future, of the MMORPG gamers’ intrinsic and extrinsic motivation. In general, it would not be incorrect to state that the flow experience is essential for the immersive style of playing and that the flow-related approach to the study of the gamers’ behavior has proved to be important and fruitful.

The investigations of the optimal experience in the mediated forms of communication and interaction in the cyberspace are not numerous. Few studies refer to the practice of chatting, journalistic work, and web-media enjoyment (Luna, Peracchio, & de Juan, 2002; Manssour, 2003; Nakatsu et al., 2005; Sherry, 2004; Shoham, 2004). Scholars’ lack of interest in this area has no obvious reason, especially taking into account that the interactive services are the earliest in the cyberspace (e.g., Fido, e-mail, or Usenet) and are developing intensely (e.g., blogging, instant messaging, Internet telephony, or webcasting). Moreover, enjoyment is a frequent companion feeling to the processes of the media consuming, or mediated, interaction; it is well known that flow is intimately connected to enjoyment (Sherry, 2004). The problem is that the enjoyment felt while consuming media is often passive and addictive; thus, it needs to be distinguished from the optimal forms of experience (Kubey & Csikszentmihalyi, 2002). “TV watching … leads to the flow condition very rarely” (Csikszentmihalyi, 1990, p. 83). There are relatively numerous studies analyzing – in the context of the flow experience – the patterns of the mediated social interactions between the online gamers. These works may be thought of as a counterpoint to the shortage of studies referring to the flow experienced while interacting in the cyberspace.

The publications on the flow experience pertinent to an illicit use of the information technologies, and in particular to hacking (taken, probably not quite correctly, as a generic term combining cracking, carding, phreaking, dissemination of viruses and trojans, and sometimes spamming or phishing), are not numerous. Although various computer security issues are nowadays universally believed to be critically important, the valuable theoretical classifications (Beveren, 2001) or empirical studies (Lakhani & Wolf, 2005; Voiskounsky, Babaeva, & Smyslova, 2000; Voiskounsky & Smyslova, 2003a, 2003b) in the field are rather few, possibly because of the difficulties in collecting relevant data. Computer programmers are sometimes called hackers (probably not quite correctly, without any connotation to an illegal performance), if
they voluntarily develop an open source software; they report they feel enjoyment and experience flow (Luthiger & Jungwirth, 2007). It has been proposed recently (Voiskounsky, 2004, 2005, 2006) to teach adolescents the fundamentals of computer ethics in order to help the younger generations, including the talented young computer geeks/nerds (Babaeva & Voiskounsky, 2002), to overcome a temptation of joining the communities of computer criminals. This proposal rests on the existing studies of the patterns of the flow experience within the hackers’ community and on the psychological theories of human moral development.

Quite a humane direction for research in cyberspace is the application of the flow experience methodology for the psychological rehabilitation of the disabled and traumatized (Gaggioli et al., 2003; Miller & Reid, 2003; Reid, 2004; Riva, Castelnuovo, & Mantovani., 2006). Although the theory and methodology of such rehabilitation is still under discussion (Gaggioli et al., 2003) and far from being perfectly qualified – no full clinical records are available at the moment – the practice leads to certain valuable recommendations, especially about the ways of providing help for children with cerebral palsy using virtual reality systems (Miller & Reid, 2003; Reid, 2004). Moreover, the Virtual Reality Play Intervention Program has proved to be useful in engaging disabled children in enjoyable experiences and thus making the quality of their lives better (Miller & Reid, 2003). The virtual reality–related approach to research and rehabilitation seems to be parallel, as it has been recently stated (Gaggioli, 2005; Riva et al., 2006), to the ambient intelligence approach – within both of them the investigators combine the cognitive (referring to the resources of attention) and the emotional (referring to enjoyment) parameters of behavior into a unified conception. Some specialists are planning to use widely, among others, the psychological mechanism of “transformation of flow,” which means “optimal experiences to identify and exploit new and unexpected resources and sources for development” (Riva et al., 2006, p. 240).

Finally, we should mention the perspectives of the use of the optimal experience characteristics for the development of the web usability methods, for the design and testing of interfaces (Bederson, 2004; Johnson & Wiles, 2003; Mistry & Agrawal, 2004; Pilke, 2004; Smyslova & Voiskounsky, 2005). The “perceived ease of use” of a technology is a factor that is believed to affect flow experience (Phau & Gan, 2000). Some practical steps, both technological and motivational, have been worked out, aimed to ensure the design and maintenance of a user-friendly technology, which would promote the use of various computer applications and the navigation within a particular web site and over the World Wide Web in general. “It is expected that our understanding of the flow phenomenon would guide . . . designers to be able to design a product that will lead users to flow experiences” (Finneran & Zhang, 2005, p. 83). This is an extremely competitive direction of research. Any reasonable recommendation targeted, for instance, on the perfecting of a game interface design, of a web
or software usability checking procedure, promises excellent opportunity for both academics and practitioners alike.

**Optimal Experience and Psychological Addiction: the Two Opposites**

The meaning of the optimal experience is that of a principally positive psychological phenomenon. Within the positive psychology school, flow is universally understood as an enjoyable experience, with a strong positive effect on lifestyle and quality of life. Contrary to that, there is a tendency in the field of cyberspace studies to associate the flow experience with addictive types of behavior and to investigate the dimensions and parameters of this prospective interconnection (Chen & Park, 2005; Chiou & Wan, 2006; Chou & Ting, 2003; Tzanetakis & Vitouch, 2002; Wan & Chiou, 2006). In this chapter, we will not discuss the nature, phenomenology, genesis, and status of cyberspace-related addictions and dependencies, also known as problematic/pathological/heavy/excessive Internet use/abuse/overuse or disorder. The publications on this theme will not be reviewed either, because in the current section we take *addictions* as a generic term, covering the majority of the possible or reported misuses of the Internet taken as a whole or of its particular services, such as online gaming, online pornography, online communication, online romance, online surfing, online gambling, online exploratory behavior, or online shopping.

An addiction is a sort of escape from personal problems and a decrease in the quality of life, which are opposite of feelings associated with positive psychological phenomena, including the flow experience. Thus, any analogy between flow and addiction is inadequate and correlating the symptoms of the optimal experience and the Internet addiction will hardly seem justified. Most often, attempts to establish such correlations refer to the parameters of the online/video/computer gaming experience. Indeed, gaming is probably the most addictive of the various cyberspace-related behaviors, partly because game developers and providers try hard to hook the devoted addicts to their newest products, using, for instance, the “principles in behavioral conditioning” (Yee, 2006, p. 70).

In their theoretical article, Chen and Park (2005) discriminate between the two close types of online games – MUDs and MMORPGs; rich in visual stimuli, the latter evolution emerged from the text-only-mode MUDs (Castronova, 2005). Chen and Park (2005) believe that MUDs (both adventurous and social) are best suited for the social interaction, while MMORPGs, which supposedly provide the gamers with more levels to match their challenges and their skills, are best suited for experiencing the flow. Though this argument sounds reasonable, it is nevertheless not true because of these two main reasons.
First, recent studies state that people play MUDs to experience flow and also to achieve, to interact, and to cognate: these factors are shared by the participants in samples of the Russian and French gamers (Voiskounsky et al., 2004; Voiskounsky, Mitina, & Avetisova, 2006a; Voiskounsky et al., 2005). Second, Bartle (2003), Castronova (2005), and others convincingly describe the full multitude of the within-game and outside-of-game channels that those adept at MMORPGs use for intensive social interactions. Thus, the discrimination that is so important for Chen and Park (2005) is not in fact strongly discriminating. When they state that the MMORPG addicts seek the flow, while the MUD addicts seek the social interaction, the former statement cannot be accepted, taking into account the abovementioned psychological inequality in the enjoyments inherent in flow and in the addictive types of behavior. The addicts may try to seek flow, but unless they recover from the addiction, they can hardly reach it.

The opposite idea, that flow causes addiction, is stated in an empirical article by Chou and Ting (2003). They provide a logically reasonable but psychologically insufficient sequence of arguments, namely, that “people who enjoy flow experience during an activity may develop a tendency to repeat the activity . . . Repetition of a particular activity may eventually develop into a tendency toward addiction. . . . Flow experience is the precondition that actually activates addiction” (Chou & Ting, 2003, p. 665). Moreover, they empirically testify to this sequence of statements. Chou and Ting (2003) have testified that the repetitive behavior, not necessarily the flow experience, may activate the addictive activity.

The replication of behaviors intimately associated with flow, often resulting in the lifelong repetitions of the selected, and necessarily enjoyable, activities, is indeed characteristic of optimal forms of experience. However, the replications and repetitions are the outer, visible actions taken apart from the inner meaning of such behaviors. The reduction of the flow experience to repetitive actions is psychologically inadequate and disagrees with the essence of positive psychology. From the biocultural perspective, the psychological meaning of a well-known tendency toward the repetitions of the enjoyable activity is totally opposite of any sort of the addictive behavior. Massimini and Delle Fave (2000) introduce the term mimetic flow for the activities that “turn out to be poor in complexity potential, which is an essential feature of authentic flow activities and a prerequisite for individual development. Moreover, such activities do not foster the participant’s constructive integration in the culture” (p. 28). On the contrary, they foster a human being’s marginalization. Examples of the mimetic flow include the intake of drugs and psychoactive substances, stealing, passive leisure activities such as watching TV, abuse of technological artifacts (cars, computers, weapons, etc.): “In most cases, there is a misinterpretation of risk behavior as challenging behavior. No connections with individual development and integration in the social context can be found in such practices” (Massimini & Delle Fave, 2000, p. 29).
Within positive psychology, to preserve the enjoyment, repetitive actions should undergo a continuous update of both skills and challenges to their highest possible (utmost) level of matching. The psychological mechanism of a mismatch between the skills and the challenges is described in the study of the specifics of the flow-related experience in hacking (Voiskounsky & Smyslova, 2003a, 2003b). Such a mismatch, when either an update of the skills does not follow an increase of the challenges or vice versa, means indeed a danger of losing the optimality of experience. As a result, a person may turn to a repetitive and possibly addictive type of behavior. But the processes of parallel, step-by-step increase of both the skills and the challenges, though not easily attained while hacking, should not raise problems while gaming: the level structure of the popular well-designed games and the abundance of the goals to pursue guarantee that the players save good and continuous chances to experience flow.

An important and theoretically valuable study (Chiou & Wan, 2006; Wan & Chiou, 2006) shows empirically that the flow experience is negatively correlated to Internet addiction. The authors’ further analysis differentiates satisfactions from dissatisfactions inherent in the online gaming experience and provide well-justified evidences that in the process of gaming the addicts seek a kind of relief from their dissatisfaction. Thus, the flow experience and the addictive states have little in common, though the repetitions of certain actions do happen, but their psychological nature is entirely incompatible and dissimilar. This result, we believe, hinders further attempts to validate that the cyberspace-related addictions and the optimal forms of experience are of the same psychological background.

Cross-Cultural Studies of Flow Experience

The optimal experience research field has traditionally included cross-cultural comparative studies. Csikszentmihalyi’s and his colleagues’ books very often include culture-related chapters. Useful examples are the special issue (2004) of the Journal of Happiness Studies, with an introductory article “The Flow Experience across Cultures” by Moneta (2004), and the special issue (2000) of the American Psychologist, with an introduction by Seligman and Csikszentmihalyi (2000).

The situation is different with the flow-related research in cyberspace environments. Rather little can be said about the populations of the habitual cyberspace visitors speaking languages other than English or Chinese (particular research has been done mostly in Taiwan). Some investigations have also been carried out within populations of German-speaking students (Konradt & Sulz, 2001; Konradt et al., 2003; Tzanetakis & Vitouch, 2002; Vollmeyer & Rheinberg, 2006), within Russian gamers (Voiskounsky et al., 2004; Voiskounsky et al., 2005) and hackers (Voiskounsky & Smyslova, 2003a, 2003b),
within Korean online gamers (Choi & Kim, 2004), and within all the Scandi-
navian populations of information technologies users – the speakers of Norwe-
gian (Heidman & Sharafi, 2004), Swedish (Montgomery at al., 2004; Sharafi
et al., 2006), and Finnish (Pilke, 2004). Pioneer studies have also been carried
out in Israel within the groups chatting in Hebrew (Shoham, 2004), within
a population of Brazilian journalists actively using information technolo-
gies (Manssour, 2003), and within the Turkish children playing social games (Inal
& Cagiltay, 2007).

The list of empirical studies made in a number of countries may sound
impressive, but the problem is that none of these works is comparative and
neither can be qualified as a cross-cultural study. This situation is in no way
satisfactory because cyberspace is global and intercultural by its nature. One
can easily remember many other cyberspace-related research areas (for exam-
ple, the digital divide, the gender issues in e-shopping, the attitudes toward the
information technologies, the computer anxiety, etc.) in which the intercultural
comparisons are of paramount interest.

Thus, both in the field of the optimal experience studies and in the field of
cyberspace studies, there is a tendency to carry out cross-cultural projects.
Because of this, we stress the necessity and actuality of performing such
projects in the area of the flow experience studies related to the cyberspace
environments. Such studies have a good chance of becoming internationally
accepted. In this section, we describe the research projects that are going along
with the aforementioned tendency.

First, we should mention a comparative investigation of the flow patterns
displayed while navigating through a marketing website; bilingual speakers
of Spanish and English participated in the study (Luna et al., 2002). One of
the researchers’ goals is to create a cross-cultural model of a web-related
flow experience and to trace the effect of several cultural factors (including,
for example, a within-site navigation using the first or the second language
verbal skills) on the attitudes toward the website and on the participants’ actual
cognitive schemes. Besides, some marketing parameters are of special interest,
namely, the purchases from the e-shop and the intention to visit it again. This
study is being done in the context of psycholinguistics and sociolinguistics and
is a part of an ongoing project.

The second project will be described in more detail; it is a study carried
out by the author and his collaborators Dr. Olga Mitina and Ph.D. student
Anastasiya Avetisova (both are affiliated with the Psychology Department,
Moscow State University). It is targeted at the culture-specific aspects of a
flow experience within samples of Russian and French online gamers. The
project has been initially planned as cross-cultural; it consists of two empirical
online studies administered under the same methodology and procedure and a
comparative study. The published reports include the analysis of the Russian-
speaking gamers (Voiskounsky et al., 2004; Voiskounsky et al., 2005), of the
French-speaking gamers (Voiskounsky et al., 2006a), and the comparative
analysis (Voiskounsky, Mitina, & Avetisova, 2006b). Since the work is published, we are not going into the details of methodology and are not discussing the full results. Instead, we disclose the reasons for carrying out this project; the results are presented in a brief form and put in a relatively new context that has not been emphasized in the publications.

The study was held within the communities of the MUD gamers – MUDs represent a text-only version of the class of online games called MMORPG. MUDs have been played continuously since 1978 (Bartle, 2003). It is a global activity; nobody knows how many nonnative speakers of English were engaged in MUDding when there were no options to use a language other than English. With years passing, various national-language scripts became available. According to the plan, the two relatively new populations, namely, the French and the Russian, of MUD players have been compared as a whole, that is, any single player had a chance to be questioned irrespective of the particular MUD-type game he or she used to play. The reasons for comparing the French and the Russian MUD gamers are as follows (Voiskounsky et al., 2006a).

First, both in Russia and in France, there are MUD servers and MUD players; the two cultures do not exhibit either prejudices or sympathies toward online gaming; that is, the proportions of these two antagonistic processes would not be called unequal for the two cultures. No prior research of flow experienced while playing MUDs is known in any of these two countries.

Second, the online speakers of French as well as the online speakers of Russian partly include the citizens of the countries other than the two metropolitan states. Besides France, the speakers of French (francophones) are also located in Canadian Quebec, in European countries neighboring France, and in French-speaking African countries. Besides Russia, speakers of Russian are also located in post-Soviet countries (including the Ukraine, the population of which is close to France), as well as in the United States, Israel, Germany, Australia, and many other countries. Since the speakers of the two languages are distributed over the globe, it is reasonable to suppose that the respective online populations of the MUD gamers are also distributed. Moreover, it is reasonable to assume that the distributions are equally uneven: rather few French-speaking Africans and rather few speakers of Russian from the post-Soviet Central Asian states are expected to be regular, frequent visitors to the MUD servers.

Third, we find some parallels in the ways the two metropolitan countries are late in acquiring the global access to the Internet: the Russians due to the totalitarian nature of the Soviet state for which the idea of a free exchange of views has always been totally alien (Voiskounsky, 2001) and the French due to the pioneer development of the videotex system Minitel, which has been used more widely than its analogs (Prestel in the United Kingdom, Bildschirmtext in Germany, CAPTAIN in Japan, etc.). With time passing, the wide penetration of the Minitel seems to be a sort of a barrier to the advance of the Internet:
“France was the first to develop a public telematic system . . . Minitel became a symbol of France,” but “the French telematic system now appears outmoded.” (Lemos, 1996, p. 37).

Fourth, the two online audiences seem to be comparable in the approximate number of cyberspace visitors. Because no direct statistics for the MUD players is known, we assume that the two supposedly comparable online audiences contain a supposedly comparable number of the online gamers and finally a supposedly comparable number of the MUD players. After we compared the audiences at the time when the research was held, in 2003 (Russian part) and in 2004 (French part), we estimated (Voiskounsky et al., 2006a) that the francophone audience outscored the audience of Russian speakers by approximately 10 percent. We assume that the populations of the MUD players in the two countries are comparable in approximately the same proportion.

The cross-cultural methodology included the adaptation of the prior (Russian) questionnaire of forty questions (including eight questions on demography, on longevity and frequency of playing sessions) to make the French questionnaire culturally and linguistically identical. The procedure is described elsewhere (Voiskounsky et al., 2006a). The analysis of the results included explorative and confirmatory factor analyses, comparative analysis of the questionnaires’ items, and qualitative analysis of the factor models allocated to the Russian and the French samples. Because the current chapter is not a full report of the comparative study, we proceed to the description of the two resulting factor models and of the correlations between the factors and the particular questionnaires’ items.

The total number of participants in the study was 347 Russian speakers Russian and 203 francophones. As we anticipated, both samples included noncitizens of Russia and France, respectively. The explorative factor analysis provided a six-factor model for the Russian-speaking sample (Voiskounsky et al., 2004; Voiskounsky et al., 2005) and a three-factor model for the francophone sample (Voiskounsky et al., 2006a). The factors can be viewed in Figure 4.1, which provides correlations between the factors and the questionnaires’ items (nondemographic ones) which were loosely translated into English. Both factor models include the flow factor. The two factor models are statistically important, the intercorrelations between the factors are reasonably high (Voiskounsky et al., 2004; Voiskounsky et al., 2006a). We proceed to a brief comparative discussion of the factor models (Voiskounsky et al., 2006b).

Six factors in the right part of the Figure 4.1 characterize the Russian-speaking sample, three factors in the left part – the francophone sample. The former includes all the factors characterizing the latter: Flow, Achievement, Cognition, and Interaction. The latter means social (user-to-user) interaction, not personal interaction between the user and the system – the distinction between the two types of interaction within the gaming environments was introduced by Choi and Kim (2004). Hence, the factor models characterizing the Russian-speaking and the francophone samples are partly similar. The factor
Figure 4.1. Correlations between the factors and the questions: the Russian and the French samples.
model characterizing the Russian-speaking, but not the Francophone sample, includes two more factors, namely, Activity/Passivity and Thoughtfulness/Spontaneity. The factors Interaction and Cognition merge in the francophone sample, while for the speakers of Russian they represent independent factors. In a way, the factor structure characterizing the speakers of Russian is quite logical: the four factors common for the two samples and characterizing the prevalent game styles do not merge, unlike the factor structure of the francophone sample. On the other side, the latter might be called logical because in the multiplayer games Cognition presupposes Interaction in the form of social perception, that is, gaining knowledge about other fellow players; thus, the merger of the two factors can be reasonably interpreted.

The information in Figure 4.1 presents a different perspective, which is not presented in Voiskounsky et al. (2006b). Notice that the major factor for the Francophone sample, that is, Achievement, includes all the questionnaire items referring to the Russian-speaking sample factor Achievement plus several items referring to the Flow factor (partly common to the Russian-speaking and the francophone samples). Thus, for the francophones, Achievement includes certain elements of Flow: “focused attention,” “pressure and mobilization,” and “perception of reality of the game situations” (the latter is close to “presence”)—all rather heavily loaded. In other words, the desire for Achievement, characteristic for the francophone sample, includes some standard characteristics of Flow. The Achievement for the Russian-speaking sample does not include any characteristics alien to this desire. For the speakers of Russian Achievement is not the first factor, unlike the francophones.

To conclude, the flow experience is indeed an important component of online multiplayer games, either as the major factor (the Russian-speaking sample) or as one of the factors expanded by several characteristics of flow participating in the structure of the major factor (as in the francophone sample). This outcome seems to be important in the cross-cultural context. Of course, the qualitative comparison of the factor models is not the final point in interpretation and discussion. New cultural and intercultural studies as well as further analysis of the empirical results are needed to advance our knowledge of the role of a flow experience in gaming behavior and in cyberspace-related behavior in general. We believe the importance of cross-cultural investigations in the field will be constantly increasing, and the projects described in this section give certain grounds for an optimistic prognosis.

**Conclusion**

The optimal experience studies form a small sector in the full scope of research of the patterns of human behavior in cyberspace environments. These studies rely on a well-developed flow experience theory and methodology.
Cyberspace-related studies, reciprocally, enrich the optimal experience field providing some worthwhile characteristics pertinent to flow, for example, “presence.” No less important, cyberspace presents new directions for scholarly and applied work within the optimal experience paradigm. With time and with further influential investigations, this sector has a good chance to occupy a special position within the flexible, not yet ossified, area of cyberspace psychology. The advanced studies in the field are of great theoretical and practical importance.

The role of various cyberspace environments is perhaps the most significant in the procedural component of flow research. The flow studies have never depended on specific hardware units: pagers, programmable wristwatches, and personal computers are universal, and as such provide excellent options to realize this experience sampling methodology. With progress in information technologies, a hardware hurdle is likely to disappear gradually from the procedural design of the optimal experience studies. Over time, a software component will be its substitute, and data collecting will be performed online more often, that is, in cyberspace. Procedural innovations are major contributions of cyberspace-related technologies to the optimal experience paradigm.

The diversity of the flow studies within cyberspace environments embraces human-computer interaction and computer-mediated communication in problem-specific areas such as flow experiences in e-shopping, business applications of web sources and web marketing, online instruction, e-learning and distance education, computer/video/online playing and online entertainment, mediated interactions and online media consuming, web design and web usability, online navigation and web exploratory behavior, computer security and illicit online behavior, psychological rehabilitation supported by the use of the virtual reality systems, and more specified areas. Among others, there is a tendency to correlate the parameters of flow and addiction, arguing that both promote repetitive actions. This tendency is theoretically false: flow is positive, means enjoyment, and signifies an utmost behavior, and addiction means escape from the personal problems and asocial marginalization and signifies a totally negative psychological condition. Thus, flow and addiction are opposites, and current empirical studies prove this conclusion.

Both the optimal experience field and the cyberspace field are entirely global activities, and there are many culture-related research projects in both of these fields. But the area of optimal experience studies in the cyberspace environments is almost an exception. Serious efforts are needed to change this situation, and the two ongoing cross-cultural projects described in this chapter (namely, flow experienced by bilinguals while they navigate through a marketing website, and the role of flow in the playing activity of the French and Russian gamers) provide potential for optimism. Further studies are expected in all the aforementioned directions, and particularly in the intercultural direction.
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Flow Experience in Cyberspace: Current Studies and Perspectives


