Preface

It is no surprise that research on cyber behavior has increasingly gained the attention of various stakeholders ranging from legislative policy makers to school administers, from teachers to parents, from mass media to communities, and from researchers to professional practitioners such as counselors, social workers, and school psychologists (Zheng, Burrow-Sanchez, Donnelly, Call, & Drew, 2010). As a social phenomenon, cyber behavior reflects human activities that go beyond time and space boundaries. As such, it represents social values, perceptions, and communication patterns different from those held by the traditional school of social behaviorism (Dietz-Uhler & Bishop-Clark, 2005; McKenna & Bargh, 2000; Spears & Lea, 1992). For example, it has been reported that introverted people become more engaged in social communication in an online environment than in a face-to-face environment, which runs counter to the traditional theory of personality that delineates introverted people as shy, non-social beings (Madell & Muncer, 2006). In another instance, it was found that people are more open to self-disclosure in online environment than they usually are in the face-to-face environment. A case in point is the Facebook phenomenon where people self-disclose all sorts of personal information without being concerned about the consequence, that is, possible violation of their privacy by someone they don’t know (Dietz-Uhler & Bishop-Clark, 2005). Why do people act differently in cyber environment? What are the factors that promote people to act differently in cyber environment? What are the underlying constructs that explicate people’s psychological, cognitive, and motivational behaviors in cyber environment? Finally, what would the ramifications be with regard to the cyber behavior phenomenon and how they may contribute to the advancement of research in cyber behavior? The following sections offer discussions on the cyber behavior phenomenon from psychological and educational perspectives by first reviewing the existing research on cyber behavior, followed by a discussion on recent advances in the study of cyber behavior which are reflected in the collection of papers in this volume.

THE STATUS QUO OF RESEARCH ON CYBER BEHAVIOR

Cyber behavior is a complex phenomenon that intersects with multiple disciplines including developmental cognition, individual differences, personality, social communication, and so forth. Research on cyber behavior has therefore integrated the above areas into its framework which provides major conceptual and practical insights into our understanding of how cognitive, psychological, social, and biological influences have affected people’s online social behaviors, especially those of young people known as “Net Generations.” Among the current theories and models that attempt to explicate the cyber behavior phenomenon are (a) developmental models represented by Greenfield and her colleagues (Greenfield,
2004; Greenfield & Yan, 2006; Subrahmanyan, Smahel, & Greenfield, 2006); (b) theories on personality traits which explain how people with different personalities might behave differently online than in face-to-face social environment (Chak & Leung, 2004; Madell & Muncer, 2006; Sheeks & Birchmeier, 2007); and (c) social communication theories that focus on individual and group behavior in an online environment (McKenna, Green, & Gleason, 2002; Peter, Valkenburg, & Schouten, 2005).

**Cyber Behavior and Developmental Needs**

One of the heavily studied areas related to cyber behavior is teen online aggressiveness and addiction. Researchers (e.g., Greenfield, 2004; Lloyd, 2002; Subrahmanyan et al., 2006) found that such behavior may be related to adolescents’ developmental needs. According to Greenfield (2004), constructing and developing personal identity is a major task facing adolescents, which can be resolved in one of two directions, one being adaptive (successful) and the other maladaptive (unsuccessful). Erikson (1968) describes this as an identity crisis which may affect an individual’s ability to face future challenges in life. Evidence has shown that failure to resolve identity crisis can lead to aggressiveness in language or physical behavior due to frustration and confusion in constructing a successful identity. Subrahmanyan et al. (2006) found a high level of aggressiveness in teen online communication such as using racial slurs and sexually explicit language in chatrooms and concluded that such behavior may be due to a failure on the part of the teens to successfully construct and develop their personal identities.

**Cyber Behavior and Personality**

A significant body of work has attempted to describe the relationship between individual differences and cyber behavior (Anolli, Villani, & Riva, 2005; Chak & Leung, 2004; Madell & Muncer, 2006; Sheeks & Birchmeier, 2007). Researchers are particularly interested in finding out how personality traits such as introversion/extroversion, neuroticism, and psychoticism affect people’s behaviors in online communication (Anolli et al., 2005; Chak & Leung, 2004; Madell & Muncer, 2006). Research on introversion and extroversion is polarized in terms of the impact each has on people’s online social interaction. Some researchers argue that since extroverted people are “social, needing to have people to talk to, and disliking reading or studying by him- or herself” (Bianchi & Phillips, 2005, p. 41), the Internet which has no time and geographic limitation thus becomes an ideal place for them to establish their social network.

Contrary to the assumptions that the extroversion causes people to become addicted to the Internet communication, researchers (e.g., Madell & Muncer, 2006; Mesch, 2001; Widyanto & McMurran, 2004) who studied the relationship between introversion and online behaviors found that Internet communication appeals to introverted people and may partially explain why people become addicted to online chat. They argue that introverted people are usually socially shy and often have difficulty developing relationships with others in face-to-face settings, particularly when such relationship development is affected by “gating features” such as physical appearance, poor communication skills, and stuttering. With all the affordances of the Internet, that is, anonymity, flexibility, simultaneous multiple interactions, and so forth, socially anxious or lonely people can be socially compensated by communicating online with others without being overly conscious about who they are or what they say, and at the same time feel that their self-image is safeguarded (Peter et al., 2005; Valkenburg et al., 2006).
Cyber Behavior and Social Communication

Social communication theories have been instrumental in explaining behaviors unique to online environment. For example, social inhibition theory asserts that social communication can be inhibited by “gating features” such as physical appearance, communication skills, stuttering, and shyness (McKenna et al., 2002; Peter et al., 2006; Sheeks & Birchmeier, 2007). These features can prevent people from developing positive social relationships with others because of the strong impact they have upon first impressions which influence the subsequent development of relationships. McKenna et al. point out that the effects of gating features become mitigated in the Internet because “such features are not initially in evidence and thus do not stop potential relationships from getting off the ground” (p. 11). Contrary to social inhibition theory, social penetration theory posits that breadth (content area of communication) and depth (intimacy level of communication) are important determinants of relationship maintenance. Valkenburg and Peter (2007) asserted that perceived breadth and depth about online social communication leads to closeness among friends in an online social environment. They further noted that people discuss a wider range of topics online than offline because the Internet communication facilitates a relaxed social communication which induces higher level of intimacy.

In addition to the social communication theories mentioned above, social identity theory, which started in the mid-80s, has gained wide attention as researchers examine the cyber behavior and its impact on social communication. According to Tajfel and Turner (1986), social identity is concerned with when and why individuals identify with, and behave as part of, social groups, adopting shared attitudes with outsiders. Social identity is defined as social validation, expression, self-clarification, social control, and relationship development (Tajfel, 1978; Tajfel & Turner, 1986). There are two important concepts related to social identity: reciprocity and deindividuation. According to Dietz-Uhler and Bishop-Clark (2005), reciprocity plays a critical role in forming social identity within a community. For example, social validation and relationship development are built on mutual trust which is often shown in the form of self-disclosure in online or off-line settings. The initial self-disclosure is likely to elicit a self-disclosure from the partner because participants are aware of reciprocity. In contrast to reciprocity, deindividuation emphasizes group salience in the formation of social identity. Spears and Lea (1992) asserted that members of a social community are often compelled to adhere to the norms of the group when the social identity is moderately salient. For example, if one of the norms of a group is self-disclosure, then group members are increasingly likely to disclose information about themselves to other group members. Both reciprocity and deindividuation are important concepts in understanding cyber behavior phenomenon.

Taken together, the existing research on cyber behavior explicates the phenomenon relating to online socialization as well as the underlying constructs and factors that support the process of socialization. Nonetheless, majority of the literature focuses on developmental, social and individual factors, failing to provide an adequate account of the roles of other factors such as cognitive, affective, etc. in cyber behavior, particularly how people engage in deep learning in an online environment. The next section provides an overview of the recent advances in cyber behavior research through the lenses of cognitive learning and motivation. It also focuses on cognitive processes relating to online gambling – an emerging field in cyber behavior.
RECENT ADVANCES IN CYBER BEHAVIOR RESEARCH

Although the existing research has provided insights on how and why people behave in cyber communication environment, new understanding must be made regarding deep level processes, that is, the cognitive and motivational aspects related to cyber behavior. The following section attempts to summarize recent research on cyber behavior by examining (a) the motivational factor in terms of self-regulation in an online learning environment, (b) cognitive processes related to online learning, (c) online gaming phenomenon, and (d) problematic Internet use and behavior.

Self-Regulated Motivation in Online Learning

Self-regulation in online learning has been of great interest to researchers and practitioners (Jacobson & Azevedo, 2008; Winters, Greene, & Costich, 2008). According to Winters et al., online environments present important opportunities for fostering learning. However, students have difficulties when learning with these environments. Research has identified that students’ motivation plays an important role in influencing their academic performance. How to promote and maintain students’ motivation in an online environment? Sanson and her colleagues (Sanson & Smith, 2000; Sanson & Thomam, 2005) proposed a self-regulation of motivation (SRM) model which described the relationship between the learner’s interest, perceived task value and academic performance. According to Sanson’s SRM model, learners’ perception of the task value often leads to enduring interest which in turn influences the outcomes of the performance. Based on Sanson’s SRM model, Fraughton, Sanson, Butner, and Zachary (Chapter III) studied students’ self-regulated motivation in an online learning environment. The authors found that learners’ perceptions of the utility information about the content play a critical role in their self-regulation of motivation in learning. They concluded that when students understood the utility value of the content, their abilities to self-regulate their motivation improved, which in turn lead to an enhanced interest in learning and consequently an improvement in academic performance.

Other researchers (e.g., Kwok & Khoo, Chapter 5; Poon & Leung, Chapter 4) also investigated the role of motivation in online learning. Poon and Leung examined online users’ self-gratifications in relation to their motivation in online learning. Similar to Fraughton et al.’s findings, they discovered that users’ participation in online activities which reflected their perceptions of and preferences to certain types of online activity venues (e.g., Facebook, blogs, personal webpages, etc.) indicates, to a larger extent, their motivational inclination toward online activities. Kwok and Khoo studied the relationship between the youth performance and their intrinsic and extrinsic motivations in online gaming. They found that the intrinsic and extrinsic motivations were correlated with factors such as social orientation and immersion orientation in online gaming. The above studies have extended the research on online social behavior previously discussed (see McKenna et al., 2002; Peter et al., 2006; Sheeks & Birchmeier, 2007; Valkenburg & Peter, 2007 for details). They have significantly contributed to the understanding of the cyber behavior by (a) redefining the conceptual framework pertaining to online social activities by focusing on the role of motivation and (b) examining the relationships between self-regulation and motivation, as well as factors that affect both intrinsic and extrinsic motivations in online social activities.
Cognitive Processes Related to Online Learning

One of the salient features of this volume is its focus on cognitive processes related to online learning. Readers will find a collection of essays that highlight the relationship between prior knowledge and online learning behaviors (Butcher & Summer, Chapter 7; Roelle, Berthold, & Fries, Chapter 8) and learners’ cognitive processes and online information presentation (Yaros & Cook, Chapter 9).

Of particular interest to researchers in online learning is the role of prior knowledge on learners’ learning. Butcher and Sumner (Chapter 7) explored the impact of prior domain knowledge on students’ strategies and use of digital resources during a Web-based learning task. They found that higher levels of factual prior knowledge were associated with deeper learning and stronger use of digital resources, but that higher levels of deep prior knowledge were associated with less frequent use of online content and fewer deep revisions. The authors concluded that factual knowledge can serve as a useful knowledge base during self-directed, online learning tasks, but deeper prior knowledge may lead novice learners to adopt suboptimal processes and behaviors. Taking a different perspective, Roelle et al. (Chapter 8) investigated the role of cognitive feedback on learners’ learning strategies. The authors examined how feedback promotes learners to become metacognitively aware of the learning strategies in online learning. For those who research on learning strategies and cognitive prompts including feedback, Roelle et al.’s study presents an interesting perspective and can be informative in their research. Finally, Yaros and Cook (Chapter 9) considered the various information presentation formats and how different presentation formats influence learners’ cognitive information processes in online learning. The authors found that linear text structure resulting in enhanced learning, shorter viewing time and fewer eye fixations as compared to an “inverted pyramid” text commonly used in news. Moreover, they noticed that (a) when graphics were interacted with text, they facilitated performance in the linear conditions but inhibited in the inverted pyramid structure and (b) that graphics tended to increase viewing time and eye fixations for both structure conditions, that is, text only and text combined with graphics. The authors discussed the importance of text structure in complex news and how the data are not entirely consistent with the assumption that explanatory graphics increase understanding.

The above research has significantly enhanced our understanding of the cognitive processes in online learning in terms of the role of prior knowledge, the functionality of cognitive prompts such as feedback, and the design of information presentation online. Readers will appreciate the unique perspectives the authors presented in their chapters in terms of the issues in online learning and the academic rigor they demonstrated through their research design and implementation.

Online Gaming and Gambling

An issue that has become increasingly relevant to the research community of cyber behavior is online gaming and gambling. According to LaPlante, Kleschinsky, LabBrie, Nelson, and Shaffer (2009), the population of online gambling is currently estimated between 1.2% and 8.1% of the general adult population worldwide. Coupled with the online gambling phenomenon are the issues related to psychology, emotional and physical health. Researchers are interested in identifying risk factors associated with the development and maintenance of problem gambling online. Readers will find in this volume chapters that focus on the cognitive, psychological and motivational factors related to online gambling. Over the years, Mark Griffiths and his colleagues (Griffiths, Parke, Wood & Parke, 2006; Griffiths, Parke, Wood & Rigbye, 2010; Wood, Griffiths & Parke, 2007) have explored the human behavior and human factors
concerning online gambling. This volume presents a collection of papers by Griffiths and colleagues on gambling community, cognitive processes and online gambling, and gambling behavior in the cyber world (See Chapters 10, 11, and 12). Readers will find the reading beneficial as they start to question how the role of human factors and the variables specific to the cyber world would affect users’ online gambling behavior.

The chapter authored by Kevin Linares, Kaveri Subrahmanyam, Roy Cheng, and Shu-Sha Angie Guan (Chapter 13) is also worthy of mentioning. The authors examined whether there was a relationship between residents’ identity style and online beliefs and activities, specifically those related to self-presentation and identity exploration via avatars (e.g., beliefs about avatar appearance and attractiveness, role playing) and relationship formation (e.g., time spent interacting with others) as they are related to one’s sense of self. Specifically, they examined the role of avatars in Second Life (SL) and found that SL avatars were mostly human, and were of the same gender as the residents’ offline self; SL activities were similar to every day offline ones such as personal grooming and enhancing one’s appearance, interacting with others, working, and shopping. Because of that, they claimed that identity processing styles were partially related to beliefs and activities within SL. The authors thus suggest that SL residents may not be creating second lives within this virtual world, but are instead bringing elements of their first or offline lives into this online context.

The findings from the studies by Griffiths and his colleagues (Chapters 10, 11, and 12) and from the study by Linares et al. (Chapter 13) reveal some important aspects related to online gaming and gambling. The above chapters have contributed to the understanding of the issues in an emerging, yet important, field in cyber behavior: online gaming and gambling. Readers will benefit from these chapters in terms of research and practice, especially in the assessment and evaluation of online gaming and gambling as well as in the design and development of such environments that help mitigate problematic gambling online.

Overall, this edited book presents a collection of chapters that focus on the evolving educational and psychological perspectives in cyber behavior. It covers a wide range of topics from theoretical to practical, from cognitive to motivational, and from application issues to design aspects in cyber learning and activities. This book presents new advances in the research of cyber behavior and has thus met an imminent need for the research community who look for evidence-based research studies to address issues in cyber behavior.

THE CONTRIBUTION OF THIS BOOK

This book addresses pressing needs in cyber behavior by (a) presenting research articles that focus on the educational and psychological perspectives in cyber behavior, (b) identifying emerging issues and themes that will and have influenced the practices of online social learning and activities, and (c) providing important evidence on successful development and implementation of online social environment. A major contribution of this book is to bring together research in cyber behavior with an emphasis on both cognitive and motivational factors. Thus, the book is significant in both theoretical and practical levels. At the practical level, the book provides evidences for designing and developing effective online learning and activities by identifying factors that help optimize the learners’ learning behavior in cyber space. For example, by identifying the role of prior knowledge and cognitive feedback, learners will be able to attain a better performance when learning online. At the theoretical level, the book has contributed
to the understanding of critical issues in cyber behavior which include cognitive processes, motivational factors, and behavioral structure in online environment such as online gaming and gambling.

This book reflects the collective efforts of researchers in cyber behavior who explore various issues with a rigorous and robust research agenda. They challenged the traditional framework of research in cyber behavior and identified new parameters critical to the understanding of cyber learning and activities. This book includes international scholars who are well known in their fields and who represent a wide range of disciplines and research agenda, from cognitive to motivational issues, and from practical issues to theoretical queries. This book should thus appeal to readers from the United States and the international educational and research communities. Practitioners in K-12 schools should also find this book useful as cyber behavior has become a universal phenomenon that has been prevalent at all levels of education. Beyond the educational community, anyone interested in e-Learning, cyber behavior, online social communication, and so forth should find this book a useful companion as they discover helpful information from book pertaining to cyber behavior and online related social activities and communication.

THE ORGANIZATION OF THE BOOK

The foci of this edited volume are to present recent advances in the research of cyber behavior and their educational and psychological impacts on people by identifying emerging issues and themes that have influenced the practices of online social learning and activities. Of sixteen excellent contributing chapters, five distinct themes have emerged. They include theoretical perspective on cyber behavior and research, motivational aspects in cyber learning and behavior, cognitive processes related to cyber learning and activities, online gaming and gambling, and educational practices in the cyber world. A discussion of the relevant themes and sections follows.

Section 1 introduces the theoretical perspectives pertaining to cyber behavior and learning. It highlights important research questions formed by the researchers as well as the various research areas in cyber behavior and learning.

Chapter 1 presents a theoretical review paper in which the Zheng Yan of State University of New York at Albany and Robert Zheng of University of Utah discuss five important issues about the science of cyber behavior as a field of scientific research. First, the authors argue that the science of cyber behavior as a field of research is entering its “adolescence”, after growing from its childhood but before spearheading into its adulthood. Second, they review the current understanding of human behavior in general and stated that behavior sciences have generated extensive knowledge about human behavior theoretically, empirically, and methodologically across multiple disciplines. Third, they focus on cyber communication as an example to illustrate the current knowledge about various types of cyber behaviors. Fourth, they showcase exemplary research programs on cyber behavior in four disciplines of behavioral sciences, social psychology, cognitive psychology, communication studies, and sociology. Finally, they outline future research programs in five major directions for further development of the field.

In Chapter 2 Christine Greenhow of the University of Maryland covers an important topic of youth-initiated online social networking that is transforming our society in important ways and has vast implications for research concerning online behavior, the social and psychological aspects of online learning, and the institution of education. The author introduces the socio-technical features that characterize social networking systems and outlines results from preliminary research that suggests the informal social and intellectual practices in which participants naturally engage and how these relate
to the competencies increasingly valued in formal education. The above discussion is followed by an
outline for four overlapping categories for research: activities and outcomes; tool, place, and medium;
identity and communication; and network analytics and methods. Within these categories, the author
presents some interesting research questions to pursue in documenting and interpreting the complexity
of ‘learning’ within these spaces. The author declares that the goals of this paper are to catalyze inquiry
that bridges informal and formal learning and stimulate interdisciplinary conversation about where such
agendas fit within and advance learning research.

Section 2 includes chapters on social and motivational behaviors in the cyber world. The topics
covers from self-regulated motivation in online environment to online social gratification, to factors
influencing intrinsic and extrinsic motivations in online learning, to self-esteem in cyber related behavior
and activities.

Tamara Fraughton, Carol Sansone, Jonathan Butner, and Joseph Zachary of University of Utah
introduce in Chapter 3 the theory of Self-Regulation of Motivation (SRM) and present a research study
on Regulating Motivation and Performance Online Project (RMAPO) in which students completed an
online HTML programming lesson. The results show higher quiz scores and greater post-lesson inter-
est when initially provided information about how the skills could be used (personal or organizational
applications). These effects were mediated by higher levels of engagement with optional examples and
exercises during the lesson. The chapter examined whether the benefit from adding utility value informa-
tion was limited to students with no prior experience creating webpages. Results show that, regardless
of prior experience, the added information was associated with higher engagement levels, which, in
turn, were associated with higher lesson interest and quiz scores. Because prior experience is related to
lower engagement levels overall, results suggested that experience had an indirect negative effect on
motivation and performance outcomes that was offset by enhanced engagement when value was added.
Implications for the Self-Regulation of Motivation Model (SRM) and for online instructors are discussed.

Chapter 4 presents research by Damon Chi Him Poon and Louis Leung of The Chinese University of
Hong Kong, HK. The authors study effects of narcissism, leisure boredom, and gratifications sought on
user-generated content among net-generation users. In this chapter the authors identify the gratifications
sought by the Net-generation when producing user-generated content (UGC) on the Internet. Results
showed that members of the Net-generation want to vent negative feelings, show affection to their friends
and relatives, be involved in others’ lives, and fulfill their need to be recognized. These gratifications,
to a large degree, are found to be significantly associated with the users’ various levels of participation
in UGC (e.g., Facebook, blogs, online forums, etc.). Further, it is found that narcissism was predictive
of content generation in social networking sites, blogs, and personal webpages, while leisure boredom
is significantly linked to expressing views in forums, updating personal websites, and participating in
consumer reviews. In particular, the results showed that Net-geners who encountered leisure boredom
had a higher tendency to seek interaction with friends online.

Chapter 5 includes studies by Nikole Wing Ka Kwok of Institute of Mental Health, Singapore and
Angeline Khoo of Nanyang Technological University, Singapore, on gamers’ motivations and problem-
atic gaming in World of Warcraft. The authors explore the factors that contribute to problematic gaming
among players of Massively Multiplayer Online Role Playing Games (MMOs for short), in particular,
the game World of Warcraft. They examine motivations based on the Self Determination Theory (SDT)
and motivations based on Yee’s player orientations. A total of 128 gamers participated in the online
survey. Results show that achievement and immersion player orientations are correlated with extrinsic
motivation in terms of external, introjected, and identified regulations, as well as intrinsic motivation.
They report that social orientation was only correlated with identified regulation and intrinsic motivation while problematic gaming was correlated with all types of extrinsic motivation, and intrinsic motivation, as well as with achievement and immersion player orientations but not with social player orientation. Finally, achievement orientation and introjected regulation both positively predicted problematic gaming, while identified regulation negatively predicted it.

In Chapter 6 Laura Widyanto and Mark Griffiths of Nottingham Trent University, UK present an empirical study on problematic internet use and self-esteem. The main aim of the chapter is to examine the relationship between problematic Internet use and a number of distinct demographic, behavioural, and psychosocial variables (i.e., gender, age, frequency of weekly Internet usage, duration of Internet use, preferred type of Internet use/application, self-esteem). Using an online survey, a self-selected sample comprising 1,467 Internet users (604 males and 863 females; mainly university students) participated in the study. The survey comprised 50 questions including validated scales for both self-esteem (Rosenberg’s Self-Esteem Scale) and problematic Internet use (Internet Related Problem Scale; IPRS), in addition to demographic information. Based on previous literature, it was hypothesized that problematic Internet users were more likely than non-problematic Internet users to post low self-esteem scores. The results showed that self-esteem was strongly and negatively associated with IRPS. Also, for those with high IRPS scores, participation in online forums was the primary online activity followed by online gaming and chatting. Although the study comprised a self-selecting sample and utilized self-report, the results appear to provide robust evidence of an association between self-esteem and problematic Internet use, and mirror prior research in the area.

Section 3 offers several in-depth studies on cognitive processes in cyber learning and activities. This section includes three important chapters that cover the topics of prior knowledge and online learning, the effects of cognitive feedback on learning strategies, and strategic information presentation pertaining to attention and learning in an online environment.

In Chapter 7 Kirsten Butcher of University of Utah and Tamara Sumner of University of Colorado at Boulder explore the impact of prior domain knowledge on students’ strategies and use of digital resources during a Web-based learning task. Domain knowledge was measured using pre- and posttests of factual knowledge and knowledge application. Students utilized an age- and topic-relevant collection of 796 Web resources drawn from an existing educational digital library to revise essays that they had written prior to the online learning task. Following essay revision, participants self-reported their strategies for improving their essays. Screen-capture software was used to record all student interactions with Web-based resources and all modifications to their essays. Analyses examine the relationship between different levels of students’ prior knowledge and online learning behaviors, self-reported strategies, and learning outcomes. Findings demonstrate that higher levels of factual prior knowledge are associated with deeper learning and stronger use of digital resources, but that higher levels of deep prior knowledge are associated with less frequent use of online content and fewer deep revisions. These results suggest that factual knowledge can serve as a useful knowledge base during self-directed, online learning tasks, but deeper prior knowledge may lead novice learners to adopt suboptimal processes and behaviors.

Chapter 8 presents an important aspect in the research on cognitive feedback in online learning. Julian Roelle, Kirsten Berthold, and Stefan Fries of University of Bielefeld, Germany investigated the role of feedback on learning strategies in online learning. The authors used an online learning management system to employ a feedback procedure that included highly elaborated feedback on learning strategies in a learning journal. The authors tested the effects of this feedback procedure in a field study using a within-subject design with the factor feedback (no vs. yes). Participants were 246 university students...
who wrote journal entries over an entire term. The results show that providing feedback to low expertise learners is effective whereas the effectiveness of feedback is reversed regarding high expertise learners.

**Chapter 9** offers a discussion on the relationship between attention and learning in online learning. Ronald Yaros of University of Maryland and Anne Cook of University of Utah used eye tracking techniques to examine learners’ attention and learning in online learning. Using a within-subject experiment design, the authors investigate the difference between text and graphic structures in health news stories. Results suggest enhanced learning, shorter viewing time and fewer eye fixations for a linear text structure as compared to an “inverted pyramid” text commonly used in news. Graphics interact with text, facilitating performance in the linear conditions but inhibiting them in the inverted pyramid structure. Graphics tend to also increase viewing time and eye fixations on text only and text combined with graphics for both structure conditions. Results discuss the importance of text structure in complex news and how the data are not entirely consistent with the assumption that explanatory graphics increase understanding.

**Section 4** presents chapters that represent an important theme in cyber behavior, that is, online gaming and gambling in the cyber world. The section includes studies focusing on gambling behavior, online gambling community, game transfer effect, and the learning in the virtual world environment such as Second Life.

In **Chapter 10** Adrian Parke of University of Lincoln, UK and Mark Griffiths of Nottingham Trent University, UK explore the effects on gambling behavior of developments in information technology using a grounded theory approach. The authors propose a theoretical framework that outlines the effect of technological developments in information technology (IT) on gambling behavior. The authors intend to produce theoretical propositions that can be investigated empirically in future research. Grounded Theory was employed to enable a theoretical framework to conceptualize online gambling behavior and the utility of IT in gambling behavior. In total, eight participants were interviewed via semi-structured interviews until theoretical saturation was achieved. The theoretical framework was contrasted against existing problem gambling research. Grounded Theory has indicated that developments in IT have been a catalyst for Elevated Gambling Involvement, in terms of both participation and pre-occupation, and that this phenomenon was produced via the following behavioral constructs: increased outcome control, reduced discipline, expediency, and consumer value.

In **Chapter 11** Angelica B. Ortiz de Gortari and Mark D. Griffiths of Nottingham Trent University, UK and Karin Aronsson of Stockholm University, Sweden focus on game transfer phenomena in video game playing. Video game playing is a popular activity and its enjoyment among frequent players has been associated with absorption and immersion experiences. The chapter examines how immersion in the video game environment can influence the player during the game and afterwards (including fantasies, thoughts, and actions). The authors described this as Game Transfer Phenomena (GTP). GTP occurs when video game elements are associated with real life elements triggering subsequent thoughts, sensations and/or player actions. To investigate this further, a total of 42 frequent video game players aged between 15 and 21 years old were interviewed. Thematic analysis showed that many players experienced GTP, where players appeared to integrate elements of video game playing into their real lives. These GTP were then classified as either intentional or automatic experiences. Results also showed that players used video games for interacting with others as a form of amusement, modeling or mimicking video game content, and daydreaming about video games. Furthermore, the findings demonstrate how video games sometimes triggered intrusive thoughts, sensations, impulses, reflexes, optical illusions, and dissociations.

In **Chapter 12** Adrian Parke of University of Lincoln, UK and Mark Griffiths of Nottingham Trent University, UK investigate poker gambling virtual communities by exploring the use of computer-mediated
communication to develop cognitive poker gambling skills. Internationally, online poker gambling prevalence is currently estimated to be between one percent and eight percent of the general adult population. In relation to these estimated prevalence rates, the potential for addictive behavior and the paucity of theory, online poker is an important potential concern for public health. A recent phenomenon has been for individuals to seek poker gambling knowledge that will assist in developing poker gambling skill via virtual community interactions. Using a virtual ethnography design, the authors examine knowledge creation, transfer, and retrieval processes within a poker-focused virtual community. The aim is to develop current knowledge and understanding of how computer-mediated communication (CMC) is used by poker gamblers to develop their executive cognitive skills and enhance their poker gambling proficiency. Two independent poker gambling virtual communities were observed for a six-month period. Data were collected through participant observation, and content analysis was used to identify emergent themes. Two central behavioral themes emerge from the participant observation (i.e., ‘Experiential Reporting’ and ‘Development of Poker Skill’). The implications of poker gambling knowledge creation, transfer, and retrieval via CMC on responsible gambling are discussed.

In Chapter 13 Kevin Linares, Kaveri Subrahmanyam, and Roy Cheng of California State University at Los Angeles, USA and Shu-Sha Angie Guan, University of California at Los Angeles, USA study learners’ behavior in a virtual world called Second Life. Virtual worlds such as Second Life (SL) are online computer-based world-like spaces, where users assume virtual selves or avatars to interact with others, create objects, and engage in a variety of transactions. This chapter examines SL residents’ avatars, activities, and the relation between residents’ offline characteristics and online avatars and activities. The authors examined whether there was a relationship between residents’ identity style and online beliefs and activities, specifically those related to self-presentation and identity exploration via avatars (e.g., beliefs about avatar appearance and attractiveness, role playing) and relationship formation (e.g., time spent interacting with others) as they are related to one’s sense of self. An online survey of 378 SL residents was conducted and participants included 224 females and 123 males, who ranged in age from 18 to 69 (M = 30.6, SD = 10.07) years. Respondents were asked to complete an SL survey (containing questions about their avatars, use, and activities within SL) and the Identity style inventory sixth grade reading level (ISI-6G). Results suggest that SL avatars are mostly human, and are of the same gender as the residents’ offline self; SL activities are similar to everyday offline ones such as personal grooming and enhancing one’s appearance, interacting with others, working, and shopping. Latent variable analysis reveals that identity processing styles are partially related to beliefs and activities within SL. The study suggests SL residents may not be creating second lives within this virtual world, but are instead bringing elements of their first or offline lives into this online context.

Section 5 includes chapters on educational practices in the cyber world. The authors present a collection of essays on issues on cyber behaviors by focusing on the educational aspects. The topics range from online credibility to cyberbullying, to texting behavior by using such methods as comparative, cross-country design. Thus, the essays collectively present to the readers an international perspective on issues pertaining to cyber learning and behavior.

Chapter 14 authored by Malkeet Singh of Pacific Resources for Education and Learning, USA and Marie Iding of University of Hawaii, USA, studies Singaporean junior college students’ determinations of the credibility of social studies Web sites. Two studies were conducted to carry out the investigation. In the first study, participants selected Web sites that they determined to provide objective and accurate representations of their topics, provided reasons for their selection, and described Web site authors’ vested interests. They also selected Web sites that illustrated misrepresentations, explained why, and
described authors’ vested interests. Finally, they rated their own competence and confidence about different aspects of Web site information accuracy. Qualitative analyses of participants’ written comments reveal a strong awareness of political vested interests of Web site authors, a topic that had not emerged in previous research. In the second study, analyses of students’ responses to questionnaires about a more credible and a less credible Web site provided by their instructor indicate that students rated the more credible Web site higher on the total combined score of 17 characteristics. Students’ ratings of their general confidence in evaluating Web sites on accuracy/truthfulness as well as their confidence in detecting misrepresentations in Web sites were used as criteria in a reduced multiple regression model. Results show that students generally differed in their perception of the two Web sites, and self-ratings of confidence were associated with ratings in seven characteristics for the first Web site and another seven characteristics for the second Web site. Implications for future research are discussed.

In Chapter 15 Ikuko Aoyama, Lucy Barnard-Brak, and Tony Talbert, Baylor University, USA study cyberbullying among high school students. Bullying, a once typical occurrence in schools, has gone digital. As a result, cyberbullying has become ever more present among youth. The authors classify cyberbullying into four categories based on students’ cyberbullying experiences and examined the characteristics of these groups based on the sex and age of the participants and the level of parental monitoring. A cluster analysis revealed four distinct groups of students who were: “highly involved both as bully and victim,” “more victim than bully,” “more bully than victim,” or “least involved.” Significantly more girls and more students in lower grades were classified into the “more victim than bully group” while older students were more likely to be classified into the “more bully than victim” group. No significant differences were found between cluster membership and the degree of parental monitoring.

Finally, Chapter 16 presents a comparative study on the characteristics of text-speak used by English and Japanese students. Jean Underwood of Nottingham Trent University, UK and Taiichiro Okubayashi of Osaka University, Japan, examine text messaging among the youth from a multi-cultural perspective. They studied English and Japanese undergraduates to find out whether text-speak is a product of the technological constraints on the host language or is influenced by gender differences in communication style. The study had a between-subjects factorial design with two independent variables: language (English, Japanese) and gender (male, female). The dependent variable was frequency and type of text modification. The results show both a qualitative and quantitative difference in texting between the two groups with English texters being the more active. However, English and Japanese females made more adaptations to the host-language than their within-culture male peers, even though the structure of the two host languages was very different. The greater use of abbreviations by females compared to males might be explained either by a higher engagement with this mode of communication or diverging goals between the sexes when texting.

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