

Psychopathologische und Neuropsychologische Korrelate der Internetsucht

Prof. Dr. Matthias Brand

UNIVERSITÄT
DUISBURG
ESSEN

Offen im Denken



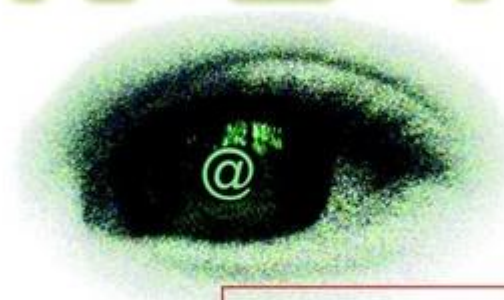
Allgemeine
Psychologie:
Kognition



ERWIN L. HAHN
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CAUGHT in the NET



How to
Recognize the Signs
of Internet Addiction--
and a Winning
Strategy for Recovery

DR. KIMBERLY S. YOUNG

(Young, 1998)



Prävalenzraten

Prävalenz %	Studie	Prävalenz %	Studie
1.5	Rumpf et al. (2011)	7.7	Song et al. (2010)
1.6	Kim et al. (2006)	8.2	Siomos et al. (2008)
1.8	Kaltiala-Heino et al. (2004)	9.3	Grüsser et al. (2005)
2.0	Johansson & Götestam (2004)	9.8	Anderson (2001)
3.2	Hahn & Jerusalem (2001)	11.7	Lin & Tsai (2002)
3.5	Whang et al. (2003)	12.7	Zimmerl et al. (1998)
3.8	Ghassemzadeh et al. (2008)	13	Scherer (1997)
4.0	Wang (2001)	13.3	Yoo et al. (2004)
4.6	Seemann et al. (2000)	13.8	Yang & Tung (2007)
5.0	Quandt & Wimmer (2008)	14.7	Chak & Leung (2004)
5.4	Pallanti et al. (2006)	17.7	Ko et al. (2007)
6.0	Chou & Hsiao (2000)	18.3	Niemz et al. (2005)
6.3	Wölfling et al. (2007)	20.7	Yen et al. (2007)

(Überblick in Kuss et al., 2014)





Inhalt

1. Diagnostik und Klassifikation
2. Psychopathologische Korrelate
3. Neuropsychologische Korrelate
4. Schlussfolgerungen





Diagnostik und Klassifikation

Symptome

Internetsucht

- Kontrollverlust
- Weiterer Konsum trotz negativer Konsequenzen
- Salienz/ Preoccupation
- Starkes Verlangen („Craving“)
- Entzugssymptome (z.B. Nervosität)
- Konflikte (am Arbeitsplatz/Schule, mit anderen Personen)

In Sektion III des
DSM-5:

„Internet Gaming
Disorder“

(Brand et al., 2014; Griffiths, 2005)



Instrument	Items / Skalierung/ Faktoren	Autor(en)
Internet Addiction Disorder Diagnostic Criteria	7 Diagnose Kriterien	Goldberg, 1995
Internet-Related Addictive Behavior Inventory (IRABI)	32 Items / (ja/nein)	Brenner, 1997
Clinical Symptoms of Internet Dependency (CSID)	10 Diagnose Kriterien / (ja/nein)	Scherer, 1997
Diagnostic Questionnaire (DQ)	8 Items / (ja/nein)	Young, 1998
Internet Addiction Test (IAT)	20 Items / 5-Punkt	Young, 1998
Addiction Components Criteria	6 Diagnose Kriterien	Griffiths, 1999
Internet Sucht Skala (ISS-20)	20 Items / - / 5 Subskalen	Hahn & Jerusalem, 2000
Pathological Internet Use (PIU) Scale	13 Items / (ja/nein)	Morahan-Martin & Schumacher, 2000
Chinese Internet-Related Addictive Behavior Inventory (C-IRABI)	40 Items / 4Punkt / 6 Faktoren	Chou & Hsiao, 2000
Internet Related Problem Scale (IRPS)	20 Items / 10-Punkt	Armstrong, 2000
Internet Addiction Scale for Taiwanese high school students (IAST)	29 Items / 4-Punkt / 4 Subskalen	Lin & Tsai, 2002 (Konferenz, 1999)
Generalized Problematic Internet Use Scale (GPIUS)	29 Items / 5-Punkt / 7 Faktoren	Caplan, 2002
Online Cognition Scale (OCS)	36 Items / 7-Punkt / 4 Faktoren	Davis et al., 2002
Fragebogen zum Internetgebrauch und Abhängigkeit	74 Items / (ja/nein) / 3 Faktoren	Pratarelli et al., 2002
Chinese Internet Addiction Scale (CIAS)	26 Items / 4-Punkt	Chen et al., 2003
Compulsive Internet Use Scale (CIUS)	14 Items / 5-Punkt	Meerkerk, 2005
Problematic Internet Use Questionnaire (PIUQ)	20 Items / 5-Punkt / 3 Faktoren	Thatcher & Goolam, 2005
Internet Effect Scale (IES)	26 Items / (Ja/Nein) / 7 Faktoren	Suhail, 2006
Chinese Internet Addiction Inventory (CIAI)	31 Items / 5-Punkt / 3 Faktoren	Huang, 2007
Problematic Internet Usage Scale (PIUS)	33 Items / 5-Punkt / 3 Faktoren	Ceyhan et al., 2007
Internet Dependency Scale		Lu, 2008



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Computers in Human Behavior

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Validation and psychometric properties of a short version of Young's Internet Addiction Test

Mirko Pawlikowski^a, Christine Altstötter-Gleich^b, Matthias Brand^{a,c,*}

→ modifiziert für Internetsexseiten (vgl. Brand et al., 2011)

- **12 Items**
- **1. Faktor:** "Kontrollverlust und Zeitmanagement"
- **2. Faktor:** "Craving und soziale Probleme"
- **Antwortformat** von 1 (= nie) bis 5 (= sehr oft)
- **Summenwert:** Range von 12 – 60.



Internetsucht = Internetsucht?

Generalisierte Internetsucht

VS.

Spezifische Internetsucht

Internet-Gaming

Internet-Gambling

Internet-Sex

Internet-Shopping

Internet-Kommun.

(Brand et al., 2014; Davis, 2001; Young, 1998)



A large blue circle containing the white number '2' in a serif font, centered on a light beige background.

2

Psychopathologische Korrelate

Korrelationen zwischen Symptomen der Internetsucht und psychopathologischen Symptomen bzw. Studien zu Comorbiditäten:

Psychopathologische Korrelate

- Depression
- Soziale Ängstlichkeit
- ADHD
- Stressanfälligkeit
- Erhöhte Impulsivität
- Schüchternheit und soziale Isolation
- Ungünstiges Coping

Metaanalysen: Ho et al. (2014), Koo & Kwon (2014)

Weitere Beispielarbeiten: Floros et al. (2014), Kardefelt-Winther (2014) Sariyska et al. (2014)





Internet addiction: coping styles, expectancies, and treatment implications

Matthias Brand^{1,2 *}, Christian Laier¹ and Kimberly S. Young³

¹ Department of General Psychology: Cognition, University of Duisburg-Essen, Duisburg, Germany

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³ Center for Internet Addiction, Russell J. Jandoli School of Journalism and Mass Communication, St. Bonaventure University, Olean, NY, USA

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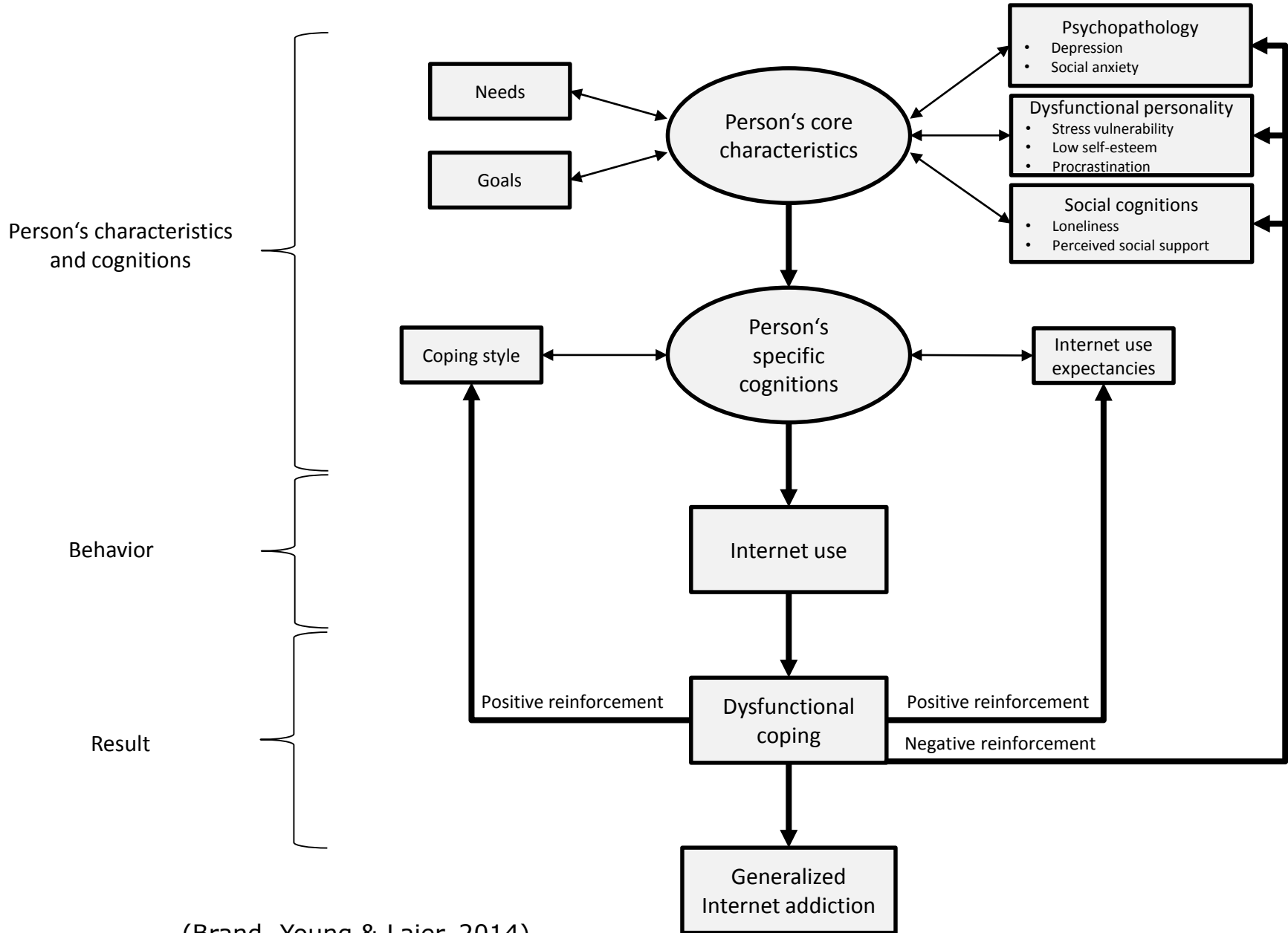
Matthias Brand, Department of
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Internet addiction (IA) has become a serious mental health condition in many countries. To better understand the clinical implications of IA, this study tested statistically a new theoretical model illustrating underlying cognitive mechanisms contributing to development and maintenance of the disorder. The model differentiates between a generalized Internet addiction (GIA) and specific forms. This study tested the model on GIA on a population of general Internet users. The findings from 1019 users show that the hypothesized structural equation model explained 63.5% of the variance of GIA symptoms, as measured by the short version of the Internet Addiction Test. Using psychological and personality testing, the results show that a person's specific cognitions (poor coping and cognitive expectations) increased the risk for GIA. These two factors mediated the symptoms of GIA if other risk factors were present such as depression, social anxiety, low self-esteem, low self-efficacy, and high stress vulnerability to name a few areas that were measured in the study. The model shows that individuals with high coping skills and no expectancies that the Internet can be used to increase positive or reduce negative mood are less likely to engage in problematic Internet use, even when other personality or psychological vulnerabilities are present. The implications for treatment include a clear cognitive component to the development of GIA and the need to assess a patient's coping style and cognitions and improve faulty thinking to reduce symptoms and engage in recovery.

Keywords: Internet addiction, personality, psychopathology, coping, cognitive-behavioral therapy



Generalized Internet addiction



(Brand, Young & Laier, 2014)



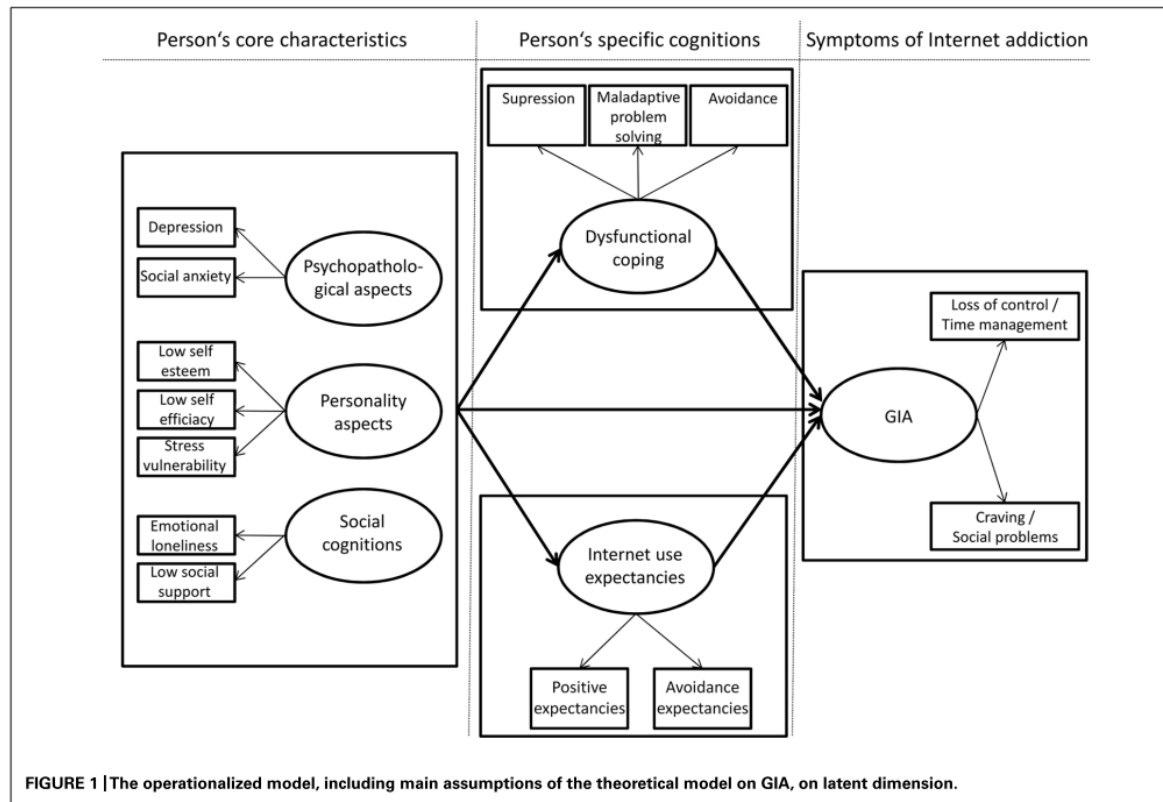
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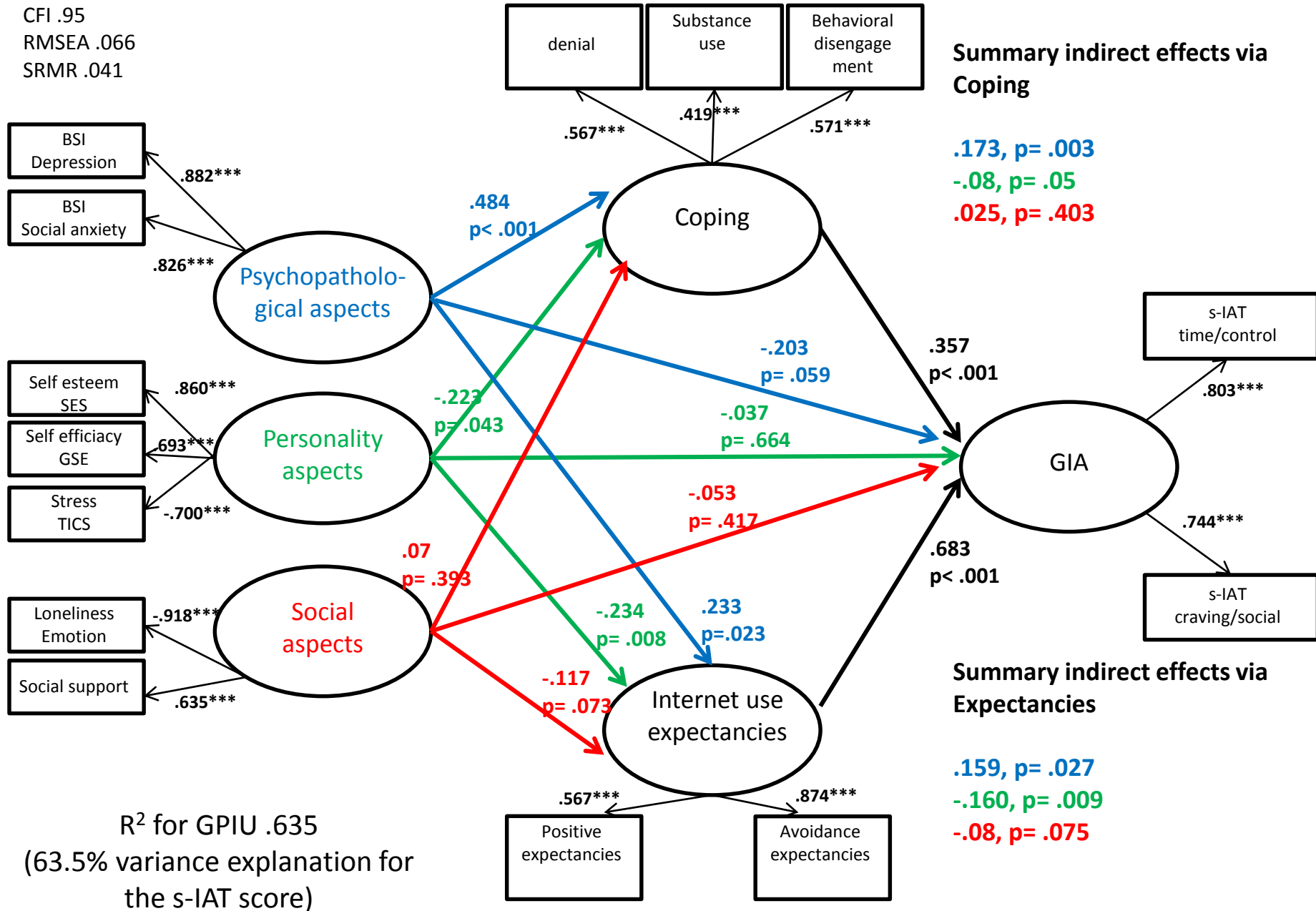
³ Center for Internet Addiction, Russell J. Jandoli School of Journalism and Mass Communication, St. Bonaventure University, Olean, NY, USA



Overview standardized model results (Beta values and p values)

Fit indices:

CFI .95
RMSEA .066
SRMR .041

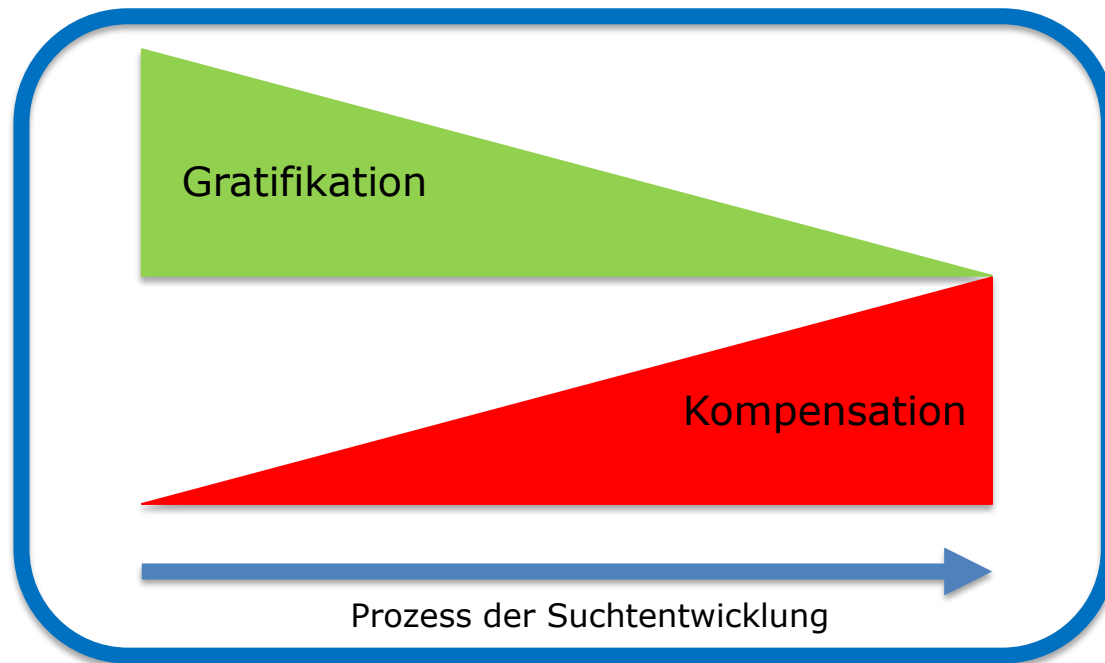




Neuropsychologische Korrelate

Gratifikation oder Kompensation?

(Brand & Laier, 2013; Kuss & Griffith, 2011; Meerkerk et al., 2006; Young, 2008)



(Brand et al., 2014)





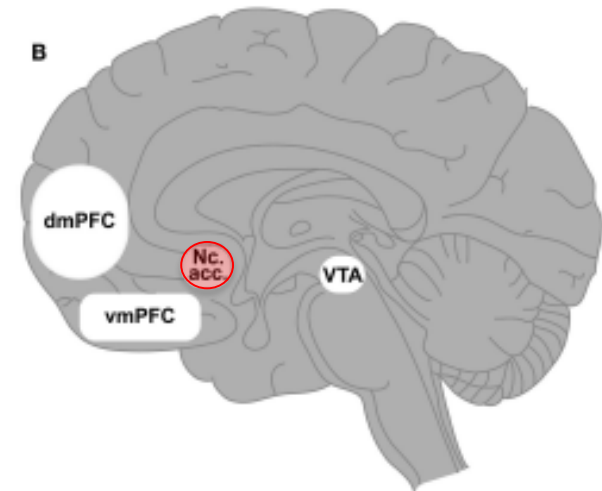
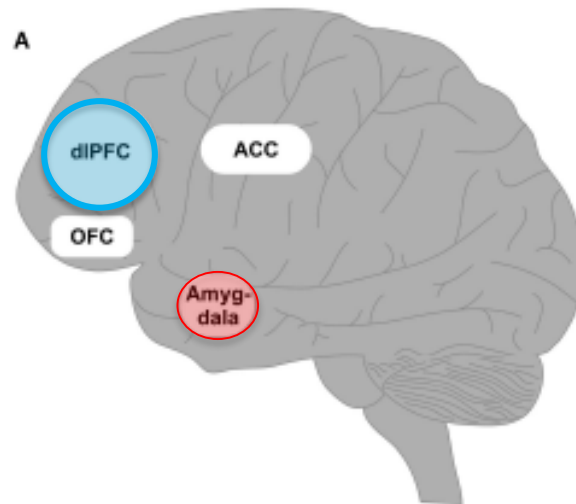
Prefrontal control and Internet addiction: a theoretical model and review of neuropsychological and neuroimaging findings

Matthias Brand^{1,2*}, Kimberly S. Young³ and Christian Laier¹

¹ Department of General Psychology: Cognition, University of Duisburg-Essen, Duisburg, Germany

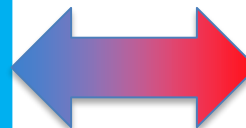
² Erwin L. Hahn Institute for Magnetic Resonance Imaging, Essen, Germany

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Präfrontale Kontrolle

- Monitoring
- Antizipation von längerfristigen Konsequenzen



Ansprüche aus dem limbischen System

- Belohnungsantizipation
- Cue-reactivity und Craving



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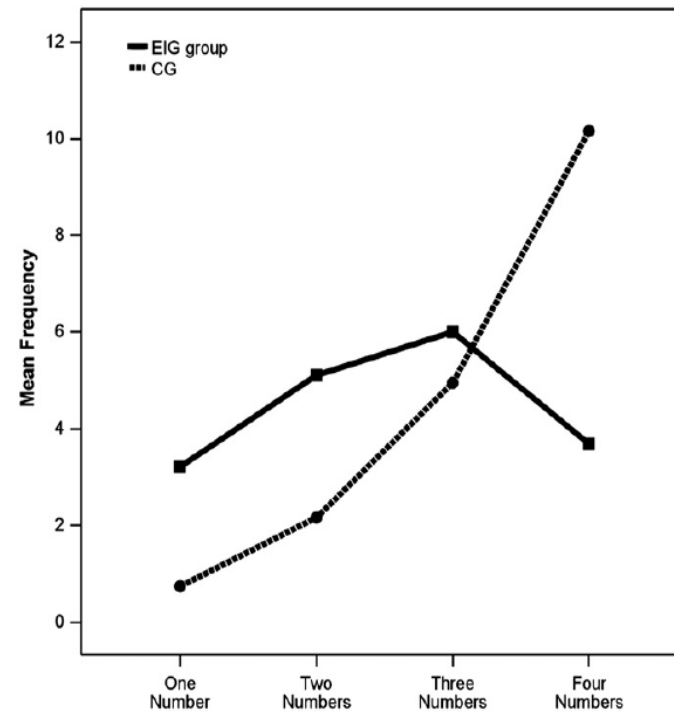
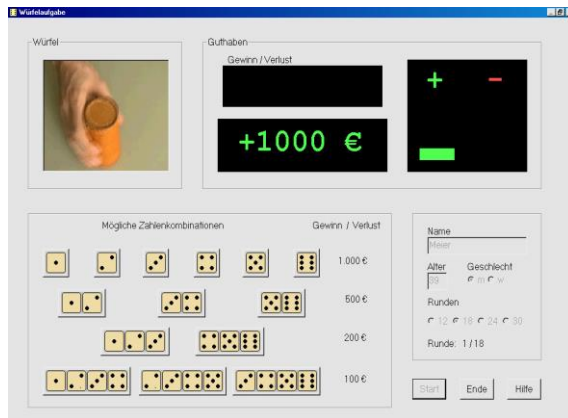


Excessive Internet gaming and decision making: Do excessive World of Warcraft players have problems in decision making under risky conditions?

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^b Erwin L. Hahn Institute for Magnetic Resonance Imaging, Essen, Germany



Allgemeine Psychologie: Kogni

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Internet addictive individuals share impulsivity and executive dysfunction with alcohol-dependent patients

Zhenhe Zhou*, Hongmei Zhu, Cui Li and Jun Wang

Department of Psychiatry, Wuxi Mental Health Center, Wuxi, China

Table 2 | BIS-11 scores [mean (SD)] in IAD group ($n = 22$), AD group ($n = 22$), and NC group ($n = 22$).

Variable	IAD	AD	NC	Test statistic
Attentional key	32.5 (2.6)	33.0 (3.7)	29.6 (2.8)	$F(2,65) = 10.98$, $P = 0.012$, Cohen's $d = 0.98$
Motor key	23.3 (3.1)	23.9 (4.2)	21.4 (3.9)	$F(2,65) = 12.57$, $P = 0.020$, Cohen's $d = 0.76$
Non-planning key	22.0 (3.1)	22.7 (1.1)	20.8 (3.1)	$F(2,65) = 9.67$, $P = 0.038$, Cohen's $d = 0.62$
Total scores	77.5 (8.1)	73.8 (9.2)	71.2 (7.5)	$F(2,65) = 62.50$, $P = 0.001$, Cohen's $d = 1.18$

IAD, internet addictive individual group; AD, alcohol-dependent individual group; NC, normal control group; SD, standard deviation.

Table 4 | WSCT data [mean (SD)] in IAD group ($n = 22$), AD group ($n = 22$), and NC group ($n = 22$).

Variable	IAD	AD	NC	Test statistic
Total response errors (%)	35.8 (20.6)	36.1 (23.2)	19.6 (21.8)	$F(2,65) = 21.28$, $P = 0.001$, Cohen's $d = 1.43$
Perseverative errors (%)	21.3 (12.1)	22.9 (14.2)	13.4 (13.0)	$F(2,65) = 18.55$, $P = 0.001$, Cohen's $d = 1.27$
Conceptual level responses (%)	53.0 (6.1)	54.7 (7.2)	60.8 (8.0)	$F(2,65) = 5.77$, $P = 0.040$, Cohen's $d = 0.56$
Number of categories completed	5.7 (2.1)	5.8 (3.3)	6.5 (3.5)	$F(2,65) = 10.50$, $P = 0.001$, Cohen's $d = 1.09$
Failure to maintain set	0.8 (0.6)	0.8 (1.2)	0.3 (0.5)	$F(2,65) = 3.50$, $P = 0.011$, Cohen's $d = 0.99$

IAD, internet addictive individual group; AD, alcohol-dependent individual group; NC, normal control group; SD, standard deviation.



Review

Internet and Gaming Addiction: A Systematic Literature Review of Neuroimaging Studies

Daria J. Kuss * and Mark D. Griffiths

18 Studien, die bis 2012
publiziert wurden mit:

(f)MRT
PET
EEG

Abstract: In the past decade, research has accumulated suggesting that excessive Internet use can lead to the development of a behavioral addiction. Internet addiction has been considered as a serious threat to mental health and the excessive use of the Internet has been linked to a variety of negative psychosocial consequences. The aim of this review is to identify all empirical studies to date that used neuroimaging techniques to shed light upon the emerging mental health problem of Internet and gaming addiction from a neuroscientific perspective. Neuroimaging studies offer an advantage over traditional survey and behavioral research because with this method, it is possible to distinguish particular brain areas that are involved in the development and maintenance of addiction. A systematic literature search was conducted, identifying 18 studies. These studies provide compelling evidence for the similarities between different types of addictions, notably substance-related addictions and Internet and gaming addiction, on a variety of levels. On the molecular level, Internet addiction is characterized by an overall reward deficiency that entails decreased dopaminergic activity. On the level of neural circuitry, Internet and gaming addiction led to neuroadaptation and structural changes that occur as a consequence of prolonged increased activity in brain areas associated with addiction. On a behavioral level, Internet and gaming addicts appear to be constricted with regards to their cognitive functioning in various domains. The paper shows that understanding the neuronal correlates associated with the development of Internet and gaming addiction will promote future research and will pave the way for the development of addiction treatment approaches.





Prefrontal control and Internet addiction: a theoretical model and review of neuropsychological and neuroimaging findings

Matthias Brand^{1,2*}, Kimberly S. Young³ and Christian Laier¹

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13 neue Studien, die bis
Januar 2014 publiziert
wurden mit:

(f)MRT
PET

Strukturelle/funktionelle Änderungen des präfrontalen Cortex und limbischen Systems

(Dong et al., 2012, 2013, 2014; Hong et al., 2013; Yuan et al., 2013; Zhou et al., 2014)

Änderungen bei:

- Decision making
- Executive load
- Cognitive flexibility
- Interferenzen (Stroop)



Cue-reactivity and craving in...

...Substance dependency

...Behavioral addictions

Abbildung entfernt

Abbildung entfernt

(Grüsser et al., 2004)

(Koehler et al., 2013)

...Internet gaming disorder

→ **ventral striatum (VT)**

Abbildung entfernt



Neural Correlates of Sexual Cue Reactivity in Individuals with and without Compulsive Sexual Behaviours

Valerie Voon^{1,2,3*}, Thomas B. Mole^{1,3}, Paula Banca¹, Laura Porter¹, Laurel Morris^{1,2}, Simon Mitchell^{1,3}, Tatyana R. Lapa¹, Judy Karr⁴, Neil A. Harrison⁵, Marc N. Potenza⁶, Michael Irvine¹

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Medienkompetenz

Medienkompetenz

Unterteilung nach Baacke (1998):

1. Medienkritik

- vorhandenes Wissen und Erfahrungen reflektierend einholen

1. Medienkunde

- das 'pure' Wissen über heutige Medien und Mediensysteme

3. Mediennutzung

- rezeptiv-anwendende Unterdimension (Programm-Nutzungskompetenz)
- Bereich des auffordernden Anbietens, des interaktiven Handelns

4. Mediengestaltung

- Medien verändern sich ständig, dies aber nicht nur in technischer Hinsicht, sondern auch inhaltlich, indem die Software die Möglichkeit bietet, neue Inhalte gestaltend einzubringen



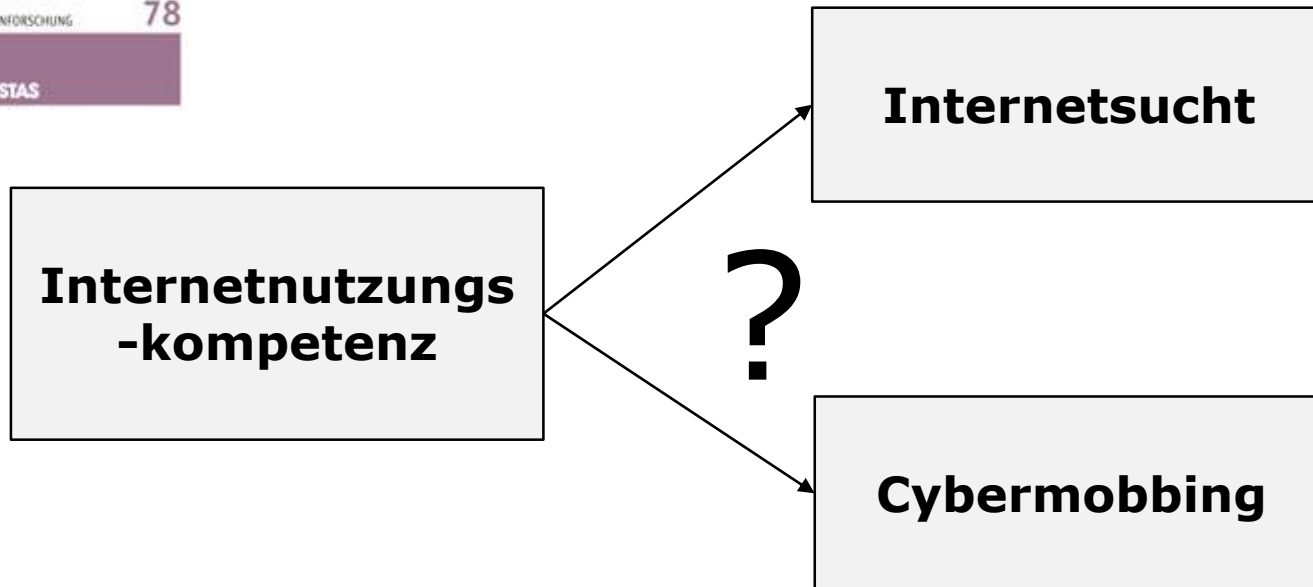
Medienkompetenz

„die Fähigkeit zur **kritischen Reflexion** von Medieninhalten, das **Wissen** um die Macht- und Wirkungsstrukturen, die den Medien zugrunde liegen, und die **eigene Kompetenz**, sich (medien-)öffentlich zu artikulieren“ (Appelhoff, 2012)

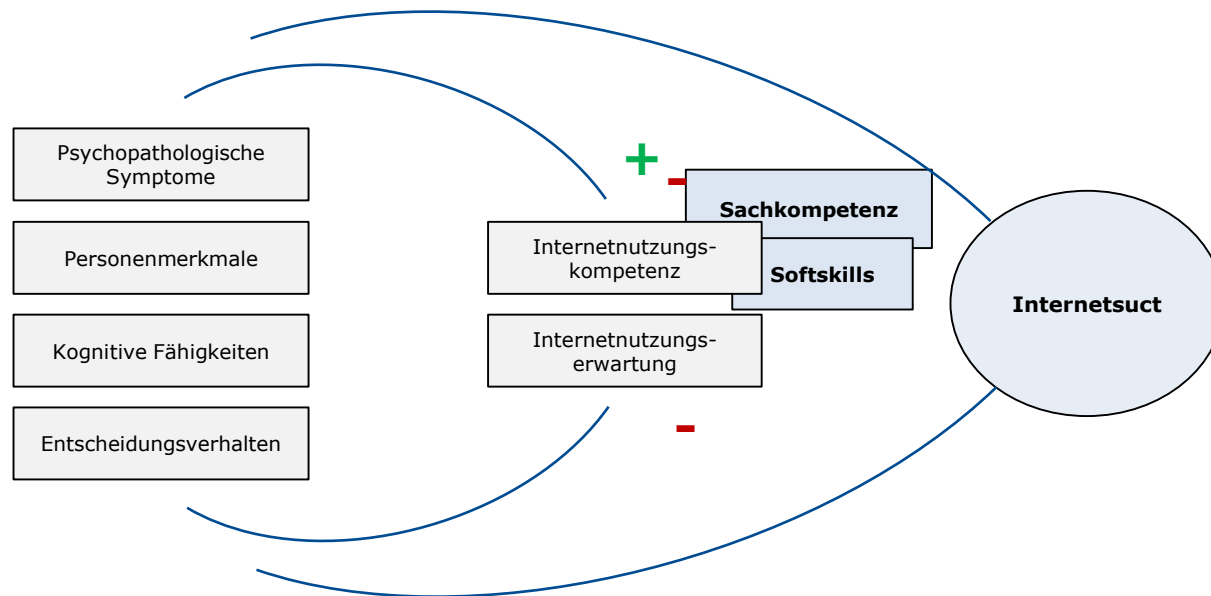
Internetkompetenz?



Fragestellungen



Theoretische Implikationen



(Stodt, Wegmann & Brand, 2015)



Ausblick & Handlungsempfehlungen

Abbildung entfernt

- Akzeptanz und Begleitung
- Eigene Selbstreflexion





Ausblick & Handlungsempfehlungen

Kompetenzvermittlung und Präventionsprogramme

- Technische Kenntnisse
- Kommunikative Kompetenzen
- Soziale Kompetenzen
- Konfliktlösestrategien





Schlussfolgerungen

Position

- 1. Internetsucht kann in generalisierter und spezifischer Form vorliegen**
- 2. Präfrontal vermittelte Kontrollprozesse sind ein neuropsychologisches Hauptkorrelat**
- 3. Craving und Belohnungsantizipation können mit Kontrollprozessen interferieren**
- 4. Spezifische Kognitionen und Kontrollprozesse sollten in der Therapie der Internetsucht stärker adressiert werden**



Danke!



(BR 2894/1-1; 4-1; 6-1)



Allgemeine Psychologie: Kognition

