Berner Fachhochschule
Haute école spécialisée bernoise
Bern University of Applied Sciences

Avatare und virtuelle Welten in Forschung und Lehre

IVET Immersive Virtual Environment Technology

Hintergrund

- *Studium Uni Bern Psychologie*
- *Von 2007 bis 2011 Uni Neuchâtel (Doktorand)*
- *Seit 2011 Professor an der Berner Fachhochschule, Soziale Arbeit*
- *2011 bis 2014 Uni Neuchâtel (Postdoc für VR lab)*
- *2014 bis 2018 Uni Lausanne (post doc 10%)*
- *Seit 2017 VRIST.CH (Spin off Uni Lausanne)*
- *Intro: http://tp.srgssr.ch/p/rts/embed?urn=urn:rts:video:6354311*

IVET *Immersive Virtual Environment Technology*

Technik
Vor- und Nachteile

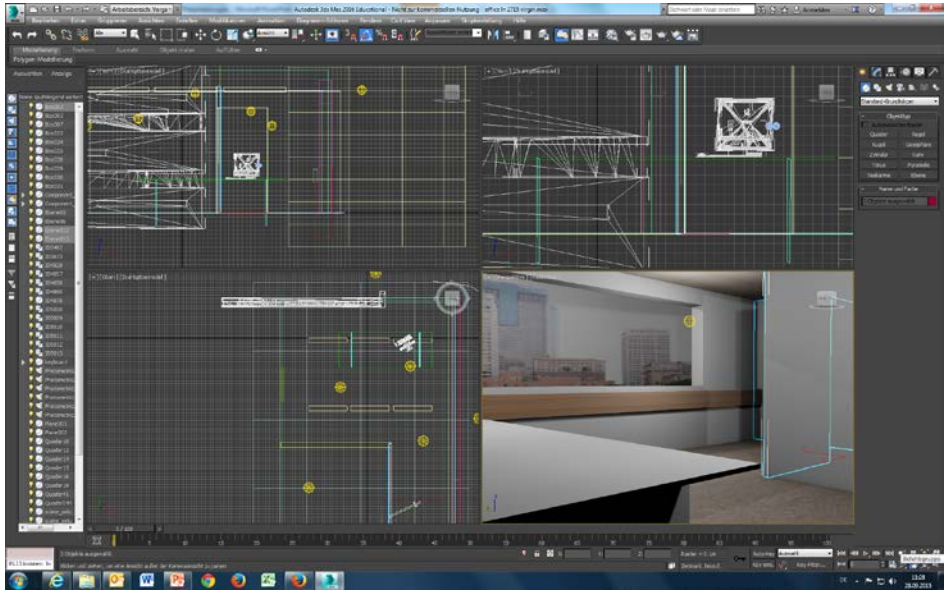
Grundprinzip

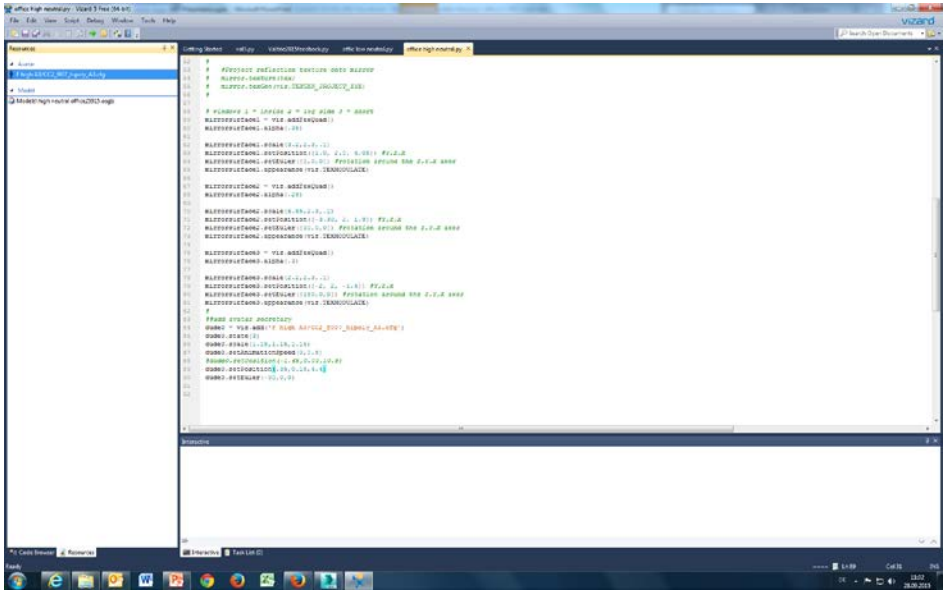
- *Raum und Objekte & Avatar & Animationen (Ablauf/script/ «keydown events»)*

Benutzte Software

3ds Max (autodesk)

Vizard 5 (worldviz)
Python Programmiersprache



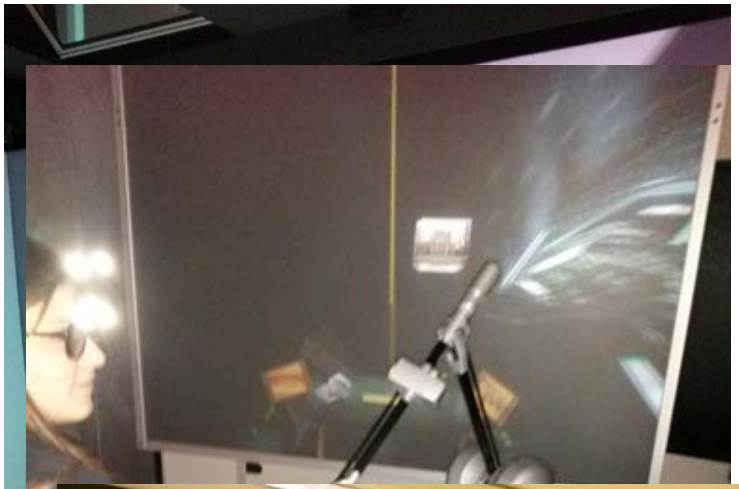


Heute: Unity

Technik

Beispiele Videos

Verschiedene Arten von VR (Auswahl)

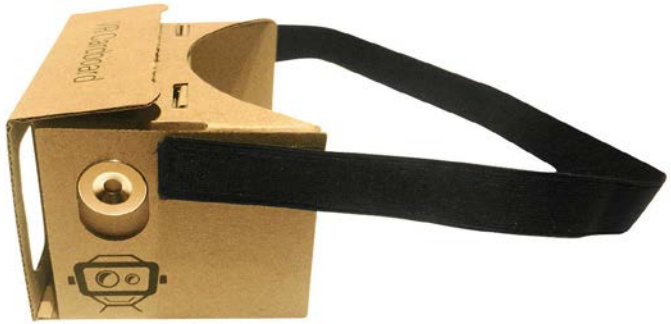


Cave Automatic Virtual Environment

Powerwall

IVET plus HMD

Desktop VR



Vor- und Nachteile

Vorteile

1. **Realismus** - *Die Person tauchen leicht ein und akzeptieren diese Realität. Reaktionen sind ähnlich wie bei reellen Settings. Hohe Validität.*
2. **Experimentelle Kontrolle** – *alle Personen erleben genau die gleiche Situation. Hohe Objektivität und Reliabilität.*
3. **Manipulation der Versuchsbedingungen** *können leicht variiert werden (z.B. Avatar: Mann - Frau)*
4. **Breites Einsatzfeld**:
    1. *Training (public speech, Arzt-Patienten Interaktionen),*
    2. *Forschung*
    3. *Therapie (z.B. Phobien – Desensibilisierung)*
    4. *Schulungen (Kundenberatung, Mitarbeitergespräche)*

Nachteile

1. *Kosten der Anschaffung und des Programmierens*
2. *Aufwändiges Setting*
3. *„Versprochener Realismus“*

Studying social interactions through immersive virtual environment technology: virtues, pitfalls, and future challenges

Dario Bombari[1], Marianne Schmid Mast[1], Elena Canadas[1] and Manuel Bachmann[2]*

[1] Department of Organizational Behavior, Faculty of Business and Economics, University of Lausanne, Lausanne, Switzerland, [2] Bern University of Applied Sciences, Bern, Switzerland

OPEN ACCESS

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The goal of the present review is to explain how immersive virtual environment technology (IVET) can be used for the study of social interactions and how the use of virtual humans in immersive virtual environments can advance research and application in many different fields. Researchers studying individual differences in social interactions are typically interested in keeping the behavior and the appearance of the interaction partner constant across participants. With IVET researchers have full control over the interaction partners, can standardize them while still keeping

Studien

Female Role Model – Empowerment
TSST
Driving

Weitere Möglichkeiten und laufende Studien:
Offices, Chuv, Public Speech

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FlashReport

Successful female leaders empower women's behavior in leadership tasks

Ioana M. Latu [a,*], Marianne Schmid Mast [a], Joris Lammers [b], Dario Bombari [a]

[a] University of Neuchâtel, Switzerland
[b] Tilburg University, Netherlands

HIGHLIGHTS

- We examined the effect of successful role models on behavior in a leadership task.
- Exposures to female role models empowered women's behavior and self-evaluations.
- Exposure to female role models eliminated the gender performance gap.
- Role models did not affect men's leadership behavior.

Forschungsfrage - Methode

Forschungsfragen:

- *In the current study we ask whether subtle exposures to* **female leadership** *icons have a beneficial or detrimental impact on women's behavior during a stressful leadership task. Additionally, we investigate how the effects of female role models on women's behavior extend to women's self-evaluations in a leadership task.*

Versuchspersonen:

- *Participants were 149 (mean age 24y, 81 women) students recruited at a Swiss university.*

Aufgabe:

- *Task was to give a persuasive political speech arguing against an increase of student fees. The speech was videotaped.*

Technik: *IVET*

Priming (4) *: picture of H. Clinton, B. Clinton, A. Merkel (and control condition)*

Versuchsbedingungen

Fig. 1. Participants' perspective while delivering the speech in the virtual reality environment, for each of the four conditions.

Resultate:

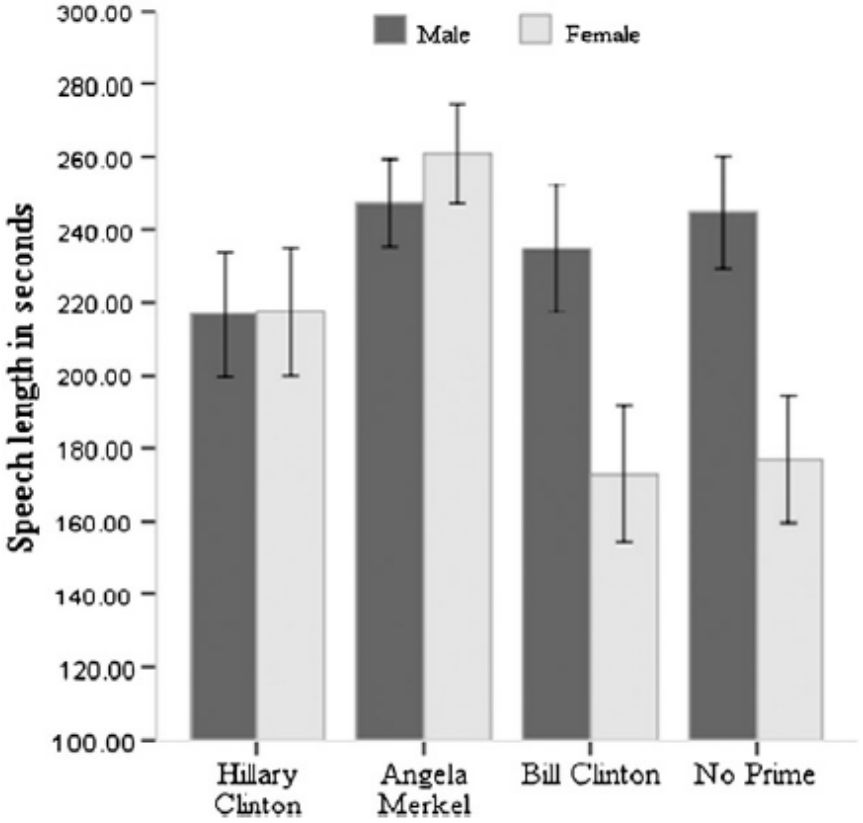

Fig. 2. The effects of role model priming on empowered behavior (speaking time) for male and female participants. Error bars represent one standard error.

Hillary Clinton or Angela Merkel provided an empowerment boost to women and eliminated the gender gap

Besser sprechen mit Angela

NEUENBURG. Das Foto einer mächtigen Frau kann Frauen zu Höchstleistungen anspornen. Das haben Forscher der Uni Neuenburg herausgefunden. Sie liessen Zuhörer die rhetorischen Fähigkeiten von Studentinnen beurteilen. Jene, die beispielsweise ein Foto von Angela Merkel vor sich hatten, hielten bessere Vorträge als jene, die kein Bild vor sich hatten. Die schlechte Nachricht für Männer: Ein Bild von Bill Clinton zeigte bei ihnen keine Wirkung. HO

uropean Journal of Social Psychology, Eur. J. Soc. Psychol. 43, 201–211 (2013)
ublished online in Wiley Online Library (wileyonlinelibrary.com) DOI: 10.1002/ejsp.1937

Research article

Power increases performance in a social evaluation situation as a result of decreased stress responses

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[2]Psychology Department, New York University, New York, USA

Abstract

We tested whether power reduces responses related to social stress and thus increases performance evaluation in social evaluation situations. We hypothesized and found that thinking about having power reduced fear of negative evaluation and physiological arousal during a self-presentation task (Studies 1 and 2). In Study 2, we also showed that simply thinking about having power made individuals perform better in a social evaluation situation. Our results confirmed our hypotheses that the mechanism explaining this power–performance link was that high power participants felt less fear of negative evaluation. The reduced fear of negative evaluation generated fewer signs of behavioral nervousness, which caused their performance to be evaluated more positively (serial
tion). Simply thinking of having power can therefore have important positive consequences for a person in an evaluation

Methode

- *Versuchspersonen: 80 (40 Frauen), Durchschnittsalter 24 J*
- *Methode TSST: Selbstpräsentation vor Jury und Kopfrechnen*
- *Versuchsbedingungen: Galinsky Power Priming (Adaption)*

Figure 1. Two-people evaluation panel. The two-people evaluation panel was represented by a female and a male virtual human. During the self-presentation task of the Trier Social Stress Test, the participant stood in front of the virtual microphone and the camera (which existed in the virtual and the real world)

Resultate

Table 1. Means, standard errors (in parentheses) and F values of the power main effects on the anxiety-related responses, self-efficacy, and performance evaluation

Outcome variables	Power condition: High power	Power condition: Control	F
Study 1			
Fear of negative evaluation	2.69 (0.13)	3.33 (0.13)	12.57***
Physiological arousal	13.35 (2.30)	21.29 (2.69)	3.88^{+}
Study 2			
Fear of negative evaluation	3.11 (0.12)	3.67 (0.12)	10.06**
Physiological arousal	17.64 (2.10)	24.82 (2.04)	5.70*
Nonverbal signs of nervousness	2.13 (0.16)	2.64 (0.16)	5.03*
Self-efficacy	3.54 (0.10)	3.36 (0.10)	1.63
Performance evaluation	3.39 (0.17)	2.81 (0.17)	5.41*

$^{+}p < .10$, $*p < .05$, $**p < .01$, $***p < .001$.

Nur 2. Study IVET erste mit realen Personen

Studie DRIVING
Beispiel Replikation in VR

ACCIDENT ANALYSIS & PREVENTION
www.elsevier.com/locate/aap

ELSEVIER

Accident Analysis and Prevention 40 (2008) 840–842

Short communication

Masculinity causes speeding in young men

Marianne Schmid Mast [a,*], Monika Sieverding [b], Michaela Esslen [c], Karin Graber [c], Lutz Jäncke [c]

[a] University of Neuchatel, Switzerland
[b] University of Heidelberg, Germany
[c] University of Zurich, Switzerland

Received 2 August 2007; received in revised form 23 September 2007; accepted 26 September 2007

Abstract

The goal of this study was to examine if masculinity is causally responsible for speeding in young men. Participants (83 males) were randomly assigned to a masculine, feminine, or neutral priming condition. Priming consisted in active listening to either masculine, feminine, or neutral words coming from the car radio while driving in a high-end driving simulator. Results showed that when the concept of masculinity was activated by priming, participants' driving speed increased significantly from the beginning to the end of the driving simulation as compared to the neutral and the feminine condition. Results are discussed with respect to real life health implications.

...der; Masculinity

There are striking gender and age differences in speeding behavior. The majority of reckless drivers are young men (Begg and Langley, 2001; Harre et al., 2000). One factor that has ... but rather anecdotally than empirically been related to

Geschlechterrollenselbstkonzept und Rasen

- *Ist die Identifikation mit der männlichen Geschlechterrolle für das Raserverhalten junger Männer verantwortlich?*
- *In ost-europäischen Ländern gleicht Selbstkonzept mehr dem „Macho-Image“*
- *Macho-Persönlichkeit korreliert mit*
  - *Aggressivem Fahren (Mosher & Sirkin, 1984)*
  - *Aggressivem Fahrstil (Krahé & Fenske, 2002)*

Methode

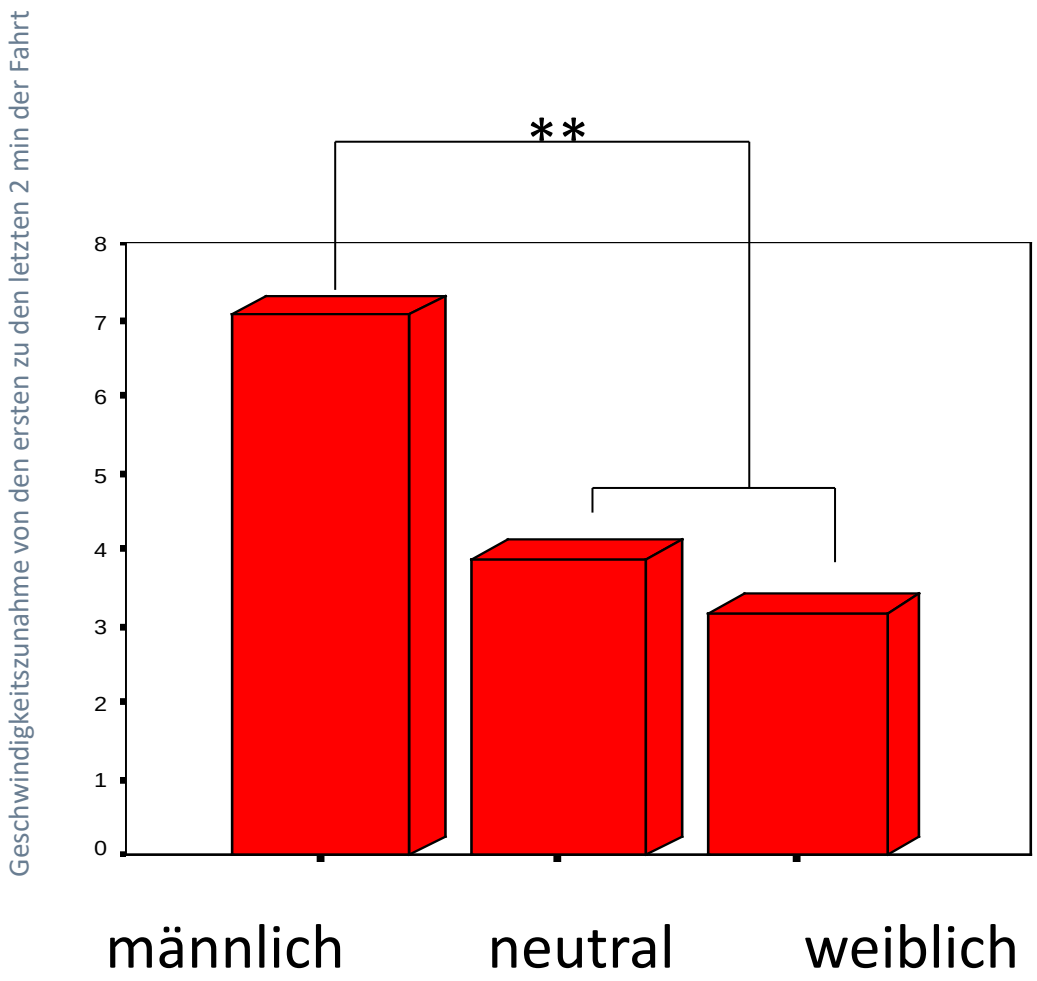
- *Versuchspersonen*
- *84 Männer, 19-27 Jahre, UniZH & ETHZ*
- *Durchführung und Aufgaben*
- *Getarnt als Multi-tasking Aufgabe*
- *8 Minuten Fahrt im Fahrsimulator*
- *Dabei Priming (m, w, n): neutrale, männliche, oder weibliche Wörter*
- *Lichthupe beim Wort Fahrplan (5x)*

Priming mit Geschlechterrolle

Männlich	**Weiblich**	**Neutral**
Kraftraum	Zicke	Enge
patriarchisch	Kindergärtnerin	unwesentlich
stark	zart	bequem
Mut	hysterisch	Wecker
Mechaniker	sinnlich	Schule
bärtig	gefühlsbetont	gutgelaunt

Wörter „gematched“ nach Valenz, Länge, Häufigkeit

Resultate


**
Geschwindigkeitszunahme von den ersten zu den letzten 2 min der Fahrt
8
7
6
5
4
3
2
1
0
männlich
neutral
weiblich

Priming: Eine Studie zum Rasen

(Schmid Mast, Sieverding, Esslen, Grabe[illegible]läncke, 2008)


Speed: 02.6
Speed: 03.6

Stereotype threat affects female driving behavior

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15th Annual Meeting of the Society for Personality and Social Psychology Austin on February 13-15, 2014

Introduction

Previous research showed that implicit priming with masculine stereotypical words has an impact on men's driving behavior (Schmid Mast, Sieverding, Esslen, Graber, & Jäncke, 2008). Men drove faster while listening to masculine stereotypical words than while listening to feminine or neutral words.
In the present study we tested the effect of priming not only on male drivers but also on female drivers. We suspect that gender - priming has different effects on men and women's driving behavior. Female drivers could be affected by a stereotype threat (Yeung, & von Hippel, 2008). Stereotype threat refers to being at risk of confirming a stereotype about one's group (Steele & Aronson, 1995).

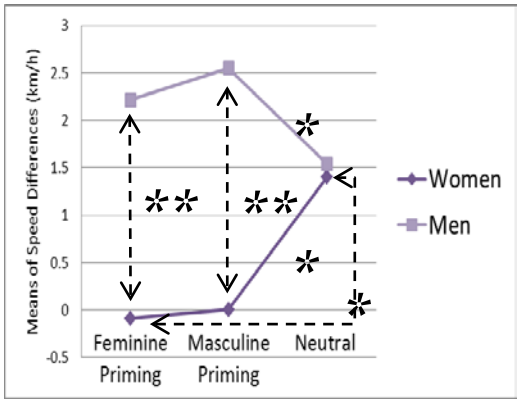
Method

We tested 67 drivers (35 women and 32 men, Mage = 27 years) individually in an immersive virtual reality driving simulation. Participants drove 8 minutes on a speed limited track. All participants owned a driver's license. During driving, participants were told to listen to the radio, which actually was the implicit priming (feminine vs masculine vs neutral as control). The masculine priming consisted of male-typical words (e.g., father, suit, strong), the feminine of female-typical words (e.g., mother, lipstick, empathic), and the neutral of (gender-)neutral words (e.g. rent, private, oven mitt). In each condition an additional set of neutral words (same for all three conditions) were interspersed. Words were presented on headphones every 3s. The priming-words differed significantly in terms of female and male typicality as evaluated by independent raters. However, there was no significant difference between the three conditions in terms of valence of the words, in word length, and word frequency.

While driving, the participants were instructed to honk each time the target word "timetable" was heard. The cover story said that we were testing the effect of distraction (listening to the radio) on driving.

Results and Discussion

We compared the average driving speed of the first 2 min to the last 2 min. We used this difference as depended variable. We ran an univariate ANOVA and found the assumed 2-way interaction effect: priming-condition and driver's gender F (2, 61) = 3.14, p = .050.



**p <.05, ** p <.01 one-tailed*

Results show that women drive slower in the masculine and feminine priming condition than men do in the same conditions. As predicted this difference does not appear in the neutral priming condition.
Women drive slower in the feminine and in the masculine condition compared to the neutral condition. However, men drive faster in the masculine condition than in the neutral condition.

Conclusion

Results are consistent with previous research. Furthermore we found that if gender is salient (by priming) women do not increase their average driving speed during the 8 min course. It seems that gender role expectations affect women's driving behavior. This effect could may be explained by stereotype threat.

References

- *Schmid Mast, M., Sieverding, M., Esslen, M., Graber, K., & Jäncke, L. (2008). Masculinity causes speeding in young men Accident Analysis & Prevention, 40, 840-842.*
- *Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African-Americans. Journal of Personality and Social Psychology, 69, 797-811.*
- *Yeung, N. C. J., & von Hippel, C. (2008). Stereotype threat increases the likelihood that female drivers in a simulator run over jaywalkers. Accident Analysis & Prevention, 40, 667-674.*

Weitere Möglichkeiten und laufende Studien

Therapie
Public Speech
CHUV
Offices
Feedback negative

Weitere Möglichkeiten - Therapie

Virtuelle Therapie

10. Oktober 2014 14:24; Akt: 10.10.2014 14:24

Mit Game-Technologie die Höhenangst bekämpfen

von Kathrin Bertschy - Fürs Gamen entwickelte Verfahren finden neu auch in der Therapie von Angststörungen Anwendung.

2|3 Ihnen - und auch anderen Phobikern - könnte künftig mit einer neuen Art Therapie geholfen werden. Darin werden die Patienten via Datenbrille, die ein dreidimensionales, virtuelles Bild erzeugt, mit ihrer Angst konfrontiert.

Bild: Uni Bern

Um Ängste – etwa vor Spinnen oder der Höhe – zu überwinden, der Betroffene der gefürchteten Situation stellen. Doch testen Fred Mast und Hansjörg Bern derzeit

Weitere Möglichkeiten – Schulungen, Training

http://tp.srgssr.ch/p/rts/embed?urn=urn:rts:video:6354311

Weitere Möglichkeiten – CHUV

CHUV com.exe mit webcam

Office environment results_provisional

- *Sample = participants who responded correctly to 2 control questions:*
- *N =95 (54m, 41f and 7 missing)*

- *See videos!*

Main effect for separation on manager likes to keep distance

Tests of Between-Subjects Effects

Dependent Variable: mlikes

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	24,357[a]	3	8,119	3,468	,019
Intercept	2357,298	1	2357,298	1006,997	,000
separate	21,077	1	21,077	9,004	,003
luxury	,185	1	,185	,079	,779
separate * luxury	3,182	1	3,182	1,359	,247
Error	227,069	97	2,341		
Total	2590,000	101			
Corrected Total	251,426	100			

a. R Squared = ,097 (Adjusted R Squared = ,069)

Feedback negative

Valérie feedback negative 2015 (HR)

Fall Pascal (Soz. Arbeit)

Literatur

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- *Bailenson, J. N., Blascovich, J., Beall, A. C., & Loomis, J. M. (2003). Interpersonal distance in immersive virtual environments. Personality and Social Psychology Bulletin, 29(7), 819-833*
- *Blascovich, J., Loomis, J., Andrew, C. B., Kimberly, R. S., Hoyt, C. L., & Bailenson, J. N. (2002). Immersive virtual environment technology as a methodological tool for social psychology. Psychological Inquiry, 13(2), 103-124.*
- *Blascovich, J., Loomis, J., Beall, A. C., Swinth, K. R., Hoyt, C. L., & Bailenson, J. N. (2002). Immersive virtual environment technology: Just another methodological tool for social psychology? Psychological Inquiry, 13(2), 146-149.*

- *Die weiteren Quellen sind in den Folien!*