Implicit and explicit measures of aggressive behavioural tendencies of adolescents –

Results of an intervention study

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Outline of the talk

1. Preliminary notes on the subject

2. The Programme "Fit for Life"

3. The Intervention Study

4. The collected data on Aggressive behavioural tendencies

5. Effects of the Intervention

6. Summary and conclusion
Implicit and explicit measures of aggressive behavioural tendencies of adolescents – Results of an intervention study

Behavior is a final common pathway of two different systems of information processing (Strack & Deutsch, 2004)

Reflective System

Categorization → Intention

↑

Perception ↔ Associative Store ↔ Behaviour

Impulsive System

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**Advantages of the Two-Determinants-Model of Behaviour**

**Reflective System**

- Knowledge-based behaviour decisions
- controlled by facts and values

**Impulsive System**

- behaviour, elicited by motivational orientations and associative links

**Interaction of both behavioural systems in all stages of information processing**

- No limitation to specific areas of mental processing or behaviour

- Integration of cognitive, motivational, and behavioural processes

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**Preliminary notes**

"Fit for Life"

Intervention study

Measures and Methods

Effects of Intervention

Summary and Conclusion
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Model of aggressiveness

- Aggressive Beliefs and Attitudes
- Aggressive Perceptual schemata
- Aggressive Expectation schemata
- Aggressive Behaviour scripts
- Aggressive desensitisation

Creation and automatization of aggressive-related knowledge structures by learning, rehearsal, and reinforcement

Increase in aggressive Personality

Fit for Life (Jugert, Rehder, Notz & Petermann, 2001)

Modules and worksheets to improve social skills

Target group: disadvantaged adolescents
  – secondary schools
  – assisted living
  – industrial training
  – integration programmes
  – juvenile probation time
  – juvenile penal system

Focus on social competences like
  – social abilities and skills
  – perception of social tasks and situations
  – attitudes, way of social-cognitive information processing

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Module of the Programme

- Motivation
- Health
- Selfconfidence
- Bodylanguage
- Communication
- Fit for Conflicts - Part 1
- Leisure activities
- Future orientation
- Vocational future
- Emotions
- Empathy
- Fit for Conflicts - Part 2
- Feedback

The wise guy concedes... I'm afraid so...

Preliminary notes

"Fit for Life"

Intervention study

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Previous evaluation results

• Categories for the observation of aggressive, passive, and social competent behaviour (Petermann & Petermann, 2000)

• reduction of unwanted, increase of wanted behaviour as rated by the trainers

• no such effects rated by external observers

• no significant change in personal assessment

Our Intervention study

• 18- to 22-year-old adolescents

• IQ scores in the borderline retarded range of mental functioning (IQ<85) with learning difficulties

• graduated from a school for mentally handicapped children

• now in special vocational training

<table>
<thead>
<tr>
<th>Pretest T1</th>
<th>Posttest T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>EG (N=34)</td>
<td>EG (N=27)</td>
</tr>
<tr>
<td>CG (N=15)</td>
<td>CG (N=11)</td>
</tr>
</tbody>
</table>

Preliminary notes
"Fit for Life"

Intervention study
Measures and Methods
Effects of Intervention
Summary and Conclusion
Explicit measures of Aggressiveness

Pre- and Post: Rating by adults:
two attributes, 7-degree rating
– physical aggressiveness
– verbal aggressiveness

• trainers ($\alpha = .87$)
• Social education workers ($\alpha = .79$)
• instructors ($\alpha = .80$)

Only in Pretest:
Peernominating: Sorting names to traits

• 5 positive traits ($\alpha = .70$)
• 7 negative traits ($\alpha = .92$)
• over-all ($\alpha = .80$)

Only in Posttest:
Peerrating: 5-degree rating on changes in behaviour ($\alpha = .49$)
### Implicit measure of Aggressiveness

**Implicit Association Test - Simple IAT**  
*(Banse & Fischer, 2002)*

<table>
<thead>
<tr>
<th></th>
<th>Pics</th>
<th>Task</th>
<th>Left Button</th>
<th>Right button</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60</td>
<td>Compatible</td>
<td>Me, peaceful</td>
<td>Others, aggressive</td>
</tr>
<tr>
<td>2</td>
<td>60</td>
<td>Incompatible</td>
<td>Me, aggressive</td>
<td>Others, peaceful</td>
</tr>
<tr>
<td>3</td>
<td>60</td>
<td>Compatible</td>
<td>Me, peaceful</td>
<td>Others, aggressive</td>
</tr>
<tr>
<td>4</td>
<td>60</td>
<td>Incompatible</td>
<td>Me, aggressive</td>
<td>Others, peaceful</td>
</tr>
</tbody>
</table>

**SIAT-Score:**  
Mean (Compatible - Incompatible)

**SIATD-Score:**  
Mean (Compatible - Incompatible)/SD

<table>
<thead>
<tr>
<th>Statistical values</th>
<th>Cronbach's $\alpha$ T 1</th>
<th>Cronbach's $\alpha$ T 2</th>
<th>correlation T 1 ~ T 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>IAT-data</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>46</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>SIAT</td>
<td>.59</td>
<td>.75</td>
<td>.44**</td>
</tr>
<tr>
<td>SIATD</td>
<td>.43</td>
<td>.76</td>
<td>.41**</td>
</tr>
</tbody>
</table>
Me, peaceful – Others, aggressive

Me peaceful – Others, aggressive

Implicit and explicit measures of aggressive behavioural tendencies of adolescents – Results of an intervention study
Implicit and explicit measures of aggressive behavioural tendencies of adolescents – Results of an intervention study
Some notes on the results of the study:

- nonverbal IAT not sufficiently validated yet
- validation with highly aggressive adolescents still missing
- boredom though the IAT was designed matching for the target group
- only two items for explicit aggressiveness
- no explicit self-rating of aggressiveness
- small sample
- differences between experimental group EG and control group CG in Pretest already
Implicit and explicit measures of aggressive behavioural tendencies of adolescents – Results of an intervention study

### Correlationen between explicit and implicit measures

<table>
<thead>
<tr>
<th>SIATD-Measure</th>
<th>T 1</th>
<th>T 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating by adults</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trainers</td>
<td>.16 (.27)</td>
<td>.11 (.18)</td>
</tr>
<tr>
<td>Social edu. workers</td>
<td>.21 (.36)</td>
<td>.20 (.35)</td>
</tr>
<tr>
<td>Instructors</td>
<td>-.04 (-.08)</td>
<td>-.05 (-.08)</td>
</tr>
</tbody>
</table>

In brackets: attenuated Pearson-correlation

### Peernominating (Prä)

<table>
<thead>
<tr>
<th>Correlation</th>
<th>SIATD1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (pos. Nominations)</td>
<td>-.12</td>
</tr>
<tr>
<td>Mean (neg. Nominations)</td>
<td>-.06</td>
</tr>
<tr>
<td>Behavioural index (neg.-pos.)</td>
<td>.002</td>
</tr>
</tbody>
</table>

### Peerrating (Post):

<table>
<thead>
<tr>
<th>Correlation</th>
<th>SIATD2-SIATD1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score of Change</td>
<td>-.001</td>
</tr>
</tbody>
</table>
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**Intervention effects in explicit measures**

**Rating of the Social education workers**

<table>
<thead>
<tr>
<th></th>
<th>EG T1</th>
<th>EG T2</th>
<th>CG T1</th>
<th>CG T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre:</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>t(38.84)=3.61, p=.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post:</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>t(36)=2.28, p=.029</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ d = -0.12 \] \[ d = 0.05 \]

**Rating of the Instructors**

<table>
<thead>
<tr>
<th></th>
<th>EG T1</th>
<th>EG T2</th>
<th>CG T1</th>
<th>CG T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre:</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>t(39)=0.99, p=.32</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post:</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>t(36)=-0.45, p=.65</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ d = -0.38 \] \[ d = 0.19 \]

\[ d_{corr.} = 0.15 \] \[ d_{corr.} = 0.62 \]
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**Intervention effects in implicit measures**

Response time in ms

<table>
<thead>
<tr>
<th></th>
<th>EGT 1</th>
<th>EGT 2</th>
<th>CGT 1</th>
<th>CGT 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>d</strong></td>
<td>0.33</td>
<td>0.68</td>
<td>0.33</td>
<td>0.68</td>
</tr>
</tbody>
</table>

**Differences between the groups**

- **Pre:**
  - Post: $d=0.16$  ; $t(33)=-0.41$, $p=.69$

- **Post:**
  - $d=1.19$  ; $t(33)=-3.22$, $p=.003$

**Post:** $d_{corr.}=1.05$

$d_{corr.}$ = adjusted effect for Pre-Test-Differences

Summary and Conclusion

- Intervention study to increase social skills of disadvantaged adolescents
- Evaluation Pre-Post in Experimental-Control-Group-Design

- Measurement of both explicit and implicit measures of aggressiveness
  - Rating by adults, Peernomining, Peerrating
  - Non-verbal Implicit Association Test Simple-IAT

- Correlations up to $r=0.21$ between IAT and rating by adults
- No correlations to other explicit measures

- Effect of change $d\leq 0.62$ in observable behaviour
- Effect of change $d=1.05$ in implicit measure
Thank you very much for your attention

I am just totally motiveless aggressive!

What's wrong with you?

all pictures from Jugert et al. (2001)