This is the accepted version of a paper presented at The National Center for Responsible Gaming’s 16th annual conference on gambling and addiction, Las Vegas.

Citation for the original published paper:

PokerMapper: mapping executive functions, poker playing ability and responsible gambling in online environments.
In:

N.B. When citing this work, cite the original published paper.

Permanent link to this version:
http://urn.kb.se/resolve?urn=urn:nbn:se:du-20280
**PokerMapper: Mapping executive functions, poker playing ability and responsible gambling in online environments**

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## Research objectives

**Starting point:** poker and responsible gambling both entail the use of the executive functions (EF), which are higher-level cognitive abilities.

**Primary objective:** assessing if online poker players of different ability show different performances in their EF and if so, which functions are the most discriminating ones.

**Secondary objective:** to assess if the EF performance can predict the quality of gambling, according to self-reported questionnaires (PGSI, SOGS, GRCS).

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## Sample and Methods

**STEP 1**

Call for volunteers on Poker forums and Facebook. 46 fulfilled in a secure IT web system the PGSI and uploaded their own hand history files, which were anonymized and evaluated by 3 poker experts.

- **Strong = ST**  
- **Medium = MD**  
- **Weak = WK**

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<th>m</th>
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<tr>
<td>46</td>
<td>32</td>
<td>7</td>
<td>14.8</td>
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**STEP 2**

36 of them (10ST, 16MD, 10WK) accepted to be administered with an extensive neuropsychological test battery by a blinded trained professional.

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<td>36</td>
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**STEP 3**

We tested which of the intermediate and final variables (51) of the psy-tests correlated with poker ability and gambling quality scores. We tested the equality of the means across groups using a nonparametric version of MANOVA. We used stepwise regression methods and regression trees to select the most related variables.

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## Results

**Profile of the Strong Online Poker Player**

- Self-monitoring (CGST)  
- Fluid Intelligence (SPM)  
- Sustained Attention (SPM)

**Profile of the Responsible Online Poker Player**

- No anxiety (HAMA)  
- No depression (HAMD)

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## Conclusions

EF test results can discriminate between strong and weak players. They can also separate responsible and non-responsible players.

We found no correlations between ability to play poker and responsible gambling and between ability to play poker and depression and anxiety.

The strong player and the responsible player both have the ability to manage stress (impulse control and stress tolerance) and to set goals (initiating, planning, problem solving, strategic behavior).

Through this preliminary study we gathered useful information to develop the next stage of our project: the construction of short cognitive tasks using card games in online poker environments.

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## Next step

Designing, constructing and evaluating an IT system able to dynamically profile EF and provide players with a feedback on their expected performance and ability to gamble responsibly in that particular moment.

**Cognitive Tasks into the Game Environment**

**EF Profile by the EF System**

**EF Performance Below Certain Values**

**Immediate Feedback to the User**

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## Acknowledgments

We thank all the institutions that funded this research: Svenska Spel Research Council, Dalarna University, University of Milan-Bicocca. We express our gratitude to our technological partner, Nordforce Technology AB, and to our media partner, Il Giornale del Poker. We also thank the anonymous poker experts for their contribution.

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## Further Information

Sample: Italian online poker players  
Funders’ nationality: Sweden, Italy  
Keywords: online poker, executive functions, responsible gambling.

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## Tests acronyms

- **COGST** Cognitive Estimates Test  
- **DIGT** Digit Span  
- **EQIS** Emotional Quotient Inventory Short  
- **FAB** Frontal Assessment Battery  
- **FDCT** Free Drawn Clock Test  
- **FLUP** Phonemic Verbal Fluency Test  
- **GRCS** Gambling Related Cognition Scale  
- **HAMA** Hamilton Anxiety Scale  
- **HAMD** Hamilton Depression Scale  
- **IBQ** Interpersonal Behavior Questionnaire  
- **MEMINT** Memory with Interference  
- **PSGI** Problem Gambling Severity Index  
- **RBIQ** Risk Seeking Behavior  
- **SOGS** South Oaks Gambling Screen  
- **SPM** Raven’s Standard Progressive Matrices  
- **STROOP** Color Word Interference Test  
- **TMT** Trail Making Test  
- **VCG** Visual Categorization Game  

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[Image]