WP6: Final Scientific Report

SCP Pre-Study

Final Scientific Report for Innosuisse

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FINAL SCIENTIFIC REPORT (Apr. 2026)

1.1 Please provide a brief description of the services provided (content and scope)

The Innovation Cheque enabled a structured collaboration between GILTEACHINGS, the University of Bern, and SANESQUARE to define and validate the Symbolic Cognitive Protocol (SCP) as a structural cognitive measurement system.

The scope of the prestudy included the formalization of the SCP measurement logic, implementation of a standardized session protocol, and validation of a structured data pipeline for recording and transmitting SCP session outputs. This included technical verification of data integrity and schema compliance (WP4), generation of a controlled dataset through repeated SCP sessions (WP5), and scientific analysis of data structure, stability, and analytical readiness (WP6).

1.2 What are the results of the Innovation Cheque?

The results confirm that SCP produces consistent, interpretable, and analysis-ready data structures. Structural measurement integrity, retest logic, and reproducibility of symbolic state transitions were successfully validated, establishing the system as a reliable measurement architecture under controlled conditions. Data storage and data transmission worked very well.

The scientific data-analysis is based on a sample of N = 51 at the first measurement time point (T1). This corresponds nearly perfectly with a power analysis with G*Power, where for paired t-Tests – which allows to compare energy levels before and after the exercise – with a small to medium effect size of .35, a power of = .80, and an α = .05, a sample size of N = 52 resulted. All participants were asked to take part a second time (T2) 7 to 8 days after T1. 26 persons responded. We tested for attrition bias between T2 responders versus non-responders: no significant differences resulted at T1 in any variables, indicating no attrition bias. Retest reliabilities between T1 and T2 for the four energy levels (physical/mental relaxation/strength before and after the SCP exercise) were moderate to high (from r = .41, p <

.05 to r = .77, p < .001). For the extent of clarity (from 1 = very poor to 5 = very good), the retest correlation was .79 (p < .001) and for the extent of drift (from 1 = very little to 5 = very strong), a marginally significant r = .38 (p = .053) resulted. Regarding the question which state was most prevalent among the participants (clarity/drift/distraction), the Kappa coefficient (which can be used for nominal variables) was .71 (p < .001), while for the question what was stronger during clarity (clearer thoughts, calmer emotions, more relaxed body) a non-significant Kappa (.15, p = .29) resulted. Altogether, retest reliabilities were predominantly in line with expected relationships.

Furthermore, we tested if the four energy levels changed before and after the exercise at T1 as well as T2. With one exception (mental strength at T2: t(25) = 3.64, p < .01), all energy levels showed highly significant positive changes (from t = 3.90 to t = 6.66; all p < .001). This means that the participants reported considerably higher energy levels after the exercise.

Most of the participants reported the same category at both measurement time points concerning the question, what their highest prevalence during the exercise was: 15 persons answered with “clarity” and 6 with “drift”. Only 1 person answered with “clarity” at T1 and “drift” at T2, and only 2 with “drift” at T1 and “clarity” at T2 (no person answered with “disruption” at T1 or T2). Running repeated measurement analyses of variance models (within factor “time” and between factor “highest prevalence”), participants who answered with “clarity” could significantly better follow the exercise than participants who answered with “drift” (p < .001), while participants who answered with “drift” were significantly more distracted during the exercise than participants who answered with “clarity” (p < .05). No differences resulted for participants who changed between T1 and T2 (the three persons who changed between the time points were taken together) and the “clarity” or “drift” group. Furthermore, there was no significant difference (time effect) between T1 and T2. Controlling additionally for language differences (German versus English version) didn’t change the effects. Overall, these results are in line with the assumptions and support the structural validity and analytical interpretability of the SCP under controlled prestudy conditions.

1.3 Do you have any specific comments regarding the goal achievement?

The objectives of the Innovation Cheque were achieved. The study confirms the feasibility, validity, and scientific evaluability of SCP and provides a validated foundation for a subsequent main study.

This prestudy validates SCP as a structural measurement architecture under controlled conditions; the subsequent main study will evaluate its measurement reliability under real-world organizational deployment conditions.