

Need for achievement influences test-taking motivation influences achievement test performance

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Introduction

Cronbach (1960) wrote: Test performance in a given test is a joint function of ability and motivation. We are asking if just the situational motivation influences the test performance or if there is a stronger relevance of the underlying motive - in the case of performance tests, the need for achievement (N-Ach). We already find an interaction of N-Ach, instructional setting and test performance (Kreuzpointner et al., 2010). Equally, results can be found for and against the relevance of test-taking motivation as well as of N-Ach for the test performance in an intelligence test. Thus we decided to analyse the relation of N-Ach and the test-taking motivation while taking a performance test.

Study

To study the influence of the general need for achievement on the situational test-taking motivation and on an intelligence test performance 337 pupils (9th and 10th grade of all German school types) performed three questionnaires: the Regensburger Leistungsmotivinventar (RLMI-KJ; Lukesch, unpublished), a questionnaire using vignettes describing twelve situations and giving each four different possible reactions, whereas each is to be rated on a five-point Likert scale (figure 1); a short form of the Achievement-Motive Grid for children (AMG-S K-J; Schmalt, 2005) a semi-projective test comprising six pictures (figure 2) with the same ten statements, (e.g. "He feels good doing this.") which has to be marked as appropriate to suit the picture; and a self-constructed questionnaire for test-taking motivation, (TTM; Giermann, 2012) with four subscales (achievement related performance, subjective task value and expectation of success and finally attitude and performance, with the latter scale consisting of two subscales, general performance and basic attitude) based on the general expectancy-value and developmental model of achievement behaviour by Eccles et al. (1983) completed before and after the application of the Leistungsprüfsystem 2 (LPS-2; Kreuzpointner & Lukesch, in press; Kreuzpointner, 2010), a German intelligence and performance test.

Results

Statistically significant bivariate correlations between the motivational variables and the test performance were only found for the AMG Fear active (.17) and passive (.21) and the TTM measured after the test execution (.18). The intercorrelations of the motive and motivation variables (table 1) establish a three factor result when using a Varimax rotated factor analysis (PCA; figure 4). Factor 1 can be seen as a more explicit and factor 2 a more implicit Need for Achievement dimension, factor 3 seems to be more a fear avoidance motive dimension; the implicit variable AMG Fear passive rates special by loading relevant high on each factor (table 2). When trying to predict the LPS-2 performance using the motive variables, the result is a lousy fitting regression analysis ($R=.31$, $R^2_{corr}=.07$) with the two main relevant variables TTM t2 and AMG Fear passive. The SEM (figure 5) to show to what extent the TTM depends on the N-Ach and to what extent both variables influence the performance test result shows a well fitting model ($\chi^2=3.87$, $df=5$, $p=.57$) with statistically significant path coefficients for the influence of the need for achievement on the TTM (.56) and for the influence of the TTM on the performance test achievement (.29).

Discussion

We found the expected relation of motive, motivation and performance for the need for achievement concept. The higher the underlying motive need for achievement the higher the situational test-taking motivation and the more important relation, the higher the test-taking motivation the higher the test performance in the speeded-power test LPS-2. On the other hand the relation to fear of failure is not as consistent as expected. Especially the AMG Fear of failure passive, by which performance and task enjoyment should be undermined (Schmalt, 2005, p. 174), did not fit quite well. The correlation with the LPS-2 performance as well as the regression coefficient are positive and therefore imply the exact opposite. Withal it could not allocate one of the three factors. At least here the signs are as expected. A SEM in which N-Ach was replaced by fear of failure did not fit for the data. The implicit motive measurement en bloc is not quite as we hoped for. The factor analysis results in an explicit and an implicit factor and not into an approach and an avoidance component - excluding AMG Fear passive.

Conclusion

When quantify the performance of an individual, it is important to keep the test-taking motivation in mind. Naturally there are differences between the underlying achievement approach and avoidance motives. However, the performance will be mainly influenced by the actual motivation which should be suggestible by the situation as well as by the test instructor and the instruction itself. If the test instructor wants to know the real ability, we prompt each instructor to optimize the test takers motivation to perform as good as possible.

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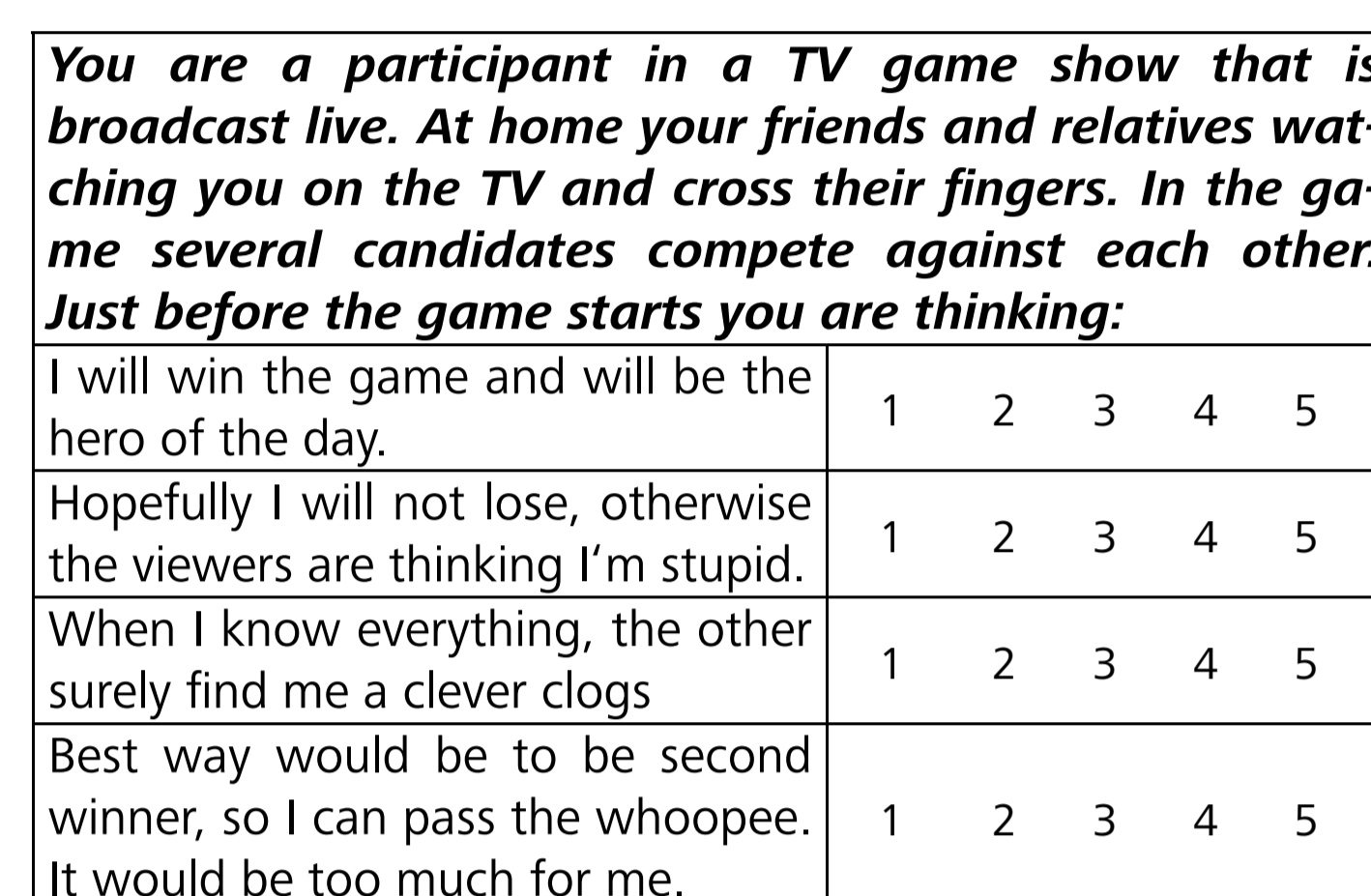


Figure 1: Translated example of a RLMI-K/J item

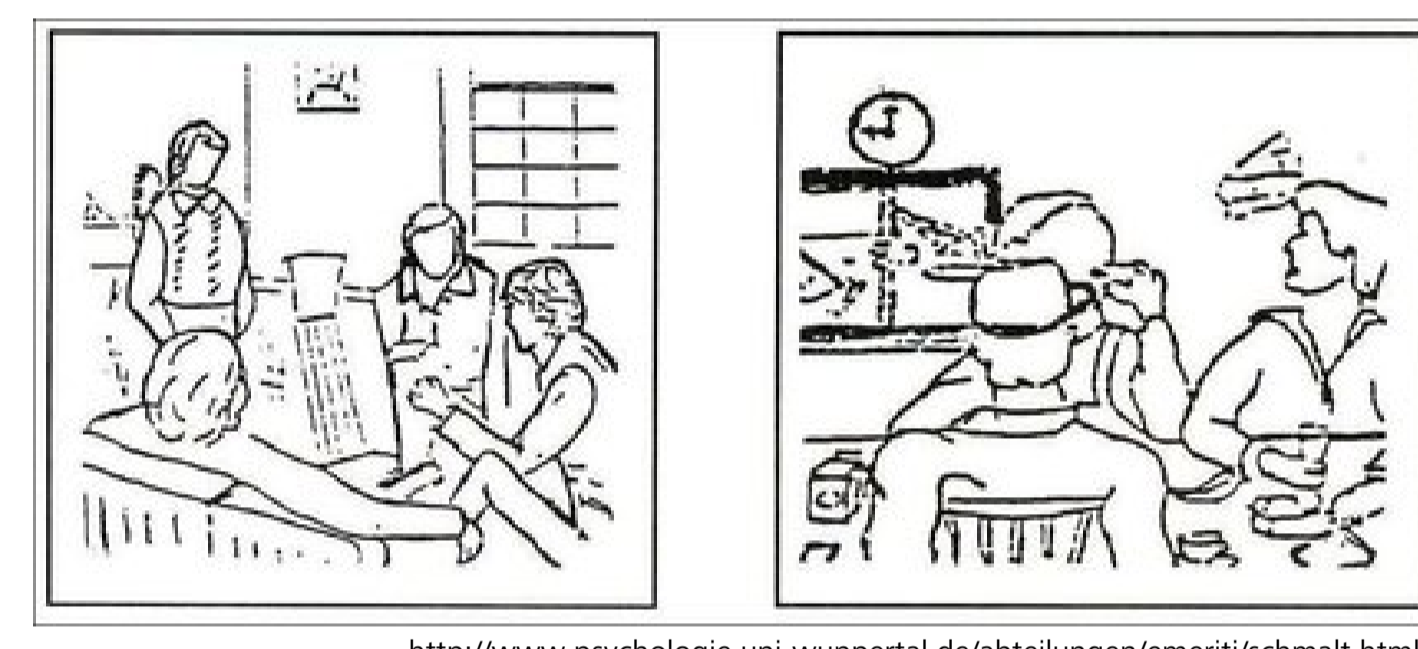


Figure 2: Picture examples of the AMG-S

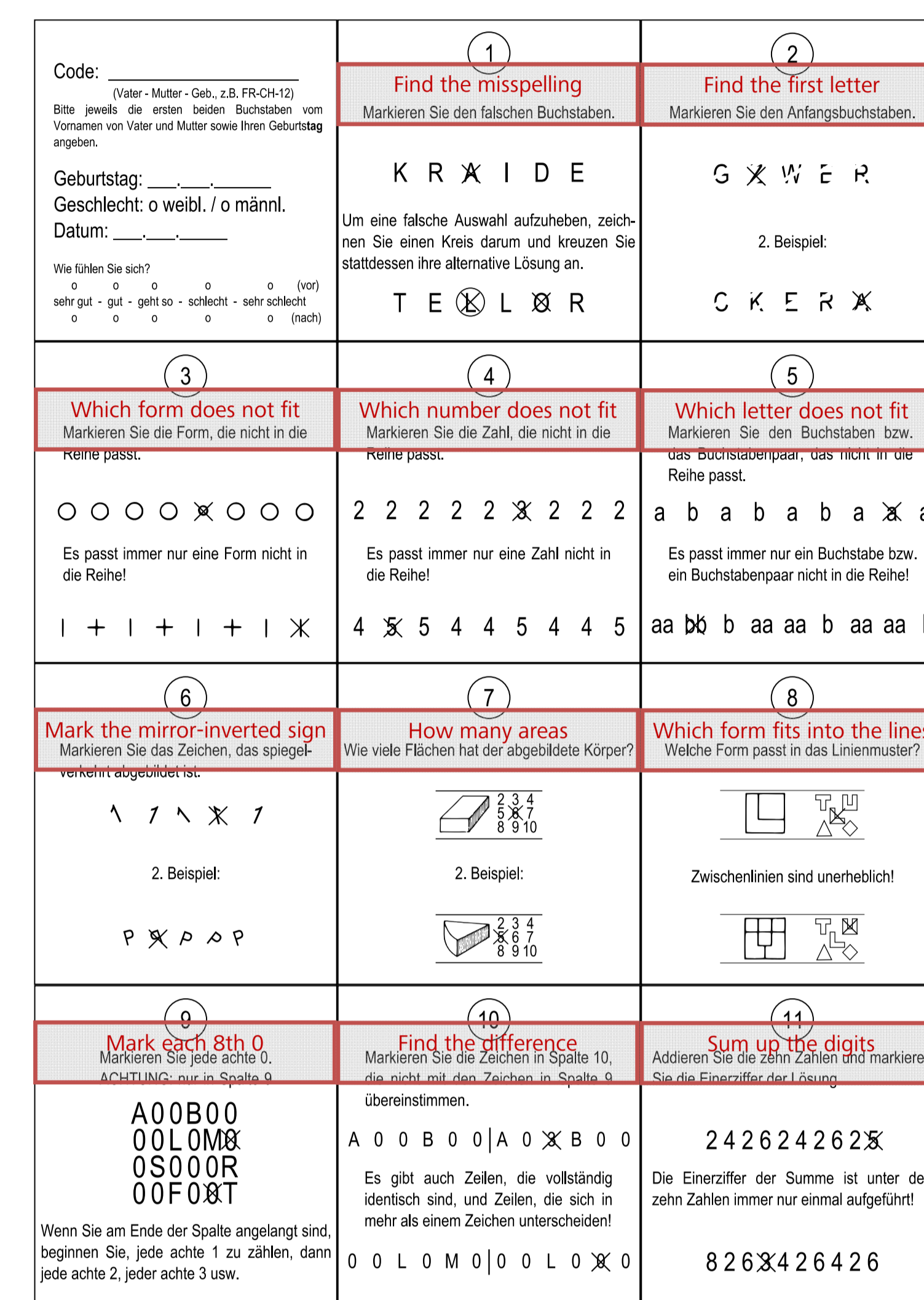


Figure 3: Instructionpage of the LPS-2

Table 1: Intercorrelations (beneath) and p-value (above the diagonal)

	1	2	3	4	5	6	7	8
1 TTM t1		.00	.00	.88	.01	.01	.00	.19
2 TTM t2	.54**		.00	.01	.00	.00	.08	.00
3 RLMI N-Ach	.28**	.31**		.75	.00	.02	.00	.25
4 RLMI Fear of failure	.01	.15**	.02		.85	.00	.03	.51
5 AMG N-Ach	.14**	.16**	.27**	.01		.00	.15	.67
6 AMG Fear active	.15**	.27**	.13*	.20**	.50**		.00	.00
7 AMG Fear passive	-.17**	-.09	-.17**	.12*	.08	.29**		.00
8 LPS-2	.07	.18**	.06	.04	.02	.17**	.21**	

Table 2: Varimax factor analysis of the seven motive and motivation variables

	1	2	3
TTM t1	.80	.03	.06
TTM t2	.79	.13	.27
RLMI N-Ach	.60	.24	-.25
RLMI Fear of Failure	.11	.03	.85
AMG N-Ach	.19	.82	-.22
AMG Fear active	.14	.81	.27
AMG Fear passive	-.45	.47	.42

Table 3: Regression analysis with the depend variable LPS-2

	beta	T	p
TTM t1	-0.01	-0.11	.91
TTM t2	0.18	2.66	.01
RLMI N-Ach	0.06	0.97	.33
RLMI Fear of failure	-0.04	-0.69	.49
AMG N-Ach	-0.09	-1.41	.16
AMG Fear active	0.11	1.58	.12
AMG Fear passive	0.21	3.71	.00

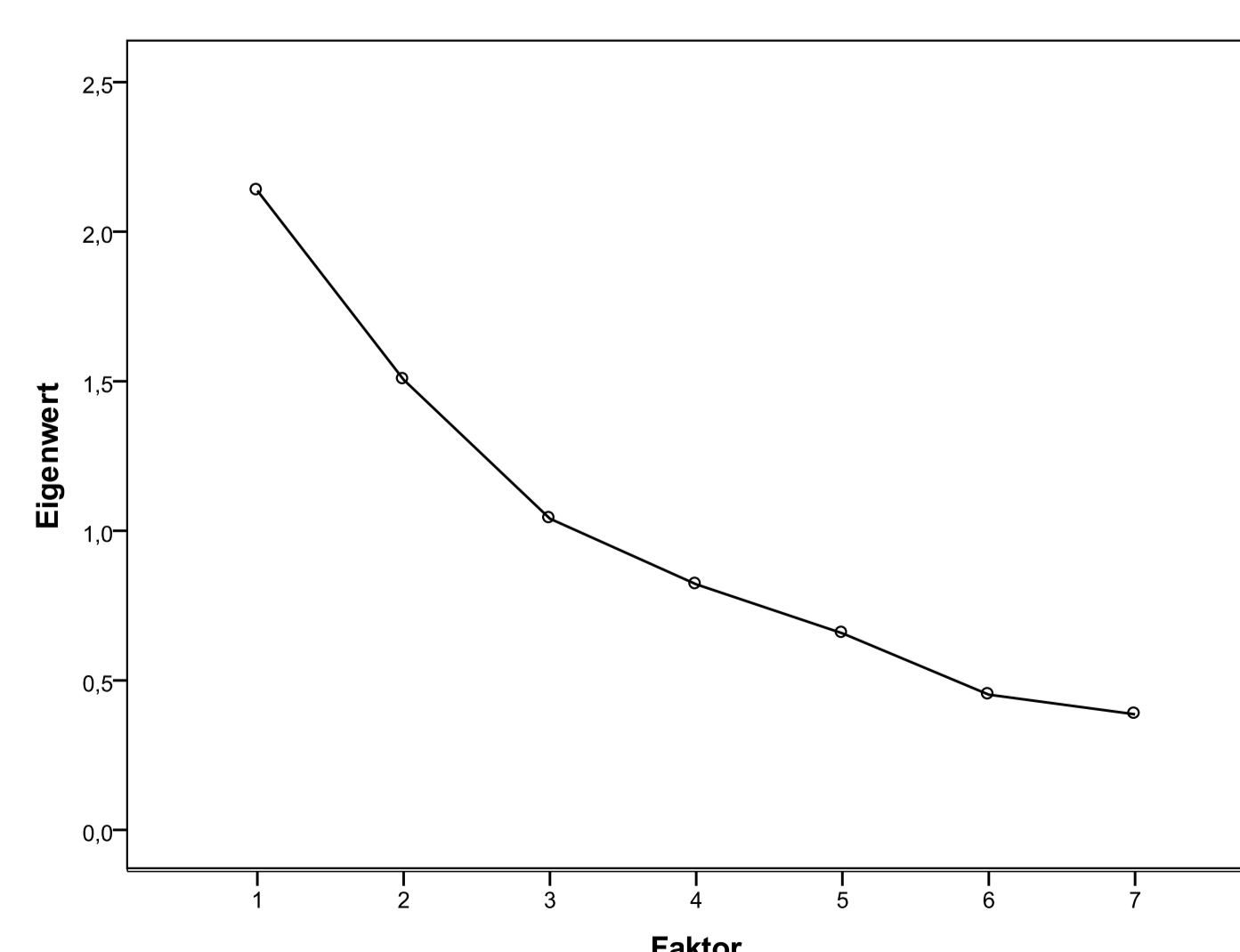


Figure 4: Screeplot of the factor analysis with the seven motive and motivation variables

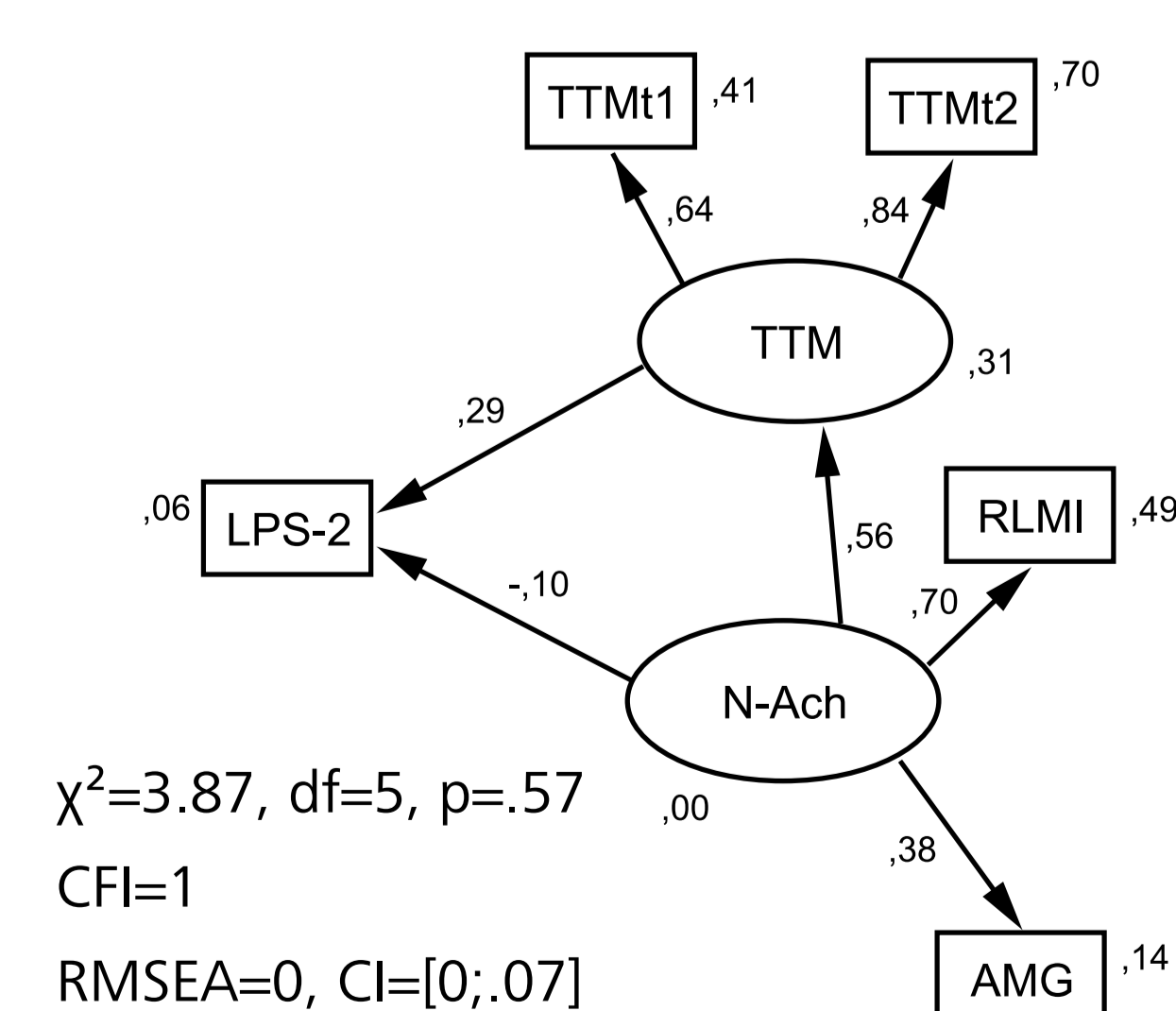


Figure 5: SEM to show to what extent the TTM depends on the N-Ach and to what extent both variables influence the performance test result