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The Development of a Questionnaire for the Objective Measurement of Belief or Knowledge Motivation i.S. an Intrapsychic Behavioral Guide

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Abstract: The self-developed psychological test instrument: Questionnaire for recording a Beliefsystem (FEB) is a self-evaluation questionnaire with 14 items. With the help of this questionnaire the individual, latent, inner attitude mata, a kind of motive in the sense of "need to know" or "want to believe" should be determined. On the basis of the results of theFactor analyses, theFactor correlations and the reliability calculations, we can state, according to the criteria of classical test theory, that theFEB is a test which is also capable of measuring the theoretical constructs mentioned above in a valid and reliable manner.

Keywords: Faith Motivation, Knowledge Motivation, Self-Assessment, Motives

1. Introduction

In order to find out why anxious and/or depressed people need to know, rather than believe, why they would be able to do so mentally but do not, it is important to develop an instrument that measures something like an inner cognitive schema or central need (motivation) validly and reliably.

The development of a questionnaire which on the one hand measures something like faith in the sense of an intrapsychic behavioural instruction, comparable to an inner need or an individual motivation to act and on the other hand must have knowledge as an alternative to it, turned out to be quite difficult, since the definitions of faith and knowledge could not be clearly determined from an epistemological point of view or scientific knowledge.

With the term "faith" there are no clear scientific statements about what "faith" is. To date, science has owed an exact definition, or operationalization, of this term. But here also no scientifically correct statements and definitions of faith are to be presented and discussed, that would go beyond the scope. In addition, this is about the development of a measuring instrument. It is only about a short representation of faith as the ability and/or willingness of man to create, move or change things in himself and his

power. Cf [1-41]

But it makes sense to give a few simple explanations about the terms to be measured with the test procedure at this point.

1.1. General Meaning of Faith

In common parlance, believing means believing a fact to be true. This is a presumption, an assumption of which an individual is convinced without realistically examining the facts of the case, but which can be modified on the basis of experience and new findings by means of a subjunctive link. This kind of inner conviction implies a trust in an

or a sentence without doubting the truth. It thus represents a subjective decision based on an emotionally perceived certainty.

In general, people only believe in what they do not know explicitly, i.e. where they are uncertain. Here faith always presupposes a degree of ignorance, a possibility to err.

The proverbs: "Faith means knowing nothing", or "Trust is good, control is better" are still frequently used in everyday language today. As wise as these statements may seem a priori, they misjudge the true character of these concepts, because they imply that faith means only to assume something or to blindly believe something to be true.

In the scientific sense, faith is usually regarded as a special

form of a probabilistic construct. This means that scientists assume that what they believe in can become true over time, but does not have to become true. It is therefore a matter which has not yet been proven in the scientific sense and which must first be proven, or which cannot be proven at all. Explicitly, this form of faith is an assumption, a hypothesis that is confirmed or rejected according to the criteria of verification and/or falsification. As already explained above, "belief" in the sense of epistemology means the advocacy of one's own convictions or perceptions. The resume from the resulting does not necessarily require a logical derivation in the epistemological sense. Insted, it is a subjective interpretation of the reality that surrounds us, which does not require any objective, scientific justification.

1.2. General Meaning of Knowledge

In colloquial terms, knowledge is primarily understood to mean an ability to deal with reality, e.g. to have some knowledge, developed through learning and practice of what has been learnt. In other words, knowledge also means the recognition of the connections between everyday, subjective and objective facts and actions. Here knowledge is understood primarily as a true and justified opinion.

Within philosophy there is no agreement on an exact definition of the term "knowledge". This disagreement is the logical, consistent consequence within Western attempts at epistemological explanation, because in this philosophical approach the term knowledge was linked with the term truth.

The conflict between a priori knowledge (42, 43) and empirical knowledge 44 which is always mentioned in this context, points to the centuries-long conflict. For Plato there existed a knowledge, independent of sensory perceptions, which was exclusively acquired by logical derivations in deductive reasoning. A rationalist was therefore someone who "attaches more importance to pure thought for knowledge than to experience" 45. This rationalist approach to the definition of knowledge found its most important advocate in René Descartes in rationalism. He already separated strictly between the empiricism of the "res extensia" and the "res cogitans" of the spiritual. The philosopher Arendt summed up that such a Cartesian juxtaposition of a "res cogitans" of man and a "res extensia" of the world surrounding him was incurable 46 Also the later philosophies (Critical Rationalism and Logical Empirism cf. (47, 48), in German 2007, and the works of (49, 50, 51, 52, 53) or the philosophers of the Vienna Circle: Moritz Schlick, Ludwig Wittgenstein, Rudolf Carnap, Bertram Russell and Ernst Mach, in: 54 But also the findings of constructivism and logical constructivism see (55, 56, 57, 58, 59 60, 61, 62, 63, 64) did not bring an unambiguous and clear scientific definition of the term "knowledge".

2. The Item Development

Because there are no clear scientific definitions of the terms "faith" or "knowledge" to date, items have been developed that have been used in colloquial usage, in the form of proverbs, from everyday life. Like, for example: "Faith moves mountains," or "knowledge is power." Through several years of psychotherapeutic experience in dealing with anxious and depressed patients, it could be established that faith no longer seemed to play any role für this clientele, let alone any function for a consciously chosen problem solving strategy. Instead, this clientele emphasized time and again that believing in sonething had never helped them in their way of life. I On the contrary, they would only associate faith with bad experiences (losses, insults and disappointments).

According to these people, "control is better than trust". "Faith is for children, the don't have to know everything." When asked why knowledge was more important to them than faith, most responded that knowledge was synonymous with "assumptions", "naivety", or "helplessness".

Through an analysis of the reason for the rejction of faith, as opposed to the clear preference for knowledge, it was possible, at least partially, to define the meaning of these terms for this group of people somewhat more clearly. Based on this understandig, further test items were developed which could also be able to measure thes terms. Using well-known proverbs like: "Trust is good, control is better", "knowledge is power" or "faith moves mountains", 14 different items were formulated. To what extent the statement of the individual item corresponds or does not correspond to the individual pattern of thinking or behaviour could the test persons choose between 4 answer categories: "not true", "true something", "often true" and "always true". (seeFEB questionnaire in annex).

2.1. Testapproval

The self-evaluation questionnaire designed in this way was distributed to 150 Vpn (50 inconspicuous, 50 anxious and 50 depressive persons) and willingly completed by them in accordance with the instructions formulated in the test.

2.2. Statistical Test Analysis

In order to check whether this questionnaire measures something like a theoretical construct "Belief systems" as a personal decision basis in the sense of "can believe" or "must know" aFactor analysis with main component analysis as extraction method and with Varimax Kaiser normalization as rotation method was calculated. Absolute values below -.500 were not taken into account. TheFactor analysis was created using the SPSS program (version: 23.0) on the computer with Windows 7.

2.3. Results ofFactor Analyses and Regression Calculations

In order to be able to make a reliable statement about the theoretical construct "Belief Systems", i.e. about the validity of the test instruments, according to the classical test criteria, a 3-factor solution and a 2-factor solution were calculated (see Table 1).

Table 1. *Explained total variance of the 3-factor solution.*

component	Initial eigenvalues			Sums of squared Factor charges for extraction		
	Total	% of variance	Accumuleted%	Total	% of variance	Accumuleted%
1	5,210	40,076	40,076	5,210	40,076	40,076
2	1,696	13,044	53,120	1,696	13,044	53,120
3	1,010	7,773	60,893	1,010	7,773	60,893

Extraction Method: Principal Component Analysis.

As can be seen from the table, the 3 Factors with the eigenvalues 5.210 (factor 1), 1.696 (factor 2) and 1.010 (factor 3) explain 60.893% of the total variance.

If we look at the following rotated component matrix with the individual items and theirFactor charges we can see that 6 items (No. 3, 4, 5, 10, 12 and 14) load on the 1st Factor and that with very high charges. Which could mean that these questions measure something like "a motiv need knowledge" as a commonFactor. The "faith item" No. 11 also loads on the firstFactor, but negatively, which could mean that conversely knowledge would be more important than imagination. Items Nos. 2, 6, 7, 8 and 9 load on the 2nd Factor, which, if one looks for a higher dimension for these different items, could measure something like a motive of faith. Only item no. 1 with the highestFactor charge (,837) loads on the 3rd Factor. What thisFactor explicitly measures is difficult to answer due to the single item without becoming speculative. Maybe it is also because it is the only item that is formulated negatively and therefore loads on only oneFactor. (see Table 2)

Table 2. *Rotated component matrix.*

	Komponente		
	1	2	3
FEB Question 14 Knowledge make safe	,803		
FEB Question 3 Double stitched holt better	,782		
FEB Question 10 Trust is good, control is better	,745		
FEB Question 12 I only belief what i see	,728		
FEB Question 5 safe is safe	, 671		
FEB Question 11 Fantasy is more important than knowledge	,659		
FEB Question 4 Knowledge is more important than faith	,623		
FEB Question 6 Faith moves mountains		,775	
FEB Question 9 Conifidence gives courage		,735	
FEB Question 7 Hope dies last		,707	
FEB Question 8 Dreams come true		,632	
FEB Question 2 Optimists live easier		,623	
FEB Question 1 1 Faith means to know nothing			,837

Extraction method: principal component analysis.
Rotation method: Varimax with Kaiser normalization.

In order to clarify whether there is a relationship between the individualFactors or whether they are independent of each other, aFactor correlation was calculated according to Pearson. (see Table 3).

Table 3. *Correlation of the 3-factor solution.*

		Factor 1	Factor 2	Factor 3
	Correlation according to Pearson	1	-,437**	,365**
Factor 1	Significance (2-sided)		,000	,000
	N	150	150	150
	Correlation according to Pearson	-,437**	1	-,160
Factor 2	Significance (2-sided)	,000		,050
	N	150	150	150
	Correlation according to Pearson	,365**	-,160	1
Factor 3	Significance (2-sided)	,000	,050	
	N	150	150	150

** The correlation is significant at the level of 0.01 (-2 sided).

This figure shows thatFactors 1 and 2 correlate highly significantly with each other, but negatively. This could mean that bothFactors measure something similar, but of different quality or educational level, perhaps something like a general motivational system, where knowledge or belief are only the different dimensions. The 3rd Factor also correlates at the 0.01 significance level withFactor 1 but not withFactor 3 (-.160). However, if one calculates a correlation according to Spearman-Rho (nonparametric correlation), the 3rd Factor also correlates with theFactor 2 (-,164) at a 0.05 level, but negatively. This could mean that item 1 may represent both dimensions, but in opposite quality.

Due to the fact that Item 1 loads on a singleFactor, no reliability could be calculated for thisFactor. That's why this

item was left out of the 2-factor solution. Item no. 11 was also taken into account in the 2-factor solution. Once it was calculated with item no. 11, once without the item. Both solutions are briefly presented (see Table 4).

Table 4. Declared total variance of the 2-factor solution with item no. 11.

Component	Initial eigenvalues			Sums of squared Factor charges for extraction		
	Total	% of variance	Accumuleted%	Total	% of variance	Accumuleted%
1	5,085	42,376	42,376	5,085	42,376	42,376
2	1,666	13,884	56,260	1,666	13,884	56,260
3	,888	7,402	63,663			

Extraction Method: Principal Component Analysis.

ThisFactor analysis explains 56.260% of the total variance with the twoFactors. With the corresponding rotated component matrix it can be seen that item no. 11, just as with the 3-factor solution, charges theFactor 1, but negatively and in comparison with the other items thisFactor, with the lowest charge (see Table 5).

Table 5. Rotated component matrix of the 2-factor solution with item no. 1.

	Komponente	
	1	2
FEB Question 3 Double stitched hold better	,810	
FEB Question 10 Trust ist good, control is better	,796	
FEB Question 12 I only belief, what i see	,765	
FEB Question 14 Knowledge make safe	,751	
FEB Question 5 Safe is safe	,722	
FEB Question 4 Knowledge is more important than faith	,711	
FEB Question 11 Fantasy is more important is than knowledge	-,589	
FEB Question 6 Faith moves mountains		,774
FEB Question 9 Confidence gives courage		,738
FEB Question 7 Hope dies last		,699
FEB Question 8 Dreams come true		,639
FEB Question 2 Optimists live easier		,632

Extraction method: principal component analysis.
Rotation method: Varimax with Kaiser normalization.

In the subsequent correlation ofFactors 1 and 2, it can also be seen that bothFactors correlate very strongly with each other, but negatively, just as in the 3-factor solution, even with the same coefficient (see Table 6).

Table 6. Correlation of the 2-factor solution with item no. 11.

		Factor 1	Factor 2
	Correlation according to Pearson	1	-,437**
Factor 1	Significance (2-sided)		,000
	N	150	150
	Correlation according to Pearson	-,437**	1
Factor 2	Significance (2-sided)	,000	
	N	150	150

** The correlation is significant at the level of 0.01 (-2 sided).

For the 2-factor solution without item no. 11, the followingFactor structure results (see Table 7).

Table 7. Explained total variance of the 2-factor solution or item no. 11.

Component	Initial eigenvalues			Sums of squared Factor charges for extraction		
	Total	% of variance	Accumuleted%	Total	% of variance	Accumuleted%
1	4,768	43,342	43,342	4,768	43,342	43,342
2	1,651	15,006	58,348	1,651	15,006	58,348
3	,849	7,717	66,065			

Extraction Method: Principal Component Analysis.

In this Factor analysis, the twoFactors explain 58.348% of the total variance

As can also be seen from this rotated component matrix, the Factor charges have changed only minimally compared to the two previously calculatedFactor solutions. Also, as far as the correlation of the twoFactors is concerned, there is only a minimal difference between the correlation coefficients and the previous correlations. Here, too, bothFactors correlate highly significantly (-.473) at the 0.01 significance level. This leads to the conclusion that all 3 solutions do not differ

significantly, and that the construct validity of this test instruments meets the requirements of classical test theory and can be described as very good (see table 8).

Table 8. Correlation of the 2-factor solution or item no. 1.

		Factor 1	Factor 2
Factor 1	Correlation according to Pearson	1	-,473**
	Significance (2-sided)		,000
	N	150	150
Factor 2	Correlation according to Pearson	-,473**	1
	Significance (2-sided)	,000	
	N	150	150

** The correlation is significant at the level of 0.01 (-2 sided).

If we split the questionnaire into two shorts questionaires with the respective itrems of the 2 differentFactors (items of knowledge or items of faith) and calculate a seperateFactor analysis for each, Factor 1 in this concrete case would even explain 62.550% andFactor 2 52,132% of the total variance (see tables 9 and 10).

Table 9. Explained total variance of Factor 1.

Component	Initial eigenvalues			Sums of squared factor charges for extraction		
	Total	% of variance	Accumuleted%	Total	% of variance	Accumuleted%
1	3,753	62,550	62,550	3,753	62,550	62,550
2	,599	9,982	72,532			

Extraction Method: Principal Component Analysis.

Table 10. Explained total variance of Factor 2.

Component	Initial eigenvalues			Sums of squared Factor charges for extraction		
	Total	% of variance	Accumuleted%	Total	% of variance	Accumuleted%
1	2,607	52,132	52,132	2,607	52,132	52,132
2	,836	16,724	68,855			

Extraction Method: Principal Component Analysis.

As a summary of the results of the variousFactor solutions to date, we can state that the self-evaluation questionnaire (FEB) is a valid instrument that validly measures intraindividual, action-guiding persuasion schemes or motivation dimensions in the sense of "knowledge" and "belief".

2.4. Results of the Reliability Calculation

For the calculation of the reliability of the questionnaire, i.e. how well and reliably it measures this theoretical construct, the items are used that were also taken into account in the 2-factor solution (or Item No. 11). The following table shows that Cronbach's alpha for the complete questionnaire is .572. This value does not appear to be very high (see Table 11).

Table 11. Item scale statistics (total test).

	Scala Mean if Item Deleted	Scala Variance if Item Deleted	Corrected Item Total Correlation	Cronbachs Alpha if Item Deleted
FEB Question 6 Faith moves mountains	28,02	15,241	-,094	,617
FEB Question 7 Hope dies last	27,78	15,663	-,168	,638
FEB Question 8 Dreams come true	28,09	15,186	-,091	,620
FEB Question 9 Confidence gives courage	27,69	15,100	-,074	,615
FEB Question 3 Double stitched hold better	27,33	11,821	,563	,475
FEB Question 4 Knowledge is more important than faith	27,43	11,897	,482	,489
FEB Question 5 Safe is safe	27,29	12,206	,454	,499
FEB Question 10 Trust is good, control is better	27,26	11,657	,546	,474
FEB Question 12 I only beliefe, what i see	27,44	11,550	,446	,491
FEB Question 4 Knowledge make safe	27,24	12,224	,437	,502
FEB Question 1 Faith means to know nothing	28,03	11,919	,319	,528
Cronbachs Alpha = ,572 N of Cases = 150 N of Items = 11				

However, if we look at the respective selectivity coefficients of the individual items, we can see that the items of the 2nd Factor have a negative value and thus massively reduce the reliability of the questionnaire. For this reason, it seems reasonable to calculate the reliability of eachFactor (1+2) for itself (see Tables 12 and 13).

Table 12. *Item Scale Statistics for Factor 1.*

	Scala Mean if Item D.	Scala Variance if Item Deleted	Corrected Item Total Correlation	Cronbachs Alpha if Item Deleted
FEB Question 3 Double stitched hold better	15,15	10,609	,710	,855
FEB Question 4 Knowledge is more important than faith	15,24	10,466	,663	,862
FEB Question 5 Safe is safe	15,10	10,601	,678	,859
FEB Question 10 Trust is good, control is better	15,07	10,243	,733	,850
FEB Question 12 I only beliefe what i see	15,25	9,439	,749	,848
FEB Question 14 Knowledge make safe	15,05	10,896	,593	,873
Cronbachs Alpha =,879 N of Cases = 150 N of Items = 6				

Table 13. *Item Scale Statistics for Factor 2.*

	Scala Mean if Item Deleted	Scala Variance if Item Deleted	Corrected Item Total Correlation	Cronbachs Alpha if Item Deleted
FEB Question 2 Optimists live easier	9,85	5,347	,477	,746
FEB Question 6 Faith moves mountains	10,10	5,312	,617	,697
FEB Question 7 Hope dies last	9,86	5,141	,585	,706
FEB Question 8 Dreams come true	10,17	5,607	,469	,746
FEB Question 9 Conifidence gives courage	9,77	5,438	,543	,721
Cronbachs Alpha =,766 N of Cases = 150 N of Items = 5				

When calculating the reliability for theFactor 1 we get a Cronbach's Alpha =.879. (see Table 12).

This coefficient can be described as particularly high. This means thatFactor 1 reliably measures the theoretical construct "knowledge" as schemata guiding action.

As can be seen from the table, the Cronbach's Alpha with .766 is also very good for the 2nd Factor, which is a good indicator for the reliability of the 2nd Factor i. H. on the criterion to be measured "faith" in the sense of an intraindividual, action guiding conviction (see table 13).

3. Summary and Interpretation of the Test Theoretical Results of the Self-Developed Questionnaire (FEB)

3.1. Questioning

A specific questionnaire was developed in order to objectively record the different preferences for knowledge and belief. With the help of this questionnaire an individual, latent, inner attitude scheme, a kind of motive in the sense of "need to know" or "want to believe" should be determined. The items used were taken from common usage and subjected to a careful item analysis with regard to their selectivity.

3.2. Statistical Analysis Method

The validity of the test instrument was calculated by aFactor analysis with main component analysis as traction method and with Varimax Kaiser normalization as rotation method. A 3- and 2-factor solution was calculated, which respectively explain 60.893% and 58.348% of the total variance. Although the 3-factor solution has a minimally better explantion of the total variance, but the 3rd Factor loads only on a single item, so that no reliability calculation could

be carried out according to the principles of the classical test theory, an interpretation in favour of the 2-factor solution was dispensed with.

The 2-factor solution clearly has two independentFactors, each of which can be described as a

Preference or motivation for knowledge (knowlwdgwFactor) and a motivation for faith (faithFactor). A conformation of this model can also foud in the% figures of the declared total variance in theFactor analyses of the individualFactors and results of theFactor correlations.

The reliability of the questionnaire for the recording of Beliefsystems (FEB) was calculated with the help of Cronbach's Alpha, once for the overall test and once for both test halves (knowledge items or faith items) separately. The reliability of the overall test is .572 which does not seem so high. On closer inspection, however, we can see that the faith items have negative discriminatory power coefficients and thus greatly reduce the reliability score of the overall test. In a separate calculation, particularly high or very good values were obtained for the Cronbach's alpha (cf. item scale statistics forFactor 1 (knowledge) Cronbach's alpha .879 and forFactor 2 (faith) equal to .766.

Due to the highly significant correlations or partial correlations with the standardised test procedures (BDI, BAI, SWSF and HAKI-S), FEB also has very good criterion validity. From a test theoretical point of view, the validity as well as the reliability of the test instrument with regard to an objective measurement of the two preferences (knowledge and belief) could thus be proven.

TheFEB is a useful, valid and reliable instrument for scientific research with regard to individual motivation to want to believe or to have to know. This questionnaire can be a good help for the scientific discussion and thus provide an empirical gain of knowledge.

Table 14. Questionnaire for the registration of Belief systems (FEB).

Questionnaire No: _____		Date: _____			
Age: _____Years: _____		Gender: (w) (m)			
Occupation: _____		Group: _____			

Please read through the following phrases and cross them afterwards the answer you which, in your opinion, is most likely to apply to you

	right not	right something	right often	right always
1. Faith means to know nothing	( )	( )	( )	( )
2. Optimists live easier	( )	( )	( )	( )
3. Double stitched hold better	( )	( )	( )	( )
4. Knowledge is more important than faith	( )	( )	( )	( )
5. Safe is safe	( )	( )	( )	( )
6. Faith moves mountains	( )	( )	( )	( )
7. Hope dies last	( )	( )	( )	( )
8. Dreams come true	( )	( )	( )	( )
9. Conifidence gives courage	( )	( )	( )	( )
10. Trust is good, control is better	( )	( )	( )	( )
11. Fantasy is more important than knowledge	( )	( )	( )	( )
12. I beliefe what i see	( )	( )	( )	( )
13. Will already be	( )	( )	( )	( )
14. Knowledge make safe	( )	( )	( )	( )
15. Nothing to belief is impossible	( )	( )	( )	( )

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