CROSS-CULTURAL VALIDITY OF SCORES IN THAYER'S ACTIVATION-DEACTIVATION ADJECTIVE CHECK LIST (AD ACL)

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It is often difficult and sometimes impossible to find the exact equivalent of a single word in another language. This study was conducted to evaluate whether it was possible to transport a list of English adjectives forming the AD ACL into Croatian and to measure activation dimensions proposed within the framework of Thayer's activation theory. In this study the AD ACL Short Form was translated by eight translators using a combination of several methods, and applied to 650 students of diverse study groups. The first and second order component analyses were performed with oblique rotations applied. The analyses replicated Thayer's four primary components (Energy, Wakefulness, Tension and Calmness) as well as two secondary components (Energetic and Tense Arousal). The primary components were moderately or slightly correlated while the secondary components showed neglectful correlation. The translated activation descriptors loaded on the primary and secondary components mostly as expected with a few cross-loadings. The only substantial difference was observed for the adjective *quiet* (*tiho*) that loaded on different secondary component than expected. The results showed that the Croatian AD ACL might serve as a factorially valid measure of the dimensions of momentary activation in Croatian-speaking individuals.

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Activation was traditionally considered a continuum indicating the intensity of energy expenditure, varying from extremely low, such as deep sleep or coma, to extremely high, such as high excitement (Duffy, 1972). Various physiological measures have been used to indicate the level of activation (e. g. body temperature, heart rate, electrodermal activity, electrical activity of muscles, blood pressure, vasoconstriction and vasodilatation in the extremities and electrical brain activity). The list of potential physiological indexes of activation is long since almost any physiological response can be used (Duffy, 1972). To support the assumption of activation as a unidimensional continuum of energy expenditure, different physiological measures of activation should demonstrate similar variations (Lacey, 1967). Since the reported intra- and intersubject correlations between measures of activity in various physiological systems were low and inconsistent, an alternative approach to measuring activation was needed.

Based on the self-report measures of activation states, Thayer (1967, 1986, 1989) developed a two-dimensional model of activation. Thayer thought that the low correlations between the measures of activity in different physiological subsystems could not be a result of their actual independence. His assumption was that the methodology applied was inappropriate, since adaptive response to the environmental demands can be accomplished only by the synchronised reactions of all physiological subsystems. He considered activation to be the result of integration of physiological and psychological processes generated in the organism. Even though the mechanisms of such integration are not clear, in everyday language people report of their different activation states. Therefore Thayer thought that general activation could be better represented by the controlled self-report than by any single physiological measure and that the self-report scores were superior for the interindividual comparisons. His initial objective was to develop a scale that would measure non-directional general bodily activation, which was conceptualised similarly as that in Duffy (1972).

In 1967 Thayer published the results of the first factor validity study of the *Activation-Deactivation Adjective Check List* (AD ACL) that was developed to measure subjective activation states. Twenty-eight activation adjectives were combined with 21 non-activation ones in a list that was given to a group of freshmen to rate their momentary activation states. The results were factor analysed with Thurstone centroid extraction and Varimax rotation applied. Four of the extracted factors were loaded mainly with activation adjectives and the author named them General Activation, Deactivation-Sleep, High Activation and General Deactivation. Out of 27 activation adjec-

tives that had high loadings on the factors 22 were kept in the first version of AD ACL.

In 1978(a) Thayer revised the original long form of the AD ACL adding the adjectives *tense* and *anxious*, and devised the Short Form of the scale in which each factor was represented by five adjectives. Since four orthogonal factors identified in 1967 did not show independent variations in following studies, Thayer explored the oblique factor solutions. The four previously established factors reappeared in the analyses of the AD ACL Short Form and were significantly correlated. General Activation and Deactivation-Sleep correlated 0.58, while High Activation and General Deactivation correlated -0.50. The second order analysis extracted two dimensions composed of two pairs of factors. It was concluded that the oblique solutions were superior to the previous orthogonal, and that the two-dimension explanation was probably better than the four--factor solution (Thayer, 1978a, 1978b). At that point the author labelled the dimensions as Activation Dimension A (composed of the factors General Activation and Deactivation-Sleep) and Activation Dimension B (composed of the factors High Activation and General Deactivation). However, Thayer pointed out that the exact relationships between the four factors or two dimensions were still to be explored since the primary factors did not consistently behave like two reciprocal pairs. In 1986 Thayer conducted additional analyses of the AD ACL while examining three different rating formats. He performed only the primary order analysis and found that the oblique rotations yielded essentially the same factors with each rating format. In that study the two dimensions were labelled as Energetic Arousal (former Activation Dimension A) and Tense Arousal (former Activation Dimension B). The labels of four factors were also changed to Energy, Tiredness, Tension and Calmness, former General Activation, Deactivation-Sleep, High Activation and General Deactivation, respectively. In 1987 Thayer shortened labels of the second order dimensions to Energy and Tension.

Based on the findings from various validation studies Thayer developed a two-dimensional model of activation (Thayer, 1978b; 1989; 1996). The two activation dimensions of his model are Energetic and Tense Arousal. Energetic Arousal most probably underlies both the sleep-wake cycle and physical activity while Tense Arousal mediates danger-related activities. In Thayer's view, two activation dimensions differ in three major aspects – subjective experience, focus of attention and skeletal-muscular response. Energetic Arousal can vary from subjective feelings of energy and vigour to feelings of tiredness and sleepiness while Tense Arousal varies from feelings of tension to calmness. Energetic Arousal is characterised by task-directed attention. Tense Arousal is charac-

terised by attention quickly shifting from one aspect of a situation to another in order to test various hypotheses and select appropriate response. Energetic Arousal is associated with gross motor activity and execution of activity. However, the skeletal-muscular response associated with Tense Arousal is restricted to the muscles of the back, shoulders and neck. The nature of this response is preparation for directed motor activity, but not execution.

Energetic Arousal shows spontaneous circadian variations, independent of environmental influences (Thayer, 1967; 1978). On the other hand, Tense Arousal shows less pronounced circadian variations, more situational specificity and is supposed to be related to emotional reactions and stress. According to Thayer's model, the relationship between Energetic and Tense Arousal is curvilinear and dependent on a single continuum of energy expenditure. At low and moderate level of energy expenditure the dimensions are positively correlated while at high levels of energy expenditure the correlation between them is negative. Changes in one arousal dimension are supposed to induce changes in another. For example, feeling extremely energetic and vigorous would reduce feelings of tension.

Many studies examined the construct validity of the AD ACL (e.g. Bohlin & Kjellberg, 1973; Thayer, 1967, 1970, 1971, 1987; Thayer & Cox, 1968; Thayer & Moore, 1972; Thayer, Takahashi & Pauli, 1988). The majority of those studies analysed the four factors and their relations to other variables. Thayer allowed the possibility of scoring the AD ACL for two secondary dimensions or for any primary factor that is relevant for a particular study (Thayer, 1989; Thayer, Peters, Takahashi & Birkhead-Flight, 1993).

The AD ACL in Croatian was used in some studies (e. g. Manenica, 1987; Proroković, 1996; Takšić & Matulović, 1992) but the translation itself has not been published yet. Manenica (1987) found four separate factors that corresponded to Thayer's but did not provide the information on the version of the scale used. The scale in Proroković's thesis (1996) contained 14 of 20 original adjectives and two activation dimensions were represented by an uneven number of adjectives (Energetic Arousal by 5, Tense Arousal by 9 adjectives). The results presented in the thesis supported the two-dimensional approach.

This study is a part of the extensive research on the 24--hour variations in subjective activation measured by the AD ACL. In order to use the scale it had to be translated first and the cross-cultural generalisability of Thayer's model of activation examined. The purpose of this study was to assess the psychometric equivalence of the Croatian translation of the AD ACL Short Form.

METHOD

Instrument

The Activation-Deactivation Adjective Check List (AD ACL) Short Form consists of 20 descriptors of activation states (Thayer, 1989). Each state is self-rated on a four-point scale having the following points: "no", "?", "a" and "aa". The points are described with "definitely do not feel", "cannot decide", "feel slightly" and "definitely feel". The ratings are scored from 1 to 4. In this study the AD ACL items were rated on a four point Likert scale with the following points: 1 ("definitely do not feel"), 2 ("somewhat feel"), 3 ("feel quite a bit") and 4 ("definitely feel"). Descriptions of the two middle points were slightly altered from the original ones in order to achieve the continuity of ratings. Thayer (1986, 1989) indicated that the type of rating scale employed did not influence factor structure of the AD ACL.

Translation

Eight translators participated in the translation and back translation. All of them were native Croatian speakers, fluent in English. Six were psychologists experienced in mood checklists. Two were linguists, one of them specialist in Croatian and another in English language. The methods used were translation, back translation and consensus between the translators. Participation of experts in the fields and the combination of several methods are commonly used for translation of psychological instruments (e. g. MacCrae & Costa, 1997; Devins et al., 1997; Phillips, de Hernandez & de Ardon, 1994; Schneider, Lankfort & Oguchi, 1997). Such an approach is supposed to assure greater objectivity as well as applicability of the instrument in a particular cultural setting. If properly translated, an instrument would represent a parallel form to the original.

The English adjectives were translated into Croatian adverbs because in Croatian language adverbs are used to describe *how* someone feels. Three psychologists and a specialist in Croatian language performed the translation into Croatian. Concordance in the translations was relatively high, except for the descriptors *at rest* and *intense*. After extensive discussions the first Croatian version of the list was agreed upon and given to a second group of translators to back-translate it into English. Another three psychologists and a specialist in English, who were all blind to the original English descriptors, independently prepared the back translations. The concordance between the back-translations was lower, with seven adjectives being back translated into completely different terms than expected. A bilingual psychologist was consulted on the most

problematic adjectives. The final version (Table 1) was composed on the basis of comparative analysis of the translations and consensus between the translators.

English	Croatian
active	aktivno
energetic	energično
vigorous	krepko
full of pep	pun/a snage
lively	živahno
still	mirno
quiet	tiho
placid	spokojno
calm	smireno
at rest	na miru
tense	napeto
intense	prenapeto
clutched up	stisnuto
fearful	plašljivo
jittery	živčano
wide-awake	sasvim budno
wakeful	budno
sleepy	pospano
drowsy	dremljivo
tired	umorno

Note. Copies of the Croatian forms of the AD ACL may be obtained from the authors.

Participants

The AD ACL in Croatia was administered to 650 participants (456 females, 191 males, and 3 unreported gender). The participants were undergraduates from the University of Zagreb. They were science and technology students at the Departments of Geology, Mining, Biology, Chemistry, Engineering, and Veterinary Medicine, and social sciences and humanities students at the Departments of Psychology, Education, Social Work, Theology, Economy, Croatian Language, Design, and Kinesiology. The departments were selected to represent the variety of study fields. The age of the participants varied from 18 to 38 years with the mode of 20 years.

Procedure

The examination took part in May and June 1999. The AD ACL was administered in a group testing procedure at the beginning of a class. Three psychologists took part in the administration. The groups were examined between 9:15 AM and 4:00 PM. All students present at a class were given written in-

formation explaining the purpose of the study, confidentiality of data, and possibility of not participating, with contact addresses of the research team. An administrator of the AD ACL read the information giving additional explanations if needed. With the standardised instruction, the participants were then asked to rate their momentary feelings on the AD ACL. The complete procedure lasted at most 20 minutes, depending on the size of the group. All students who were approached agreed to participate.

RESULTS

Prior to component analyses none of the ratings were scored in the reverse order. Principal Component Analyses (PCA) were performed. The components were oblique rotated using direct oblimin method with delta coefficient set to zero. Component scores were calculated for each extracted primary component having eigenvalue greater than one. They were submitted to second order PCA, again with the oblique rotation of extracted components. The results of the first and second order analysis are given in Tables 2 and 3.

First order analysis

For the first order analysis the Keiser-Meyer-Olkin measure of sampling adequacy (KMO index) equalled 0.91, which indicated that the input data were more than appropriate for the analysis. PCA extracted four components with eigenvalues greater than one, which explained 67.9 % of the total variance (Table 2).

Fifteen of the adjectives loaded only on one component, each on the component it was expected to load according to Thayer's results for the English version of the scale. Adjectives *vigorous* (*krepko*), *still* (*mirno*), *at rest* (*na miru*) and *calm* (*smireno*) showed cross-loadings on two components and *quiet* (*tiho*) on three. However, each of them showed the highest loading on the expected component. Component 1 was labelled Wakefulness, component 2 Tension, component 3 Energy and component 4 Calmness. There was a moderate correlation of 0.50 between Energy and Wakefulness and a weak one (-0.29) between Tension and Calmness. Other intercomponent correlations were -0.19 (Wakefulness and Tension), 0.04 (Wakefulness and Calmness), -0.20 (Tension and Energy) and 0.02 (Energy and Calmness).

Internal consistency of primary order components was measured using coefficient alpha. Alpha was obtained for each component comprising five highest loading items. All of the internal consistency coefficients were high (Wakefulness =0.91, Energy=0.87, Tension=0.86 and Calmness=0.74).

Descriptor	Component loading				Communality
	Wakefulness	Tension	Energy	Calmness	
sleepy	-.90	.04	.05	.12	.78
drowsy	-.86	.10	-.00	.15	.79
wide-awake	.80	.07	.11	.18	.74
tired	-.79	.16	-.02	.08	.71
wakeful	.78	.07	.16	.14	.77
tense	-.07	.80	.08	-.18	.75
intense	-.04	.78	.03	-.13	.70
fearful	-.06	.74	.07	.10	.51
jittery	-.09	.73	.04	-.16	.65
clutched up	-.07	.71	-.04	.02	.54
lively	.03	-.01	.86	-.03	.77
energetic	.04	.13	.85	-.04	.73
active	.06	.12	.80	-.02	.67
full of pep	.23	-.09	.68	.07	.72
vigorous	.20	-.02	.49	.41	.56
quiet	.08	.43	-.41	.66	.65
still	-.09	-.33	-.05	.65	.65
at rest	-.02	-.31	.18	.60	.61
placid	-.09	-.29	.13	.58	.54
calm	-.06	-.48	.11	.56	.72
Eigenvalues	6.77	4.05	1.45	1.31	
% of variance	33.84	20.23	7.24	6.55	

Note. Italic face indicate component loadings greater than 0.30.

Second order analysis

The KMO index for the component correlation matrix equalled 0.55, which is low but still acceptable for the analysis. Supporting index in this case is significant Bartlett Test of Sphericity (276.22, $p < 0.001$). PCA extracted two components with eigenvalues greater than one, and the variance explained by a two-component solution was 70.6 % (Table 3). The components showed neglectful correlation of -0.14. The pairs of primary components loaded on the secondary components as expected. The primary components Energy and Wakefulness loaded on the secondary component that was labelled Energetic Arousal while the primary components Tension and Calmness loaded on the secondary component that was labelled Tense Arousal. In some recent works Thayer has used the shortened labels for secondary order factors, i. e. Energy and Tension. In this study the longer labels were used in order to make clear differentiation between primary and secondary order components.

Component scores and standardised regression coefficients (loadings) were calculated in order to examine the relationships between the second order components and each activation descriptor (Table 4).

⊃ TABLE 3
The second order
Principal Component
Analysis: Component
loadings for oblimin
two-factor solution,
communalities, eigen-
values and percen-
tages of variance

| Primary Component | Component loading | | Communality |
	Energetic Arousal	Tense Arousal	
Wakefulness	.85	-.01	.73
Tension	-.21	.73	.63
Energy	.86	.00	.74
Calmness	-.17	-.86	.73
Eigenvalues	1.66	1.16	
% of variance	41.55	29.07	

Note. Italic face indicate component loadings greater than 0.30.

| Descriptor | Component loading | |
	Energetic Arousal	Tense Arousal
sleepy	-.75	-.06
drowsy	-.78	-.04
wide-awake	.72	-.10
tired	-.74	.06
wakeful	.77	-.08
tense	-.12	.74
intense	-.15	.69
fearful	-.16	.45
jittery	-.17	.67
clutched up	-.25	.50
lively	.77	.02
energetic	.74	.13
active	.72	.11
full of pep	.79	-.12
vigorous	.52	-.37
quiet	-.48	-.26
still	-.16	-.80
at rest	.10	-.74
placid	-.00	-.71
calm	.05	-.84

Note. Italic face indicate component loadings greater than 0.30.

All activation descriptors loaded on the secondary components as expected according to Thayer's model, except for the descriptor *quiet* (*tiho*). The descriptor *vigorous* (*krepko*) was the only one with the cross loadings on both secondary components. Even so, it loaded higher on the Energetic Arousal component, as was expected.

Internal consistency coefficients (alpha) were calculated for the 11-item Energetic Arousal component (including item *quiet*), and 9-item Tense Arousal component. The alphas were high, being 0.90 for the Energetic Arousal, and 0.89 for the Tense Arousal.

DISCUSSION

The purpose of this study was to examine the possibility to measure the same activation states in Croatian culture as in American using the AD ACL. It is generally easier to measure psychological constructs in different cultures by means of questionnaires comprising sentences or phrases than by means of adjective lists. When adjectives, which describe affective states, are translated from English into Croatian there are at least three problems. First, when an English adjective has several different meanings it is difficult to decide which meaning should be translated. Second, when several English adjectives that have quite similar meaning are translated it is difficult to find a different Croatian equivalent for each of them. Further, translation is performed within a context of a specific adjective check list that comprises a certain selection and number of adjectives. If a list comprises a few adjectives with similar meanings words from everyday language can be used in their translation. However, if more adjectives with similar meanings have to be translated within the same list, some less common words also have to be used. Consequently, the same adjective may not be translated into the same word in different lists. In comparison to 191 affect terms used in a variety of formats (Russell & Feldman Barrett, 1999) 20 adjectives from the AD ACL did not initially seem difficult to translate. However, since they describe a narrow range of affective states and some have very similar meanings they did not prove easy to translate.

To assess the psychometric equivalence of the Croatian translation of the AD ACL Principal Component Analysis was performed and oblimin-rotated components compared to those obtained by Thayer (1967, 1978, 1986). The oblique factor solutions are more sample specific and therefore less replicable than the orthogonal ones (Rennie, 1997). One cannot expect to reproduce the same values of the factor loadings or the interfactor correlations as reported in other studies. The oblique factor rotations are considered to be confirmatory rotation strategies that test whether the data fit the model (Rennie, 1997). Since that was the actual aim of this study, the trends and general factor structures of our and of Thayer's results could be compared. The factor analytic results for the Croatian translation of the AD ACL were comparable to Thayer's results obtained with the original English version of the scale. This study showed that the translated AD ACL had the same factor structure as the original and that the Croatian descriptors generally loaded on four primary and two secondary components as expected.

However, some differences regarding direction of loadings were observed in comparison to Thayer's results. In Tha-

yer's studies (1978a, 1986) adjectives *sleepy, drowsy* and *tired* loaded positively, and *wide-awake* and *wakeful* loaded negatively on one of the extracted components. Therefore he labeled that component Tiredness. In our study the same adjectives loaded on the component in the opposite direction and therefore the component was named Wakefulness. Consequently, Wakefulness showed positive correlation with Energy, and loaded positively on the second order component of Energetic Arousal.

In this study the oblique rotations of the four primary components resulted in the cross loadings of five adjectives. The adjectives *calm* (*smireno*), *at-rest* (*na miru*) and *still* (*mirno*) loaded on both Calmness and Tension. Having higher loadings on Calmness they can be considered to constitute this component, and not the other one. Thayer himself reported cross loadings of the adjectives *calm* and *at-rest* (1978a, 1986). The adjectives consistently cross-loaded on the factors Tension and Calmness just like in our study. Further, in this study the adjective *quiet* (*tiho*) showed high loading on Calmness, as well as small loadings on Tension and Energy. Thayer (1986) also reported a cross-loading of the adjective *quiet* on the Energy factor. Finally, the adjective *vigorous* (*krepko*) loaded both on Energy and Calmness, having a somewhat higher loading on Energy. The stated problems with the cross loadings did not jeopardise the structure of the primary components.

Inspection of loadings on the second order components revealed that only the adjectives *vigorous* (*krepko*) and *quiet* (*tiho*) loaded differently than expected. The concordance between the translators for these two adjectives was high in both ways. If we were to expect any problems with the translated adjectives based on the low concordance between the translators those would be e. g. adjectives *intense* or *full of pep*. But, as we have shown, those adjectives behaved completely as expected.

The adjective *vigorous* (*krepko*) loaded moderately on Energetic Arousal component and weakly on Tense Arousal component. The problem with this adjective might stem from its translation into the Croatian word *krepko* that is not commonly used in everyday language. During the administration of the AD ACL some of the students even asked for the explanation of the word *vigorous* (*krepko*).

The problem with the adjective *quiet* was a different one. It loaded on the opposite second order component than expected. We think that the problem with this adjective lies in its use in Croatian language rather than in inadequate translation. The meaning of the adjective is clear, but "feeling quiet" ("osjećati se tiho") could be hard to interpret or experience in our cultural setting. In Croatian language *quiet* (*tiho*) is more commonly used as a descriptor of someone else's momentary

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BR. 4-5 (54-55),
STR. 887-902

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behavioural state (e. g. "Why are you so quiet today?") or a be-
havioural disposition ("She is a quiet person."). It is rarely used
as a descriptor of personal feeling or mood. It may be that stu-
dents rated their behaviour rather than the activation state. It
has already been discussed that in the first order analysis the
descriptor *quiet* showed cross-loadings on three components.
They indicate that one can report to feel quiet when feeling
calm, low in energy, and tense at the same time. The values of
adjectives *vigorous* and *quiet* as descriptors of activation in Cro-
atian language would have to be explored further.

Even though several factor analytic studies of the AD ACL
have been conducted so far, a general agreement on its factor
structure has still not been reached. When selecting adjectives
for the AD ACL Thayer attempted to measure activation a-
lone, but the obtained two-dimensional structure of the AD
ACL could result from the inclusion of adjectives that unite
both activation and valence component of current affect (Yik
et al., 1999). Besides, it should be pointed out that the obtained
factor structures of the AD ACL are based exclusively on the
results of the students. That particular population should be
able to sophisticatedly differentiate psychological processes
as required by the questionnaire. An orientation to the edu-
cated participants is a well-known problem with self-reports.
To test Thayer's activation model, the AD ACL should be ap-
plied to the various groups of participants with different so-
cio-demographic background. Only then could the value of
self-reported activation states be discussed more fully. Our stu-
dy has somewhat broadened the sample of participants inclu-
ding the variety of study groups. To some extent our results
do expand the evidence of the generalisability of the AD ACL
structure, not only to different culture but also to somewhat
different population.

In conclusion, this study did not attempt to provide the
answer to the question on the true number of activation di-
mensions and their relationships. Exploratory factor analysis was
used to assess the psychometric equivalence of the AD ACL trans-
lated into Croatian. The Croatian AD ACL shows the same
factor structure as the English original. The study has proved
the Croatian translation of the AD ACL to be a substantially
valid measure of momentary activation within the framework
of Thayer's activation theory.

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Acknowledgements

Međukulturalna valjanost rezultata na Thayerovoj AD ACL skali (Activation--Deactivation Adjective Check List)

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Pronaći točan ekvivalent pojedine riječi u nekom drugom jeziku često je vrlo teško ili čak nemoguće. Ovim ispitivanjem nastojali smo provjeriti može li se lista engleskih pridjeva koji čine AD ACL izravno prenijeti u hrvatski jezik te na taj način mjeriti dimenzije aktivacije u okviru Thayerove aktivacijske teorije. Osam prevoditelja prevelo je Kratku formu AD ACL-a rabeći kombinaciju različitih metoda prevođenja. Prevedenu

DRUŠ. ISTRAŽ. ZAGREB
GOD. 10 (2001),
BR. 4-5 (54-55),
STR. 887-902

KOŠĆEC, A.,
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skalu ispunilo je 650 studenata različitih studijskih grupa. Komponentne analize prvoga i drugoga reda, uz kosokutne rotacije, replicirale su Thayerove faktore prvoga (energičnost, budnost, napetost i smirenost) i drugoga reda (energičnost i napetost). Komponente prvoga reda međusobno su bile slabo i umjereno povezane, a korelacija među komponentama drugoga reda pokazala se zanemarivom. Prevedeni aktivacijski deskriptori opterećeni su primarnim i sekundarnim komponentama, uglavnom onako kako se očekivalo na osnovi Thayerova modela. Jedina iznimka uočena je kod deskriptora *tiho* (*quiet*) koji je opterećen suprotnom komponentom drugoga reda nego što se očekivalo. Rezultati ovoga ispitivanja pokazali su da se hrvatski prijevod AD ACL-a može rabiti kao valjana mjera trenutačnih aktivacijskih stanja na hrvatskomu govornom području.

Interkulturale Gültigkeit wissenschaftlicher Untersuchungsergebnisse gemäß der Thayer'schen ADACL-Skala (Activation-Deactivation Adjective Check List)

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Es ist oft sehr schwer oder gar unmöglich, beim Übersetzen ein völlig zutreffendes Äquivalent für ein bestimmtes Wort zu finden. Diese Untersuchung galt der Frage, ob man englische Vokabeln der genannten ADACL-Skala direkt in die kroatische Sprache übertragen und auf diese Weise die Aktivations-Dimensionen gemäß der Thayer'schen Aktivationstheorie messen kann. An der Untersuchung nahmen acht Übersetzer teil, die die Kurzform der ADACL-Skala unter Anwendung kombinierter Übersetzungsmethoden ins Kroatische übertrugen. Die übersetzte Skala wurde von 650 Studenten verschiedener Studiengänge ausgefüllt. Komponenzanalysen ersten und zweiten Ranges (unter schrägwinkligen Rotationen) replizierten Thayer'sche Faktoren ersten Ranges (energisches Auftreten, Wachsamkeit, Anspannung und innere Ruhe) sowie einige Faktoren zweiten Ranges (energisches Auftreten und Anspannung). Die Komponenten ersten Ranges standen nur in einem schwachen und gemäßigten Zusammenhang, während sich die Korrelationen zwischen den Komponenten zweiten Ranges als praktisch belanglos erwiesen. Die übersetzten Aktivations-Beschreibungen sind durch primäre und sekundäre Komponenten belastet, wie dies aufgrund des Thayer'schen Modells generell auch vorausgesetzt werden konnte. Die einzige Ausnahme stellt die Vokabel *still* (*quiet*) dar, die entgegen der Erwartung

durch eine gegensätzliche Komponente zweiten Ranges belastet ist. Die Untersuchungsergebnisse zeigen, dass die kroatische Übersetzung der ADACL-Skala als ein im kroatischen Sprachraum gültiger Maßstab zur Ermittlung von Aktivationszuständen genutzt werden kann.