

University of Warwick institutional repository: <http://go.warwick.ac.uk/wrap>

This paper is made available online in accordance with publisher policies. Please scroll down to view the document itself. Please refer to the repository record for this item and our policy information available from the repository home page for further information.

To see the final version of this paper please visit the publisher's website. Access to the published version may require a subscription.

Author(s): Leslie J. Francis, Dan Ispas, Mandy Robbins, Alexandra Ilie and Dragos Iliescu

Article Title: The Romanian Translation of the Francis Scale of Attitude Toward Christianity: Internal Consistency Reliability, Re-test Reliability and Construct Validity Among Undergraduate Students Within a Greek Orthodox Culture

Year of publication: 2008

Link to published version:

<http://dx.doi.org/10.1007/s11089-008-0174-6>

Publisher statement: (The original publication is available at [www.springerlink.com](http://www.springerlink.com))

Running head: The Romanian translation of the FSAC

The Romanian translation of the Francis Scale of Attitude toward Christianity:  
Internal consistency reliability, re-test reliability and construct validity among  
undergraduate students within a Greek Orthodox culture

Leslie J. Francis\*

The University of Warwick, UK

Dan Ispas

University of South Florida, USA

Mandy Robbins

The University of Warwick, UK

Alexandra Ilie

University of South Florida, USA

Dragos Iliescu

National School of Political and Administrative Studies, Romania

\*corresponding author, e-mail: leslie.francis@warwick.ac.uk  
telephone: 024 7652 2539

### Summary

In order to contribute to a growing international research programme concerned with the correlates, antecedents and consequences of individual differences in attitude toward religion, the Francis Scale of Attitude toward Christianity was translated into Romanian and applied within a cultural context shaped by the Greek Orthodox tradition. Data provided by a sample of 158 students (mainly in their late teens and early twenties) supported the internal consistency reliability, re-test reliability and construct validity of this instrument and commended it for further use in studies conducted in Romania.

The Romanian translation of the Francis Scale of Attitude toward Christianity:  
Internal consistency reliability, re-test reliability and construct validity among  
undergraduate students within a Greek Orthodox culture

The refinement and application of psychometric tools within the individual differences tradition of psychology have made a crucial contribution to advances in knowledge within an empirically-based psychology of religion (see for example, Spilka, Hood, Hunsberger, & Gorsuch, 2003). However, the authoritative review of available tools in this field undertaken by Hill and Hood (1999) illustrates two major weaknesses in the literature. The first weakness concerns the multiplicity of available tools, many of which have been applied in limited numbers of studies. Given the way in which scientific findings are closely related to the precise empirical operationalisation of underlying constructs, it is not always easy to integrate and to interpret findings generated by a range of different instruments. The second weakness concerns the way in which there is often a paucity of information regarding the psychometric properties of the instruments applied. Given the premium on space in the scientific literature, more attention is often (and appropriately) given to reporting the outcome of the application of certain tools than to the scrutiny of the tools themselves.

Recognising the significance of both of these problems in the late 1970s, Francis (1978a, 1978b) introduced the psychometric properties of the Francis Scale of Attitude toward Christianity and invited colleagues to collaborate with him in building up a series of independent but interrelated studies examining the correlates, antecedents and consequences of individual differences in scores recorded on this measure. By the mid 1990s over a hundred studies had responded to this invitation (Kay & Francis, 1996) and many more have been published since then. This growing literature includes a number of studies concerned

with examining the psychometric properties of the scale within different parts of the English-speaking world, including Australia and Canada (Francis, Lewis, Philipchalk, Brown, & Lester, 1995), England (Francis & Stubbs, 1987; Francis, 1992), Kenya (Fulljames & Francis, 1987), Nigeria (Francis & McCarron, 1989), Northern Ireland (Francis & Greer, 1990; Greer & Francis, 1991), Republic of Ireland (Maltby, 1994), Scotland (Gibson, 1989; Gibson & Francis, 1989), South Africa (Francis, Kerr, & Lewis, 2005), and the United States of America (Lewis & Maltby, 1995).

In order to extend this research tradition within other linguistic communities the Francis Scale of Attitude toward Christianity has been translated into a number of different languages. Given the sensitivity of psychometric measurement to the precise formulation of each constituent item within a scale, translation from one language to another is a complex and sensitive matter, best achieved by a process of translation and back-translation in order to ensure comparability. Translations of the Francis Scale of Attitude toward Christianity are currently available in Arabic (Munayer, 2000), Chinese (Francis, Lewis, & Ng, 2002), Dutch (Francis & Hermans, 2000), French (Lewis & Francis, 2003), German (Francis & Kwiran, 1999; Francis, Ziebertz, & Lewis, 2002), Greek (Youtika, Joseph, & Diduca, 1999), Norwegian (Francis & Enger, 2002), Portuguese (Ferreira & Neto, 2002), Spanish (Campo-Arias, Oviedo, Dtaz, & Cogollo, 2006), Swedish (Eek, 2001), and Welsh (Evans & Francis, 1996; Francis & Thomas, 2003).

Against this background, the aim of the present study is to extend previous research regarding the Francis Scale of Attitude toward Christianity in two years. First, since previous studies concerned with examining the psychometric properties of the instrument have been conducted largely within cultures shaped by Catholic or by Protestant and Reformed tradition, the present study focuses on a cultural context shaped by the Greek Orthodox tradition, namely Romania. Second, the present study examines for the first time the

psychometric properties of a Romanian translation of the Francis Scale of Attitude toward Christianity.

## Method

### *Sample*

A sample of 158 students attending a university in the Western part of Romania completed a short questionnaire within the context of regular coursework. They were assured of complete confidentiality and anonymity and given the option not to participate in the project. All students attending the coursework session willingly participated. The sample comprised 53 males and 105 females; 87 were under the age of twenty, 53 were in their twenties, and the remaining 18 were aged thirty or over. A subgroup of these students (N = 41) were also invited to complete the same instrument after a period of four weeks in order to examine the re-test reliability of the instrument.

### *Instrument*

The Francis Scale of Attitude toward Christianity is a 24-item Likert type instrument concerned with affective response toward God, Jesus, bible, prayer and church. The items had been translated into Romanian two independent translators and then back-translated into English in order to test for inaccuracies and ambiguities. The minor differences in translations were solved in a group meeting. Each item is assessed on a five-point scale: *agree strongly*, *agree*, *not certain*, *disagree* and *disagree strongly*.

Church attendance was assessed on a five-point scale: *never*, *once or twice a year*, *sometimes*, *at least once a month* and *nearly every week*.

Personal prayer was assessed on a five-point scale: *never*, *once or twice a year*, *sometimes*, *once a week* and *daily*.

*Data analysis*

The data were analysed by the SPSS statistical package using the frequency, reliability, factor and correlation routines.

**Results**

In the first column of statistics, table one presents the item rest of test correlation

- insert table 1 about here -

coefficients in respect of all 24 items, together with the alpha coefficient. In the second column of statistics, table one presents the loadings on the first factor of the unrotated solution proposed by principal component analysis, together with the percentage of variance explained. Both sets of statistics support the conclusion that the scale is characterised by homogeneity, unidimensionality and internal consistency reliability within the sample. The alpha coefficient is established as 0.97, while the proportion of variance accounted for by the first factor is established as 57%.

While the formal statistics of reliability are relatively easy to calculate for an attitude scale (Livingston, 1988), the question of assessing validity is more problematic (Ebel, 1961; Zeller, 1988). Steps towards assessing the construct validity of this scale can be made by assessing the extent to which certain predictions about the theoretical variations in attitude scores are reflected empirically (Cronbach & Meehl, 1955; Orton, 1987). While attitudes alone may not be simple or direct predictors of behaviour (Ajzen, 1988; Eiser & van der Pligt, 1988), substantial evidence suggests a fairly close relationship between attitude towards religion and religious behaviour, as demonstrated by repeated studies using the Francis scale of attitude toward Christianity among children and adolescents (Francis, 1989). In the present study attitude scores correlated +0.4975 ( $p < .001$ ) with church attendance and

+0.6219 ( $p < .001$ ) with personal prayer. These statistics support the construct validity of the attitude scale within the sample.

Considerable evidence exists in the empirical study of religious differences to indicate that females record higher scores on indices of religiosity than males (Francis, 1997). Table two, which presents the mean scale scores for males and females separately, demonstrates that this finding also holds true for the present sample of Romanian students ( $t = 3.8$ ,  $p < .001$ , Cohen's  $d = .61$ ).

- insert table 2 about here -

Data provided by the 41 students who completed the same instruments after a period of four weeks generated an alpha coefficient of .9485 and a Pearson product moment correlation of .9825 with the scores recorded on the first administration. These data support the re-test reliability of the scale of attitude toward Christianity among Romanian students.

### Conclusion

The present study has explored the scale properties of the Romanian translation of the Francis Scale of Attitude toward Christianity among a sample of 158 university students. Two main conclusions can be drawn from the findings. First, the data support the unidimensionality, internal consistency reliability, re-test reliability and construct validity of the Romanian translation of this instrument. The scale can, therefore, be recommended for further use within Romania and should lead to valuable cross-cultural comparisons in the empirical psychology of religion conducted within that country. Second, the data support the view that the instrument, developed originally within cultures shaped by Catholic or by Protestant and Reformed traditions, is also appropriate within a culture shaped by the Greek Orthodox tradition.



## References

- Ajzen, I. (1988). *Attitudes, personality and behaviour*. Milton Keynes: Open University Press.
- Campo-Arias, A., Oviedo, H. C., Dtaz, C. F., & Cogollo, Z. (2006). Internal consistency of a Spanish translation of the Francis Scale of Attitude toward Christianity short form. *Psychological Reports, 99*, 1008-1010.
- Cronbach, L. J., & Meehl, P. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52*, 281-302.
- Ebel, R. L. (1961). Must all tests be valid? *American Psychologist, 16*, 640-647.
- Eek, J. (2001). *Religious facilitation through intense liturgical participation: A quasi-experimental study of Swedish pilgrims to Taizé*. Lund: University of Lund Studies in Psychology of Religion.
- Eiser, J. R., & van der Pligt, J. (1988). *Attitudes and decisions*. London: Routledge.
- Evans, T. E., & Francis, L. J. (1996). Measuring attitude toward Christianity through the medium of Welsh. In L. J. Francis, W. K. Kay, & W. S. Campbell (Eds.), *Research in religious education* (pp. 279-294). Leominster: Fowler Wright Books.
- Ferreira, V., & Neto, F. (2002). Psychometric properties of the Francis Scale of Attitude toward Christianity among Portuguese university students. *Psychological Reports, 91*, 995-998.
- Francis, L. J. (1978a). Attitude and longitude: A study in measurement. *Character Potential, 8*, 119-130.
- Francis, L. J. (1978b). Measurement reapplied: Research into the child's attitude towards religion. *British Journal of Religious Education, 1*, 45-51.
- Francis, L. J. (1989). Measuring attitude towards Christianity during childhood and adolescence. *Personality and Individual Differences, 10*, 695-698.

- Francis, L. J. (1992). Reliability and validity of the Francis Scale of Attitude towards Christianity (adult). *Panorama*, 4(1), 17-19.
- Francis, L. J. (1997). The psychology of gender differences in religion: A review of empirical research. *Religion*, 27, 81-96.
- Francis, L. J., & Enger, T. (2002). The Norwegian translation of the Francis Scale of Attitude toward Christianity. *Scandinavian Journal of Psychology*, 43, 363-367.
- Francis, L. J., & Greer, J. E. (1990). Measuring attitudes towards Christianity among pupils in Protestant secondary schools in Northern Ireland. *Personality and Individual Differences*, 11, 853-856.
- Francis, L. J., & Hermans, C. A. M. (2000). Internal consistency reliability and construct validity of the Dutch translation of the Francis scale of Attitude toward Christianity among adolescents. *Psychological Reports*, 86, 301-307.
- Francis, L. J., Kerr, S., & Lewis, C.A. (2005). Assessing attitude toward Christianity among adolescents in South Africa: The Francis scale. *South African Journal of Psychology*, 35, 147-155.
- Francis, L. J., & Kwiran, M. (1999). Werthaltungen (einstellungen) gegenüber dem christentum bei deutschen heranwachsenden: Die francis-skala. *Braunschweiger Beiträge*, 89(3), 50-54.
- Francis, L. J., Lewis, C. A., & Ng, P. (2002). Assessing attitude toward Christianity among Chinese speaking adolescents in Hong Kong: The Francis scale. *North American Journal of Psychology*, 4, 431-440.
- Francis, L. J., Lewis, J. M., Philipchalk, R., Brown, L. B., & Lester, D. (1995). The internal consistency reliability and construct validity of the Francis scale of attitude towards Christianity (adult) among undergraduate students in the UK, USA, Australia and Canada. *Personality and Individual Differences*, 19, 949-953.

- Francis, L. J., & McCarron, M. M. (1989). The measurement of attitudes towards Christianity among Nigerian secondary school students. *Journal of Social Psychology, 129*, 569-571.
- Francis, L. J., & Stubbs, M. T. (1987). Measuring attitudes towards Christianity: From childhood to adulthood. *Personality and Individual Differences, 8*, 741-743.
- Francis, L. J., & Thomas, E. M. (2003). The reliability and validity of the Francis Scale of Attitude toward Christianity among Welsh speaking 9-11 year olds. *The Psychologist in Wales, 16*, 9-14.
- Francis, L. J., Ziebertz, H. - G., & Lewis, C. A. (2002). The psychometric properties of the Francis Scale of Attitude toward Christianity among German students. *Panorama, 14*, 153-162.
- Fulljames, P., & Francis, L. J. (1987). The measurement of attitudes towards Christianity among Kenyan secondary school students. *Journal of Social Psychology, 127*, 407-409.
- Gibson, H. M. (1989). Measuring attitudes towards Christianity among 11-16 year old pupils in non-denominational schools in Scotland. *Educational Research, 31*, 221-227.
- Gibson, H. M., & Francis, L. J. (1989). Measuring attitudes towards Christianity among 11- to 16- year old pupils in Catholic schools in Scotland. *Educational Research, 31*, 65-69.
- Greer, J. E., & Francis, L. J. (1991). Measuring attitudes towards Christianity among pupils in Catholic Secondary schools in Northern Ireland. *Educational Research, 33*, 70-73.
- Hill, P. C., & Hood, R. W. (Eds.) (1999). *Measures of religiosity*. Birmingham, Alabama: Religious Education Press.
- Kay, W. K., & Francis, L. J. (1996). *Drift from the churches: Attitude toward Christianity during childhood and adolescence*. Cardiff: University of Wales Press.

- Lewis, C. A., & Francis, L. J. (2003). Evaluer l'attitude d'étudiantes universitaires françaises à l'égard du Christianisme: L'Echelle de Francis. *Sciences Pastorals*, 22, 179-190.
- Lewis, C. A., & Maltby, J. (1995). The reliability and validity of the Francis scale of attitude towards Christianity among US adults. *Psychological Reports*, 76, 1243-1247.
- Livingston, S. A. (1988). Reliability of test results. In J. P. Keeves (Ed.), *Educational research, methodology and measurement: An international handbook* (pp. 386-392). Oxford: Pergamon Press.
- Maltby, J. (1994). The reliability and validity of the Francis scale of attitude towards Christianity among Republic of Ireland adults. *Irish Journal of Psychology*, 15, 595-598.
- Munayer, S. J. (2000). *The ethic identity of Palestinian Arab Christian adolescents in Israel*. Unpublished doctoral dissertation, University of Wales: Oxford Centre for Mission Studies.
- Orton, R. E. (1987). The foundations of construct validity: Towards an update. *Journal of Research and Development in Education*, 21, 22-35.
- Spilka, B., Hood, R. W., Hunsberger, B., & Gorsuch, R. L. (2003). *The psychology of religion: An empirical approach* (third edition). New York: Guilford Press.
- Youtika, A., Joseph, S., & Diduca, D. (1999). Personality and religiosity in a Greek Christian Orthodox sample. *Mental Health, Religion and Culture*, 2, 71-74.
- Zeller, R. A. (1988). Validity. In J. P. Keeves (Ed.), *Educational research, methodology, and measurement: An international handbook* (pp. 322-330). Oxford: Pergamon Press.

Table 1

Item rest of test correlations and factor loadings

Scale item	r	factor loading
I find it boring to listen to the bible*	0.6877	0.7075
I know that Jesus helps me	0.7436	0.7735
Saying my prayers helps me a lot	0.8205	0.8462
The church is very important to me	0.7256	0.7500
I think going to church is a waste of my time*	0.6641	0.6784
I want to love Jesus	0.6885	0.7242
I think church services are boring*	0.5296	0.5005
I think people who pray are stupid*	0.3846	0.4024
God helps me to lead a better life	0.8295	0.8565
I like to learn about God very much	0.7179	0.7497
God means a lot to me	0.8703	0.8925
I believe that God helps people	0.8430	0.8719
Prayer helps me a lot	0.8615	0.8854
I know that Jesus is very close to me	0.8420	0.8669
I think praying is a good thing	0.7120	0.7391
I think the bible is out of date*	0.5245	0.5384
I believe that God listens to prayers	0.7569	0.7794
Jesus doesn't mean anything to me*	0.5946	0.6128
God is very real to me	0.7481	0.7703
I think saying prayers does no good*	0.6638	0.6833
The idea of God means much to me	0.7554	0.7879
I believe that Jesus still helps people	0.7402	0.7737
I know that God helps me	0.8271	0.8578
I find it hard to believe in God*	0.7689	0.7915
alpha coefficient/% of variance	0.9652	57.0%

Note. \* these negative items were reverse scored.

Table 2

Mean attitude scores by gender

	N	mean	sd
male	53	90.4	22.1
female	104	102.1	15.8

Author's note

Portions of this research were conducted while the second author was at the “A.D. Xenopol” Public Library, Arad, Romania. Partial financial support was provided to the second author by the Arad County Council through the Arad County Cultural Centre. We thank Mihaela Blaga, and Carmen Ispas for their assistance in data collection and translation.