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The internal consistency reliability and construct validity of the Francis Scale of Attitude
toward Christianity among 8- to 11-year-old students in Wales

Leslie J. Francis*

University of Warwick, Coventry, England, UK

David W. Lankshear

University of Warwick, Coventry, England, UK

Emma L. Eccles

Bishop Grosseteste University, England, UK

Author note:

*Corresponding author:

Leslie J Francis

Warwick Religions & Education Research Unit

Centre for Education Studies

The University of Warwick

Coventry CV4 7AL United Kingdom

Tel: +44 (0)24 7652 2539

Fax: +44 (0)24 7657 2638

Email: leslie.francis@warwick.ac.uk

Abstract

The Francis Scale of Attitude toward Christianity was designed in the mid-1970s to assess individual differences in attitude through childhood, adolescence, and adulthood from the age of 8 years upwards. This study examines the internal consistency reliability, factor structure, and construct validity of the instrument 40 years later among 1,511 year 4 students (8-9 years), 1,544 year 5 students (9-10 years), and 1,526 year 6 students (10-11 years) in Wales attending Church in Wales voluntary aided and voluntary controlled primary schools. The data support the internal consistency reliability and construct validity of the instrument among the age range and commend the instrument for continued use in research.

Keywords: Attitude toward Christianity, children, Wales, psychology of religion

Introduction

A major challenge within the empirical psychology of religion is to identify instruments that can assess individual differences in religiosity over a wide age span from childhood, through adolescence and adulthood. The advantage of identifying such instruments is twofold. If the same instrument can be used over a wide age span it becomes possible to assess the trajectory of changes in religiosity with age. If the same instrument can be used consistently in correlational studies among different age groups it becomes possible to assess the stability of the correlates of individual differences in religiosity among these different groups. During the mid-1970s Francis (1978a, 1978b) developed an instrument designed to measure the affective attitudinal dimension of religion from the age of 8 years upwards, the Francis Scale of Attitude toward Christianity.

The Francis Scale of Attitude toward Christianity is a 24-item Likert scale that contains both negative and positive items concerned with an affective response to five components of the Christian faith accessible to and recognised by both children and adults, namely God, Jesus, bible, prayer and church. Each item is assessed on a five-point scale (agree strongly, agree, not certain, disagree, disagree strongly), producing a range of scores from 24 to 120. The reliability and validity of the scale have been supported by studies among school pupils in England (Francis, 1987, 1989; Lewis, Cruise, McGuckin, & Francis, 2006; Lewis, Cruise, & Lattimer, 2007), Kenya (Fulljames & Francis, 1987), Nigeria (Francis & McCarron, 1989), Northern Ireland (Francis & Greer, 1990; Greer & Francis, 1991), and Scotland (Gibson, 1989; Gibson & Francis, 1989). Another series of studies has supported the reliability and validity of the scale among adults in Australia and Canada (Francis, Lewis, Philipchalk, Brown, & Lester, 1995), England (Francis & Stubbs, 1987; Francis, 1992a), the Republic of Ireland (Maltby, 1994), Northern Ireland (Lewis & Maltby, 1997; Lewis, Cruise, & McGuckin, 2005), South Africa (Francis, Kerr, & Lewis, 2005), the USA (Lewis &

Maltby, 1995), and Wales (Robbins, Francis, & Williams, 2003). In addition to the full 24-item form of the Francis Scale of Attitude toward Christianity, a seven-item short form has been developed and tested among primary school pupils (Francis, 1992b), secondary school pupils (Francis, Greer, & Gibson, 1991) and adults (Francis, 1993; Francis, Lewis, Philipchalk, Lester, & Brown, 1995; Maltby & Lewis, 1997; Lewis, Shevlin, Lloyd, & Adamson, 1998).

In order to facilitate further cross-cultural studies within the psychology of religion, the Francis Scale of Attitude toward Christianity has also been translated into a number of different languages, including: Arabic (Munayer, 2000), Chinese (Francis, Lewis, & Ng, 2002; Tiliopoulos, Francis, & Jiang, 2013), Czech (Francis, Quesnell, & Lewis, 2010), Dutch (Francis & Hermans, 2000), French (Lewis & Francis, 2003, 2004), German (Francis & Kwiran, 1999; Francis, Ziebertz, & Lewis, 2002), Greek (Youtika, Joseph, & Diduca, 1999), Italian (Crea, Baiocco, Ioverno, Buzzi, & Francis, 2014), Norwegian (Francis & Enger, 2002), Portuguese (Ferreira & Neto, 2002), Romanian (Francis, Ispas, Robbins, Ilie, & Iliescu, 2009), Slovakian (Lewis, Adamovová, & Francis, 2008), Slovenian (Flere, Klanjsek, Francis, & Robbins, 2008), Spanish (Campo-Arias, Oviedo, Dtaz, & Cogollo, 2006), Swedish (Eek, 2001), and Welsh (Evans & Francis, 1996; Francis & Thomas, 2003).

Several foundation studies on the Francis Scale of Attitude toward Christianity concentrated on exploring the psychometric properties of this instrument among young children between the ages of 8 and 11 (Francis, 1978a, 1978b, 1988, 1989, 1992b). More recent research, however, has tended to concentrate mainly on young people aged 11 years and over, university students, or adults. Given that the instrument was originally constructed in the mid-1970s it is reasonable to revisit its psychometric properties among 8- to 11-year-old students forty years later. The objective of the present study, therefore, is to examine the internal consistency reliability factor structure, and construct validity of this instrument

among English-speaking year 4, year 5, and year 6 students (between the ages of 8 and 11 years) attending Church in Wales voluntary aided and voluntary controlled primary schools throughout Wales. As a consequence of the historical development of what is now the state-maintained system of schools in England and Wales (Chadwick, 1997, Cruickshank, 1963; Murphy, 1971), the Anglican Church retains responsibility for a significant number of primary schools. The majority of these schools are committed to serving specific local communities rather than serving the needs of a specific denomination or religious group (Durham Report, 1970).

Method

Procedure

All Church in Wales voluntary aided and voluntary controlled primary schools throughout the six Dioceses in the Province (Bangor, Llandaff, Monmouth, St Asaph, St Davids, and Swansea and Breacon) were invited to administer the survey to all their year 4, year 5, and year 6 students as part of a routine assessment of school ethos. Participation by the students was voluntary, anonymous, and confidential. Responses were received from 87 schools, with the Diocese of Bangor deciding not to participate. This response represents about two thirds of the eligible schools within the five participating Dioceses. Useable responses were received from 1,511 students in year 4, 1,544 students in year 5, and 1,526 students in year 6.

Instrument

The Francis Scale of Attitude toward Christianity is a 24-item Likert instrument, developed originally by Francis (1978a, 1978b) concerned with affective response toward God, Jesus, Bible, prayer and church. Each item is assessed on a five-point scale: agree strongly (5), agree (4), not certain (3), disagree (2) and disagree strongly (1).

Church attendance was assessed on a five-point scale: never (1), once or twice a year

(2), sometimes (3), at least once a month (4), and weekly (5).

Personal prayer was assessed on a five-point scale: never (1), once or twice a year (2), sometimes (3), at least once a week (4), and daily (5).

Participants

Of the total participants, in year 4 there were 762 boys and 749 girls, in year 5, 764 boys and 780 girls, and in year 6, 768 boys and 758 girls. In terms of worship attendance, 22% never attended church, 15% attended once or twice a year, 35% attended sometimes, 11% attended at least once a month, and 17% attended weekly. In terms of personal prayer, 31% never prayed, 10% prayed once or twice a year, 35% prayed sometimes, 9% prayed at least once a week, and 15% prayed daily.

Data analysis

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

Results and discussion

Table 1 examines the internal structure of the Francis Scale of Attitude toward Christianity among the three year groups separately. In the first set of three columns, table 1 presents the item-rest-of-test correlation coefficients between the individual items and the sum of the other 23 items in respect of all 24 items, together with the alpha coefficients. In the second set of three columns, table 1 presents the loadings on the first factor of the unrotated solution proposed by principal component analysis, together with the percentage of variance explained by that factor. Both sets of statistics support the conclusion that the scale is characterised by homogeneity, unidimensionality and internal consistency reliability within the sample and that these qualities improve consistently with increasing age. The alpha coefficients range from .95 to .97, while the proportion of variance accounted for by the first factor range from 50% to 63%.

- insert tables 1 and 2 about here -

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 toward religion and religious behaviour, as demonstrated by repeated studies using the Francis Scale of Attitude toward Christianity among children and adolescents, (Francis, 1989). In these earlier studies the consistent findings report higher correlations between attitude toward religion and personal prayer than between attitude toward religion and church attendance. These findings are consistent with the view that personal prayer, like attitude, gets close to the heart of an individual's religiosity, while church attendance may be more subject to social constraints. The data presented in table 2 demonstrate a higher correlation between attitude and personal prayer than between attitude and church attendance among each of the three year groups. These statistics support the construct validity of the attitude scale within the sample.

- insert table 3 about here -

The general consensus of previous research, as reviewed by Francis (1997) and by Francis and Penny (2014), found higher levels of religiosity in general and more positive attitude toward religion in particular among females than among males across the age range within Christian and post-Christian populations. Table 3 presents the mean scale scores recorded on the Francis Scale of Attitude toward Christianity for males and for females reported separately for each of the three year groups. The data demonstrate statistically

significant higher scores for girls than for boys among each year group. Over the three year groups the mean score drops by 10.4 points for boys from 96.7 to 86.3 and for girls by 11.1 points from 100.3 to 89.2.

The general consensus of previous research, as reviewed by Kay and Francis (1996), found a progressive decline in attitude toward Christianity among both males and females in England throughout the period of compulsory schooling from the age of eight upwards (8 years being the youngest age group among whom participants could reliably read the items of the Francis Scale of Attitude toward Christianity). The data presented in table 3 confirm this trend. Among boys the mean score drops from 96.7 in year 4 to 89.2 in year 5 ($t = 6.5, p < .001$) and further to 86.3 in year 6 ($t = 2.4, p < .05$); among girls the mean score drops from 100.3 in year 4 to 95.5 in year 5 ($t = 4.6, p < .001$) and further to 89.2 in year 6 ($t = 5.7, p < .001$).

Conclusion

The present study has explored the psychometric properties of the Francis Scale of Attitude toward Christianity among samples of 1,511 year six students (8-9 years), 1,544 year 5 students (9-10 years) and 1,526 year 6 students (10-11 years) in Wales attending Church in Wales voluntary aided and voluntary controlled primary schools within the state-maintained sector. Five of the six Dioceses within Wales participated within the study, with the Diocese of Bangor opting out. Full data were provided by 87 of the eligible schools within the five participating dioceses. The data support the unidimensionality, internal consistency reliability and construct validity of the Francis Scale of Attitude toward Christianity among young people between the ages of 8 and 11 years. The scale can, therefore, be recommended for further use among this age group. In particular the instrument may be useful in correlational studies designed to test whether the correlates, antecedents and consequences of individual

differences established among older age groups employing the Francis Scale of Attitude toward Christianity, also held good among this younger age group.

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Table 1

Item rest of test correlations and factor loadings

	Correlations			Loadings		
	Y4	Y5	Y6	Y4	Y5	Y6
I find it boring to listen to the bible	.51	.60	.66	.54	.61	.68
I know that Jesus helps me	.70	.78	.82	.75	.81	.84
Saying my prayers helps me a lot	.67	.78	.79	.72	.81	.82
The church is very important to me	.76	.72	.70	.70	.75	.73
I think going to church is a waste of my time	.53	.63	.71	.53	.63	.72
I want to love Jesus	.69	.74	.80	.74	.77	.82
I think church services are boring	.58	.60	.63	.57	.60	.65
I think people who pray are stupid	.47	.47	.42	.46	.48	.43
God helps me to lead a better life	.71	.81	.84	.77	.84	.86
I like to learn about God very much	.76	.83	.85	.81	.86	.87
God means a lot to me	.81	.86	.88	.85	.89	.90
I believe that God helps people	.79	.83	.84	.84	.86	.86
Prayer helps me a lot	.70	.82	.83	.75	.85	.85
I know that Jesus is very close to me	.76	.82	.85	.81	.84	.87
I think praying is a good thing	.75	.82	.83	.79	.85	.85
I think the bible is out of date	.44	.50	.57	.43	.51	.59
I believe that God listens to prayers	.68	.80	.81	.72	.83	.83
Jesus doesn't mean anything to me	.59	.68	.75	.60	.70	.76
God is very real to me	.73	.83	.84	.77	.86	.86
I think saying prayers does no good	.59	.71	.72	.59	.72	.74
The idea of God means much to me	.75	.83	.86	.80	.86	.88
I believe that Jesus still helps people	.74	.82	.83	.80	.85	.85
I know that God helps me	.77	.85	.87	.82	.88	.89
I find it hard to believe in God	.53	.63	.68	.53	.65	.70
Alpha coefficient/percent variance	.95	.97	.97	49.8	59.5	63.0

Table 2

Correlations between attitude and behaviour

	Y4	Y5	Y6
Church attendance	.24***	.34***	.39***
Personal prayer	.35***	.48***	.53***

Note: *** = $p < .001$

Table 3

Mean attitude scores by year and sex

	Male			Female			<i>t</i>	<i>p</i> <
	N	M	SD	N	M	SD		
Year 4	762	96.7	20.8	749	100.3	18.4	3.5	.001
Year 5	764	89.2	23.8	780	95.5	21.6	5.4	.001
Year 6	768	86.3	24.3	758	89.2	22.1	2.5	.01