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The development of the Francis Moral Values Scales: A study among 16- to 18-year-old

students taking Religious Studies at A level in the UK

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Abstract

This paper reports on the development of scales for measuring moral values in three domains: anti-social behaviour, sex and relationships, and substance use. Students studying religion at A level in 25 schools were invited to respond to 32 Likert items that referred to a wide range of moral issues and behaviours, employing a five-point response scale. In the first study, responses from 652 students were subject to an exploratory factor analysis, which identified three factors that explain 47% of the variance. Three summated scales were produced that had very good internal consistency reliability: the anti-social behaviour scale (seven items, Cronbach's alpha = .83), the sex and relationships scale (seven items, alpha = .84), and the substance use scale (five items, alpha = .87). In the second study, a repeat survey among the same schools a year later resulted in a second sample of 462 students. Confirmatory factor analysis indicated that the 19 items identified in the first study could be satisfactorily fitted to a model with the same three latent constructs. These constructs are recommended as a parsimonious way of assessing general moral values among adolescents.

Keywords: moral values, students, psychometrics, religion

Introduction

The assessment of moral values is a complex area and one in which instruments need to tested for reliability and construct validity on a fairly regular basis. Changing values in the UK are evident in the changing legislation during the last half century or more that has related to issues such as abortion, divorce, human rights, same-sex relationships and drugs. Such legislation sometimes lags behind public opinion and once enacted can quickly make previously contentious issues unremarkable, especially to younger generations. Examples might be the rules on divorce (Binner & Dnes, 2001; Fine & Fine, 1994), which seem to be taken for granted today or, more recently, the legalisation of same-sex marriage (Clements & Field, 2014), which is rapidly becoming commonplace (Office for National Statistics, 2015). Sometimes legislation may precede public opinion, as is seen in some countries that ban smoking in public places (Cairney, 2009; Pacheco, 2013). Under these circumstances, it is important both to ensure general measures of moral values reflect relevant issues at the time and to ensure that there is sufficient continuity with previous measures that changes over time can be accurately assessed.

Of particular interest in assessing moral values is their relationship to religious affiliation or beliefs. Religion is a key source for criteria by which to judge moral values, but the changing landscape of religion in many Western countries means that, if there ever was a 'moral consensus', it has weakened as a result of religious pluralism and multiculturalism (Halstead & Pike, 2006; Turner, 2003). Theories of the relationship of religion to moral values suggest that attitudes toward particular issues or behaviours are driven by more general stances related to particular religious affiliations (Finlay & Walther, 2003; Getz, 1984; Hayes, 1995), which may interact with cultural differences (Adamczyk & Pitt, 2009). Psychological perspectives on attitudes also promote the idea that values too are partly related to more fundamental underlying preferences and dispositions that will lead to some

consistency in stance to otherwise unrelated issues (Saroglou, Delpierre, & Dernelle, 2004; Schwartz & Huismans, 1995).

Liberal versus conservative attitudes to moral values are likely to be evident in a wide range of areas, such as marriage, sexuality, right to life, and social behaviour. Someone who opposes abortion might also be likely to oppose same-sex marriages or the relaxing of rules on taking drugs. Nonetheless, these are quite distinct issues and it is also possible that attitudes in one area might not be related to those in another. The theory behind the measurement of attitudes is that responses to individual items give access to underlying constructs that reflect more general attitudes to moral values (Ajzen, 2005; Oppenheim, 1992; Vogel & Wanke, 2016). These general stances (or 'constructs') may be determined theoretically, but they can also be discovered empirically by testing a wide range of items related to different issues and seeing if responses from a particular population reveal underlying patterns. This is the approach adopted in this study, which employs factor analysis to develop scales that measure attitudes to moral issues in domains likely to be relevant to and understood by adolescents in the UK.

Previous work with teenagers in the UK has employed various domains of moral values. For example, in a series of three studies Francis, ap Siôn, and Village (2014), Francis, Lankshear, Robbins, Village, and ap Siôn (2014), and Village and Francis (Village & Francis, 2016) distinguish between four domains, described as rejection of drug use, endorsing age-related illegal behaviour, racism, and sexual morality. These studies mainly used individual items, or small clusters of items, to investigate how these different domains of moral values are related to personal, psychological, sociological, contextual and religious variables.

Against this background the present study investigates whether the value domains previously used are related to more general underlying constructs that link attitudes to

particular issues. The aim is to develop scales that reliably measure attitudes related to core moral domains.

Method

Procedure

As part of a wider study concerned with the experiences and attitudes of 16- to 18-year-old students taking Religious Studies at A level, a snowball sample of 25 schools agreed to invite students beginning on this A-level programme to participate in a questionnaire survey. The survey was conducted during regular class time and students were assured of anonymity and confidentiality. Students who did not wish their data to be included in the analysis were given the option of not submitting their completed questionnaire. A total of 652 thoroughly completed questionnaires were returned by the participating schools. This sample is used for an exploratory factor analysis. The same schools were also given the option of administering the questionnaire for a second time when this cohort of students was nearing completion of their initial year of study. A total of 462 questionnaires were returned at this stage. The lower number of the second sample was because not all of the original schools participated in the second round, and not all the original cohort of students returned questionnaires for the repeat survey. The second sample was used for a confirmatory factor analysis.

Measures and Analysis

Attitudes to particular moral issues were assessed by 32 items with a five-point Likert response scale, ranging from 'disagree strongly' (1), through 'not certain' (3), to 'agree strongly' (5). Items covered a range of topics including sexual relationships, abortion, divorce, assisted suicide, petty crime, drinking and drugs. The items were in a section of the questionnaire introduced by 'Your views on what is right and wrong', and included the word 'wrong' (e.g. 'It is wrong to steal' or 'Gambling is wrong'). Some items referred to behaviour

that is illegal in the UK (such as stealing or some forms of drug-taking), some to behaviour that might be illegal in some circumstances (such as taking bribes or prostitution), and some to behaviour that has moral connotations but that is not of itself illegal (such as adultery or drinking alcohol).

Analysis was in four stages. First, items from the initial sample of 652 students were tabulated in reverse order of the level of endorsement (that is with responses 'agree' or 'strongly agree' considered together) and labelled according to whether they referred to illegal behaviour or behaviour that might be illegal under some circumstances (age-related illegality was not included in this categorization).

Second, items were analysed using the Factor Analysis routines of IBM SPSS 21. Some items were not normally distributed, so Principal Axis Factoring was used to extract items (Costello & Osborne, 2005). Values in different domains were likely to be related to a general moral stance, so extracted factors were allowed to correlate with one another by using an Oblimin rotation. Output was examined using scree plots to remove items that did not load well on any factors, or loaded with only one or two other items, before the factor analysis was repeated to produce a clear factor structure in the pattern matrix.

Third, items that loaded on the same factor were used to produce summated scales (Spector, 1992) which were tested for internal consistency reliability (Cronbach, 1951). For parsimony, items were removed from the final scales if doing so made little difference to the alpha reliability.

Fourth, the items used in scales were subject to a confirmatory factor analysis using IBM AMOS 20 applied to the second sample of 462 respondents. Modification indices were used indicate how the fit of the model might be improved (Schumacker & Lomax, 2004). As a result, some error terms for items within scales were permitted to co-vary in order to produce an acceptable model fit as judged by a range of indices (Byrne, 2010).

Participants

In the initial survey of 652 students, 71% were female and 29% were male; 61% were 16 years old and 29% were 17 years old; 49% self-affiliated as Christian, 40% as 'no religion', 6% as Muslim, and 5% as some other religion. In the second survey of 462 students, 72% were female and 28% were male; 19% were 16 years old and 81% were 17 years old; 55% self-affiliated as Christian, 31% as 'no religion', 8% as Muslim, and 6% as some other religion.

Results

Endorsement of individual items (Table 1) ranged from just 6% ('Contraception is wrong') to 97% ('Child abuse is wrong'). In general, items that referred to beliefs or behaviours that linked to illegality tended to be the most heavily endorsed, but there were some interesting exceptions. Assisted suicide was considered wrong by only 12% of the sample and unpaid downloads of copyright music by only 23% of the sample, though both are technically illegal. Conversely, adultery by husbands or wives was considered to be wrong by 87% and 88% of the sample respectively, even though it is not illegal. Endorsement for the wrongness of taking substances varied from 8% for alcohol, through 34% for cigarettes and 50% for marijuana, to 73% for heroin. Decisions were not, it seemed being driven solely on the basis of what was legal or illegal: some illegal behaviours were not considered particularly wrong, while some legal behaviours attracted considerable opprobrium.

- insert Table 1 about here -

The initial factor analysis identified six factors accounting for 52% of the overall variance, with the first factor accounting for 30% of the variance, the second 9%, the third 5%, and the remaining three factors 9% between them. Rotation identified three substantial factors (Table 2): nine items related to issues such as sex, divorce, abortion, and

contraception loaded on Factor 1; eight items related to stealing, swearing, drink-driving, and gambling loaded on Factor 2; five items related to substance use (including cigarettes but excluding alcohol) loaded on Factor 3. Of the remaining items, some did not load well onto any factor (for example, using animals in experiments), while the 'adultery' items loaded onto their own factor, as did two items related to drinking alcohol. The output was used to rationalize the variable list by excluding those that did not load onto any factors well, and those that loaded onto factors of two items or less.

- insert Table 2 about here -

The factors analysis was re-run with a reduced list of 21 items, which produced three factors that together explained 47% of the total variance (Table 3). Factor 1 included items mostly related to sex and relationships, Factor 2 included items related to substance use, and Factor 3 included items related to anti-social behaviour. Two items related to anti-social behaviour loaded most strongly on Factor 1 ('It is wrong to swear' and 'Gambling is wrong'), though the loading was only marginally larger than for Factor 3, so they were grouped with Factor 3 items for the scale analysis.

- insert Table 3 about here -

Items from the factors were used to create three summated scales: 'Anti-social behaviour', 'Sex and relationships', and 'Substance use'. Reliability analysis indicated that one item, on drinking and driving, made only a marginal difference to the Anti-social behaviour scale, so it was removed, resulting in two scales of seven items each and one scale of five items (Table 4). Cronbach's alphas for all scales were above .8, indicating very good internal consistency reliability (DeVellis, 2003).

- insert Table 4 about here -

The confirmatory factor analysis was carried out on the second sample of 462 students using IBM AMOS 20.0. The survey was in the same schools as the first sample, so

this was a repeat sample using the same respondents completing the same instruments about one year apart. The model was initially specified with three latent variables related to the items identified in the exploratory factor analysis. This model did not fit the data particularly well, judged by standard fitting indices (Byrne, 2010, pp. 73-84): CIM/DF = 4.98; GFI = .84; CFI = .87; RMSEA = .09; PCLOSE < .001. However, modification indices indicated large covariance between the error terms of some items in the same scales, so these were added to the final model to improve fit (Figure 1). This was considered justified because items shared the same method of measurement and were part of the same instrumentation (Schumacker & Lomax, 2004, p. 100). The final model fit parameters suggested this was a reasonably well-fitting model CIM/DF = 2.47; GFI = .93; CFI = .95; RMSEA = .06; PCLOSE < .08.

- insert Figure 1 about here -

Conclusions

This study drew on two surveys conducted as part of a longitudinal study among students taking Religious Studies at A level to develop scales assessing moral values among adolescents. Four main conclusions emerged from the analysis.

First, there was considerable variation in the proportions of students who regarded different specific behaviours to be wrong. Items that seemed to be universally rejected included racism, child abuse and drink driving, while few students considered contraception, drinking or sex before marriage to be wrong. Although the general pattern was for illegal behaviours to be seen in more negative terms than legal behaviours, there were some exceptions, such as adultery (frequently condemned as wrong) and assisted suicide (rarely condemned as wrong). Views on specific issues may be decided by a mixture of what is condemned in society at large (by public opinion or legislation) and what is seen as acceptable to this particular age group.

Second, attitudes to specific items could be grouped according to response patterns (using factor analysis) to indicate general attitudes in particular domains. The grouping suggested distinctions were made between anti-social behaviours (e.g. stealing, swearing, lying, drink driving), behaviours related to sex and relationships (e.g. sexual promiscuity, divorce, same-sex relationships), and substance use (of illegal drugs or smoking cigarettes). Although attitudes toward these three sorts of behaviours were related, they did seem to refer to slightly different moral or value domains, as indicated by exploratory and confirmatory factor analyses on two separate samples.

Third, some items linked to specific issues did not seem to factor well with the scales, and may be less useful as indices of general moral values. For example, drinking alcohol and getting drunk did not correlate well with either anti-social behaviour or substance use. Alcohol is a form of drug-taking but takes place in a very different social context than for 'hard' drugs, especially for teenagers. Drunken behaviour is something that can receive markedly different responses, either from different age cohorts, or from those who are drinking heavily and those who are not, so it may induce particular attitudes that are not linked to wider moral stances. Adultery is sexual behaviour that is linked to issues of trust and loyalty, and therefore attitudes are not necessarily linked to other sexual activity such as sex before marriage. Other items that may have issue-specific responses included assisted suicide and using animals in experiments. Although these may relate to important and strongly-held opinions, their particularity makes them less useful where the aim is to produce measures of general moral stance. Further study is needed to develop more nuanced items to create summated scales for measuring these particular domains.

Fourth, the three short scales developed by the present study were generated by employing exploratory factor analysis on data provided by an initial sample of 652 students and tested by employing confirmatory factor analysis on data provided by a second sample of

462 students. These three short scales each reported very good internal consistency reliability

and would therefore seem suitable psychometric instruments for use among adolescents. On

these grounds the Francis Moral Values Scale (FMVS) can be commended for further

application and for further exploration.

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Table 1 *Responses to all items arranged in reverse order of frequency of endorsement (agree or strongly agree)*

	DS %	D %	NC %	A %	AS %	A & AS %
Contraception is wrong	54	32	8	3	3	6
It is wrong to drink alcohol	45	41	5	3	5	8
It is wrong to have sex before marriage	39	38	11	5	7	12
It is wrong to help a very sick person to die[†]	23	32	33	6	6	12
Divorce is wrong	28	38	20	8	5	13
It is wrong to become drunk[‡]	40	37	9	7	7	14
It is wrong to have sex with a member of the same sex	34	33	15	7	11	18
It is wrong to download copyrighted music from the internet without paying[†]	23	32	22	17	6	23
Abortion is wrong	20	26	27	10	16	26
It is wrong to have casual sex	19	30	24	14	13	27
It is wrong to swear	15	31	26	17	12	29
Gambling is wrong	11	25	31	18	15	33
It is wrong to smoke cigarettes	16	28	21	22	12	34
It is wrong to keep money or things you find	7	20	33	27	13	40
It is wrong to have sex with lots of partners	13	26	21	21	19	40
Pornography is wrong	15	18	27	22	18	40
It is wrong to smoke marijuana[†]	12	19	20	28	22	50
It is wrong to lie	3	15	28	34	20	54
It is wrong to sniff glue[†]	9	14	23	38	17	55
It is wrong to use animals for experiments	5	15	25	25	30	55
It is wrong to take a bribe[‡]	3	13	28	36	20	56
Prostitution is wrong[‡]	4	13	22	35	25	60
It is wrong to take ecstasy /other recreational drugs[†]	8	12	15	32	33	65
It is wrong to use heroin[†]	7	7	13	31	42	73
Sexism is wrong[†]	3	4	10	43	40	83
Shoplifting is wrong[†]	2	3	11	51	34	85
It is wrong to steal[†]	1	3	9	42	44	86
It is wrong for a married man to have sex with another woman	3	3	7	36	51	87
It is wrong for a married woman to have sex with another man	2	3	7	37	51	88
It is wrong to drink and drive[‡]	2	1	4	31	62	93
Racism is wrong[†]	1	1	3	20	75	95
Child abuse is wrong[†]	1	0	1	12	85	97

Note. N = 652. [†] Items referring to behaviour which is illegal. [‡] Items referring to behaviour which could be illegal under some circumstances. DS = Disagree strongly; D = Disagree; NC = Not certain; A = Agree; AS = Agree strongly.

Table 2 *Initial Exploratory Factor analysis of all 32 items*

	Factor					
	1	2	3	4	5	6
Divorce is wrong	.66					
Abortion is wrong	.63					
Contraception is wrong	.55					
It is wrong to have casual sex	.43					
Pornography is wrong	.42					
It is wrong to have sex with lots of partners	.39					
It is wrong to have sex with a member of the same sex	.38					-.32
It is wrong to help a very sick person to die	.35					
Prostitution is wrong	.33					
It is wrong to lie		.72				
It is wrong to keep money or things you find		.62				
It is wrong to steal		.60				
It is wrong to take a bribe		.54				
Shoplifting is wrong		.52				
It is wrong to swear		.43				
It is wrong to drink and drive		.41				
Gambling is wrong		.36				
It is wrong to download copyrighted music from the internet without paying						
Sexism is wrong						
It is wrong to use animals for experiments						
It is wrong to take ecstasy / other recreational drugs			-.97			
It is wrong to smoke marijuana			-.80			
It is wrong to use heroin			-.80			
It is wrong to sniff glue			-.65			
It is wrong to smoke cigarettes			-.53			
It is wrong for a married man to have sex with another woman				-.96		
It is wrong for a married woman to have sex with another man				-.96		
Child abuse is wrong					.87	
Racism is wrong					.84	
It is wrong to drink alcohol						-.86
It is wrong to become drunk						-.85
It is wrong to have sex before marriage	.40					-.51

Note. N= 652. Pattern matrix created using Principal Axis Factoring extraction with Oblimin rotation. Coefficients sorted by size and those less than .3 excluded for clarity.

Table 3 *Final Exploratory Factor Analysis of 21 items*

	Factor		
	1	2	3
It is wrong to have sex before marriage	.80		
Contraception is wrong	.66		
Divorce is wrong	.64		
It is wrong to have sex with a member of the same sex	.63		
Abortion is wrong	.62		
It is wrong to have casual sex	.55		
It is wrong to have sex with lots of partners	.50		
Pornography is wrong	.47		
It is wrong to swear	.44		.37
Gambling is wrong	.38		.31
It is wrong to take ecstasy / other recreational drugs		.95	
It is wrong to use heroin		.80	
It is wrong to smoke marijuana		.79	
It is wrong to sniff glue		.63	
It is wrong to smoke cigarettes		.53	
It is wrong to steal			.73
It is wrong to lie			.70
Shoplifting is wrong			.65
It is wrong to keep money or things you find			.57
It is wrong to take a bribe			.55
It is wrong to drink and drive			.51

Note. N= 652. Principal Axis Factoring extraction with Oblimin rotation. Coefficients sorted by size and those less than .3 excluded for clarity.

Table 4 *Final scales*

Anti-social behaviour	
Alpha = .83	CITC
It is wrong to steal	.56
It is wrong to keep money or things you find	.59
It is wrong to lie	.66
It is wrong to swear	.62
It is wrong to take a bribe	.53
Gambling is wrong	.57
Shoplifting is wrong	.55

Sex and relationships	
Alpha = .84	CITC
It is wrong to have casual sex	.68
It is wrong to have sex with lots of partners	.63
It is wrong to have sex before marriage	.75
It is wrong to have sex with a member of the same sex	.58
Divorce is wrong	.51
Contraception is wrong	.49
Pornography is wrong	.58

Substance use	
Alpha = .87	CITC
It is wrong to sniff glue	.61
It is wrong to smoke marijuana	.78
It is wrong to take ecstasy (or other recreational drugs)	.84
It is wrong to smoke cigarettes	.59
It is wrong to use heroin	.69

Note. N = 652. CITC = Corrected Item Total Correlation.

Table 5 *Scale descriptives for initial sample of 652 pupils*

	Mean	SD	Skewness (SE)		Kurtosis (SE)	
Anti-social behaviour scale	24.45	5.21	-0.13	(0.09)	0.18	(0.18)
Sex and relationships scale	17.14	6.09	0.59	(0.09)	-0.05	(0.18)
Substance use scale	17.21	5.06	-0.58	(0.09)	-0.23	(0.18)

Figure 1. *Factorial structure for the assessment of moral values among A level students*