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<https://dx.doi.org/10.32597/honors/204>

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J. N. Andrews Honors Program
Andrews University

HONS 497
Honors Thesis

Comparing the Effectiveness of Frameworks for Religious Motivation:
A Secondary Data Analysis of Four Seventh-day Adventist Samples

Michele Prodans

December 13, 2018

Advisor: Karl G. D. Bailey

Primary Advisor Signature: _____

A handwritten signature in black ink, appearing to be 'KGD Bailey', written over a horizontal line.

Department: Behavioral Sciences

Comparing the Effectiveness of Frameworks for Religious Motivation: A Secondary Data

Analysis of Four Seventh-day Adventist Samples

Michele Prodans

Advisor: Dr. Karl Bailey

J.N. Honors

Behavioral Sciences

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The author would like to thank Dr. Karl Bailey, who helped provide this enriching learning opportunity, and the individuals who helped create the surveys and data: Dr. Herbert Helm, Dr.

Duane McBride, Eileen McMillen, Heather Moore, Dr. Karl Bailey & Arian Timoti.

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Abstract

My project examines two theoretical frameworks for understanding religious motivation and corresponding instruments, which need to be tested for reliability and consistency. Religious orientation theory defines religious motivation as pursuing religion for either extrinsic or intrinsic reasons. Self-determination theory defines motivation as internalization of religious practices. I examined four surveys of Seventh-day Adventists from 2005 to 2018 that had either a religious orientation scale or a self-determination theory religious internalization scale. Confirmatory analysis found the structure of the scales based on self-determination theory to be more acceptable and identified problematic items that caused the religious orientation instruments to be less reliable.

Comparing the Effectiveness of Frameworks for Religious Motivation: A Secondary Data
Analysis of Four Seventh-day Adventist Samples

The reasons as to why an individual pursues religious beliefs and activities lies within their intentions behind them. For example, two individuals may pray in public before eating a meal. However, one of them is doing it to appear pious while the other has a personal time set to spend with God. Thus, when looking at religious behaviors, beliefs, and activities it is pertinent to also measure one's motivations behind those variables.

Frameworks for Religious Motivation

There are two main competing frameworks that account for a believer's motivations behind participating in religious activities and holding religious beliefs. The first is Allport and Ross' theory, which dichotomizes religious orientation into extrinsic and intrinsic accounts (Allport & Ross, 1967). Extrinsic orientation is defined as pursuing religious activities for means such as security, social standing, or to justify oneself. Intrinsic orientation, on the other hand, incorporates one's beliefs to be fully in line with oneself for the sake of the belief itself (Neyrinck, Lens, Vansteenkiste, & Soenens, 2010). More recent studies, reconstructed Allport and Ross' concepts of religious orientation. Batson and Ventis rephrased extrinsic orientation with the phrase 'religion as a means', and intrinsic orientation with 'religion as an end' (Ryan, Rigby, & King, 1993). They additionally expanded on Allport and Ross' framework by adding the category of 'religion as a quest' which places value on the journey, doubts, and openness facet of religious pursuit. The other competing motivational framework, utilizes Ryan and Deci's (2000) self-determination theory (SDT), to focus on religious motivation in terms of the degree to which a believer internalizes a motivation. Internalization is defined as the process by which

an individual incorporates a belief into their self (Neyrinck, Lens, Vansteenkiste, & Soenens, 2010). Instead of contrasting between intrinsic and extrinsic motivation, self-determination theory places them on a spectrum of internalization. Thus, Deci and Ryan divided extrinsic motivation into four types that vary in degree of internalization. The surveys that I analyzed focused on two aspects of internalization which are introjection and identification. Introjection is a partial form of internalization motivated by external pressures, anxiety, and guilt. In comparison, a higher degree of internalization is known as identification which is associated with more self-motivation and a higher sense of volition. Furthermore, self-determination theory accounts for how one's motivation can flourish or be thwarted depending on the environmental conditions. Autonomous regulation facilitates internalization of motivation through a sense of agency in one's decisions. In contrast, controlled regulation associated with pressuring and coercing an individual's behavior, thwarts motivation (Deci & Ryan, 2008; Neyrinck, Lens, & Vansteenkiste, 2005).

Furthermore, the degree to which one internalizes a belief or religious activity and whether an individual's motivation is coerced or encouraged to flourish or impacts one's well-being. As seen in correlational studies, religious orientation/motivation is related to well-being in complex ways (McCullough & Willoughby, 2009). For example, intrinsic motivation positively correlates with higher levels of well-being, while extrinsic orientation correlates with lower levels of well-being (Dezutter, Soenens, & Hutsebaut 2006). In addition, one's well-being depends on the extent that they identify as religious (Green, & Elliott, 2010). Likewise, psychological well-being correlates negatively with religious introjection and positively with religious identification (Ryan, Rigby, & King, 1993). Moreover, the SDT concept

of autonomy as a universal need is also related to well-being (Yu, Levesque-Bristol, & Maeda, 2018). The patterns for SDT showed a trend towards identified (autonomous) religious regulation correlated positively with well-being (Neyrinck, Vansteenkiste, Lens, Duriez, & Hutsebaut, 2006).

Measuring Religious Motivation

When measuring psychological phenomena, it is crucial for the instrumentation to obtain consistent and reliable results. However, within the literature behind one's motivations for religious behaviors there was a variety of overlapping frameworks. Ryan, Rigby, and King (1993) researched whether these similar frameworks matched. Although there is overlap when comparing the various instrumentation, there was also inconsistency. Additionally, Neyrinck and colleagues (2010) also found inconsistent patterns in relating Allport and Ross' framework to SDT. Furthermore, the inconsistent patterns in samples compared two of the primary frameworks: Allport and Ross' framework of religious orientation and religious motivation/internalization of self-determination theory. Therefore, if the patterns are not consistent across studies that directly correlate measures of these frameworks at least one of the instruments is unreliable. Thus, my research utilized factor analysis as a means to locate inconsistencies within the factor structure of these instruments.

Thus, the overall goals of this research centered around looking at the reliability and validity of the instrumentation. My first goal was to assess if the structure of the scales matched their theoretical frameworks. Next, I looked at the factor structure of the instruments to see what was consistent and reliable and what items were not. My last goal was to distinguish which theoretical framework was more valid and better accounted for religious behaviors, religious

attitudes, and beliefs. Hence, I asked the following questions: Is there support for the theoretical frameworks in the structure of religious motivation surveys across Seventh-day Adventist samples? Do we find the expected patterns of correlations between religious behaviors, religious attitudes, and well-being?

Methodology

Rationale

There is a ethical imperative for researchers to make as much use as possible of data given the time that participants volunteered to provide the data. Thus, secondary analysis was utilized in order to expand the utility of an already rich data set and examine new questions.

Subjects

Subjects comprised Seventh-day Adventist individuals. The number of students at an Adventist University in the United States consisted of 751 subjects for the 2005 survey, 760 subjects for the 2012 survey, and 662 subjects for the 2018 survey. The 2013 GCSM consisted of 24,581¹ global Seventh-day Adventist church members. The age distribution for the 2013 GCSM was 7,169 emerging adults ages 16-25, 8,080 young adults 26-40, 3,800 adults 41-55, and 2,853 older adults 56+. Adventist cultural differences found globally influenced the categorization of the age distribution.

Materials/Instruments

I obtained the materials for the secondary analysis from Dr. Karl Bailey, the administrator of the data repositories, who archived the data from the four surveys into the Open

¹ Note that not all subjects completed the survey.

Science Framework archive (osf.io). From there, I downloaded the cvs files onto Jamovi version 0.9.4.2 and conducted a confirmatory factor analysis.

The instrumentation based on Religious Orientation was the Global Church Member Survey 2013 (GCSM) and the Andrews University Risk Behavior Survey from 2005 (AU Risk 2005). The GCSM 2013 survey, based on Gorsuch and McPherson's revision of Allport and Ross' original instrumentation, had the following subscales: intrinsic orientation, personally oriented extrinsic, and socially oriented extrinsic (Bailey, & Moore, 2018; Francis, L. J., Fawcett, B. G., Robbins, & Stairs, 2016; Gorsuch, & McPherson, 1989). An example of an intrinsic orientation item is "I try hard to live according to my religious beliefs". An example of a personally oriented extrinsic item is "I pray mainly to gain relief and protection". An example of a socially oriented extrinsic item is "I go to church because it helps me to make friends". The Andrews University Risk Behaviors Survey 2005 based on the Batson scale had the subscales: extrinsic, intrinsic, and quest (McMillen, Helm, & McBride, 2011). An example of an extrinsic item is "A major factor in my religious development has been the importance of religion for my parents". An example of an intrinsic item is "It is necessary for me to have a religious belief". An example of a quest item is "For me, doubting is an important part of what it means to be religious".

The self-determination instruments consisted of AU Risk Behavior Surveys of 2012 and 2018 utilized the Christian Religious Internalization Scale (CRIS). CRIS had the subscales of introjection and internalization (Ryan, Rigby, & King, 1993). An example of an identified item is "One reason I actively share my faith with others is because God is important to me and I'd like other people to know about Him too". An example of an introjected item is "One reason I

actively share my faith with others is because I want other Christians to approve of me” (Ryan, Rigby, & King, [of Measures of Religiosity] Eds. Hill, & Hood, 1999).

Analytic Approach

First, I conducted a confirmatory factor analysis (Costello & Osborne 2005; Flora & Curran 2004; Jackson, Gillaspy, & Purc-Stephenson 2009). Next, I specifically analyzed portions of data files that just focused on the religious frameworks, religious behaviors, religious beliefs, and well-being variables. Then I identified the problematic items of the surveys based on the factor loadings and standardized estimates. I also looked at the correlations between the scales and calculated the Cronbach’s alpha and McDonald’s omega to observe each subscales’ reliability and factor saturation. In addition, I looked at the model fit list values of CFI, TLI, RMSEA, and SRMR to determine which numbers were marginal and acceptable in order to see which instrumentation contained more consistency. To conclude the validity of the instruments, I identified candidate variables, religious behavior, belief, and attitude, and then examined them in a correlation matrix to look for expected relationships.

Results

The 2012 AU Risk survey and the 2018 AU survey, which used self-determination theory scales, had overall consistency (see Figures 3 and 4). While, the GCSM 2013 and AU Risk Survey of 2005, which had two types of religious orientation scales, had many items with unacceptable loading (see Figures 1 and 2; Refer to Table 1 for the model fit value results and Table 2 for the Model fit values of X^2 , df, and p for the Test for Exact Fit).

In addition, I examined at the heat map correlation matrices to observe the correlations between religious orientation/ SDT concepts with religious behaviors, religious attitudes, and

well-being. Overall, there were stronger correlations for self-determination theory, which used CRIS, than the Allport and Ross-based religious orientation instruments. For the GCMS 2013 that uses Gorsuch and McPherson's instrumentation, there were very weak correlations (see Figure 5). The AU Risk 2005 survey, which utilizes a Batson and Ventis version of the religious orientation scale, does a slightly better job at finding some moderate correlations, however these numbers are still somewhat low (Figure 6). In addition, the results found that the quest orientation had very weak correlations with belief and behavior and had no correlation with intrinsic or extrinsic religious orientation. Based on SDT CRIS, there were weak correlations for controlled motivation/ introjection for the AU RISK 2012 and the AU RISK 2018 surveys (see Figures 7 and 8). In addition, there was not much of a relationship for well-being for either instrument. For the 2012 AU risk survey, the stronger/ moderate correlations were for bible reading (0.54) and prayer (0.6; see Figure 8). For the 2018 AU risk survey the stronger/ moderate correlations were for bible reading (0.59) and prayer (0.63; see figure 7).

Discussion

In relation to the figures for the factor loadings and standardized estimates, Gorsuch and McPherson instrument and the Batson and Ventis instrument on religious orientation had a lot of problematic items, as represented in the red squares on the left (see Figures 1 and 2). These problematic items caused for two-thirds of the factors on the subscales to be unreliable. For example, when looking at the standardized estimates of the GCSM 2013 survey, the item reading (-0.0627) and the item private (-0.0238) were not even close to being significantly correlated to their intrinsic subscale. Further demonstrating how if the factors do not correlate with the subscale, then the instrumentation for the data is unreliable. This aligns with the literature that

accounts for inconsistent patterns (Ryan, Rigby, & King, 1993). One explanation as to why this occurs is because Allport and Ross' religious orientation type of instrumentation has a reputation for changing items from an intrinsic to extrinsic item across studies. Therefore, SDT better accounts for religious activities because an individual could be intrinsically or extrinsically motivated behind a task such as reading the bible. In addition, the AU RISK 2018 and AU RISK 2012 surveys with CRIS did not have any items below 0.40 and had at least 5 items with factor loadings of 0.50 or higher suggesting stable and solid factors (Costello, & Osborne, 2005). Thus, the construct of internalization, introjection, and identification are more reliable at obtaining consistent results.

Although the self-determination instrumentation's model fit is marginal, it is more stable for measuring why individuals engage in various religious beliefs and activities. The marginal fit may be because of a ceiling effect issue common to religious scales where people tend to totally agree on most items. For the model fit measure CFI, the 4 instruments did not obtain values above .95 due to restricted variance. The self-determination instruments were marginal at best for CFI.

The results for the patterns of correlations between religious behaviors, religious attitudes, and well-being demonstrated how the SDT CRIS contained more correlations for religious behaviors and attitudes than the religious orientation instruments. Similarly to the literature on Batson and Ventis scales, I found that quest orientation did not correlate with extrinsic or intrinsic orientation (Ryan, Rigby, and King, 1993). For all the scales, the correlations between framework concepts and well-being were very low or non-significant. Thus, some improvement needs to be done in order to find stronger relationships between

well-being with introjection and identification that was found in other studies (Dezutter, Soenens, & Hutsebaut 2006; Green & Elliott, 2010; McCullough & Willoughby, 2009; Ryan, Rigby, & King, 1993).

Conclusion

When scales have too many problematic items it results in a more faulty and less reliable measurement of variables. Moreover, the surveys with religious orientation scales contained a lot of cross loading. Furthermore, cross loading shows that the items were not clearly assigned to one factor. When factors are not clearly assigned to 1 subscale, it is not consistent in obtaining it's results and generates a poor fit model. In contrast, self-determination models had better consistency that is sufficient for instrumentation because at least 5 of the items were above 0.5 and none were below 0.4 and fit measures were marginal. In relation, to finding correlations between religious behaviors, attitudes, and well-being some improvement can still be done. However, despite the self-determination scales showing marginal fit in these studies they are still sufficient and perform better than religious orientation scales. Therefore, the scales that use Self-Determination theory should be used in future studies because they are more reliable and consistent.

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Appendix

Table 1: Model Fit List

	CFI	TLI	RMSEA	SRMS	Marginal/Poor
Target Values	X> 0.95	X>0.95	Acceptable range of X<0.05-0.10	X> 0.08	Based on consistency across
2012 (SDT)	0.898*	0.873*	0.106*	0.712+	Marginal
2018 (SDT)	0.871*	0.840*	0.103*	0.0980	Marginal
2013 (ROS)	0.743	0.677	0.0945+	0.0833*	Poor
2005 (ROS)	0.761	0.738	0.0749+	0.0900	Poor

Key for above table: * = Marginal + = Acceptable

Table 2: Test for exact fit the Model fit values of X^2 , df, and p.

	X^2	df	p
2012 (SDT)	446	53	p <.001
2018 (SDT)	383	53	p <.001
2013 (ROS)	12933	62	p <.001
2005 (ROS)	1610	321	p <.001

Note that the X^2 should not be interpreted because the N is large thus making X^2 too sensitive to sample size.

Figure 1: GCMS 2013 Factor Loadings and Standardized Estimates for Religious Orientation
Gorsuch & McPherson Scale. Blue indicates acceptable factor loadings and reliability, while red indicates unacceptable loadings and reliability.

Figure 2: AU RISK 2005 Factor Loadings and Standardized Estimates for Religious Orientation
Batson and Ventis Scale. Blue indicates acceptable factor loadings and reliability, while red indicates unacceptable loadings and reliability.

Figure 3: AU RISK 2018 Factor Loadings and Standardized Estimates for SDT Christian Religious Internalization Scale. Blue indicates acceptable factor loadings and reliability, while red indicates unacceptable loadings and reliability.

Figure 4: AU RISK 2012 Factor Loadings and Standardized Estimates for SDT Christian Religious Internalization Scale. Blue indicates acceptable factor loadings and reliability, while red indicates unacceptable loadings and reliability.

Figure 5: GCMS 2013 Heat Map Correlation Matrix for Religious Orientation Gorsuch & McPherson. Blue indicates positive correlations. Pink indicates negative correlations. Saturation indicates strength of correlations.

Personal Extrinsic Orientation	0.12	0.26	1	0.11	0.03	0.13	0.06		0.15	0.15	0.15	0.16	0.1
Social Extrinsic Orientation	-0.33	1	0.26		0.1	0.04	0.15		0.01	0.04	0.06		0.06
Intrinsic Orientation	1	-0.33	0.12	0.19	0.07	0.21	0.05	0.16	0.22	0.13	0.06	0.24	0.05
	Intrinsic Orientation	Social Extrinsic Orientation	Personal Extrinsic Orientation	Bible Reading	Family Worship	Personal Devotions	Reading Ellen White	Involvement in Church	True Church Belief	Commitment to Christ	Born Again Belief	Meaning and Purpose	Satisfaction with Church

Figure 6: AU RISK 2005 Heat Map Correlation Matrix for Religious Orientation Batson and Ventis Scale. Blue indicates positive correlations. Pink indicates negative correlations. Saturation indicates strength of correlations.

Quest Orientation	-0.18	0.33	1	-0.15	-0.19	-0.1	-0.1	0.19	0.33	-0.04	-0.22	-0.19	-0.1	0.04
Extrinsic Orientation	0.63	1	0.42	0.46	0.33	0.42	0.34	0.37	0.41	0.36	0.4	0.49	0.43	-0.16
Intrinsic Orientation	1	0.63	-0.18	0.45	0.47	0.43	0.26	0.33	0.35	0.28	0.4	0.5	0.44	0.09
	Intrinsic Orientation	Extrinsic Orientation	Quest Orientation	Church Attendance	Prayer	Bible Reading	Family Worship	Sabbath School Attendance	Read SDA Literature	Attend Church Socials	True Church Belief	Remain SDA	Born Again Belief	Depression

Figure 7: AU RISK 2018 Heat Map Correlation Matrix for SDT Christian religious internalization scale. Blue indicates positive correlations. Pink indicates negative correlations. Saturation indicates strength of correlations.

Introjected Motivation	0.21	1	0.13	0.11	0.1	0.13	0.14	0.1	0.18	0.11	0.18	0.1	0.1	0.12	
Identified Motivation	1	0.21	0.47	0.59	0.63	0.27	0.34	0.26	0.32	0.48	0.41	0.68	-0.18	0.01	0.3
	Identified Motivation	Introjected Motivation	Church Attendance	Bible Reading	Prayer	Family Worship	Sabbath School Attendance	Religious Program Attendance	True Church Belief	Remain SDA	Born Again Belief	Stress	Depression	Anxiety	Happiness

Figure 8: AU RISK 2012 Heat Map Correlation Matrix for SDT Christian religious internalization scale. Blue indicates positive correlations. Pink indicates negative correlations. Saturation indicates strength of correlations.

Introjected Motivation	0.16	1	0.14			0.12	0.13	0.12	0.15	0.24	0.17	0.12	0.14
Identified Motivation	1	0.16	0.46	0.6	0.54	0.28	0.28	0.33	0.31	0.32	0.43	0.47	0.18
	Identified Motivation	Introjected Motivation	Church Attendance	Prayer	Bible Reading	Family Worship	Sabbath School Attendance	Read SDA Literature	School Religious Programs	True Church Belief	Remain SDA	Born Again Belief	Depression