

# **Journal of Catholic Education**

Volume 7 | Issue 2 Article 3

12-1-2003

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#### **Recommended Citation**

Dorman, J. P. (2003). Validation and Use of the Catholic School Graduate Characteristics Inventory. *Journal of Catholic Education*, 7 (2). http://dx.doi.org/10.15365/joce.0702032013

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# VALIDATION AND USE OF THE CATHOLIC SCHOOL GRADUATE CHARACTERISTICS INVENTORY

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Scales and subscales to assess the desirable characteristics of Catholic school graduates were developed and validated using a sample of 557 alumni of Australian Catholic high schools. Exploratory factor analysis supported a 4 scale structure (viz., Religious Faith & Spiritual Development, Personal Integration, Social Responsibility, and Life-long Learning Skills). The utility of this instrument, the Catholic School Graduate Characteristics Inventory (CSGCI), is enhanced by the optional subdividing of each scale into 3 internally consistent subscales. The use of the CSGCI revealed statistically significant differences in the characteristics of Catholic school graduates according to gender and year of graduation. These results suggest that the characteristics of graduates are not static and warrant ongoing investigation by school and system administrators.

# **BACKGROUND**

In Australia, a well-developed system of government-supported Catholic schools exists. These schools receive high levels of government financial support. In fact, these schools would cease to exist if government support was withdrawn. The most fundamental aspect concerning these schools is that, as agents of the Roman Catholic Church, they should possess a Catholic identity. They are empowered to provide for their students an education that is distinctive because of their Christ-centeredness (Dorman, 1994). Previous Catholic school research has focused on various school-based attributes: Catholic identity (Leavey, 1972), faith development (Fahy, 1992), effectiveness and culture (Flynn, 1985, 1993), and school and classroom environments (Dorman, 1994). Leavey (1993) concluded that in the authentic Catholic school, religious faith permeates the whole of the school curriculum. In fact, for a large number of students, the school medium is the Christian message.

In the United States, the breadth and effectiveness of what students experience in Catholic schools has been studied for over 20 years. According to *Catholic Education: A Journal of Inquiry and Practice*, Vol. 7, No. 2, December 2003, 165-180 © 2003 *Catholic Education: A Journal of Inquiry and Practice* 

Bryk (1996), research of the 1980s established that Catholic schools are more effective at engaging students, have lower dropout rates, and produce better academic achievement, especially among disadvantaged students. Research by Coleman, Hoffer, and Kilgore (1982) and Greeley (1982) found sizable differences in the achievement of students in Catholic schools compared to public schools. Further, Greeley established that disadvantaged students were performing much better in Catholic schools compared to public schools. Later research by Coleman and Hoffer (1987) concluded that the dropout rate of problematic students (i.e., scholastic or disciplinary problems) in Catholic schools was sharply lower than that recorded for public and other private schools.

In an attempt to explain these differences, research by Bryk, Holland, Lee, and Carriedo (1984) concluded that the social interactions among staff and faculty and the commitment of students, parents, and faculty to a shared set of humanistic values were central to the distinctiveness of the American Catholic school. The importance of a shared set of values to school effectiveness was corroborated by Cibulka, O'Brien, and Zewe in their 1982 study of inner-city private elementary schools. Later research by Bryk, Lee, and Holland (1993) identified a strong school environmental press toward academic work and a caring ethos as key Catholic school characteristics that facilitate student learning (Bryk, 1996). While these research programs have produced important comparative findings for Catholic schools, there is a need to consider the outcomes of Catholic schools in a very broad sense.

Contemporary secondary schooling in Australia is gripped by a wave of outcome-based measures with schools focusing largely on a kaleidoscope of cognitive outcomes in their formal assessment procedures (Brady, 2000; Crotty & O'Grady, 1999; Symes, 2000; Willis & Kissane, 1997). While these cognitive outcomes are important, it is necessary to take a much broader view of the outcomes of the school curriculum. That is, cognitive outcomes need to be complemented by affective outcomes, which are also very important when judging the success of a particular school. This broader view of school curriculum suggests a need to investigate the desirable characteristics of graduates of Catholic schools. This paper reports research conducted on this issue.

Fortunately, attempts to define the characteristics of Catholic school graduates have begun. The Parramatta Diocesan Schools Board in western Sydney has produced a document that attempts to define such characteristics: *The Graduate of the Catholic School* (Parramatta Diocesan Schools Board [PDSB], 1996). This document is based on the perceptions of the main stakeholders in Catholic school education. The central question of this research was "What attitudes, values and behaviors would you hope to observe in the pattern of living of the graduate of the Catholic school?" (PDSB, 1996, p. 28). As this research was vital to the present study, it is described more fully below.

Based on the data collected from the stakeholders, the PDSB (1996) study established 4 clusters that purportedly encapsulate the characteristics of

Catholic school graduates: Religious Faith and Spiritual Development, Personal Integration, Social Responsibility, and Life-long Learning. These clusters have been further subdivided to form 12 subclusters (i.e., three sub clusters per cluster). While the PDSB document did not assign names to these sub clusters, they have been given names based on the stated goals. Table 1 lists each cluster and its 3 sub clusters.

Table 1: Clusters and Sub clusters Identified by Parramatta Diocesan Schools Board

Cluster	Sub clusters
Religious faith & spiritual development	Christian faith development Integration of faith with life Catholic identity
Personal integration	Self-image Interpersonal skills Outlook
Social responsibility	Social conscience Knowledge of global issues Better society
Life-long learning	Academically equipped Embracing technological change Understanding of society

While the PDSB (1996) study makes a sound start to the investigation of the characteristics of the Catholic school graduate, it does not venture into the rational, objective assessment of such characteristics in the schools. It follows that an empirical investigation of this framework is warranted. Such an investigation represents a fundamental shift in conceptualizing the influence of Catholic schools. Rather than focusing on the attributes of the schools that have dominated Catholic school research, the PDSB research focuses on the attributes of the graduates. The present study attempts to provide an empirical validation of the PDSB's structure through the validation and use of scales derived from its framework.

### **DESIGN OF PRESENT STUDY**

#### AIMS OF THE RESEARCH

The research reported in this paper has two specific aims:

- to develop and validate scales to assess the desirable characteristics of Australian Catholic school graduates, and
- to illustrate the use of these scales by investigating characteristics of graduates according to year of graduation and gender.

#### **SAMPLE**

The sample employed in this study consisted of 557 graduates from six Australian Catholic high schools. While three of these schools were coeducational, two were single-sex girls' schools and one was a single-sex boys' school. Using archival lists of student names and addresses, a sample of alumni was drawn. This study focuses on alumni who graduated in 1990, 1993, 1996, and 1999. Because contacting alumni can be problematic due to their high mobility, a larger sample than that required for this study was identified. A sample of 30 graduates from each of the above graduation years was identified for each of the six schools. This sample of 720 graduates received questionnaires that were mailed to the last available postal address known to their school. Of these questionnaires, 557 were returned. Given the practical impediments of this research, this response rate was considered acceptable. Nevertheless, the possible skewing of results due to the non-receipt of 22% of the drawn sample is acknowledged. Table 2 describes the sample for this study.

Table 2: Description of Sample

	Sample Size			
Graduation year	Ge	T 1		
	Male	Female	Total	
1990	48	58	106	
1993	44	72	116	
1996	62	90	152	
1999	54	129	183	
Total	208	349	557	

#### DATA ANALYSIS

Apart from standard scale validation procedures (e.g., item sensitivity, internal consistency, discriminant validity), exploratory factor analysis was conducted on the data. Multivariate analysis of variance (MANOVA), univariate F tests and Tukey's post-hoc procedure were used to test for significant differences in scale scores according to gender and year of graduation. Where significant differences were detected, an effect size index, calculated by dividing the difference between group means by the overall standard deviation (Cohen, 1977), provided a quantitative measure of the effect of the independent variable on scale scores.

# DEVELOPMENT OF THE PRELIMINARY FORM OF THE INSTRUMENT

The development of the preliminary form of the instrument used a modified intuitive-rational approach, which relies primarily on the researcher's intuitive understandings of the dimensions being assessed (Hase & Goldberg, 1967). In fact, the validity of intuitive-rational scales rests heavily on the subjective opinions of the researcher. Typically, the intuitive-rational approach to instrument development has three main stages: identification of salient dimensions, item writing, and field testing (Fraser, 1986). In the present study, this approach was modified in one important way: the researcher used the dimensions and descriptors provided in PDSB (1996) to identify the salient dimensions and assist with item writing. That is, the PDSB was employed as a secondary source. Accordingly, the validity of the present research was dependent on the quality of the field work and subsequent analysis and synthesis undertaken by the PDSB research team.

While salient Catholic school literature (Abbott, 1966; Bathersby, 1992; Britt, 1975; Buetow, 1988; Congregation for Catholic Education, 1988; Dwyer, 1986; Leavey, 1993; Queensland Catholic Education Commission, 1978; Treston, 1992) and research conducted by Flynn (1993) assisted with the writing of specific items, the research was heavily dependent on the Parramatta Diocesan Schools Board (1996). A preliminary instrument of 87 items was developed. These items were tentatively assigned to the 4 clusters identified in the PDSB. An additional characteristic of these items was their tentative assignment to 12 sub clusters, which were also delineated by the PDSB (see Table 1). Each item had a 5-point response format: very slightly true, slightly true, moderately true, strongly true, and very strongly true.

This instrument was field tested with the sample described in Table 2. Principal component factor analysis with varimax rotation and estimates of scale internal consistency (Cronbach coefficient alpha) indicated that 27 items should be omitted from further consideration. In summary, the final form of the instrument consisted of 60 items assigned to 4 scales. All items were

positively-worded and no reverse scoring was necessary. The next section reports extensive validation data that support the structure of this final form, to be known as the Catholic School Graduate Characteristics Inventory (CSGCI). A copy of this instrument and the allocation of items to scales are shown in the Appendix.

# VALIDATION OF CATHOLIC SCHOOL GRADUATE CHARACTERISTICS INVENTORY (CSGCI)

Using data collected from the sample described earlier in this paper, four scale validation procedures were conducted on CSGCI results. First, item analyses were performed for each of the 60 items in the final form of the instrument. Second, exploratory factor analysis was used to verify the instrument's factor structure. Third, the internal consistency of each scale was checked. Finally, an index of discriminant validity assessed overlap among the scales.

#### ITEM ANALYSIS

An important item characteristic is that the item is sensitive to different alumnus characteristics. That is, each item should describe a characteristic that is neither too rare nor too common. This requirement was explored using endorsement proportions (i.e., response percentages for each item). For all items, response proportions ranged from at least 5% to no more than 40%. These data suggest that each item had a sound level of sensitivity.

#### FACTOR ANALYSIS

Data were subjected to principal components factor analysis and a varimax rotation which extracted four factors accounting for 45.06% of the variance (see Table 3). The factor structure was consistent with the four scales identified in the preliminary form of the instrument.

Table 3: Factor Loadings for the Catholic School Graduate Characteristics Inventory

	Scale						
Item	Religious faith & spiritual	Personal	Social	Life-long learning			
	development	integration	responsibility				
1	.81						
2	.81						
3	.78						
4	.77 .76						
5 6	.75						
7	.74						
8	.73						
9	.73						
10	.72						
11	.70						
12	.68						
13	.61						
14	.57						
15	.57	(7					
16 17		.67 .63					
18		.62					
19		.62					
20		.61					
21		.57					
22		.54					
23		.52					
24		.51					
25		.50					
26 27		.47 .43					
28		.43 .42					
29		.37					
30		.35					
31			.82				
32			.73				
33			.67				
34			.65				
35			.61				
36			.60				
37			.57				
38			.55				
39			.53				
40			.49				
41			.45				
42			.43				
43			.40				
44			.39				
45			.38				
46				.75			
47				.75			
48				.67			
49				.64			
50				.55			
51				.52			
52				.51			
53 54				.46			
54 55				.43 .40			
56				.40			
57				.37			

Note: Factor loadings below .30 have been omitted.

#### INTERNAL CONSISTENCY

An important psychometric characteristic of a scale is that it has acceptable internal consistency. Estimates of the internal ranging consistency of the four CSGCI scales were calculated using Cronbach's coefficient alpha (see Table 4). These values indicate very good internal consistency, with indices ranging from .86 for the Life-long Learning Skills scale to .95 for the Religious Faith and Spiritual Development scale. Additionally, items to the remainder of scale correlations ranged from .36 to .78 (M = .56, SD = .11), which indicate that items had been assigned to the correct scale and that each item made a substantial contribution to the internal consistency of that scale. Although the four factor structure of the CSGCI was supported by the factor analysis and estimates of internal consistency, the notion of subscales for these scales was explored. Reliability analyses using the 12 a priori subclusters identified earlier in this paper (see Table 1) revealed acceptable internal consistency (see Table 4). Accordingly, the use of 12 subscales rather than 4 main scales of the CSGCI is a possible option for researchers.

Table 4: Descriptive Information and Scale Statistics for 4 Main Scales and 12 Sub scales of the Catholic School Graduate Characteristics Inventory

Main Scales/ Sub scales <sup>a</sup>	Description	Coefficient	M	SD	Mean correlation <sup>b</sup>	
Religious faith & spiritual development	The extent to which graduates have developed their religious faith and spirit.	.95	48.70	13.59	.40	
Christian faith development	The extent to which graduates have developed their Christian faith	.87	16.66	4.71	.81	
Integration of faith with life	The extent to which graduates have integrated Christian faith with daily living	.87	16.05	5.04	.80	
Catholic identity	The extent to which graduates have developed an enlightened and practical Catholic identity	.88	15.99	4.93	.73	
Personal integration	The extent to which graduates have developed positive human characteristics	.87	59.32	7.83	.43	
Self-image	The extent to which graduates have developed a positive self-image.	.66	20.14	2.67	.58	
Interpersonal skills	The extent to which graduates have developed interpersonal skills.	.81	19.56	3.51	.60	
Outlook	The extent to which graduates have developed a positive outlook on life.	.72	19.62	3.06	.62	
Social responsibility	The extent to which graduates have developed social responsibility.	.87	56.56	8.88	.40	
Social conscience	The extent to which graduates have developed a social conscience.	.77	20.26	3.13	62	
Knowledge of global issues	The extent to which graduates have developed an awareness of global issues.	.65	18.60	3.13	.57	
Better society	The extent to which graduates are committed to the goal of building a better society.	.84	17.57	4.44	.50	
Life-long learning	The extent to which graduates have developed life-long learning skills to make a positive contribution to society.	.86	56.86	8.31	.41	
Academically equipped	The extent to which graduates are academically equipped for life.	.79	19.35	3.11	.53	
Embracing technological	The extent to which graduates have embraced technological change.	.66	19.76	3.17	.47	
change Understanding of society	The extent to which graduates have developed their understanding of society.	.80	17.75	3.74	.57	

<sup>&</sup>lt;sup>a</sup>Main Scales are bolded. <sup>b</sup>Mean correlations for main scales were calculated from correlations with the remaining three main scales. Mean correlations for sub scales were calculated from correlations with the two remaining sub scales of that scale group.

#### DISCRIMINANT VALIDITY

According to the psychometric approach to instrument design, each scale should ideally assess a mutually exclusive construct. A convenient index for such discriminant validity is the mean correlation of a scale with the remaining scales in the battery. Data shown in Table 4 indicate that the four CSGCI scales overlap, but not to the extent that would confound interpretation of findings. Additionally, these four scales have clear conceptual distinctiveness. By contrast, each group of three subscales shown in Table 4 was highly correlated. For example, the correlation between Christian Faith Development and Integration of Faith with Life was .90. The mean correlations shown in Table 4 indicate that the three subscales corresponding to each scale overlap substantially. These discriminant validity data suggest that the four scale structure of the CSGCI should be the preferred research option. Nevertheless, the 12 CSGCI subscales have adequate internal consistency reliability and could be used if desired. Table 4 also provides scale and subscale descriptions together with their means and standard deviations. Whereas the minimum and maximum possible scale scores were 15 and 75, possible subscale minimum and maximum scores were 5 and 25.

#### **RESULTS**

The second aim of this research was to illustrate the use of these scales by investigating characteristics of graduates according to year of graduation and gender. A two-way Multivariate Analysis of Variance (MANOVA) with the set of four CSGCI scales as dependent variables and year of graduation (viz., 1990, 1993, 1996, 1999) and gender as independent variables was performed on the data. In this test, the effects of gender and year of graduation were significant (p < .001). However there was a significant interaction effect (p < .001). Accordingly, gender specific one-way MANOVAS for the effect of year of graduation were conducted.

For male graduates, the effect of year of graduation was significant (p < .001). Univariate F tests revealed that the four scales differed significantly according to year of graduation: Religious Faith and Spiritual Development, F(3, 204) = 3.41 (p < .05), Personal Integration, F(3, 204) = 8.29 (p < .001), Social Responsibility, F(3, 204) = 3.11 (p < .001), and Life-long Learning, F(3, 204) = 2.57 (p < .05). Tukey's HSD procedure indicated that 6 of the 24 post-hoc comparisons of mean scores according to year of graduation were significant at p < .05. These comparisons (with effect sizes in terms of Cohen's d) were: Religious Faith and Spiritual Development, 1996 – 1999 (0.76); Personal Integration, 1990 – 1993 (0.61), 1990 – 1996 (0.91), 1993 – 1999 (0.98), and 1996 – 1999 (0.69); Social Responsibility, 1996-1999 (0.71). Table 5 shows the mean scores which indicate the direction of these effect sizes. According to Cohen, these effect sizes can be considered moderate to large.

	Mean scores							
CSGCI scales	Male				Female			
	1990	1993	1996	1999	1990	1993	1996	1999
Religious faith & spiritual development	47.72	49.95	43.50	53.43	51.17	50.42	48.83	49.92
Personal integration	60.14	55.79	53.71	60.62	60.26	61.26	59.88	59.54
Social responsibility	55.83	53.47	50.50	56.95	55.70	60.55	57.50	58.10
Life-long learning	57.00	59.42	56.43	60.95	55.65	59.33	56.43	56.39

Table 5: Mean Scores for Four CSGCI Scales for Male and Female Graduates (1990-1999)

For female graduates, the MANOVA investigating the effect of year of graduation was not significant at p < .05. However, two univariate F tests were significant: Social Responsibility, F(3, 345) = 3.61 (p < .05) and Life-long Learning, F(3, 345) = 2.85 (p < .05). One Tukey post-hoc test was significant (p < .05): Social Responsibility, 1990-1993 with a moderate effect size (0.56). For females, Social Responsibility was significantly higher in 1993 compared to 1990.

Univariate F tests using the full data set revealed significant differences on two scales according to gender: Personal Integration, F(3, 553) = 11.28 (p < .001), and Social Responsibility, F(3, 553) = 18.67 (p < .001). Compared to male graduates (M = 57.88), Personal Integration for female graduates (M = 60.12) was significantly higher with a small effect size (0.30). Similarly, Social Responsibility for females (M = 58.10) was significantly higher than that recorded for male graduates (M = 54.50) with an effect size of 0.42.

## DISCUSSION

No previous research on the characteristics of graduates of Australian Catholic schools has been conducted in a systematic manner. Accordingly, it is difficult to discuss specific findings in terms of previous research. It is noteworthy that the present research has provided substantial support for the field-based

research conducted by the Parramatta Diocesan Schools Board. While the research processes that underpinned its publication *The Graduate of the Catholic School* (PDSB, 1996) are not documented, it is clear that its 4 cluster conceptualization is supported empirically. From an instrument development perspective, this research shows that researchers do not need to conduct instrument development procedures from first principles on every occasion. The present study demonstrates that the judicious use of previously conducted research can streamline the research process. More importantly, the validity of the final instrument will be enhanced if underpinning documentation has employed extensive field-based consultations in its development.

Additionally, 12 internally consistent subscales parallel the 12 PDSB's subclusters. However, the weakness of the 12 subscale concept is the high subscale-subscale intercorrelations. That is, the Parramatta Diocesan Schools Board did not give sufficient attention to the measurement aspects of such a conceptualization. It reflects a general conundrum of much research conducted by Australian Catholic schools and school systems. On the one hand, the researchers want to reflect the holistic nature of Catholic education and the interrelationships that exist in such human environments. On the other hand, parsimony and the meaningful interpretation of research findings demand that scales have minimal overlap. Otherwise, the possibility of confounding interpretations is a real possibility.

The specific results of this research suggest two issues for discussion and reflection. First, it seems clear that, compared to female graduates, male graduates have more volatile CSGCI scores. For example, Religious Faith and Spiritual Development mean scores for males show a definite drop for 1996 graduates. While male scores on this scale are higher in 1999 than in 1993, this overall trend is not evidenced for females. There would appear to be no logical, systemic explanation for this trend difference. Second, compared to males, female scores on Personal Integration and Social Responsibility were significantly higher. This parallels much classroom environment research which has found that, in general, female students perceive their classrooms more positively than do male students (Fraser, Giddings, & McRobbie, 1995; Lawrenz, 1987). This suggests that a possible gender frame of reference issue might extend from within-school to post-school perceptual data. We simply do not know whether these gender differences are inherited or due to socialization. It could be that they are due to an interaction of inherited traits with socializing forces operating within schools and wider society. One direction for further research would be to conduct a larger study with a sample of graduates from coeducational schools only and employ a matched-pairs analysis to compare scale gender means with the school as unit of analysis.

It is important to consider the limitations of this study and the generalizability of the above findings. This study involved 557 alumni of six Australian Catholic high schools. As there are approximately 40,000 new alumni from Australian Catholic high schools every year (Australian, 2000), this sample

constituted less than 1.5% of the annual new alumni population. Apart from the usual bias encountered when survey research is conducted by mail, there was one major threat to the generalizability of findings. This threat relates to the contactability of alumni. In this study, the alumni sample had to be contactable through their last postal address known to the school. While this may not constitute a major concern for recent years (e.g., 1999), the problematic nature of locating alumni after a decade is self-evident. Young people are often highly mobile, and it is possible that the overall results were contaminated by the effect of contactability. Table 2 shows that, especially for females, the number of responding alumni in each year tended to increase from 1990 to 1999. It could be argued that, in general, alumni who were contactable have maintained closer links with their parents. They might be considered more socially conservative and holding more traditional family values compared to the alumnus who is uncontactable.

#### **CONCLUSION**

This paper has reported the development and validation of the Catholic School Graduate Characteristics Inventory (CSGCI). Additionally, the research illustrated the utility of the CSGCI. While the CSGCI has been developed and used in Australian Catholic school context, it is hoped that context-specific derivatives will be used internationally. In this way, Catholic schools and school systems will obtain better insights into the characteristics of the graduates of their schools.

#### REFERENCES

- Abbott, W. M. (1966). The documents of Vatican II. London: Geoffrey Chapman.
- Australian Bureau of Statistics. (2000). Schools Australia 1999. Canberra, Australia: Author.
- Bathersby, J. (1992). The Catholic school: Creating the future together: Pastoral letter for Catholic education Sunday. Unpublished manuscript, Brisbane, Australia.
- Britt, M. (1975). What should be and what is distinctive about the Catholic school? In P. D. Tannock (Ed.), *The organization and administration of Catholic education in Australia* (pp. 14-24). Brisbane, Australia: University of Queensland Press.
- Brady, L. (2000). Outcomes in Australian schools: Intention and reality. *Curriculum and Teaching*, 15(1), 77-85.
- Bryk, A. S. (1996). Lessons from Catholic high schools on renewing our educational institutions. In T. McLaughlin, J. O'Keefe, & B. O'Keeffe (Eds.), *The contemporary Catholic school: Context, identity and diversity* (pp. 25-41). London: Falmer.
- Bryk, A. S., Holland, P. B., Lee, V. E., & Carriedo, R. (1984). *Effective Catholic schools: An exploration*. Washington, DC: National Center for Research in Total Catholic Education.
- Bryk, A. S., Lee, V. E., & Holland, P. B. (1993). *Catholic schools and the common good*. Cambridge, MA: Harvard University.
- Buetow, H. A. (1988). The Catholic school: Its roots, identity, and future. New York: Crossroad.

- Cibulka, J., O'Brien, T., & Zewe, D. (1982). *Inner city private elementary schools: A study*. Milwaukee, WI: Marquette University.
- Cohen, J. (1977). Statistical power analysis for the behavioral sciences (Rev. ed.). New York: Academic.
- Coleman, J. S., & Hoffer, T. (1987). Public and private high schools: The impact of communities. New York: Basic Books.
- Coleman, J. S., Hoffer, T., & Kilgore, S. B. (1982). High school achievement: Catholic and private schools compared. New York: Basic Books.
- Congregation for Catholic Education. (1988). The religious dimension of education in a Catholic school. Homebush, New South Wales, Australia: St Pauls Publications.
- Crotty, L. T., & O'Grady, S. (1999). Can outcomes transform the religious education curriculum? *Journal of Religious Education*, 47(2), 3-10.
- Dorman, J. P. (1994). A study of school and classroom environments in Queensland Catholic secondary schools. Unpublished doctoral thesis, Curtin University of Technology, Perth.
- Dwyer, B. (1986). Catholic schools at the crossroads. Blackburn, Victoria, Australia: Dove.
- Fahy, P. S. (1992). Faith in classrooms: Theory and practice. Homebush, New South Wales, Australia: St Pauls Publications.
- Flynn, M. (1985). *The effectiveness of Catholic schools*. Homebush, New South Wales, Australia: St Pauls Publications.
- Flynn, M. (1993). *The culture of Catholic schools*. Homebush, New South Wales, Australia: St Pauls Publications.
- Fraser, B. J. (1986). Classroom environment. London: Croom Helm.
- Fraser, B. J., Giddings, G. J., & McRobbie, C. J. (1995). Evolution and validation of a personal form of an instrument for assessing science laboratory classroom environments. *Journal of Research in Science Teaching*, 32, 399-422.
- Greeley, A. (1982). Catholic high schools and minority students. New Brunswick, NJ: Transaction Books
- Hase, H. D., & Goldberg, L. G. (1967). Comparative validity of different strategies of constructing personality inventory scales. *Psychological Bulletin*, 67, 231-248.
- Lawrenz, F. P. (1987). Gender effects for student perceptions of the classroom psychosocial environment. *Journal of Research in Science Teaching*, 24, 689-697.
- Leavey, M. C. (1972). Religious education, school climate and achievement: A study of nine Catholic sixth-form girls' schools. Unpublished doctoral thesis, Australian National University, Canberra.
- Leavey, M. C. (1993). *Identity and ethos in the Catholic school: The elusive variables*. Unpublished manuscript, Brisbane, Australia.
- Parramatta Diocesan Schools Board. (1996). *The graduate of the Catholic school*. Sydney, Australia: Author.
- Queensland Catholic Education Commission. (1978). *Project Catholic school*. Brisbane, Australia: Author.
- Symes, J. (2000, December). *Teachers as researchers of educational change: The case for out-comes-based assessment.* Paper presented at the annual conference of the Australian Association for Research in Education, Sydney.
- Treston, K. (1992). Transforming Catholic schools: Visions and practices for renewal. Brisbane, Australia: Creation Enterprises.
- Willis, S., & Kissane, B. (1997). Systemic approaches to articulating and monitoring student outcomes: Are they consistent with outcomes-based education? *Studies in Educational Evaluation*, 23(1), 5-30.

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#### **APPENDIX**

## Catholic School Graduate Characteristics Inventory

- 1. I have a personal belief in God.
- 2. I am inspired by the personal message of Jesus Christ.
- 3. I understand religious faith.
- 4. I am at ease with the religious faith.
- 5. I seek the presence of Christ in the community of faith, especially the poor.
- 6. I am committed to Christian and spiritual values.
- 7. I value personal prayer.
- 8. I make moral judgments in the light of Christian principles.
- 9. I follow Christ's teachings in relating with other people.
- I recognize that growth in religious faith and Catholic spirituality is a lifelong journey.
- 11. I am at ease with Catholic symbols and rituals.
- 12. I am aware of the sacramental nature of the Catholic Church.
- 13. I appreciate that the Eucharist is at the heart of each Catholic community.
- 14. I understand the essentials of the common Catholic liturgies.
- 15. I have an understanding of the history of the Catholic Church.
- 16. I recognize my strengths and limitations.
- 17. I exercise a sense of humor and balance.
- 18. I am committed to a healthy lifestyle.
- 19. I am responsible and self-disciplined.
- 20. I am truthful.
- 21. I give affirmation
- 22. I receive affirmation.
- 23. I value fidelity to promises.
- 24. I value fidelity to friends.
- 25. I value fidelity to all people.
- 26. I am open to wonder and adventure.
- 27. I am willing to take initiative.
- 28. I value my own cultural heritage.
- 29. I can make a positive difference to society.
- 30. I value community membership.
- 31. I am committed to a just society.
- 32. I am committed to a caring society.
- 33. I have compassion for victims of injustice.
- 34. I am compassionate toward victims of disaster.
- 35. I am committed to Australian society supporting disadvantaged people.

- 36. I am aware of the major issues of the day.
- 37. I can identify the root causes of common injustices in society.
- 38. I recognize that the consumer society can erode human dignity.
- I am aware that economic systems affect the wealth distribution within and among nations.
- 40. I appreciate that rich nations like Australia should help other nations.
- 41. I support Australia's multicultural society.
- 42. I work against racial discrimination.
- 43. I work against religious discrimination.
- 44. I work against cultural discrimination.
- 45. I work against gender discrimination.
- 46. I can synthesize a range of ideas.
- 47. I think critically about issues.
- 48. I think logically about issues.
- 49. I think independently about issues.
- 50. I solve problems in a systematic manner.
- 51. I am at ease when using computers.
- 52. I am competent at using modern technology.
- 53. I believe that technology must be of service to society.
- 54. I believe that technology is changing people's lifestyles.
- 55. I believe that technology will require me to keep studying.
- 56. I know about Australia's history and heritage.
- 57. I appreciate the democratic basis of Australian society.
- 58. I know about the major political parties in Australia.
- 59. I know about the levels of government in Australia.
- 60. I adopt a critical approach when evaluating current issues.

Response Format and Scoring: Very Slightly True (1), Slightly True (2), Moderately True (3), Strongly True (4), Very Strongly True (5)

#### Main Scale and Subscale Allocations:

Religious Faith & Spiritual Development	1-15
Christian Faith Development	1-5
Integration of Faith with Life	6-10
Catholic Identity	11-15
Personal Integration	16-30
Self-image	16-20
Interpersonal Skills	20-25
Outlook	26-30
Social Responsibility	31-45
Social Conscience	31-35
Knowledge of Global Issues	36-40
Better Society	41-45
Life-long Learning	46-60
Academically Equipped	46-50
Embracing Technological Change	51-55
Understanding of Society	56-60