
Title	Civic capital models: Comparison of primary and secondary students in the Singapore Education System
Authors	Vicente Reyes, Trivina Kang and David Hogan
Source	<i>PLS Working Papers Series</i> , No. 13, pp 1-20
Published by	Policy and Leadership Studies (PLS) Academic Group, National Institute of Education, Singapore

This document may be used for private study or research purpose only. This document or any part of it may not be duplicated and/or distributed without permission of the copyright owner.

The Singapore Copyright Act applies to the use of this document.

Citation: Reyes, V., Kang, T., & Hogan, D. (2015). Civic capital models: Comparison of primary and secondary students in the Singapore Education System. *PLS Working Papers Series*, No. 13, pp 1-20.

.

Civic Capital Models: Comparison of Primary and Secondary Students in the Singapore Education System*



**A Report from the Panel 6 Life
Pathways Longitudinal Study**

**Vicente Reyes
Trivina Kang
David Hogan**

Abstract

This inquiry interrogates linkages between civic capital broken down into beliefs, dispositions and agency with the notion of the school as a civic community. Using data generated from a longitudinal study on a stratified random sample of two cohorts of students belonging to the primary and secondary levels of the Singapore education system, this paper attempts to establish meaningful relationships between the students' conceptions and practices of civic capital with their perceptions of an active civic community in school.

Civic Capital Models: Comparison of Primary and Secondary Students in the Singapore Education System Vicente Reyes, Trivina Kang and David Hogan, First published, June 2015

PLS Working Paper Series, 13

First published by the National Institute of Education (NIE), June 2015

ISSN: 2239-5249

Disclaimer:

The results reported here represent the views of the author and not necessarily those of NIE.

*This paper is based on remarks originally presented at the 2nd Socio-cultural Theory in Educational Research and Practice Conference: Theory, Identity and Learning, University of Manchester, UK, 10-11 September 2007. The draft was written while the first author was an Assistant Professor at the National Institute of Education, Singapore and was presented in preliminary form at the 2nd Socio-cultural conference. The first author is greatly indebted to Dr Trivina Kang and Dr David Hogan, who were the Co-Principal Investigator and Principal Investigator respectively of the Panel 6 Life Pathways Longitudinal Study.

Reyes, Vicente, Kang Trivina and Hogan David, (2015). "Civic Capital Models: Comparison of Primary and Secondary Students in the Singapore Education System" PLS Working Papers Series, No. 13

Corresponding author contact details:

Dr Vicente Reyes, Jr.

Vicente.reyes@une.edu.au

Introduction

This inquiry is divided into three main sections. The first one contextualizes civic capital and its linkages with the National Education (NE) program in a Singapore setting. A succinct reflection on the state of civic education in Singapore and the theoretical underpinnings that underscore its rationale are highlighted in this initial part. The second section describes the methodology applied by this inquiry to arrive at civic capital constructs. A review of the various scales and the underlying theoretical bases that have been utilized in the ongoing research are discussed. A description of the analytical approach of the inquiry is also included in this section. The final part describes key statistical findings that have been derived in approximating the status of civic capital and its indicators from the sample. An exploration of the variances of civic capital under selected domains is included in this section. An attempt to synthesise the constructs in order to arrive at a civic capital model is highlighted in this final part. Policy recommendations on National Education and systematic attempts to establish and nurture civic capital as well as further areas of research conclude this section.

Civic Capital in a Singapore Setting

As a relatively young nation-state, Singapore's relentless and aggressive drive towards development has necessitated the emergence and maintenance of a strong government. Guided by an elite corps of technocrats and leaders, Singapore has been able to amass significant amounts of capital both economic and human, to merit for itself consistently top rankings as one of the world's most competitive nations (Garelli, 2007). Despite this achievement though, one of the constant challenges that the multiracial nation faces is its contentious record of civic and political participation characterised "by the prevalence of elite dominance, bureaucratic omnipotence and political indifference in the society" (Ho, 2000:15). Consequently, the state of civic and political participation in Singapore is a far cry from Putnam's idea of relations of mutual trust and not of control and subjection (Putnam, 1994: 88).

The history and vulnerabilities of Singapore are the chief causes for its current situation of an "administrative state" (Ho, 2000:15). Early in its turbulent past, the fledgling nation realized that social cohesion among its diverse races was critical in order to accomplish nation-building (Quah, 2000; Khong *et al*, 2004). As a result, a strong elite-driven technocratic leadership steered the nation to economic progress and in the process has been able to achieve a unique form of social cohesion (evidenced by the absence of racial and ethnic riots that once besieged it) that has effectively weakened civic and political participation.

Almost fifty years later with a robust economy and all the accoutrements of a First World nation, Singapore's civic capital stock still leaves much to be desired. One area where this is clearly manifested is in the education system typified by a "completely utilitarian view" of a significant component of civic capital --- moral education – in Singapore schools (Gopinathan, 1980:178) and where "passivity" (Lian, 1975:105) and "alienation" (Ooi *et al*, 1999:128) dominate political participation attitudes. Perhaps more disturbing is that despite achieving what is commonly perceived as social cohesion in its multiracial population, ironically, "ethnic essentialism" has actually accentuated differences among its races (Tan, 2004:66).

Heartware in the midst of a Globalised Knowledge-Based Economy

It is within this paradoxical context where the impetus for change, not surprisingly emanating from the elite-dominated government, emerged in the late 1990s. This modification was ushered in by the creation of Singapore 21 designed to nurture the "heartware" of the country (Quah, 2000:96). Several related policies designed to increase the stock of civic capital has continued to appear. In September 1996, then Prime Minister Goh Chok Tong speaking on a Teachers' Day rally highlighted that the main purpose of a systematized National Education

program was to “engender a sense of nationhood” among Singapore’s young people (1996). Ten years later in 2006, the current Prime Minister Lee Hsien Loong speaking on another Teachers’ Day rally underscored that in a time of rapid globalization, Singapore must strive to strengthen its “heartware, our emotional ties which bind Singaporeans to Singapore and to one another” (2006).

The policy discourse on “heartware” has become more prevalent especially within the context of increased globalisation and the push towards Knowledge-Based Economies (KBEs). Burbules and Torres have acknowledged similar imperatives when they discuss globalization and the consequent paradigm shift in “educational aims that have more to do with flexibility and adaptability” and greater harmony among peoples and among nations (2000:22). Gopinathan recognises the implications of the irrepressible waves of globalisation and raised concerns about societies racing to become KBEs to be cognizant of challenges they face such as radical changes requiring more “inclusive work place and a fuller notion of citizenship” (2004:121).

It is within this rapidly changing context where the message of fostering citizenship and nationhood through NE is as urgent as ever. Consequently, a careful analysis of the impact of the various initiatives encapsulated in the NE program implemented in the last decade is imperative.

National Education in Singapore: Transmitting Civic Capital

Consistent with its drive to enhance civic capital and in so doing strengthen national cohesion, the instinct for survival and confidence in the future,” the “NE initiative marks a major attempt to address citizen-state relations in education”(Gopinathan, 2004:125). The NE is a multi-pronged project eliciting support from teachers, administrators and the Ministry of Education (MOE). It is also multi-level in approach as it endeavours to instil loving, knowing and leading one’s country among primary, secondary and post-secondary students respectively (*Ibid*, 125).

In properly implementing a program on civic education, recognition has been given to the impact of teachers (Goh, 1996: Chew 1998). Preliminary research on its implementation has revealed though that some NE curriculum planners from MOE have expressed hesitation about teachers and in particular their commitment “to the goal of political socialisation” or whether or not they would be “sufficiently familiar with the content” (Chew, 1998:520). Some other Singapore-based studies have similarly identified other possible agents for the transmission of civic education such as the parents (Khong *et al*, 2004), peers and other school factors (Lian, 1976). Similarly, empirical work has been done to differentiate the levels of civic knowledge and politicisation achieved by different age groups (Mootatamby, 1976: Lian ,1976).

Two key concerns that have been raised in the past in relation to the administration of civic education in Singapore schools are worth revisiting. The first one deals with the subject in danger of “being sidelined by teachers and students in an examination-oriented school curriculum” (Chew, 1998: 519). The second deals with the selective implementation of civic education which leads to a situation where only “students in the top tier of institutions will have an opportunity to think independently, debate issues and controversies and thus prepare for active citizenship” (Gopinathan, 2004:128). These valid concerns would be addressed in subsequent sections of this inquiry.

Civic Capital: Towards a working model

In order to fully address some of the concerns raised in the previous section about civic capital and NE programs in a Singapore context, a holistic measurement of manifest as well as latent indicators of civic beliefs, civic dispositions and civic agency is essential. This section

describes succinctly the approach undertaken by this inquiry in arriving at such a model. The theoretical underpinnings behind the choice of civic capital constructs would be briefly explained in this section. An enumeration of the proposed civic capital constructs plus a description of the methodology used for this inquiry is also included in this section.

Current Paradigms

Education and training and its relation to human capital formation have led individuals and societies to invest heavily in its acquisition with the hope of reaping expected higher returns (Mincer, 1958). The linkages between education and training on the one hand and notions of income equality and inequality have been investigated quite extensively internationally (Becker, 1962) and in Singapore (Liu and Wong, 1981). Another area that has similarly been studied quite thoroughly would be the linkages between education and citizenship and civic participation (White, 1999; Putnam, 1995; Putnam, 1994; Bourdieu, 1991). The most explicit attempt to link civic participation and education comes from Verba, Shlozman and Brady:

Education enhances participation more or less directly by developing skills that are relevant to politics – the ability to speak and write, the knowledge of how to cope in an organizational setting. Education also affects participation by imparting information about government and politics, and by encouraging attitudes such as a sense of civic responsibility or political efficacy that predispose an individual to political involvement. In addition, education affects activity indirectly: those who have high levels of education are more likely to command jobs that are lucrative and...to have opportunities to exercise leadership and to develop politically relevant skills at work, in church and in voluntary associations. (Verba *et al*, 1995: 305)

Numerous studies on the association between education and the acquisition of civic skills have been made in the disciplines of political science, sociology and educational psychology to name a few. Some studies have even attempted to carefully delineate the nuances between civic and political engagement versus political participation and have taken this analysis to the levels of cognitive and agentic skills (Keeter, *et al*, 2003). However, what would be more pertinent for this current inquiry is an attempt to arrive at “how” these skills are acquired and not merely an analysis of association. Thus, it is the objective of this particular inquiry to address the challenge of arriving at a “successful model of civic/political participation” that accounts “for the process by which youth acquire the values and habits that lead to civic engagement” (Crystal, *et al*, 2002:114).

Civic Capital Constructs

The impetus for generating working models for Civic Capital is derived from the work undertaken in the Life Pathways Longitudinal Survey (Panel 6) of the Centre for Research in Pedagogy and Practice (CRPP). Using existing paradigms of civic capital a general theoretical framework for the inquiry was formulated in which the construct for Civic Capital straddles beliefs, dispositions and agency.

Figure 1: Civic Capital Constructs

Civic Capital		
Civic Beliefs Conceptions of Good Citizenship	Civic Dispositions Sense of Civic Agency and Membership	Civic Agency Participation in Community Groups
Constructions of Political Society		

Note: Fig.1 is taken from the CRPP MOE Presentation 27 July 2006

For our framework, the variables of Constructions of Political Society (Theiss-Moore, 1993; Winter, 2003) and Conceptions of Good Citizenship (Wrightstone, 1934; Theiss-Moore, 1993;

Chew, 1998) combined together create the Civic Beliefs construct. The variables that comprise the umbrella of indicators falling under Sense of Civic Agency and Membership (Dudley and Gitelson, 2002; Christman and Rhodes, 2002; Stone, 2001) are fused into the Civic Dispositions construct. The various indicators of Participation in Community Groups (Lake and Huckfeldt, 1998; Ehrlich, 1999; Lochner *et al*, 1999) combined together form the Civic Agency construct. Civic Beliefs describe levels of knowledge, Civic Dispositions pertain to responsibilities and volition while Civic Agency depicts action and habits. These three constructs put together are what we conceive of as the bundle of Civic Capital.

Students' Skills, Family Functions, Teachers and Resource

Brown *et al* (2003) and Ehrlich (1999) shed light on structured school intervention with the end of attaining higher levels of active citizenship. Brown *et al* postulated that gender (Kennedy and Mellor, 2006) and socio-economic status (Brady *et al*, 1995) had a direct and predictive relationship with active citizenship measured in their study as the act of "volunteering" (1993:4). Ehrlich highlighted that a structured school curriculum designed to inculcate among students active citizenship is efficacious. Theoretical and empirical studies validate the inclusion of the constructs of Students' Skills (Sheufele and Shah, 2000) and Family Functions (Stone, 2001), Resources (Brady *et al*, 1995; Rahn and Transue, 1998) and Teachers (Merelman, 1972) --recorded in the study as authentic pedagogy--as well as School as a Civic Community (Chi *et al*., 2006) into the Structural Equation Models.

In the case of the Primary Four (P4) cohort, the following indicators of Civic Capital were examined based on the theoretical model using exploratory factor analysis:

- Civic Beliefs
- Civic Dispositions
- Civic Agency
- Friendship Skills
- Authentic Pedagogy
- Family Functioning
- Adaptability

In the case of the Secondary One (S1) cohort, the following indicators of Civic capital were examined based on the theoretical model using exploratory factor analysis:

- **Civic Beliefs**
Construction of Political Society
Civic Knowledge
- **Civic Dispositions**
Sense of Civic Agency & Membership
Civic Responsibility
- **Civic Agency**
Political Interest
Community Participation in Civic Groups
- **Friendship Skills**
- **Authentic Pedagogy**
- **Family Functioning**
- **Adaptability**

Analysing Civic capital

Participants

As highlighted earlier, this inquiry is part of a larger effort under the Life Pathways Project managed by CRPP, whose overall objective is to map students' development on a longitudinal basis various competencies, attitudes, attainments and aspirations for two to three years both for the P4 and S1 cohort.

The stratified random sample size for the P4 cohort consisted of 2,356 students randomly assigned in the Life Pathways Longitudinal survey (Panel 6). Table 1 highlights key information regarding the constructs used for the P4 model. The stratified random sample size for the S1 cohort is made up of 3,056 students randomly assigned in the Life Pathways Longitudinal survey (Panel 6). Table 2 underscores salient statistics of the constructs used for the S1 model. These demographic characteristics are representative of the national cohort.

Table 1
Descriptive statistics for Civic Capital constructs (Primary Level)

Indicators (N = 2356)	Mean	Std. Deviation
Civic Beliefs	4.21	1.12
Civic Dispositions	4.92	1.05
Civic Agency	4.17	1.10
Friendship Skills	4.42	1.06
Authentic Pedagogy	4.02	1.24
Family Functioning	4.96	1.09
Adaptability	3.89	1.04

Instrument

Participants belonging to the P4 and S1 cohort completed an online questionnaire that was estimated to last between 30 to 40 (for the P4 cohort) and 40 to 45 minutes (for the S1 cohort). The assessment comprised of a series of multiple-choice questions and additional information (i.e. demographics) and their responses on the Civic capital scales were collated.

Table 2
Descriptive statistics for Civic Capital Constructs (Secondary Level)

Indicators (N = 3056)	Mean	Std. Deviation
Civic Beliefs		
Construction of Political Society	4.05	.782
Civic Knowledge	4.47	.892
Civic Dispositions		
Sense of Civic Agency & Membership	4.50	.899
Civic Responsibility	4.24	.985
Civic Agency		
Political Interest	3.11	1.52
Community Participation in Civic Groups	2.64	1.14
Friendship Skills	4.59	.854
Authentic Pedagogy	3.30	1.22
Family Functioning	4.69	1.12
Adaptability	4.25	.790

Civic Capital among Singaporean Youth: Discussion of Results

Exploratory Factor Analysis

In order to determine the factor structure of Civic Capital among the P4 and S1 cohort, Exploratory Factor Analysis (EFAs) were conducted using principle components analysis followed by an oblique rotation (Direct Oblimin) not constraining extracted factors to be non-correlated. Orthogonal and oblique rotations showed minor differences in factor structure. For the P4 cohort, two factors were extracted with eigenvalues greater than 1, which together accounted for 60.481% of the total variance. However, in order to avoid possible underreporting consistent with the Variance Explained Criteria, a third factor was considered (with eigenvalue of .750) which raised the total variance accounted for to 71.202%. A preliminary Bartlett's Test of Sphericity produced a meritorious KMO value of .815 ($p < .05$). For the S1 cohort, three factors were extracted with eigenvalues greater than 1, which together accounted for 57.843% of the total variance. A preliminary Bartlett's Test of Sphericity produced a meritorious KMO value of .822 ($p < .05$). The scales, items, loadings and reliabilities for P4 and S1 cohorts are listed in Table 3 and Table 4 respectively

Table 3

Factor loadings of items under Civic Capital constructs (Primary Level)

Constructs / Items	Loadings
Civic Beliefs	
A GOOD CITIZEN is someone who...	
Lives in Singapore rather than overseas	.66
Knows Singapore's history	.83
Agrees with Government Policy	.74
Reads newspapers	.77
Cronbach's alpha = .737	
Civic Dispositions	
A GOOD CITIZEN is someone who...	
Obeys rules	.70
Helps the poor and less fortunate	.82
Respects the rights of others	.79
Cronbach's alpha = .639	
Civic Agency	
A GOOD CITIZEN is someone who...	
Participates in local community groups' activities	.77
Votes in elections	.77
Puts national interest above his/her own	.75
Takes part in politics	.78
Tries to change unfair laws	.59
Cronbach's alpha = .778	
Friendship Skills	
To what extent do you AGREE or DISAGREE with the following statements?	

I am good at making new friends	.79
I am good at keeping friends	.82
I am always there for my friends when they need me	.80
I am a good listener when my friends tell me their problems	.79

Cronbach's alpha = .810

Authentic Pedagogy

How many of your TEACHERS this year do the following?

Apply what you have learnt in class to your life?	.87
Help you understand the connections between different subjects?	.87
Help you understand yourself better?	.90
Encourage you to apply what you learn in class to everyday life?	.88
Is aware of your skills, needs or interests?	.88
Help you identify your goals and plans for the future?	.85

Cronbach's alpha = .939

Family functioning

To what extent do you DISAGREE or AGREE with the following:

I feel loved by my family	.90
My parents listen carefully to what I have to say in important family discussions	.91
We show care and concern in our family	.92
In our family, everyone listens to and respects each other	.91

Cronbach's alpha = .877

Adaptability

How well do you..?

Learn new methods and skills when the old ways don't work any more?	.74
Work at overcoming your weaknesses?	.78
Get back your confidence after a failure?	.76
Get used to new school situations (e.g. new class, new school, new teacher)?	.66
Adjust to difficult school work?	.78
Come up with new ideas to do well in new tasks?	.77

Cronbach's alpha = .802

EFAs with the use of a principle component extraction support the grouping of the items under their corresponding factors. All the items were measured on a 6-point scale, with higher ratings reflecting correspondingly higher levels of the relevant construct. Negative-worded items were recoded.

Table 4
Factor loadings of items under Civic Capital constructs (Secondary Level)

Constructs / Items	Loadings
Constructions of Political Society	
For each one, if it were to happen, how GOOD or BAD do you think it would be?	
Greater restrictions on the powers of government	.58
More rights for women	.56
More rights for individuals to do things they want	.72
Greater access to information and ideas not approved by the government	.73
Greater opportunity to discuss government policies	.70
Fewer political parties	.61
Cronbach's alpha = .723	
Civic Knowledge	
A GOOD citizen is someone who...?	
Participates in politics	.69
Tries to get more rights for people	.85
Respects the rights of others	.76
Tries to change unfair laws	.74
Cronbach's alpha = .751	
Political Interest	
How often do you do the following?	
Discuss politics (government policies) with family members	.85
Discuss government policies with friends	.90
Discuss government policies with teachers	.83
Cronbach's alpha = .826	
Community Participation in Civic Groups	
How OFTEN do you...	
Raise money for a community organization	.82
Volunteer in a local community organization	.80
Give money to the less fortunate	.75
Try to protect someone else's rights (eg., trying to prevent bullying of kids)	.67
Cronbach's alpha = .742	
Sense of Civic Agency and Membership	
To what extent do you AGREE or DISAGREE with the following statements:	
Ordinary citizens can make an impact on how Singapore is run	.71
I think I can help improve Singapore society	.82
I want to play an active role in my community when I am older	.82
I feel like a valued person in Singapore	.79
I have a strong sense of belonging in Singapore	.81
Singapore has a lot to be proud of	.74

Cronbach's alpha = .871

Civic Responsibilities

A GOOD citizen is someone who...?

Knows about government's policies	.77
Participates actively in local community groups	.82
Puts national interests above his/her own	.76
Carefully evaluates and criticizes government policies	.74

Cronbach's alpha = .728

Family functioning

To what extent do you DISAGREE or AGREE with the following:

I feel loved by my family	.90
My parents listen carefully to what I have to say in important family discussions	.91
We show care and concern in our family	.92
In our family, everyone listens to and respects each other	.91

Cronbach's alpha = .929

School as a Civic Community

Please RATE your current school on each of the following aspects

Teaching students how to get along together	.78
Fair rules and discipline	.78
Fair grades	.78
Promoting independent thinking	.81
Good teaching	.82
Teacher respect for students	.78
Preventing bullying behaviour	.73
Responsiveness to student concerns	.81

Cronbach's alpha = .909

Authentic Pedagogy

How many of your TEACHERS this year do the following?

Apply what you have learnt in class to your life?	.87
Help you understand the connections between different subjects?	.87
Help you understand yourself better?	.90
Encourage you to apply what you learn in class to everyday life?	.88
Is aware of your skills, needs or interests?	.88
Help you identify your goals and plans for the future?	.85

Cronbach's alpha = .939

Friendship Skills

To what extent do you AGREE or DISAGREE with the following statements?

I am good at making new friends	.77
I am good at keeping friends	.83
I am always there for my friends when they need me	.83
I am a good listener when my friends tell me their problems	.79

Cronbach's alpha = .815

Adaptability

How well do you..?

Learn new methods and skills when the old ways don't work any more?	.74
Work at overcoming your weaknesses?	.78
Get back your confidence after a failure?	.76
Get used to new school situations (e.g. new class, new school, new teacher)?	.66
Adjust to difficult school work?	.78
Come up with new ideas to do well in new tasks?	.77

Cronbach's alpha = .838

Both Tables 1 and 2 enumerate the Cronbach's alphas of the selected constructs. As can be observed from both tables, all the constructs register alphas above the 0.7 requirement save for the Civic Dispositions (P4 cohort) which registered .64. Upon closer examination of this construct, one notes that it contains only three measures. Furthermore aside from possessing a sound theoretical rationale behind the construct, these measures also reveal illustrative empirical results. Structural Equation Modelling (SEM) was then conducted on the manifest and latent variables of Civic Capital as discussed later in this report.

Analysis of Variance (ANOVAs) on Civic Capital

A series of one-way analyses of variance (ANOVA) were conducted to evaluate gender, and race differences for P4. Similarly, ANOVAs were also done on the S1 to compare gender, race and stream differences¹ in relation to Civic Capital.

Table 5
Civic Capital measures by Gender (Primary)

Gender	Male (N=1254)	Female (N=1102)	F	p	ω^2
Civic Beliefs	4.23	4.18	.87	.35	.000
Civic Dispositions	4.85	5.00	13.12	.00	.005
Civic Agency	4.20	4.15	1.04	.30	.000
Friendship Skills	4.38	4.46	3.71	.05	.001
Authentic Pedagogy	4.12	3.90	17.97	.00	.007
Family Functioning	4.92	5.01	4.32	.03	.001
Adaptability	3.97	3.80	14.63	.00	.005

Effect sizes metric: $\omega^2 \leq .01$ (small); $\omega^2 = .06$ (moderate); $\omega^2 > .16$ (large)

¹ In Singapore schools, students are streamed into four types: Special/Gifted, Express, Normal Academic (NA) and Normal Technical (NT).

Tables 5-6 correspond to the P4 cohort effect sizes controlling for gender and race while Tables 7-9 for the Sec 1 cohort indicate effect sizes for gender, race and stream.

Table 6
Civic Capital measures by Race (Primary)

Race	Chinese (N=1778)	Malay (N=380)	Indian (N=129)	Others (N=69)	F	<i>p</i>	ω^2
Civic Beliefs	4.18	4.25	4.47	4.20	2.97	.03	.002
Civic Dispositions	4.96	4.57	5.04	5.10	17.79	.00	.020
Civic Agency	4.19	4.10	4.17	4.18	.67	.56	.000
Friendship Skills	4.39	4.35	4.86	4.72	10.44	.00	.011
Authentic Pedagogy	3.97	4.07	4.56	3.96	9.66	.00	.010
Family Functioning	4.95	4.93	5.18	5.03	1.98	.11	.001
Adaptability	3.88	3.79	4.24	4.01	6.44	.00	.006

Effect sizes metric: $\omega^2 \leq .01$ (small); $\omega^2 = .06$ (moderate); $\omega^2 > .16$ (large)

For both the P4 and S1 levels there were no reported gender differences. For differences in race however, the P4 level registered a small effect size of .020 ($p < .05$) with Indians and Others registering the highest means for Civic Dispositions. This finding may support existing literature about moderately high levels of cultural capital (i.e. Civic Dispositions) among minority groups (See for example, Schneider and Lee, 1990 and Wong *et al.*, 1998). There were also no reported race differences in the S1 level.

Table 7
Civic Capital measures by Gender (Secondary)

Gender	Male (N=1254)	Female (N=1102)	F	<i>p</i>	ω^2
Civic Beliefs					
Construction of Political Society	3.98	4.12	22.28	.00	.006
Civic Knowledge	4.46	4.48	.30	.57	.000
Civic Dispositions					
Sense of Civic Agency & Membership	4.52	4.48	1.48	.22	.000
Civic Responsibility	4.25	4.24	.04	.83	.000
Civic Agency					
Political Interest	2.65	2.63	.11	.73	.000
Community Participation in Civic Groups	3.15	3.07	3.33	.06	.000
School as a Civic Community	4.42	4.46	1.54	.21	.000
Friendship Skills	4.53	4.65	16.72	.00	.005
Authentic Pedagogy	3.51	3.09	92.69	.00	.029
Family Functioning	4.69	4.69	.01	.91	.000
Adaptability	4.31	4.19	16.72	.00	.005

Effect sizes metric: $\omega^2 \leq .01$ (small); $\omega^2 = .06$ (moderate); $\omega^2 > .16$ (large)

There were however, significant stream differences on all three measures of Civic Capital for the S1 level. The Construction of Political Society registered a small effect size of 0.10 ($p < .05$) with the Special Gifted Stream recording the highest means. The same goes for Sense of Civic Agency and Membership which registered a small effect size of .013 ($p < .05$), with the Special Gifted Stream recording the highest means. The effect sizes for Civic Beliefs and Civic Dispositions confirm a concern raised by Gopinathan about different civics pedagogies for varied streams (2004:128).

Table 8
Civic Capital Measures by Race (Secondary)

Race	Chinese (N=2356)	Malay (N=486)	Indian (N=156)	Others (N=59)	F	<i>p</i>	ω^2
Civic Beliefs							
Construction of Political Society				4.02			
	4.07	3.96	4.09		2.88	.03	.001
Civic Knowledge	4.48	4.47	4.50	4.39	.20	.89	.000
Civic Dispositions							
Sense of Civic Agency & Membership	4.48	4.51	4.88	4.36	10.44	.00	.009
Civic Responsibility	4.23	4.30	4.37	4.04	2.24	.08	.001
Civic Agency							
Political Interest	2.59	2.74	3.02	3.01	6.14	.00	.005
Community Participation in Civic Groups	3.05	3.28	3.44	3.18	9.83	.00	.008
School as a Civic Community	4.41	4.47	4.79	4.26	10.15	.00	.008
Friendship Skills	4.58	4.54	4.98	4.49	12.07	.00	.010
Authentic Pedagogy	3.20	3.55	3.86	3.34	23.02	.00	.021
Family Functioning	4.66	4.67	5.12	4.74	8.23	.00	.007
Adaptability	4.23	4.22	4.61	4.00	13.59	.00	.012

Effect sizes metric: $\omega^2 \leq .01$ (small); $\omega^2 = .06$ (moderate); $\omega^2 > .16$ (large)

The story is different though for the Civic Agency construct which registered a small effect size of .015 ($p < .05$). This time around the Normal Technical (NT) stream registered the highest means. This result warrants some more investigation. Possible answers to this result could be traced to the issue of what Chew raised as a concern of subjects in civics education being “sidelined” by examinable subjects (1998:519).

Table 9
Civic Capital Measures by Stream (Secondary)

Stream	Special/ Gifted (N=778)	Express (N=1349)	NA (N=598)	NT (N=332)	F	p	ω^2
Civic Beliefs							
Construction of Political Society	4.16	4.06	3.98	3.88	11.70	.00	.010
Civic Knowledge	4.46	4.52	4.48	4.29	6.29	.00	.005
Civic Dispositions							
Sense of Civic Agency & Membership	4.64	4.49	4.45	4.26	15.27	.00	.013
Civic Responsibility	4.29	4.20	4.31	4.21	2.51	.05	.001
Civic Agency							
Political Interest	2.87	2.49	2.52	2.95	16.64	.00	.015
Community Participation in Civic Groups	3.15	3.02	3.18	3.25	5.47	.00	.004
School as a Civic Community							
	4.69	4.39	4.34	4.23	31.83	.00	.029
Friendship Skills	4.78	4.62	4.50	4.20	40.57	.00	.037
Authentic Pedagogy	3.25	3.13	3.51	3.71	28.55	.00	.026
Family Functioning	4.82	4.65	4.69	4.53	6.11	.00	.004
Adaptability	4.39	4.22	4.18	4.12	13.10	.00	.011

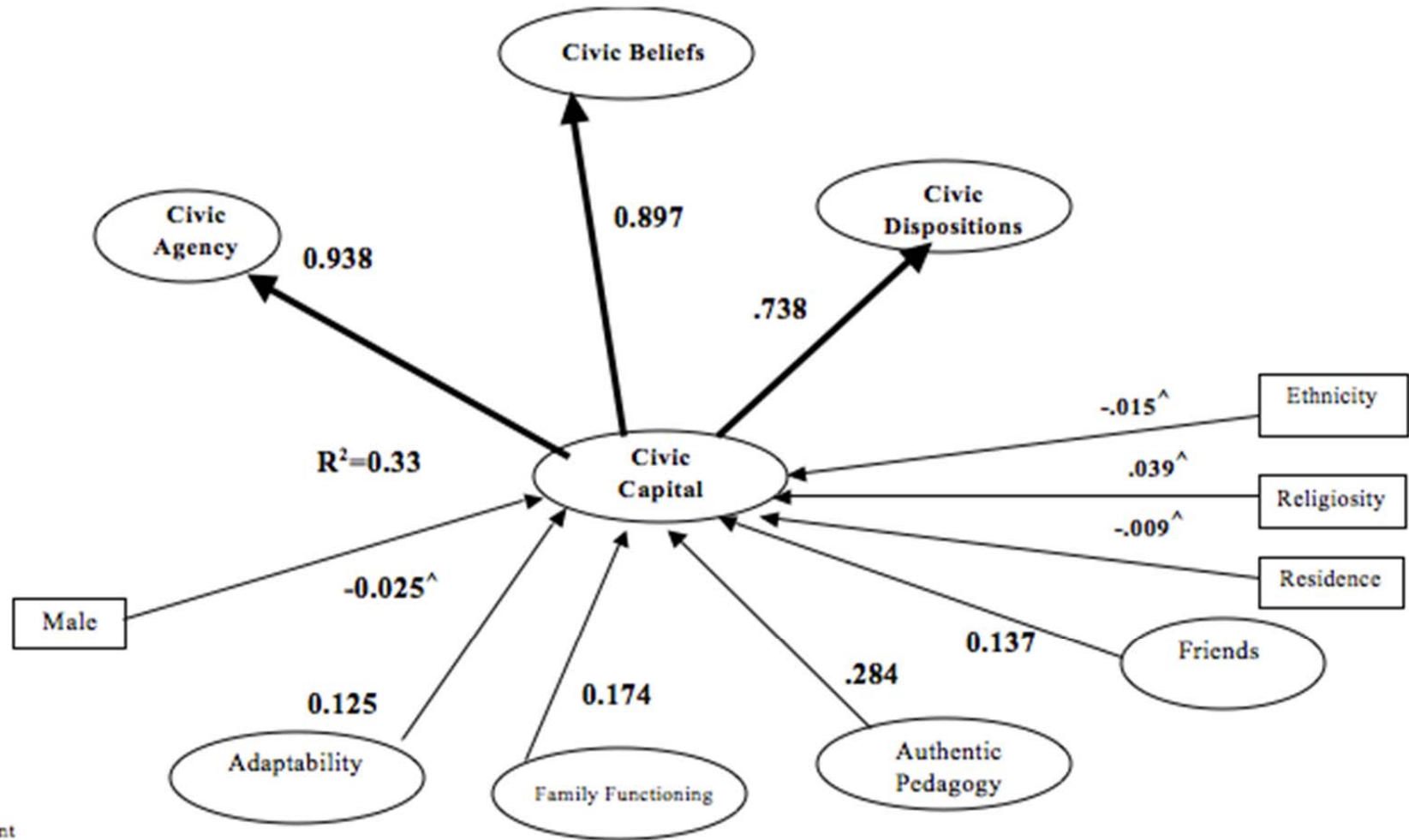
Effect sizes metric: $\omega^2 \leq .01$ (small); $\omega^2 = .06$ (moderate); $\omega^2 > .16$ (large)

Structural Equation Models (SEMs)

This inquiry presents two analogous structural equation models: one for the P4 cohort and another for the S1 cohort. Both models attempt to measure the impact of civic capital on civic beliefs, dispositions and agency. Similarly, both models also examine the influence of authentic pedagogy, family functioning and resource, students' adaptability and friendship skills. For the S1 cohort, an additional construct – School as a Civic Community – was introduced into the model in order to determine its impact on Civic Capitals.

Figure 2 portrays the structural equation model in graphical form for the P4 cohort. As can be seen a two level model was created, the first level of latent variables constitutes Civic Beliefs, Civic Disposition and Civic Agency. The second level comprises the Civic Capital construct. Key statistics displayed at the bottom indicate a reasonable fit. The overall explanatory power of the different domains of student skills, family functioning and resources is around 33%. Authentic Pedagogy (or the way that Teachers teach their lessons) has a moderately high effect on Civic Capital (0.29). This may suggest that students who registered elevated experiences of authentic pedagogy tend to have improved reports of civic beliefs, dispositions and agency. An inspection of the SEM for P4 reveals that in relation to the construct of Civic Capital, the following factors registered varied degrees of impact (listed from the highest to the lowest): Teachers, followed by the family, the students' friendship skills and their self-reported levels of adaptability.

Figure 2: Civic Capital (Primary Four)



[^] - Not Significant

$$\chi^2 = 1681.707 \text{ df} = 559 \text{ CFI} = 0.931 \text{ TLI} = 0.923 \text{ RMSEA} = 0.041 \text{ SRMR} = 0.037$$

Figure 3 illustrates the structural equation model for the S1 cohort. Similar to the P4 model, a two level SEM was also developed. The first level of latent variables constitutes Civic Beliefs, Civic Disposition and Civic Agency. The second level comprises the Civic Capital construct. Salient statistics indicated at the bottom reveal a reasonably acceptable fit. Overall explanatory power of the various domains of student skills, family functioning and resources and the school as a civic community is around 64%. School as a Civic Community has the most prominent effect on Civic Capital (0.33). This suggests that schools that nurture a community of civic-minded individuals contribute in increasing students' civic beliefs, dispositions and agency. An inspection of the SEM for S1 indicates that with respect to the construct of Civic Capital, the following factors registered varied degrees of impact (listed from the highest to the lowest): School, Individual's self reported levels of adaptability, Friendship Skills, Teachers followed by the Family.

The analogous SEMs for P4 and S1 provide some preliminary basis for comparison. In terms of magnitude in the P4 model, the teachers followed by the family have the greatest impact on Civic Capital. This somehow supports existing literature saying that primary level kids tend to be have "personalized assessment of political symbols" (Mootatamby, 1976:14). For the S1 model magnitude-wise, the school followed by the individual's self-reported levels of adaptability register the highest impact on the Civic Capital construct.

Implications on National Education

Four different sets of policy recommendations are put forth as a consequence of the findings gathered from this inquiry. These four can be grouped into: (1) Policy and Practice; (2) Pedagogical Approaches; (3) Relevance of Stakeholders and (4) Possible Interventions.

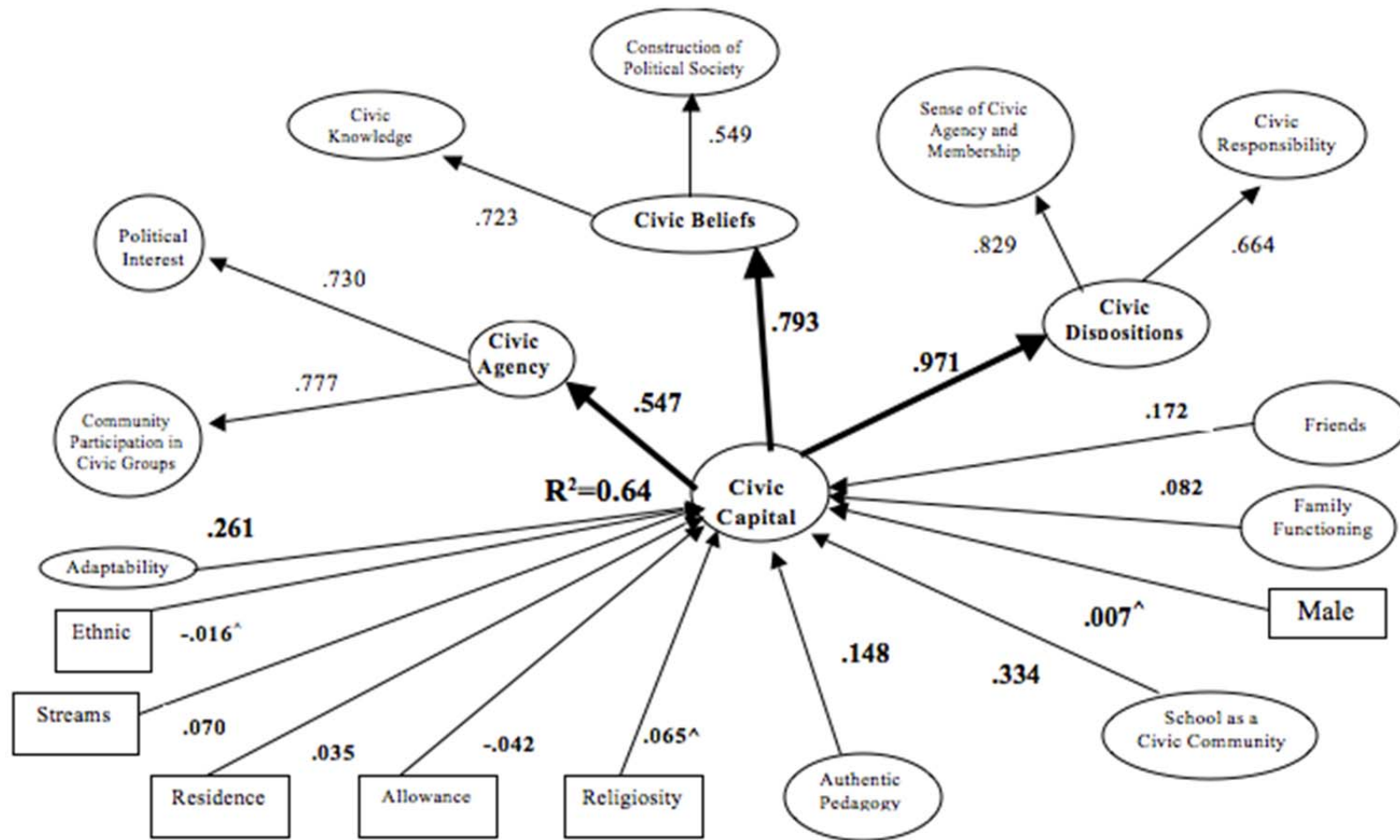
Policy and Practice

The ANOVAs conducted for the S1 cohort reveal significant –albeit small effect sizes – on the construct of Civic Capital by streams. Gopinathan (2004) and Chew (1998) have raised concerns on possible issues that arise from streaming (i.e. differences in opportunities to participate in civic pedagogy). The findings from this inquiry validate these concerns. It may be worthwhile for policy makers to undertake a review of streaming and its impact on civic capitals on students. The findings of this inquiry also reveal that it may also be worthwhile to reflect and investigate how civic education is administered in schools by practitioners. The findings revealed that the NT stream registered the highest means on self-reported scales of Civic Agency. Perhaps a comparison of how civics or broadly speaking the NE curriculum is taught among the different streams could prove analytically illuminating.

Pedagogical Approaches

The findings conclusively reveal that in terms of the acquisition of Civic Capital, there is a substantive difference between primary and secondary school children. The SEM reveals that in the P4 cohort, teachers do play a significant role in inculcating Civic Capitals. For the S1 cohort more than the individual teacher, the factor that has the greatest impact is the school. Consequently for education policy makers and practitioners, cognizance of this fact should enlighten pedagogical approaches of the need to adopt systematic yet differentiated approaches.

Figure 3: Civic Capital - Secondary One



[^] - Not Significant

$\chi^2 = 10192.606$ $df = 1693$ $CFI = 0.906$ $TLI = 0.899$ $RMSEA = 0.041$ $SRMR = 0.046$

Relevance of Stakeholders

The SEMs for both P4 and S1 also revealed interesting insights in relation to the importance of key stakeholders in schools. Zeroing in on the acquisition of Civic Capitals, this inquiry reveals that the relative importance and impact of stakeholders (i.e. teachers, school systems, parents, and friends) vary between the primary and secondary levels. Once again, roles of stakeholders in nurturing Civic Capitals could be guided by the knowledge of this information. Complementary and collaborative roles of key stakeholders in schools could be re-evaluated with the end of achieving desired Civic Capital levels among students.

Possible Interventions

The interventions that are currently being implemented and are being contemplated upon primarily by policy makers should take into careful consideration, some of the relevant findings generated from this report. To highlight, attention to the effects of streaming, the differences in the importance of key stakeholders in schools and the need to veer away from “one-size fits all” solutions in fostering Civic Capitals need to be constantly considered. More importantly the need to adopt holistic, multi-level interventions taking into consideration interrelations among the student, family, the school and the wider community must be undertaken.

Limitations of the Inquiry and Future Work

The inquiry offers preliminary results in relation to constructs of Civic Capital among a stratified random sample of P4 and S1 cohorts in the Singapore education system. A bulk of the scales used for the data analysis came from self-reported online survey forms. Conducting surveys in order to measure civic capitals have its share of advantages and disadvantages. This approach allows us to undertake “detailed maps” linking various factors that determine how students perceive and manifest civic capitals. At the same time, the weaknesses of self-reported scales and possible measurement error are realistic concerns that arise from such a methodological approach (Stone and Hughes, 2002). As mentioned earlier, this inquiry is part of a longitudinal study and what has been reported here constitutes only the initial year. Tracking developments of the P4 and S1 cohort and investigating changes squarely addresses what has been referred to as the new wave of implementation studies characterised by “diachronic and comparative” approaches (Lester, *et al*, 1987). Finally, the conduct of qualitative case studies to complement some of the findings generated from this inquiry is also an interesting complementary research avenue to pursue.

References

- Becker, G. (1962). Investment in Human Capital: A Theoretical Analysis. *The Journal of Political Economy*, 70(5 (Part Two)), 9-49.
- Bourdieu, P. (1991). Second Lecture. The New Capital: Introduction to a Japanese Reading of State Nobility. *Poetics Today*, 12(4), 643-653.
- Brady, H., Verba, S., & Schlozman, K. L. (1995). Beyond SES: A Resource Model of Political Participation. *American Political Science Review*, 89(2), 271-294.
- Brown, K., et al., (2003). *Active Citizenship and the Secondary School Experiences: Community Participation Rates of Australian Youth Report No. 32*. Melbourne: Australian Council for Educational Research.
- Chew, O. A. J. (1998). Civics and Moral Education in Singapore: Lessons for citizenship education. *Journal of Moral Education*, 27(4), 505-524.
- Chi, B., Jastrzab, J., & Melchior, A. (2006). *Developing Indicators and Measures of Civic Outcomes for Elementary School Students*. Oakland, CA: Center for Information & Research on Civic Learning and Engagemene
- Christman, J. B., & Rhodes, A. (2002). *Civic Engagement and Urban School Improvement: Hard-to-Learn lessons from Philadelphia*. Philadelphia: Consortium for Policy Research in Education.
- Crystal, D., & DeBell, M. (2002). Sources of Civic Orientation among American Youth: Trust, Religious Valuation, and Attributions of Responsibility. *Political Psychology*, 23(1), 113-132.
- Dudley, R., & Gitelson, A. (2002). Political Literacy, Civic Education and Civic Engagement: A Return to Political Socialization. *Applied Developmental Science*, 6(4), 175-182.
- Ehrlich, T. (1999). Civic Education: Lessons Learned. *PS: Political Science and Politics*, 32(2), 245-250.
- Garelli, S. (2007). *IMD World Competitiveness Yearbook 2007*. Retrieved 10 May 2007, 2007, from
- Goh, C. T. (September 8, 1996). *Prepare our children for the new century: teach them well (full text of the Prime Minister's Address at the Teachers' Day Rally, 8 September 1996 in The Straits Times, 9 September 1996)*. Paper presented at the Prime Minister's Address at the Teachers' Day Rally.
- Gopinathan, S. (1980). Moral Education in a Plural Society: A Singapore Case Study. *International Review of Education*, 26(2), 171-185.
- Gopinathan, S., & Sharpe, L. (2004). New Bearings for Citizenship Education in Singapore. In W. O. Lee, D. Grossman, K. Kennedy & G. Fairbrother (Eds.), *Citizenship Education*

- in Asia and the Pacific: Concepts and Issues* (pp. 119-136). Hong Kong: Comparative Education Research Centre.
- Ho, K. L. (2000). Citizen Participation and Policy Making in Singapore: Conditions and Predicaments. *Asian Survey*, 40(3), 436-455.
- Keeter, S., Jenkins, K., Zukin, C., & Andolina, M. (2003, March 11-12, 2003). *Three Core Measures of Community-Based Civic Engagement: Evidence from the Youth Civic Engagement Indicators Project*. Paper presented at the Child Trends Conference on Indicators of Positive Development, Washington, DC.
- Kennedy, K., & Mellor, S. (2006). Australian Students' Civic Attitudes as Indicators of Support for Social Capital: Learning outcomes for the future. *Educational Psychology*, 26(2), 251-271.
- Khong, L., Chew Oon Ai, J., & Goh, J. (2004). How Now, NE? An Exploratory Study of Ethnic Relations in Three Singapore Schools. In A. H. Lai (Ed.), *Beyond Rituals and Riots: Ethnic Pluralism and Social Cohesion in Singapore* (pp. 172-196). Singapore: Eastern Universities Press.
- Lester, J., et al. (Autumn, 1987). Public Policy Implementation: Evolution of the Field and Agenda for Future Research. *Policy Studies Review*, 7, 211.
- Lake, R. L. D., & Huckfeldt, R. (1998). Social Capital, Social Networks and Political Participation. *Political Psychology*, 19(3), 567-584.
- Lee, H. L. (2006). Speech by the Prime Minister at the Teachers' Day Rally. Max Pavillion, Singapore Expo.
- Lian, M. T. (1975). *Political Socialization and the Implications for Curricular Content in Secondary Schools in Singapore*. Unpublished PhD Dissertation, Columbia University, New York.
- Liu, P.-W., & Wong, Y. (1981). Human Capital and Inequality in Singapore. *Economic Development and Cultural Change*, 29(2), 275-293.
- Lochner, K., Kawachi, I., & Kennedy, B. (1999). Social Capital: A Guide to its measurement. *Health and Place*, 5, 259-270.
- Merelman, R. (1972). The Adolescence of Political Socialization. *Sociology of Education*, 45(2), 134-166.
- Mincer, J. (1958). Investment in Human Capital and Personal Income Distribution. *The Journal of Political Economy*, 6(4), 281-302.
- Mootatamby, M. (1976). *Political Socialization and the Role of the Primary Schools in the Singapore Setting*. Unpublished BA (Honours) Thesis, National University of Singapore, Singapore.
- Ooi, G. L., Tan, E. S., & Koh, G. (1999). Political Participation in Singapore: Findings from a National Survey. *Asian Journal of Political Science*, 7(2), 126-141.

- Putnam, R. (1995). Tuning In, Tuning Out: The Strange Disappearance of Social Capital in America. *PS: Political Science and Politics*, 28(4), 664-683.
- Putnam, R., Leonardi, R., & Nanetti, R. (1994). *Making Democracy Work: Civic Traditions in Modern Italy*. New Jersey: Princeton University Press.
- Quah, J. (2000). Globalization and Singapore's Search for Nationhood. In L. Suryadinata (Ed.), *Nationalism and Globalisation: East and West* (pp. 71-101). Singapore: Institute of Southeast Asian Studies.
- Rahn, W., & Transue, J. (1998). Social Trust and Value Change: The Decline of Social Capital in American Youth, 1976-1995. *Political Psychology*, 19(3), 545-565.
- Scheufele, D., & Shah, D. (2000). Personality Strength and Social Capital: The Role of Dispositional and Informational Variables in the Production of Civic Participation. *Communication Research*, 27(107), 1-26.
- Schneider, B., & Lee, Y. (1990). A Model for Academic Success: The School and Home Environment of East Asian Students. *Anthropology & Education Quarterly*, 21(4), 358-377.
- Stone, W. (2001). *Measuring Social Capital* (No. 24). Melbourne: Australian Institute of Family Studies.
- Stone, W., & Hughes, J. (2002). *Measuring Social Capital: Towards a Standardised Approach*. Paper presented at the 2002 Australasian Evaluation Society International, Wollongong, Australia.
- Tan, E. (2004). "We, the Citizens of Singapore...", Multiethnicity, its Evolution and Aberrations. In A. H. Lai (Ed.), *Beyond Rituals and Riots: Ethnic Pluralism and Social Cohesion in Singapore* (pp. 65-97). Singapore: Eastern Universities Press.
- Theiss-Moore. (1993). Conceptualization of Good Citizenship and Political Participation. *Political Behavior*, 15(1), 355-380.
- Verba, S., Schlozman, K. L., & Brady, H. (1995). *Voice and Equality: Civic Voluntarism in American Politics*. Cambridge, MA: Harvard University Press.
- White, P. (1999). Political Education in the Early Years: The Place of Civic Virtues. *Oxford Review of Education*, 25(1/2), 59-70.
- Winter, N. (2003). *Social Capital, Civic Engagement and Positive Youth Development Outcomes*. Washington, DC: Policy Studies Associates, Inc.
- Wong, P., Chienping, F. L., Nagasawa, R., & Lin, T. (1998). Asian Americans as a Model Minority: Self-Perceptions and Perceptions by Other Racial Groups. *Sociological Perspectives*, 41(1), 95-118.
- Wrightstone, J. W. (1934). Civic Beliefs and Correlated Intellectual and Social Factors. *The School Review*, 42(1), 53-58.