

The Influence of Classroom Openness and Citizenship Efficacy on Adolescents'
Civic Behaviour: The Hong Kong Case

KWOK, Wai Shing

EdD

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The Influence of Classroom Openness and Citizenship Efficacy on Adolescents'

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by

KWOK, Wai Shing

A Thesis Submitted to

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In Partial Fulfilment of the Requirement for

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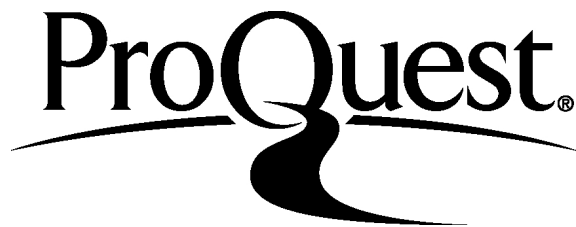
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ABSTRACT

The Influence of Classroom Openness and Citizenship Efficacy on Adolescents' Civic Behaviour: The Hong Kong Case

by KWOK, Wai Shing

The Hong Kong Institute of Education

Abstract

In recent years, Hong Kong has actively participated in such international research projects as the International Civic and Citizenship Education Study 2009 (ICCS 2009), organised by the International Association for the Evaluation of Educational Achievement (IEA), with the aim of learning more about the performance of Hong Kong students in different spheres. Such international studies generate invaluable data with a scope beyond that which any individual researcher could achieve. Secondary analysis of this data helps inform policies and practices. In this study, the Hong Kong sample from the ICCS 2009 was subjected to secondary analysis. The sample comprised 2,902 junior secondary students with a mean age of 14.3 years. The sample was used for the investigation of adolescents' civic behaviour, and to identify the factors that contribute to such behaviour. The schools were chosen for the ICCS 2009 study through stratified random sampling and an intact class from each chosen



school was surveyed. This study built on social cognitive theory to develop a conceptual model of the effects of the classroom climate on students' self-reported civic behaviour. The study then tested the model using a two-step multilevel structural equation model. The results showed that the classroom climate had both direct and indirect effects on adolescents' civic behaviour at both the student- and class-level. This study contributes to the application of social cognitive theory using secondary data and demonstrates how this theory can be used for research into adolescents' civic behaviour. By adopting a two-stage approach, five sets of plausible values were established for each scale developed using item response theory (IRT). Multilevel structural equation modelling (MSEM) was then used. The hypothetical model, based on social cognitive theory, was examined and the implications of the model discussed. This study can stimulate future research to explore more deeply the influences on adolescents exerted by different people in their social lives. Further, the secondary data analysis in this study identified different scale structures from the international scales identified by the IEA. It can therefore provide insights that are beneficial to future research on local contexts using the ICCS 2009 data.



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LIST OF ABBREVIATIONS

CFI	Comparative Fit Index
CIVED	Civic Education Study
EFA	Exploratory Factor Analysis
EU	European Union
HAT	Human Agency Theory
ICCS	International Civic and Citizenship Education Study
IEA	International Association for the Evaluation of Educational Achievement
IRT	Item Response Theory
KMO	Kaiser-Meyer-Olkin
MSEM	Multilevel Structural Equation Modelling
MNE	Moral and National Education
PCA	Principal Component Analysis
PV	Plausible Values
RMSEA	Root Mean Square Error of Approximation
SCT	Social Cognitive Theory
SET	Self-Efficacy Theory
SEM	Structural Equation Modelling
TLI	Tucker-Lewis Index



CHAPTER 1

INTRODUCTION

1.1 Background of the Study

A decade after Hong Kong's return to Chinese sovereignty, there have been various protests due to the social changes still taking place in Hong Kong, such as the Saving Queen's Pier protest (Lam, 2007), the campaign against the tightening of the Control of Obscene and Indecent Article Ordinance (Ng & Pok, 2008), the saving Choi Yuen Tsuen and anti-high-speed cross-border railway link campaign (Yau, 2009), the five-constituency referendum (Fung & Leung, 2010), the anti-national education campaign (Chau, 2012), the free TV license controversy (Lam, Cheung, & Chong, 2013) and, perhaps most famously, the Occupy Central with Love and Peace campaign in response to the 2017 chief executive election regulations (Ng, Chan, & Cheung, 2014). It is apparent that adolescents as well as adults have made up the activists involved in these protests. These adolescent protestors are very well-organised, and some have even formed alliances or pressure groups in order to strive towards their goals.

One such alliance is Scholarism, a famous student activist group, founded in 2011, with a membership of adolescents who are mainly 14-15 years old. Through political discussions in public gatherings or community participation



like public rallies, these student activists try to voice their opinions and actualise their citizenship (Bennett, Wells, & Rank, 2009). Their founder, Joshua Wong, has discussed how his civic behaviour was influenced by both environment and personal factors: ‘Social movements first caught his eye in 2009, when activists opposed the government's plan to construct a high-speed cross-border railway link. Back then, he seldom read the newspapers, he said, but because the activists used the internet a lot to discuss and promote their cause, his interest in social issues grew’ (Lee, 2012). Lee further stated that ‘the “five-constituency referendum” — which saw one lawmaker in each of the five geographical constituencies resign in order to trigger a citywide by-election — further inflamed his passion. Joshua, in support of the move, started writing and debating with other internet users. His interests extended to the June 4, 1989, Tiananmen military crackdown, [the] July 1 annual handover rally and minimum wage’ (Lee, 2012). While studying Joshua’s account of how his civic behaviour was influenced by his passion, the author was motivated to conduct the present study to investigate and understand how and why adolescents’ civic behaviour is influenced. One possible influencing factor is, of course, schooling.

1.1.1 Role of the School

Previous research has explored the effective shape and form of citizenship education internationally, for example in Singapore (Ho, 2012; Lee, 2012), Australia (Yeung, Passmore, & Packer, 2011) and Europe (Kerr, 2012). Taking advantage of large-scale assessment data from international research, some



studies have involved cross-country investigations (Kennedy, Hahn, & Lee, 2008).

In the context of Hong Kong, there have been debates concerning various aspects the citizenship education of adolescents, which have served to make this field of study particularly engrossing. Chow and Kennedy (2012), for example, have identified a strong relationship between citizenship education and political trust. Additionally, Kennedy, Mok and Wong (2012) explained the influence of civic knowledge on the level of political trust. As one of the major sources of civic knowledge to adolescents, citizenship education can potentially play an important role, since each adolescent should have sufficient civic knowledge to critically evaluate the decisions and contributions made by the government or political institution. As Chow and Kennedy (2012) noted, adolescents ‘should be able to develop the kind of political trust that can at once be supportive and critical in evaluating an institution’s contribution to democratic development’ (p. 310). Kennedy et al. (2012) also found that ‘assessing levels of political trust, therefore, can provide a direct measure of satisfaction in political institutions and indirectly indicate the confidence that people have in the immediate world around them’ (p. 4).

Thus, it appears that adolescents’ level of political satisfaction can be measured by their level of political trust and that their level of political trust can be predicted by their level of civic knowledge. Although schools play an important role as agents of political socialisation (Hyman, 1959), can the citizenship



education they provide contribute to political satisfaction by improving adolescents' civic knowledge and consequently the development of their political trust?

1.1.2 Citizenship Education in Hong Kong

Over the years, the idea of increasing political satisfaction in Hong Kong by fostering citizenship education has been discussed on numerous occasions (Fairbrother, 2005), particularly after the Hong Kong government's proposal to launch the Moral and National Education (MNE) subject in the primary and secondary education sector in 2012 and 2013 respectively (Chou, 2012). The proposal was shelved in December 2012 due to huge resistance and criticism from teachers and students after open consultation, however, researchers have been reminded of their interest in exploring the shape and form of citizenship education that would be appropriate in the Hong Kong context (Chou, 2012; Fairbrother & Kennedy, 2011; Ma, 2012).

In Hong Kong, citizenship education falls within a cross curriculum area called 'Civic and Moral Education'. The Hong Kong government's Civic Education Guidelines (Curriculum Development Committee, 1985; 1996) recommend four areas of citizenship-related study: civic, democratic, moral and patriotic. To implement these subjects, three approaches to citizenship education were presented, from among which schools can select the approach they wish to take. These were the permeation approach, the integrated approach and the



independent approach. The permeation approach involves incorporating relevant content into the teaching of different subjects across the school curriculum. The integrated approach refers to covering the suggested elements of citizenship education in an integrated subject, like integrated humanities. Lastly, the independent approach involves setting up a new and independent subject for citizenship education (Morris & Morris, 2001). Since these guidelines were only recommendations, schools retained autonomy regarding both curriculum design and implementation. Even though there was a renewed direction in the 2002 Basic Education Curriculum Guide (Curriculum Development Council, 2002), as Fairbrother (2006) commented, ‘the result is considerable diversity in citizenship education practice, ranging from conservative to anti-establishment, with schools permitted to adapt the curriculum framework according to the mission, vision, and tradition of their sponsoring bodies as well as the views of school leaders and the needs of teachers and students’ (p. 78).

In 2012, the Hong Kong government wished to standardise the form of citizenship education in schools and mandate it as a compulsory and independent subject called ‘Moral and National Education’ (MNE) in the primary and secondary education sectors. While the majority of schools intended to adopt the permeation approach (Morris & Morris, 2001), with ‘cross-curricular themes, such as patriotic education and moral education, involve[ing] both classroom learning and a variety of classroom and extracurricular activities’ (Fairbrother & Kennedy, 2011, p. 428), resistance



from teachers and students was huge after the public consultation ended in August 2012. The students and teachers were mainly concerned about the possible brainwashing nature of MNE (Chau, 2012). That is, when compulsory, ‘the subject attempts to indoctrinate national patriotism and to elicit affection from students towards the political leaders and the unilateral appreciation of the recent economic, scientific, and sports achievements in China’ (Ma, 2012, p. 4). The syllabus produced by the Hong Kong government was a cause of concern among the public (Kennedy & Kuang, 2014). Finally, due to the social movement triggered by the controversy, the government shelved the proposal and removed the mandatory nature of the Curriculum Guide. Schools were free to adopt the Curriculum Guide if they wished (Chau, 2012). Schools’ autonomy in curriculum design and in deciding the approach of citizenship education has therefore remained unchanged.

1.1.3 Citizenship Education in Schools

Among the general approaches for fostering citizenship education (Morris & Morris, 2001), Fairbrother’s (2010) findings from interviews with 16 Hong Kong secondary education leaders further highlighted why the permeation approach was selected by the majority of schools in Hong Kong. Given Hong Kong’s complex political and social conditions under ‘One country, two systems’, an ‘interdisciplinary, permeation approach was seen as effective, based on a perception of the successful cultivation of citizenship qualities among the latest generation. In this way, citizenship education, and in particular

elements of national education, could be infused into nearly all school subjects, ranging from economic and public affairs to Chinese history, geography, biology, and chemistry.’ (Fairbrother, 2010, p. 82). Additionally, it was noted that ‘treating citizenship education as a form of whole-school education was particularly effective since its scope was very broad, relevant to numerous school subjects, and encompassing of knowledge, skills, and values. In this respect, citizenship education effectively integrated with classroom learning and practical activities, as well as both the formal and hidden curriculum’ (Fairbrother, 2010, p. 82). Cheung and Pan (2006) shared a similar view that effective citizenship education could be conducted both on-campus and off-campus. Besides the curriculum and extra-curricular activities in school, some practical activities outside school, like visiting political institutions or museums, could be integrated. Internationally, past studies have also suggested that extra-curricular activities can help adolescents to better understand themselves, including activities such as selecting and engaging in voluntary associations (Beck & Jennings, 1982; McFarland & Thomas, 2006; Quintelier, 2008). Thus, given that the permeation approach to citizenship education was selected by the majority of schools, how and to what extent is adolescents’ civic behaviour influenced by schooling?

1.2 Motivation for the Study

Based on the observation of Joshua Wong and other adolescents’ civic behaviour, it seems that their trust in the government and political institutions



has been lost (Lee, 2012). Referring to various international studies, adolescents' level of political trust can be predicted by how much civic knowledge they have received (Ho, 2012; Kennedy, Hahn, & Lee, 2008; Yeung, Passmore, & Packer, 2011). As the agents of political socialisation, schools play an important role in shaping adolescents' civic knowledge through citizenship education (Hyman, 1959). As highlighted by Fairbrother's (2010) interviews with 16 Hong Kong-based secondary education leaders, there was a distinct possibility that adolescents' civic behaviour was influenced by the school environment. The school environment also possibly enhanced adolescents' citizenship efficacy (Schulz, Fraillon, Ainley, Losito, & Kerr, 2008) through citizenship education. Such citizenship efficacy is a form of efficacy beliefs or self-efficacy according to Bandura's (2012b) theory, which is more related to self-confidence in performing certain civic-related activities. While the permeation approach to citizenship education was selected by the majority of schools in Hong Kong, 'citizenship education (encompassing of knowledge, skills, and values) effectively integrated with classroom learning and practical activities, as well as both the formal and hidden curriculum' (Fairbrother, 2010, p. 82).

As such, a number of questions are suggested: Does citizenship education in Hong Kong schools influence adolescents' civic behaviour?; What are the key influences and how do they impact adolescents' civic behaviour?; Were there specific classroom practices or a climate that influenced adolescents' civic behaviour?



1.2.1 Adolescents in Hong Kong

An opportunity for addressing the above issues arose in the International Civic and Citizenship Education Study 2009 (ICCS 2009) organised by the International Association for the Evaluation of Educational Achievement (IEA). In recent years, Hong Kong has actively participated in such international research projects in order to understand students' performance in citizenship education. Various reports that detail some of the guidelines and preliminary findings of ICCS 2009 were published by the IEA to stimulate research interest, including the ICCS 2009 International Report (Schulz, Ainley, Fraillon, Kerr, & Losito, 2010a), ICCS 2009 Initial Findings (Schulz, Ainley, Fraillon, Kerr, & Losito, 2010b) and ICCS 2009 Technical Report (Schulz, Ainley, & Fraillon, 2011). To add weight to the current study, the sections relating to Hong Kong adolescents in these reports are reviewed. The following is an overview of the findings regarding civic knowledge, classroom climate, adolescents' citizenship efficacy and adolescents' civic behaviour.

In general, adolescents in Hong Kong performed quite well in the study. In terms of civic knowledge, almost 80% of students attained the top two levels (there were four levels in total) of civic knowledge proficiency (Schulz et al., 2010b). Hong Kong adolescents ranked fifth out of the entire international sample of 38 countries (Schulz et al., 2011). In terms of their perception of



classroom climate, adolescents in Hong Kong believed that they had a better open classroom climate for discussions. They scored 3 scale points higher than the international mean of 50 (Schulz et al., 2010a). For their citizenship efficacy, Hong Kong adolescents were at the international mean of 50 (Schulz et al., 2010a). For civic behaviour, Hong Kong adolescents were quite interested in discussions on political and social issues. They scored 2 scale points higher than the international mean of 50 (Schulz et al., 2010a). It seems that their interest in civic participation in the wider community, however, was comparatively low. In six out of eight kinds of community participation, Hong Kong adolescents scored lower than the international scores (Schulz et al., 2010a). A similar low level of interest was also identified for their civic participation at school; adolescents scored 2 scale points lower than the international mean of 50.

1.3 Aims of the Study

Based on the findings from the ICCS reports (Schulz et al., 2010a; 2010b; 2011) presented in the last section, a number of questions are raised: How does classroom openness predict adolescents' civic behaviour? What is the role of the school in the relationship between classroom openness and adolescents' civic behaviour?

Previous research found that various forms of adolescents' civic behaviour could be influenced by classroom openness and their efficacy beliefs. Quintelier and Hooghe's (2013) comparative study of 35 countries, including Hong Kong,



showed an association between adolescents' intended political participation and classroom openness. Classroom openness could motivate the discussion of political and social issues with others as well as participation in civic-related activities in the community, for example joining an organisation for a social cause or taking part in a peaceful march or rally. Kahne, Crow and Lee (2013) found that American adolescents' engagement with political issues and elections could be promoted by discussion within an open classroom climate. Edwards (2012) found that Colombian adolescents' development of community involvement and participation in certain civic-related school activities, like human rights and environmental protection, was positively related to an open classroom climate. In these ways, schools have been seen to have an impact on students' civic behaviour. As Chow and Kennedy (2012) pointed out, citizenship education in schools can provide an understanding of the roles and functions of the different institutions which govern society. In a study of American (Washington D.C.) adolescents conducted by Youniss and Yates (1997) it was found that the norm of civic behaviour and skills required for participating in civic-related activities in school could be due to the exposure to such issues created by an open classroom climate. In the European context, Hoskins, d'Hombres, and Cambell (2008) also found that formal education had an impact on civic behaviour.

In the Hong Kong context, Cheung, Ma and Shek (1998) found that civic behaviour was related to the conceptions of success and achievement goals in their study of 673 Hong Kong adolescents. Due to the strong influencing power



of peers, the efficacy beliefs of Hong Kong adolescents might encourage adolescents' discussion of political and social issues (Ma, Shek, Cheung, & Lam, 2000; Ma, Shek, Cheung, & Lee, 1998). The strong peer influence on adolescents' efficacy beliefs might not only be found on individual adolescents, but also between them. This means that, at school, there are social impacts on adolescents' civic behaviour.

Building upon the literature summarized above, this study assessed adolescents' civic behaviour by means of constructs such as adolescents' political discussion, school participation and community participation in civic-related activity. The concept of citizenship efficacy (Schulz et al., 2008) was introduced to address adolescents' efficacy beliefs regarding civic-related activity. The influence of classroom openness and adolescents' citizenship efficacy on their civic behaviour was examined.

The majority of recent studies, however, have assessed the relationship between adolescents' civic behaviour and citizenship efficacy or classroom openness independently. However, these studies are most often confined to Western settings. Previous studies seem to have neglected the cultural influences on student motivation which should also be taken into account (King & McInerney, 2014). These studies are inadequate to explain the interrelationships, particularly in the Hong Kong context.

Therefore, the aims of this study are as follows:

- Identify the direct and indirect effects of the classroom climate on adolescents' civic behaviour.
- Analyse the effects of citizenship efficacy on adolescents' civic behaviour.

The current study was based on Hong Kong data from ICCS 2009. The variables of classroom openness, citizenship efficacy and civic behaviour were selected as suggested by the ICCS reports (Schulz et al., 2010a; 2010b; 2011). This study will provide insights into the relationship between classroom openness, citizenship efficacy and civic behaviour specifically in the Hong Kong context, using the responses of adolescents aged 13 to 14 years. This might help educators to illuminate strategies on how to raise adolescents' citizenship self-efficacy and to motivate adolescents' civic behaviour through school policies of changing classroom setting and climate.

1.4 Theoretical Framework of the Study

The ICCS data is available for secondary analysis but any theoretical framework for such an analysis much come from the researcher. Various studies have already used or proposed different kinds of frameworks (Erentaite, Zukauskien, Beyers, & Pilkauskaite-Valickiene, 2012; Mok, Kennedy, & Zhu, 2013; Schulz, Fraillion, Ainley, Losito, & Kerr, 2008; Torney-Purta, Amadeo,

& Andolina, 2010; Torney-Purta, 2002; Torney-Purta, Lehmann, Oswald, & Schulz, 2001). For the present study, Bandura's (2012a) Social Cognitive Theory (SCT) allows for the integration of variables that otherwise are treated separately. SCT has the potential to provide an integrative framework.

SCT (Bandura, 2012a) tries to explain the behavioural patterns of human beings, including how they are formed and how they are maintained. According to Bandura's findings, three factors, namely environment, person and behaviour, can account for behavioural change, as presented in Figure 1.1.

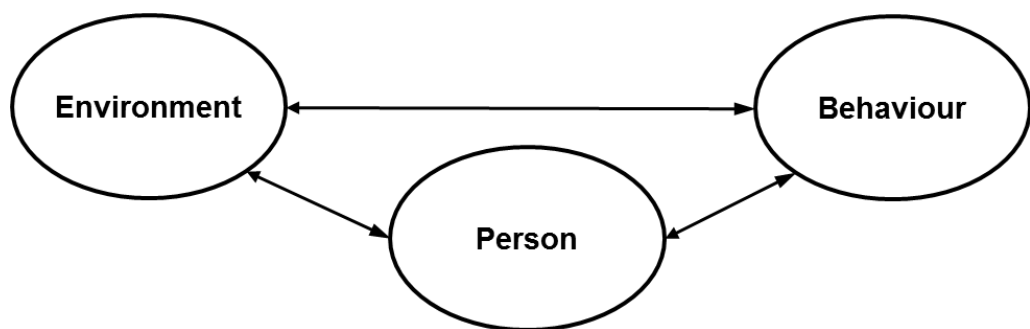


Figure 1.1: Social Cognitive Theory (Bandura, 2012a)

SCT was identified as the most appropriate overarching theory for this study after considering various educational psychology perspectives and theories. Under SCT, environment, person and behaviour can affect each other. This mechanism is called a triadic reciprocal causation (Bandura, 1986). Although the influential analysis among factors is not bidirectional in this study, Bandura (1989b, p. 2-3) pointed out that triadic reciprocal causation does not mean that the different sources of influence are of equal strength or that they occur

simultaneously, as it takes time for a causal factor to exert its influence and activate reciprocal influences. Besides triadic reciprocal causation, the assumption of learning that involves both cognitive and behavioural elements in SCT fits the design of this study. It can help to explain how citizenship efficacy influences civic behaviour.

Additionally, due to the nested nature of the ICCS 2009 data, a multilevel analysis (Goldstein, 2011) was introduced in this study. The assumption of human agency (Bandura, 2001) can help to explain this multilevel analysis. The conceptions of self-efficacy (Bandura, 2012b) and collective efficacy (Bandura, 1989a) can support the influential analysis of citizenship efficacy on civic behaviour at both the student- and class-level.

One of the major criticisms of Social Cognitive Theory is that individual growth and development are not taken into account, that is, maturation throughout the lifespan seems to be ignored. However, the current study overcame this limitation as the scope of the study was confined to adolescents.

Therefore, it is useful to explain adolescents' civic behaviour by applying SCT, since it can explain the influences of classroom openness and adolescents' citizenship efficacy on their civic behaviour. SCT as a psychological construct has only recently been explored in relation to citizenship education (Gilleece & Cosgrove, 2012; Joe & Lin, 2008; Wurthmann, 2013). This is an opportunity to examine the practical implications of SCT. By applying SCT, this study can

examine the interrelationship between adolescents' perceptions of classroom openness in school, citizenship efficacy and their self-reported civic behaviour. Specifically, the contextual effect of classroom openness and adolescents' citizenship efficacy on their civic behaviour will also be analysed. The application of triadic reciprocal causation (Bandura, 1986) in this study can bridge the gap in inadequate study of adolescents' civic behaviour and their citizenship efficacy or classroom openness simultaneously in the Hong Kong context. The full literature review of SCT will be undertaken in Chapter Two.

1.5 International Civic and Citizenship Education Study 2009 (ICCS 2009)

Although there were questionnaires for different stakeholders in ICCS 2009, only the student questionnaire (Schulz, Ainley, Fraillon, Kerr, & Losito, 2009) was used as an instrument for secondary analysis in this study. Additionally, only data concerning Hong Kong was used out of the 38 participating countries.

It must be noted that ICCS 2009 is not a new project conducted by IEA, but that it was the third IEA survey concerning citizenship education. The first survey was conducted in 1971 and was part of a project called the 'Six Subject Study'. It involved 10 countries, including Belgium (Flemish), Belgium (French), Chile, England, Finland, Iran, Italy, New Zealand, Sweden, and the United States. The results of this study were published in the book *Civic Education in Ten Countries: An Empirical Study* (Torney, Oppenheim, & Farnen, 1975).

The second survey was the ‘IEA Civic Education Study’ (CIVED) conducted in 1999, which had 28 participating countries/systems (for the sake of simplicity, hereafter referred to as ‘countries’). This study involved 90,000 adolescents aged between 14 and 15 years and Hong Kong was the only participating country from the Asian region. The study built a framework of citizenship development supported by three domains, namely ‘Democracy, Democratic Institutions and Citizenship’, ‘National Identity and International Relations’, and ‘Social Cohesion and Diversity’.

ICCS 2009 was the third IEA study and was conducted in 2009. During the 38 years since the first survey of citizenship education by IEA, the participating countries have faced many global changes and challenges. These include external threats to civil societies, people according greater value to democracy as a system of government, and globalisation-related challenges to the traditional concept of citizenship (Schulz, et al., 2010a). Additionally, the formation of the European Union (EU) introduced a new level of citizens into member countries, or European citizenship. These political changes and challenges stimulated the interest of many countries in participating in ICCS 2009. They were keen to understand the changes in the conceptions, attitudes and civic behaviours of their citizens. As a result, 38 countries participated in ICCS 2009, including five from Asia, 25 from Europe, six from South America and two from Oceania. Over 140,000 adolescents studying in the second or third year of secondary school were surveyed. This is the largest international study of citizenship education to date.



ICCS 2009 was positioned as an extension of CIVED. In order to maintain the continuity of research between CIVED and ICCS 2009, IEA referred to the assessment framework of CIVED when preparing ICCS 2009. Furthermore, the global changes and challenges cited above were included in the research design of ICCS 2009 in response to the need to identify the future development of citizenship education expressed by different countries. Eight instruments were used in ICCS 2009: International Background Questions, International Student Perceptions Questionnaire, Regional Cognitive Tests, Regional Student Questionnaire, Teacher Questionnaire, School Questionnaire and National Contexts Survey.

ICCS 2009 was the second civic education research project in which Hong Kong had participated. For standardisation purposes, ICCS 2009 surveyed adolescents aged 14 to 15 years or at secondary two in the sampled secondary schools in the Hong Kong context. This project was conducted jointly by the Hong Kong Institute of Education and the Faculty of Education of the University of Hong Kong, which were commissioned by the Education Bureau of Hong Kong Special Administrative Region Government in 2008 through open tender procedures. The focus of the project was to identify the best ways to prepare adolescents to assume their roles as citizens of Hong Kong, China. Level of civic knowledge, attitudes towards civic engagement, and attitudes towards being engaged as future citizens were also covered in the study.



1.6 Overview of the Study

The present study is organised into five chapters. The first chapter offers an introduction to the study. By introducing the background of the study and how this background drew the author's interest, Chapter One explains why this study came to be and how it was conducted. Through the conceptualisation process, the motivation forms the aims of the study. By identifying suitable theory and empirical evidence within the literature, the contextual and theoretical frameworks are developed in the next chapter.

Chapter Two offers a review of the literature. It begins with a review of the constructs in this study. This includes empirical research on the civic and citizenship education of adolescents in Hong Kong, which suggests the contextual framework of this study. It also considers how Bandura's theories explain the relationship between the constructs, which suggests the theoretical framework of the study. Under the contextual and theoretical frameworks, the conceptual framework of this study is established by considering the reconciliation of empirical evidence and theories. Finally, the research questions are developed and translated into the corresponding hypotheses.

Chapter Three outlines the research design and methodology of this study, and presents the hypothesised model. This chapter covers the methods of scale building and analysis using multilevel structural equation modelling (MSEM). In order to address the research questions, the items of classroom openness,



citizenship efficacy and civic behaviour were selected from the Hong Kong data of ICCS 2009 as the sample. This data was processed via a series of statistical methods, including EFA to identify the underlying scales. Internal consistency reliability was checked using computer software SPSS (IBM, 2013) and the dimensionality check of scales was conducted using computer software WINSTEPS (Linacre, 2014). This was followed by the imputation of plausible values using computer software ConQuest (Version 3.0.1) (Wu, Adams, Wilson, & Haldane, 2012), which prepared the data for the MSEM analysis.

Chapter Four reports the findings in response to each research question. This chapter presents the results of the relationships between the identified variables using MSEM. Since the nature of the data is nested (students were nested in classes), a multilevel path model is selected and each of the five sets of plausible values are used as inputs for the model. Maximum likelihood estimates of the path coefficients of the structural equation model are generated. The estimates of individual paths and their statistical significance are reported for discussion in Chapter Five. Additionally, the results of the overall model fit inspection are presented.

Chapter Five discusses the statistical analyses results presented in Chapter Four. Through interpretation of these results, the focus of discussion is to investigate in the Hong Kong context how classroom openness predicts adolescents' civic behaviour and the role of school in the relationship between classroom openness and adolescents' civic behaviour. After the discussion, conclusions



are drawn at the end of this chapter. The significance, limitations and implications of this study are also highlighted.

1.7 Summary

This chapter discusses why this study was undertaken, what was done and how it was conducted. The observation of adolescents' civic behaviour triggered the author's interest and motivation to embark on this study. The aims of this study were then formed through the conceptualisation process. By identifying ICCS 2009 as a suitable source of data and selecting a theoretical framework from Bandura's theories, this study intends to explore the relationship between classroom openness, adolescents' citizenship efficacy and civic behaviour.

In the following chapter, the results of extensive empirical investigation of each constructs in this study will be presented. This includes the empirical research concerning the contextual and theoretical framework of the present study. Past literature relating to adolescents' citizenship education in Hong Kong as well as Bandura's theories will be reviewed. Finally, the chapter ends by proposing a conceptual model for the study. The research questions and corresponding hypotheses will also be established based on this conceptual model.



CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

As discussed in Chapter One, the controversy regarding the launch of MNE was the motivation for this study. Besides participating in protests, Hong Kong adolescents were also active through different forms of civic behaviour, such as discussing political issues with others, following political issues in the media, and participating in different civic-related activities in wider society (Kennedy, Hahn, & Lee 2008). Previous research reported in Chapter One showed that adolescents' civic behaviour could be influenced by classroom openness and citizenship efficacy. The specific classroom practices and climate that influenced adolescents' civic behaviour in Hong Kong became the focus of this study.

In order to study the influence theoretically, in the following sections, literature is reviewed to clarify the underlying assumptions and meanings of Social Cognitive Theory (SCT) when SCT was identified as the overarching theory for this study. This is followed by an empirical study of the constructs in the present study, including civic behaviour, classroom openness, citizenship efficacy and collective citizenship efficacy. By reviewing the literature, it would be helpful to establish the properties of SCT and how SCT forms an



integrative framework to explain the relationship among constructs, and hence to develop the conceptual framework for this study.

2.1.1 Social Cognitive Theory (SCT): Theoretical Framework of the Study

Bandura's (2012a) Social Cognitive Theory (SCT) tries to explain the behavioural patterns of human beings, including how they are formed and maintained. According to his findings, three factors, environment, person and behaviour, can account for behavioural change.

Environment refers to the different environments that can affect a person's behaviour. It can be a physical environment or a social environment, including the perception of the place, time, physical features and activity (Glanz et al, 2002). Environment can provide a framework for understanding behaviour (Parraga, 1990).

"Person" refers to the personal factor. This can be the cognitive or affective factors of an individual. It can also be something learned or experienced in the past. When considering it with self-efficacy theory (SET) (Bandura, 2012b), personal factor can be the willingness of particular individual to take an action depending on their belief in own ability or capacity. Assuming that people will perform a task only if they have the confidence to perform it with certain satisfactory performance or outcome, SET provides the fundamental conceptual framework to explain the correlation between motivation and self-confidence.

Furthermore, Bandura's human agency theory (Bandura, 2000) extends the



concept of self-efficacy from the individual level to the group level. Bandura referred to such ‘group’s shared belief’ as collective efficacy (Bandura, 2000).

Behaviour refers to behavioural capability, such as how a person must know what the behaviour is and the skills he/she has to acquire in order to perform it.

2.1.2 SCT: Theoretical Assumptions and Meanings

As presented in Chapter One, triadic reciprocal causation (Bandura, 1986) tries to explain the interrelationship among behaviour, person and environment. Under SCT, this mechanism rests on several underlying assumptions and meanings. They include situation (Bandura, 1977), outcome expectation (Bandura, 1986), outcome expectancy (Bandura, 1977), reinforcement (Bandura, 2001), modelling (Bandura, 1997), observational learning (Bandura, 2012a) and self-regulation (Bandura, 1991). Operationally, these assumptions may help to explain the interrelationship between adolescents’ civic behaviour, citizenship efficacy and classroom openness in this study.

Situation is a kind of environment which has contextual effects applying to someone either directly or indirectly (Bandura, 1977). Such contextual effects include events happening to an individual at a specific point of time. In other words, a situation is the perception of environment formed in the cognitive processes of an individual. While different social and physical environment can be understood as the environment that can affect an individual’s behaviour, according to SCT, the concept of situation can provide a framework for

understanding behaviour (Parraga, 1990). While the concept of situation can be realised as the perception of place, time, physical features and activity (Glanz et al., 2002), cognitive or mental representation of environment may help to explain the influence on adolescents' civic behaviour in the context of the current study.

Outcome expectation is defined as 'a judgement of the likely consequence such behaviour will produce' (Bandura, 1986, p. 94). It is a personal factor which influences an individual in deciding whether or not to perform a behaviour. An individual can identify the expected outcome of performing a specific behaviour by learning from similar situation. Such learning from the environment can come from self-experience or vicarious experience. In addition, biological symptoms or emotions can usually affect individual's judgement on the consequence of specific behaviour. For example, an individual is less confident of his or her behavioural capabilities when worried. On the other hand, a person may be confident about his or her behavioural capabilities when feeling calm. This means that outcome expectation can be affected by biological symptoms or emotions.

Outcome expectancy is defined as 'a person's estimate that a given behaviour will lead to certain outcomes' (Bandura, 1977, p. 193). Similar to outcome expectation, outcome expectancy is also a personal factor which affects the judgement of a person when concerning his or her behavioural capability in a specific situation. However, outcome expectancy may sometimes work as an influencing personal factor on a specific behaviour but in a different direction to

outcome expectation. Let us use health with regular exercise as an example. While the outcome expectation of a person may suggest that health can be improved through regular exercise, outcome expectancy may inform that regular exercise is difficult to achieve when it is toilsome. Additionally, according to Bandura (1986), the short-term outcome of both outcome expectation and outcome expectancy will be taken into account by a person more than the long-term outcome. Therefore, in the case of judging whether or not to have regular exercise, outcome expectation may be considered less than outcome expectancy, as keeping a person healthy by having regular exercise is comparatively long-term. In the context of the current study, both outcome expectation and outcome expectancy may help to understand why adolescents decide to participate in different civic behaviour.

Reinforcement (Bandura, 1963) can be understood as a mechanism for raising the possibility of a given behaviour being repeated by introducing different factors. Bandura (1963) believed that a person, action, event or a single object could stimulate the reoccurrence of a person's behaviour. Such stimulus could be an environmental or personal factor. Additionally, when the reoccurrence of a behaviour is because of any kind of environmental or personal factor (or both), such reinforcement within the relationship can be positive or negative (Bandura, Ross & Ross, 1963). It can also be direct, vicarious or self-managed (Bandura et al., 1963). Rewarding a person's behaviour is treated as a kind of positive reinforcement (Bandura, Ross & Ross, 1963), while punishment of a person's misbehaviour is an example of negative reinforcement (Bandura et al., 1963).



Sometimes negative reinforcement can be demonstrated by taking away the reward. Both motivating and demotivating the reoccurrence of a person's behaviour by reward or punishment are kinds of reinforcement. On the other hand, Bandura et al. (1963) also believed that reinforcement is a kind of conditional reflex. Reoccurrence of a person's behaviour after motivation or demotivation takes place. Such cause-and-effect relationship between two factors can be understood as a direct reinforcement. Besides, they believed that reinforcement can take place indirectly via a third party and they call such indirect reinforcement vicarious reinforcement. Usually, the influence of vicarious reinforcement on a person's behaviour can occur through observation. For instant, a person's behaviour can be motivated or demotivated through knowledge of the reward or punishment that a third party received for similar behaviour. Vicarious reinforcement can take place through the demonstration of such third party, who plays the role model (Bandura, 1977) in indirectly motivating or demotivating a person's behaviour. Self-managed reinforcement (Bandura, 1976b) takes place through a person's intrinsic motivation. By setting up different milestones and self-reward mechanisms, a person can motivate their own behaviour. This is a higher-order form of thinking, which may motivate the continuous improvement of a person's behaviour.

Modelling is a kind of indirect reinforcement that identifies the role model in the environment (Bandura, 1977). In this connection, modelling can take place through different means. For example, abstract modelling is modelling from something symbolic, such as films or books. Modelling can also be undertaken



by combining behaviours from different models, known as synthesised modelling (Bandura, 2003). As a result, modelling can be inventing a new behaviour, facilitating an existing behaviour, changing inhibitions, or arousing emotions. Under SCT, there are four steps to make modelling happen: attention, retention, reproduction and motivation (Bandura, 1976a).

In connection with reinforcement (Bandura, 1963) and modelling (Bandura, 1977), Bandura (2012a) further elaborated the parts of vicarious learning and vicarious experience, and called it observational learning. While SCT can explain the strong correlation between learning (behaviour) and the observation of modelled behaviour from a role model (person), the learning process is called modelling (Bandura, 1997) or observational learning (Bandura, 2012a) in an educational context. This takes place when a person's behaviour is learned through observation. When the modelled behaviour is observed and modelling happens, this is a kind of vicarious reinforcement (Bandura, 1963), as mentioned earlier. One simple example of observational learning is when children in the same family or students in the same school behave similarly. Therefore, vicarious reinforcement may support the theoretical framework through modelling (Bandura, 1997) and observational learning (vicarious learning) in the context of this study when considering how and why adolescents' civic behaviour was influenced by potential environmental and personal factors.

Self-regulation can be defined as a process of undertaking a learned behaviour for a self-defined purpose or goal. From time to time, students' beliefs and expectations will change in response to different goal settings. In order to achieve a particular goal, there are three processes under SCT (Bandura, 1991): (1) Self-observation involves reflecting on their ability and keeping track of their behaviour. (2) Self-judgment involves monitoring the progress and evaluating the effectiveness of their behaviour for achieving the specific goal. (3) Self-reaction requires their adjusting their behaviour after evaluation. These processes form self-regulation and may help to explain how and why adolescents' civic behaviour was undertaken under the influence of environmental and personal factors in the present study.

After providing an overview of the overarching theory of the current study, within the literature, how does the past literature inform the meaning of civic behaviour, classroom openness, citizenship efficacy and collective citizenship efficacy? The following section will deal with the empirical study of these constructs.

2.2 What is Civic Behaviour?

Civic behaviour has been studied and defined from different perspectives within the literature. Ma, Shek, and Lam (2000) suggested that adolescents' civic behaviour can be divided into prosocial and antisocial behaviour. Hoskins et al. (2008) measured the civic behaviour of adolescents from three dimensions:

voting behaviour, membership of a participating political party and participation in protests. Dassonneville, Quintelier, Hooghe, and Claes (2012) defined political discussion and other civic-related activities at school as civic behaviour in their study. Vercellotti and Matto (2010) on the other hand, adopted participation in civic-related activity in the community as civic behaviour in their study.

From a theoretical perspective, Westheimer and Kahne (2004a) suggested that civic behaviour could be understood as different degrees of civic engagement. According to the degree of participation, they suggested that civic engagement could be divided into three types: personally responsible citizen, participatory citizen and justice-oriented citizen. ‘Personally responsible citizen’ refers to those citizens who are willing to obey the law and vote in elections (Westheimer & Kahne, 2004a, p. 239). A ‘participatory citizen’ is someone who actively participates in certain civic activities, like membership of political interest groups and decision-making on some political or livelihood related issues through joining a political party (Westheimer & Kahne, 2004a, p. 239). ‘Justice-oriented citizen’ refers to those citizens who have a strong awareness of issues regarding unfairness to individuals or groups in society. These citizens are proactive in changing and improving the perceived unfair situation by being a representative in government authorities, such as a councillor on the legislative council or a board member on the district board.



To summarise, civic behaviour can vary according to the degree of civic engagement. Adolescents' civic behaviour can refer to their participation in political discussions, civic-related activities at school or civic-related activities in the community, as mentioned in previous studies. This can serve as a reference to conceptualise civic behaviour in this study and explain why different civic behaviours are undertaken.

In the international context, various studies have identified how civic behaviour could be influenced by citizenship efficacy. For instance, the increased citizenship efficacy of American adolescents in Philadelphia might influence their discussion of political and social issues (Pasek et al., 2008). Another study of American adolescents, this time in New Jersey, also found an impact on their participation in civic-related activities in the community on a regular basis when their citizenship efficacy was enhanced (Vercellotti & Matto, 2010). In Belgium, a study identified that there was a relationship between political attitudes and behaviour. Adolescents' citizenship efficacy might therefore influence their political discussion and other civic-related activities at school (Dassonneville et al., 2012).

In the Hong Kong context, in their study of 673 Hong Kong adolescents, Cheung, Ma and Shek (1998) found that conceptions of success and achievement goals were related to civic behaviour. It appears that Hong Kong adolescents' civic behaviour can also be influenced by their citizenship efficacy. Furthermore, Ma, Shek and Lam (2000) found that teachers and peers have a



strong influence on adolescents' civic behaviour. This finding shows that both individual and social impacts on civic behaviour exist. It provides empirical evidence to support the multilevel approach (Goldstein, 2011) of this study. The influence of citizenship efficacy on civic behaviour cannot exist only at the student-level, but also be found at the class-level as collective efficacy (Bandura, 2000).

On the other hand, comparative research has reported that Hong Kong adolescents were active in some civic behaviours due to the open classroom climate (Kennedy, Hahn, & Lee 2008). These civic behaviours included political discussion with others and following political issues in the media. Additionally, they were active in community participation activities such as protecting the environment or promoting human rights (Kennedy, Hahn, & Lee 2008). This empirical evidence supports this study's aim to further examine whether Hong Kong adolescents' civic behaviour can be influenced by classroom openness.

2.3 What is Classroom Openness?

Classroom openness has been associated with a number of different constructs within the literature. By identifying the relationship between the two, some researchers have suggested that classroom openness is related to political trust (Ehman, 1980), tolerant attitudes for equality (Hahn, 1998) and civic engagement (Campbell, 2008). Among them, Campbell's idea was the most



concrete, and it specifically involved ‘discussion of political issues’ (Campbell, 2008, p. 440). However, Sears, Huddy, and Jervis (2003) focused more on the perceptive side of classroom openness. They defined classroom openness as ‘student’s feeling that they can freely participate the express themselves in a supportive environment’ (Sears et al., 2003, p. 653). Although both studies placed emphasis on the possibility of free discussion in the classroom with a focus of political or social issues, the natures were different. Sears et al. (2003) defined classroom openness as way of perception or feeling, rather than as a behaviour such as civic participation in the family or school. This is the approach that is closest to the design of the present study.

From a theoretical perspective, Getzels and Thelen (1960) suggested that the classroom can be a kind of social system in which to understand the interaction between teachers and students. Similar behaviour will be undertaken under the same ‘situation’. Lewin (1936; 1951) also suggested that classroom openness could be understood as an environment from the theory of field and group dynamics theory. The term ‘social system’ was first used by Talcott Parsons in 1951 as part of a sociology study. Later, the ‘theory of the classroom as a social system’ was further developed in the school environment context (Getzels & Thelen, 1960). While the ‘classroom’ can be seen as a kind of “social system”, the theory can also be used to analyse the behaviour of students. Parsons (1951) pointed out that a ‘social system’ is formed by the interaction of two or more people. In a social system, similar behaviour would be undertaken under the same “social situation”. Even if the behaviour varies, any alignment and



adjustment will happen gradually while there is influence on people's values or targets throughout their interaction.

Additionally, Lewin's (1951) group dynamics theory explained classroom openness as a way in which environment influences individual's behaviour. He believed that both the individual (person) and the environment should be taken into consideration in predicting individual behaviour. The psychological world of the individual (or person) was called the 'life space' according to his theory of field (Lewin, 1936). 'Life space' can be further divided into the external physical environment and the individual's internal beliefs. Thus, Lewin tried to summarise the relationships between behaviour, person and environment in the equation $B = f(P, E)$, where 'B' denotes 'behaviour', 'P' denotes 'person' and 'E' denotes 'environment'. In other words, Lewin believed that behaviour can be predicted by the interrelation between personal factors (such as an individual's beliefs, values, talents and knowledge) and environmental factors (such as the physical, social and biological environment). Under group dynamics theory, the 'life space' could be extended to the classroom environment in a school setting. Besides an individual's reaction to changing personal and environmental factors, members of a group might form a common perception of behaviour based on their beliefs, values, talents and knowledge. Lewin (1951) referred to this formation of common perception as 'group dynamics'.

To summarise, the theory of the classroom as a social system (Getzels & Thelen, 1960), theory of field (Lewin, 1936) and group dynamics theory (Lewin, 1951) can be used in this study to explain how classroom openness and citizenship efficacy may influence adolescents' civic behaviour.

Internationally, classroom openness has been widely discussed. Some studies found that students' awareness of civic values and their reflection on these values can be motivated if the classroom climate is interactive and open to discussion (Splitter, 2009, 2010). Additionally, the influence of an open classroom climate on participation in civic-related activities in the community has been identified (Davies et al., 2013; Eckstein et al., 2012, Sears et al., 2003). These findings are consistent with the notion of other studies that non-cognitive outcomes could be influenced by school experiences (Hess, 2009; Torney-Purta, Wilkenfeld, & Barber, 2009; Westheimer & Kahne, 2004b). Thus, the influence of classroom openness on adolescents' civic behaviour is an important area to explore in the Hong Kong context.

Gibson and Levine (2003) suggested that creating openness in the classroom may cultivate students' civic behaviour. Besides teaching academic subjects, schools may consider maintaining the 'civic mission' as their duty. This 'mission' can be covered by the citizenship education at school through various teaching and learning activities. Besides acquiring civic knowledge formally through citizenship lessons, students can practice being 'here and now citizens' (Gibson & Levine, 2003) by participating in different civic activities at school,

like extra-curricular activities and involvement in school management and decision-making. This can help students to acquire civic knowledge, political awareness, critical thinking and skills for reflection. This notion is consistent with the permeation approach (Morris & Morris, 2001) to citizenship education mentioned in the previous chapter. In an open classroom climate, participation in different civic activities can prepare students to be “participatory citizens” (Westheimer & Kahne, 2004a). Gibson and Levine’s (2003) ‘civic mission’ may help explain how classroom openness influences adolescents’ behaviour.

In the Hong Kong context, a recent study pointed out that classroom openness is associated with adolescents’ intended political participation (Quintelier & Hooghe, 2013). In open classroom climate, for example teachers support of adolescents’ discussion of political and social issues, may encourage more political discussion and participation in civic-related activities in the wider community.

From a social cognitive perspective (Bandura, 2012a), environment may influence human behaviour. Through the teacher’s encouragement of discussion as well as through participation in different civic-related activities in the classroom, the classroom itself can be a situation (Bandura, 1977) that offers vicarious reinforcement to adolescents for undertaking civic behaviour (Bandura, 1963). While a democratic learning environment can encourage modelling (Bandura, 1997) to occur, adolescents’ civic behaviour can also be influenced by openness in the classroom through observational learning



(Bandura, 1976a). The Bobo doll experiment (Bandura, Ross, & Ross, 1961) is a good example of how environment can influence human behaviour when observational learning occurs. In the experiment, children behaved more aggressively towards the Bobo doll after being exposed to adults' aggression towards the Bobo doll.

2.4 What is Citizenship Efficacy?

Citizenship efficacy is a form of efficacy beliefs or self-efficacy (Bandura, 2012b). According to IEA's assessment framework (Schulz et al., 2008), citizenship efficacy is more related to self-confidence in performing certain civic-related activities. Social-cognitive theorist, like Bandura (2012a), have suggested that self-efficacy is an essential concept of personal factors under SCT. Bandura's contention is that the willingness to undertake a certain action likely depends on the belief in one's ability to perform it well. Assuming that a person's confidence level can be increased through reinforcement, self-efficacy provides the fundamental conceptual framework of motivation. The concept of citizenship can be understood in different forms and perspectives according to the aspects suggested by Marshall (1992) and the 'cube of citizenship' (Heater, 1990).

From a theoretical perspective, Bandura devised self-efficacy based on the assumption that every human has the intention of self-advancement and the willingness to learn from peers in their social circle. The self-system of a

human is a cognitive system including assessment and interpretation processes. Through performance accomplishment (mastery experience), vicarious experience, verbal persuasion and emotional arousal (Bandura, 1986), these processes form the cognitive model with concepts and beliefs of how and what is good for certain things or incidents. Such a cognitive model can affect the interaction between the environment and behaviour. In the context of this study, such a cognitive model can affect the interaction between classroom openness and adolescents' civic behaviour.

On the other hand, the external environment can affect a human's affective and cognitive personality system. Self-efficacy can be the product of a person's past performances, as well as the observation and verbal persuasion of others in the environment (Bandura, 1997). Instead of influencing self-efficacy directly, this information will be weighted and filtered through a process called cognitive appraisal. With adequate cognitive resources and skills from cognitive appraisal, it becomes the 'judgments of their capabilities to organise and execute courses of action required attaining designated types of performances' (Bandura, 1986, p. 391). This means that the self-efficacy mechanism could adjust the behavioural choices of a person. In the context of this study, adolescents' civic behavioural choices could be adjusted by their self-efficacy mechanism of citizenship.

For the concept of citizenship, Marshall (1992) suggested that social citizenship can be studied from three aspects, namely the civic, political and social aspects.

These aspects may help to explain citizenship in different dimensions in this study. The civic aspect is concerned with voting for representatives. Citizens can vote for their representatives in a democratic society. These representatives (e.g. council members of the legislative council) work with the government on behalf of their constituency on policy-wide or other livelihood-related decisions. If their representatives do not perform as well as expected, the citizens can vote for other people in the next election. While the civic aspect of citizenship was actualised by voting, the opinions and decisions were made by their representatives. Thus, the civic participation of citizens was indirect. From the political aspect, citizenship is about community participation. Either individuals or political parties could be involved in the decision-making on political or livelihood-related issues. They could take part in the form of councillors on legislative councils or board members on district boards, through elections or even government appointments. Instead of voting for representatives, the actualisation of citizenship here becomes more direct and proactive. According to Marshall (1992), this kind of extensive civic participation in a society could be called a 'civil society'. When most of the political or livelihood-related decisions are made by the 'civil society', this can be called 'participatory democracy'. The social aspect of citizenship is concerned with equality. In a society, some citizens cannot actualise their citizenship due to their low social status. The focus of the social aspect is on how government policies or non-governmental organisations' actions protect the social rights of this group of citizens. The social aspect of citizenship therefore emphasises the civic participation of citizens with different social statuses.



Another way to understand citizenship was suggested by Heater (1990) with his ‘cube of citizenship’. This included ‘elements of citizenship’, ‘civic/citizenship education’ and ‘graphical level’. The elements of citizenship includes identity, virtue, civic citizenship, social citizenship, political citizenship and other citizenship (Heater, 1990). With the addition of identity and virtue, this actually builds upon the political, civic and social aspects of social citizenship (Marshall, 1992). The notion of civic/citizenship education consists of the concepts of civic knowledge, attitudes and values, and skills and actions. In the context of this study, these concepts are interrelated when citizenship education takes place through students’ civic participation at school or in the community. Similar to the concept of self-efficacy (Bandura, 2012b), adolescents’ civic behaviour (skills and actions) at different ‘geographical levels’, like school or community, could help to build adolescents’ identity and confidence in undertaking different civic behaviours. For the ‘geographical level’ of citizenship, the concept of ‘multiple citizenship’ is introduced. Different identities of citizen can coexist, such as citizens coming from different classes but attending the same school, different schools but in the same city, or even different cities but in the same country. This helps to explain the construct of citizenship efficacy at both the student- and class-level using the multiple identities assumed by the theory.

In the international context, previous studies of American adolescents (Benware & Deci, 1984; Campbell, 2006b; Geboers et al., 2013; Godfrey & Grayman,



2014; Martens & Gainous, 2013) have found that adolescents' citizenship efficacy can be influenced by classroom openness, like the teacher allowing and encouraging the discussion of political and social issues in the classroom. Conway et al. (2009) and Torney-Purta et al. (2001) also addressed the importance of democratic practice, such as the encouraging of discussion and reflection among adolescents, inside the classroom for developing adolescents' citizenship efficacy. Some other studies also highlighted the importance of classroom openness on various aspects (Ehman, 1970; Hahn, 1998; Torney-Purta et al., 2001). Some focused on the exposure to civic-related topics or on how instruction within an open classroom climate may enhance adolescents' democratic capacity and efficacy (Gainous & Martens, 2012; Hartry & Porter, 2004; Turnbull et al., 2007), while others placed emphasis on how an open classroom climate could influence adolescents' values (Youniss & Levine, 2009) and political attitudes (Gimpel, Lay, & Schuknecht, 2003; Torney-Purta et al., 2007).

In the Hong Kong context, from their study of 673 Hong Kong adolescents, Cheung, Ma and Shek (1998) found that conceptions of success and achievement goals were related to civic behaviour. While the strong influencing power of both teachers and peers on Hong Kong adolescents has been identified (Ma, Shek, Cheung, & Lam, 2000; Ma, Shek, Cheung, & Lee, 1998), Hong Kong adolescents' citizenship efficacy may also be affected by classroom openness whereby the teacher allows and encourages discussion of political and social issues. In addition, based on the findings of Ma et al. (1998), the strong



peer influence identified on Hong Kong adolescents may mean that the relationship between citizenship efficacy and civic behaviour is formed not only within individual adolescents, but also between them.

Under SCT, environment can influence personal factors like self-efficacy (Bandura, 2012b). The perception of a democratic classroom may serve as a kind of performance accomplishment, vicarious experience, verbal persuasion or emotional arousal (Bandura, 1986). The teacher's encouragement and support of adolescents' discussion or participation in civic-related activities in the classroom may create the belief that the adolescents can express themselves openly in a supportive environment. Such a perception and feeling can enhance the adolescents' citizenship efficacy in undertaking civic-related activities immediately or later, in the same or a different situation (Bandura, 1977).

2.5 What is Collective Citizenship Efficacy?

Collective citizenship efficacy is adapted from the concept of 'collectivism' or 'collective agency' of human agency theory (Bandura, 1989a). From a social cognitive perspective, this psychological function of humans can be affected by the environment, behaviour, cognition and other personal factors. The interaction between these factors is called triadic reciprocal (Bandura, 1986). Following the concept of self-efficacy, Bandura believed that self-efficacy itself is situation specific or task specific while a person is judging his or her own ability. Through the self-efficacy mechanisms of human agency, people will



adjust their motions, behaviours and thinking patterns (Bandura, 1977), for example adolescents' citizenship efficacy influences their civic behaviour in this study.

Additionally, Bandura (1989) further extended the human agency theory to the collective level. Under the concept of a 'group's shared belief', Bandura suggested that efficacy is not only applicable to individuals but also to groups of people (Bandura, 2000). Self-efficacy was further extended from the individual level to the group level as collective efficacy (Bandura, 2000). Similar to self-efficacy, the source of information affecting collective efficacy includes mastery experience, vicarious experience, verbal persuasion and emotional arousal, with mastery experience being the most important (Bandura, 1982, 1997). This can help to explain the individual and social impacts of classroom openness and citizenship efficacy on adolescents' civic behaviour.

Bandura suggested that collective efficacy could be measured through two approaches: aggregated and collective (Bandura, 2000). The aggregated approach is a way to measure collective efficacy by aggregating the individual's self-efficacy according to their membership of a group. The collective approach is a way to measure collective efficacy by summation of the individual's conception of their group's efficacy performance.

A number of factors govern the appropriateness of either approach. The aggregated approach was more favourable when the items used for measuring

were more independent in nature (Baker, 2001; Bandura, 2000). When the self-efficacy in the sample was more interdependent by nature, the collective approach was more appropriate for measuring collective efficacy. The present study prepared the collective citizenship efficacy in this manner, using the citizenship efficacy data in the sample.

2.6 Conceptual Framework

After providing an overview of SCT informed by past literature as well as more recent research about the constructs in this study, it helped to establish the properties of SCT and the major constructs in this study operationally. In particular, it would be useful to explain the interrelationships among civic behaviour, classroom openness and citizenship efficacy in the Hong Kong context by the operation of triadic reciprocal causation (Bandura, 1986). Based on these empirical findings, the conceptual framework for this study was developed and presented below.

2.6.1 Contextual Findings: Summary of Hong Kong Cases

While the intention of this study is to explore how the civic behaviour of Hong Kong adolescents was influenced by classroom openness and their citizenship efficacy, it is important to empirically understand the contextual perspective. An extensive literature review was undertaken and the findings have been embedded and presented in the previous sections. Figure 2.1 tries to offer

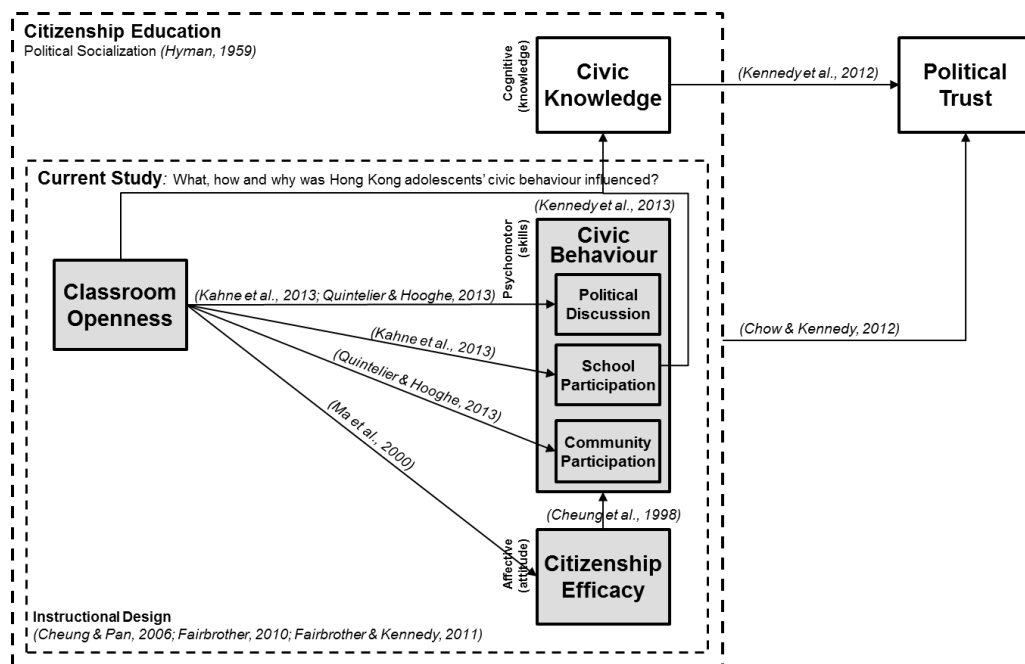


Figure 2.1: Contextual framework of the study

a summary of the reported recent research that may contribute to the present study. The relationships between constructs are illustrated by the connecting paths. For ease of reference, the source(s) of the empirical evidence which support this framework are listed in parentheses next to the corresponding paths.

Referring to Figure 2.1 above, the contextual findings show that the civic behaviour of Hong Kong adolescents can be influenced by classroom openness directly and indirectly via their citizenship efficacy. Hong Kong adolescents' civic behaviour can also be directly influenced by their citizenship efficacy. In other words, classroom openness and adolescents' citizenship efficacy are expected to be predictors of adolescents' civic behaviour (including participation in political discussions, civic-related activities at school and civic-related activities in the community) in this study. Additionally, in this study

classroom openness is expected to be a predictor of adolescents' citizenship efficacy.

2.6.2 Theoretical Findings: The Interrelationships between Environment, Personal Factors and Behaviour

From a theoretical perspective, by employing Bandura's social cognitive theory (2012a) as the overarching theory of this study, the anticipated relationships between the corresponding constructs have been presented in the previous sections. Figure 2.2 attempts to summarise these reported findings which may contribute to the theoretical framework of this study.

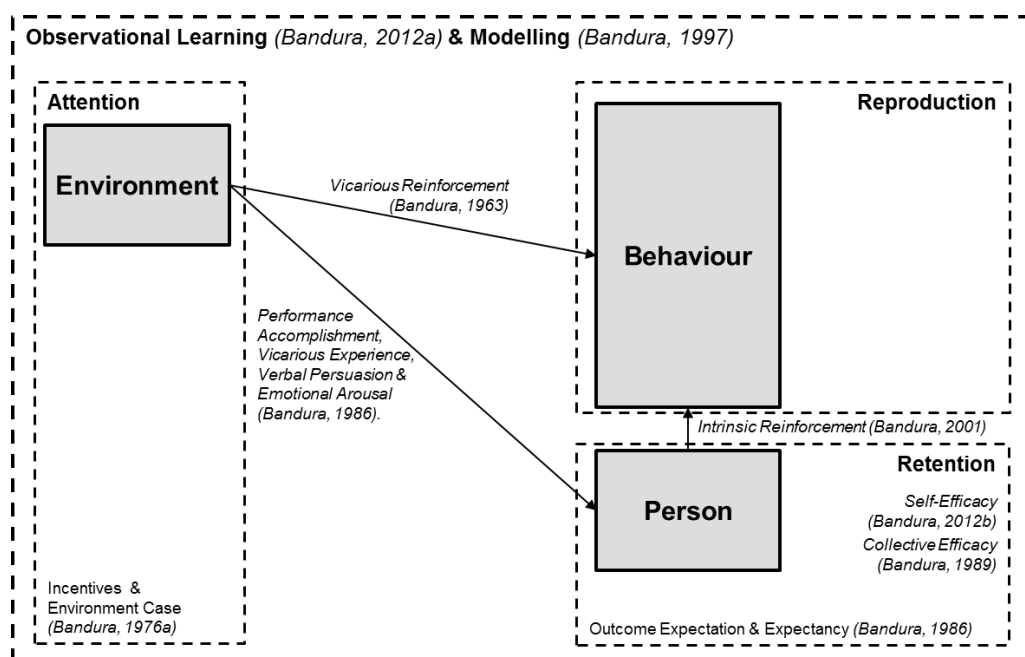


Figure 2.2: Theoretical framework of the study

In Figure 2.2, the relationships between the constructs are illustrated by the connecting paths. For ease of reference, the empirical evidence which supports

the framework is detailed in parentheses next to the relevant paths. Hypothetically, it appears that SCT's underlying concepts and assumptions can explain the contextual framework of Hong Kong adolescents' civic behaviour. For instance, self-efficacy theory (Bandura, 2012b) and reinforcement theory (Bandura, 1963) may explain the direct and indirect effects of the classroom and school climate on adolescents' behaviour. In addition, through human agency theory (Bandura, 2000) and the concept of collective efficacy (Bandura, 1989a), the effects of citizenship efficacy and collective efficacy on adolescents' civic behaviour may also be explained. Concepts like observational learning (Bandura, 2012a), modelling (Bandura, 1997), and reinforcement (Bandura, 1997), may explain how Hong Kong adolescents' civic behaviour is influenced by both classroom openness and their citizenship efficacy.

2.6.3 Conceptual Framework: The Influence of Classroom Openness and, Citizenship Efficacy on Adolescents' Civic Behaviour in the Hong Kong Context

Based on the findings presented above, in the Hong Kong context it is tempting to think that both classroom openness and citizenship efficacy may be predictors of civic behaviour. Due to the nested nature of the ICCS 2009 data, predictors can be found not only at the student-level but also at the class-level. An emphasis on collective efficacy (Bandura, 2000) can be adopted for preparing collective citizenship efficacy data in order to investigate the class-level effects. As such, a conceptual framework supported by contextual and theoretical evidence is developed and shown in Figure 2.3.

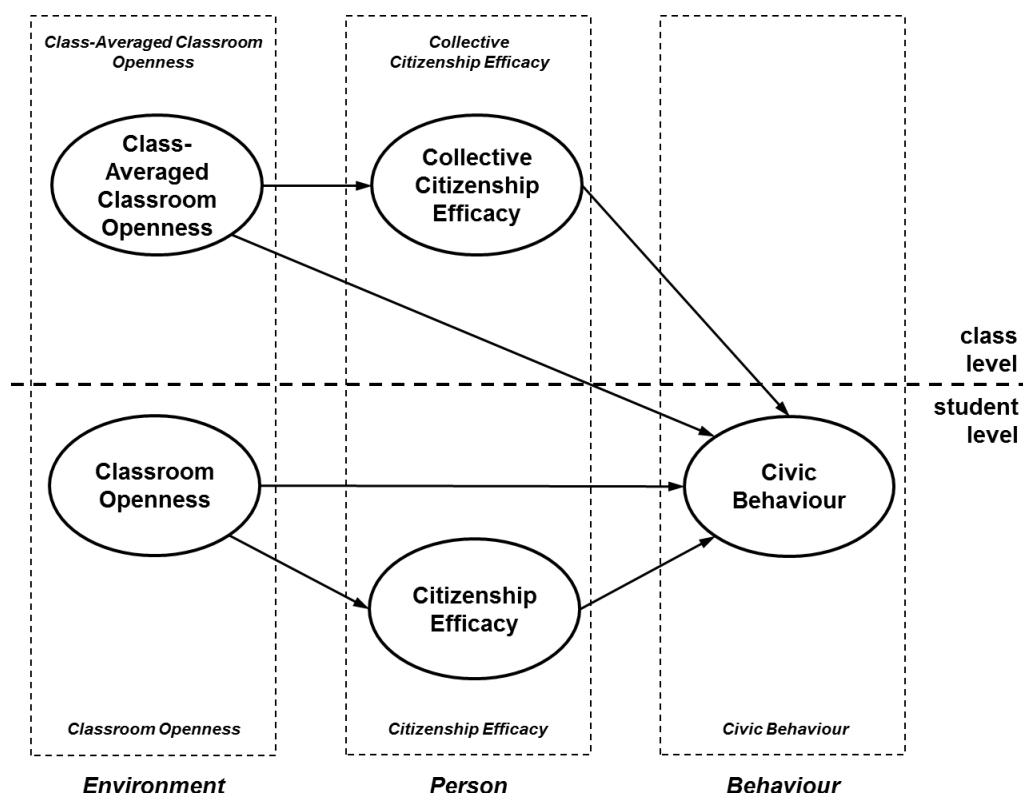


Figure 2.3: Conceptual framework of the study

Referring to SCT (Bandura, 2012a), environment can refer to the social or physical environment that affects a person's behaviour. Parraga (1990) shared a similar belief about such relationships. He noted that environment and situation provide the framework for understanding behaviour. By 'situation', Parraga is referring to the cognitive or mental representations of the environment that may affect a person's behaviour. Effectively, the 'situation is a person's perception of the place, time, physical features and activity' (Glanz et al., 2002, p.189). In this connection, environment in the figure refers to classroom openness. In the current study, it measured adolescents' perceptions of classroom openness in terms of teachers' acceptance, agreement and encouragement. Although

Campbell (2008) has pointed out that classroom openness is related to civic engagement, the emphasis here is on ‘student’s feeling that they can freely participate the express themselves in a supportive environment’ (Sears, Huddy, & Jervis, 2003, p. 653). Ultimately, for the purposes of this study, the nature of classroom openness is a perception or feeling, rather than behaviour like civic participation in the family or school.

Person in SCT (Bandura, 2012a) can refer to the cognitive or affective factor of an individual. It can be the individual’s belief in his or her own capability for a specific behaviour, once the person knows what the behaviour is and the skills required to perform such behaviour. In this connection, person in the figure refers to the citizenship efficacy of the adolescents. In particular, two aspects of the adolescents’ citizenship self-efficacies were included in this study, namely political activity inside school and political activity outside school. These aspects measured the adolescents’ perceptions of how well they could perform certain civic-related activities both inside and outside of school.

The notion of behaviour can be understood as actions that the individual has learned or experienced in the past and then reproduced (Bandura, 2012a). Therefore, behaviour in the figure refers to the civic behaviour of adolescents. It includes political discussion, community participation and school participation.

2.6.4 Postulated Model

Based on the empirical evidence from both the contextual framework (see Figure 2.1) and the theoretical framework (see Figure 2.2), hypothetically the open classroom climate (environmental factor) and political activity inside school and outside school (personal factors) are expected to affect adolescents' political discussion, school participation and community participation (behaviour). At the same time, the open classroom climate is expected to affect political activity inside school as well as political activity outside school.

The sampling method used in the ICCS study caused the data to be nested by nature. During the survey, one class of students was selected from each participating school. All of the participating students therefore came not only from the same school but also from the same class. To ensure accurate estimates, a multilevel model (Goldstein, 2011) was proposed for the analysis to handle the nested data structure on two levels: student-level and class-level. In addition to the personal impact (student-level), the social impacts (class-level) of both classroom openness and citizenship efficacy on adolescent civic behaviour are analysed.

Based on the empirical evidence from the literature as summarized in Figure 2.1 and 2.2, hypothetically the class-averaged open classroom climate (class-averaged environmental factor) and collective efficacy (class-averaged personal factor) are expected to affect political discussion, school participation and community participation (adolescents' civic behaviour). At the same time, the class-averaged open classroom climate is expected to affect collective efficacy.

Further to the conceptual framework in Figure 2.3, a postulated model in the context of this study is presented in Figure 2.4.

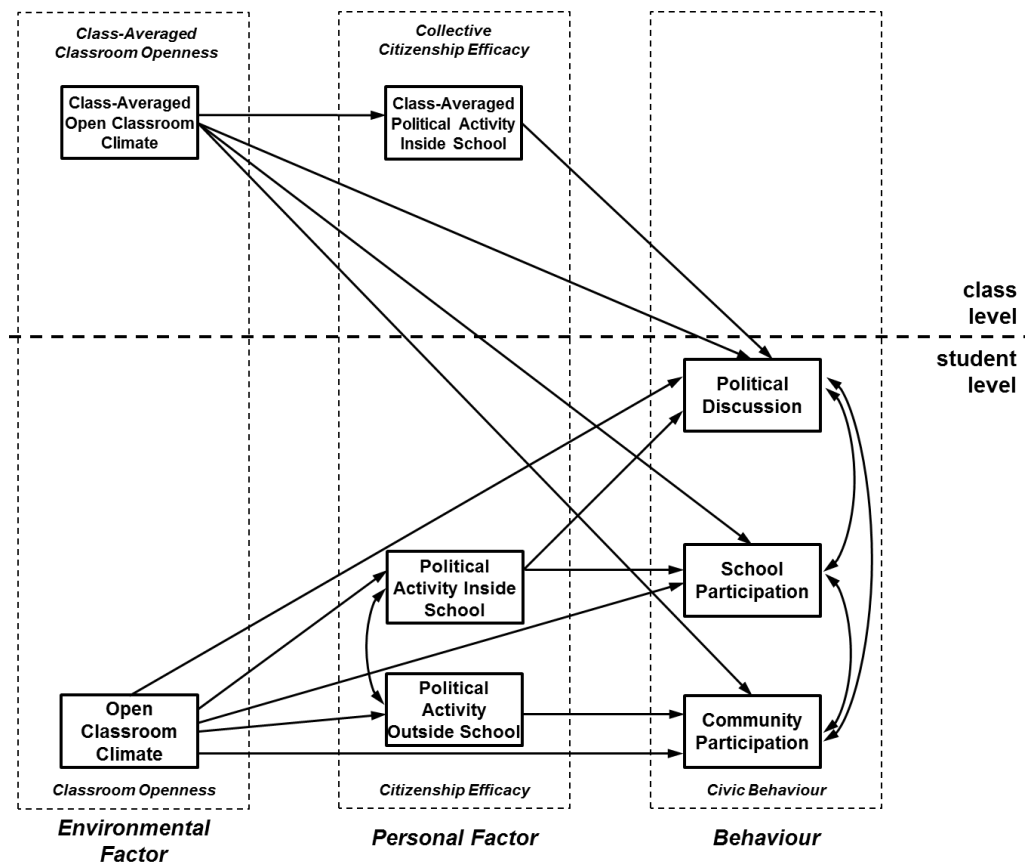


Figure 2.4: Postulated model

2.7 Development of Research Questions

The intention of this study is to explore how adolescents' civic behaviour is influenced in Hong Kong. Since the aims of this study were: (1) to identify the direct and indirect effects of the classroom climate on adolescents' behaviour, and (2) to analyse the effects of citizenship efficacy and collective efficacy on adolescents' civic behaviour, two overarching research questions were

developed corresponding to these two aims. They were Research Question One (RQ1), *At the student-level, does classroom openness predict adolescents' civic behaviour?* and Research Question Two (RQ2), *What is the role of the school at the class-level in enhancing the relationship between classroom openness and adolescents' civic behaviour?*

Since the nested nature of the data used had previously been identified, a multilevel model (Goldstein, 2011) with two levels was introduced in order to investigate both the personal impact (student-level) and social impact (class-level) of classroom openness and citizenship efficacy on adolescents' civic behaviour.

To address RQ1, the primary goal is to identify the direct and indirect effects of classroom climate on adolescents' civic behaviour. This includes the investigation of the direct effect of classroom openness and citizenship efficacy on adolescents' civic behaviour and also the indirect effect (mediated effect) of classroom openness on adolescents' civic behaviour through their citizenship efficacy.

To address RQ2, the primary goal is to analyse the direct and indirect effects of class-averaged classroom openness on adolescents' civic behaviour. This includes an investigation of the direct effect of class-averaged classroom openness and collective citizenship efficacy (class-averaged citizenship efficacy) on adolescents' civic behaviour. It also includes the indirect effect (mediated

effect) of class-averaged classroom openness on adolescents' civic behaviour through collective efficacy (class-averaged citizenship efficacy).

2.8 Research Hypotheses

To answer the research questions, corresponding hypotheses were established and are presented in Figure 2.5.

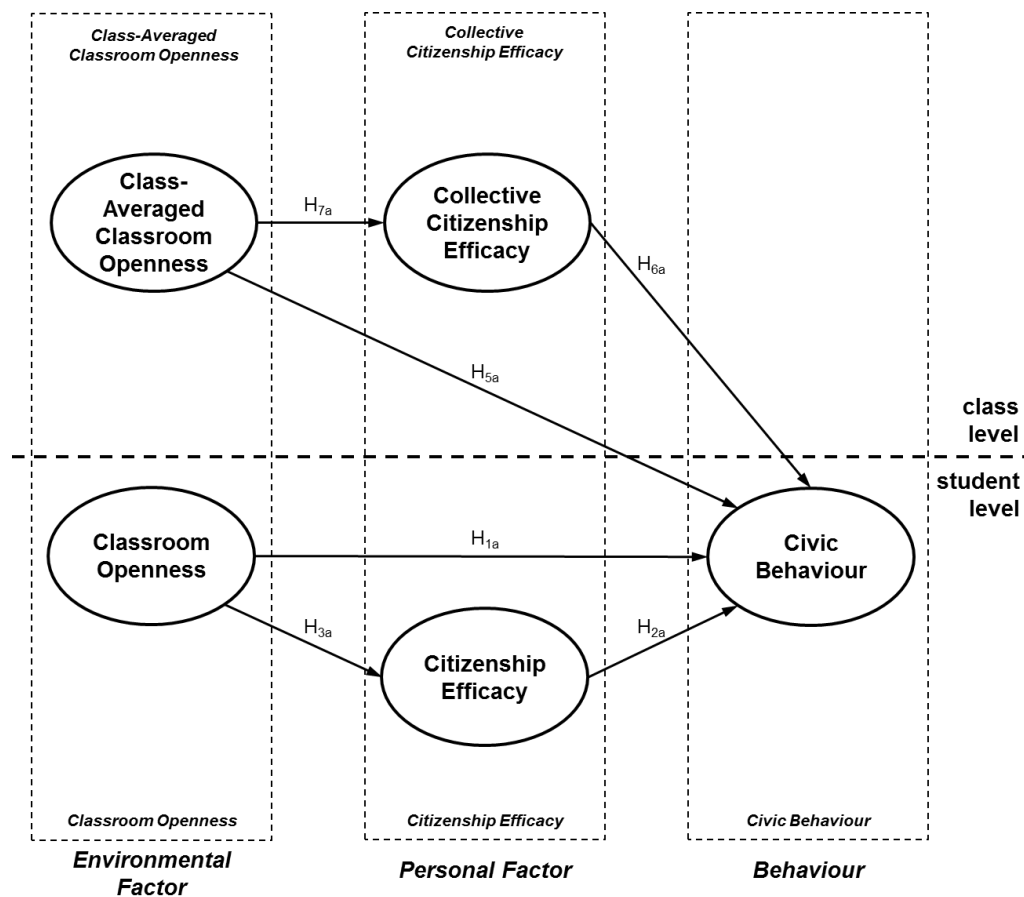


Figure 2.5: Hypotheses in the current study
(Only direct effects hypotheses are shown)

In order to address RQ1, four pairs of hypotheses, namely H1₀ and H1_a, H2₀ and H2_a, H3₀ and H3_a, and H4₀ and H4_a were set. In each pair, subscript '0' indicates the null hypothesis, and subscript 'a' indicates the alternative hypothesis. The four pairs of hypotheses were as follows:

H1₀: There is no direct effect of classroom openness on civic behaviour.

H1_a: There is a direct effect of classroom openness on civic behaviour.

H2₀: There is no direct effect of citizenship efficacy on civic behaviour.

H2_a: There is a direct effect of citizenship efficacy on civic behaviour.

H3₀: There is no direct effect of classroom openness on citizenship efficacy.

H3_a: There is a direct effect of classroom openness on citizenship efficacy.

H4₀: There is no indirect effect of classroom openness on civic behaviour through citizenship efficacy.

H4_a: There is an indirect effect of classroom openness on civic behaviour through citizenship efficacy.

Hypotheses pairs H1₀ and H1_a, H2₀ and H2_a directly addressed RQ1.

Hypotheses pairs H3₀ and H3_a and H4₀ and H4_a were set in order to explore the indirect effects on civic behaviour of classroom openness through citizenship efficacy.

In order to address RQ2, four pairs of hypotheses, namely H5₀ and H5_a, H6₀ and H6_a, H7₀ and H7_a, and H8₀ and H8_a, were set. In each pair, subscript '0' indicates the null hypothesis, and subscript 'a' indicates the alternative hypothesis. The four pairs of hypotheses were as follows:

H5₀: There is no direct effect of class-averaged classroom openness on civic behaviour.

H5_a: There is a direct effect of class-averaged classroom openness on civic behaviour.

H6₀: There is no direct effect of collective citizenship efficacy on civic behaviour.

H6_a: There is a direct effect of collective citizenship efficacy on civic behaviour.

H7₀: There is no direct effect of class-averaged classroom openness to collective citizenship efficacy.

H7_a: There is a direct effect of class-averaged classroom openness to collective citizenship efficacy.

H8₀: There is no indirect effect of class-averaged classroom openness on civic behaviour through collective citizenship efficacy.

H8_a: There is an indirect effect of class-averaged classroom openness on civic behaviour through collective citizenship efficacy.

Hypotheses pairs H5₀ and H5_a and H6₀ and H6_a addressed the direct effects in RQ2. Hypotheses pairs H7₀ and H7_a and H8₀ and H8_a were constructed because individual civic behaviour may be indirectly affected by class-averaged classroom openness through collective citizenship efficacy.

2.9 Summary

In this chapter, the empirical research for the contextual and theoretical analyses was reviewed according to the constructs utilised in this study, namely civic behaviour, classroom openness and citizenship efficacy. Details of the theories referenced are presented in Figure 2.6. As the literature suggested, a

conceptual framework supported by both contextual and theoretical evidence was established. Finally, a postulated model in the context of this study was developed and then translated into research questions and corresponding research hypotheses. In the next chapter, the methodology for examining the hypothesised model will be introduced.

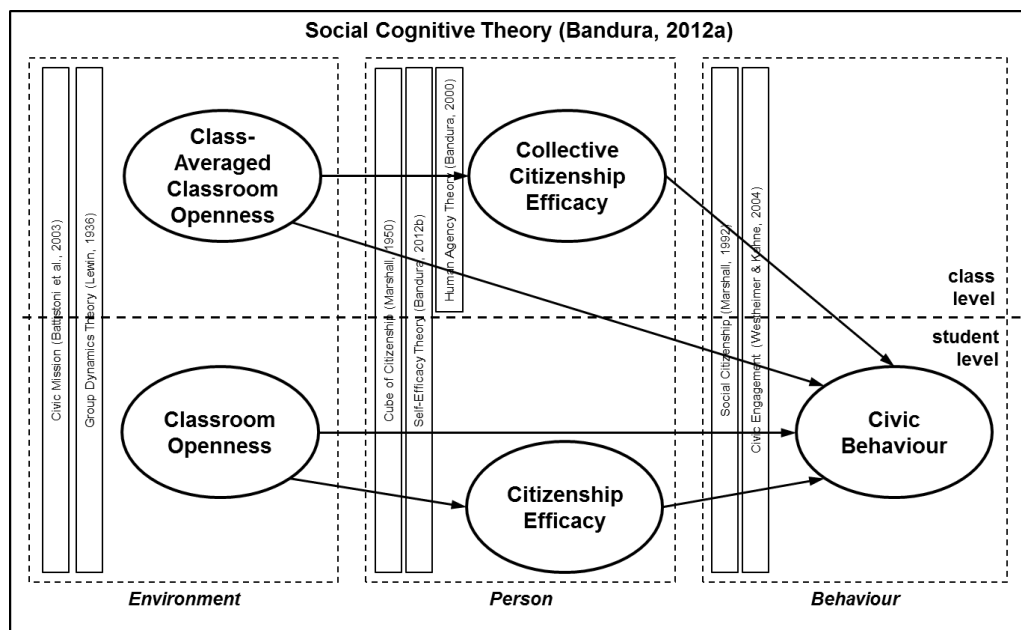


Figure 2.6: Theories referenced in the current study

CHAPTER 3

METHODOLOGY

3.1 Introduction

After reviewing the contextual and theoretical evidence found within the literature in Chapter Two, this chapter presents the research methods used in this study. The chapter begins by introducing the methods of sample and sampling, followed by the presentation of the variables in the study, including the methods of their construction and measurement. Finally, the analytical methods used to address the research questions are discussed.

3.2 Sample and Sampling

The sample for this study comprised secondary data from ICCS 2009 conducted by IEA. While there were different questionnaires for different stakeholders, only the student questionnaire from ICCS 2009 (Schulz et al., 2009) was used for this study. Among the 38 participating countries, this study principally focused on the situation in Hong Kong. The Hong Kong data consisted of 2,902 student participants from 76 secondary schools. The school participation rate was 50.7% (Schulz et al., 2010).

While the target participants of the ICCS student questionnaire (Schulz et al., 2009) were aged between 14 and 15 years for the international sample, all participants from Hong Kong were in secondary two to three when they answered the survey questions. The mean age of the sample was 14.3 years.

According to the ICCS sampling framework, one class of students was selected from each participating school. In other words, all of the participating students did not only come from the same school, but they were also from the same class. The data therefore had a nested structure as a result of this sampling method, since the students were nested within classes and schools. Nevertheless, the school or the class effect couldn't be distinguished easily due to the confounding effect of school and class. The implication is that multilevel models are required in the analysis to handle the nested data structure (Goldstein, 2011) at student- and class-levels, but not the school-level. The choice of class-level will have an impact on the interpretation of the results. This will be addressed in more detail in the later sections.

3.3 Methods of Constructing Measures

In order to prepare the raw data from ICCS 2009 to samples for further analysis, a series of statistical methodologies were adopted:

Step 1. Identifying questions that operationalize the variables in the study.

The first step was to identify potential items from the ICCS 2009 student

questionnaire (Schulz et al., 2009) that were suitable for the current study. By reference to the empirical evidence presented in the last chapter and definition of variables suggested by the ICCS 2009 Technical Report (Schulz et al., 2011), questions related to civic behaviour, citizenship efficacy and classroom openness were identified.

When measuring adolescents' civic behaviour, a multidimensional approach was adopted to address different aspects of civic behaviour:

For measuring adolescents' involvement in political discussion like discussing political and social issues outside of school, Q13, 'How often are you involved in each of the following activities outside school?' was identified. This question includes eight items asking adolescents to rate the frequency of some activities, including discussions of political and social issues outside of school. They can help to define the variable of political discussion.

For measuring adolescent participation in civic-related activities in the wider community, Q14, 'Have you ever been involved in activities of any of the following organisations, clubs, or groups?' was identified. This question includes eight items asking adolescents to state whether they had participated 'never', 'more than a year ago' or 'within the last 12 months' in various civic-related organizations or activities. This can help to define the variable of community participation.

For measuring adolescents' civic participation in school such as in civic-related activities at school, Q15, 'At school, have you ever done any of the following activities?' was identified. This question includes six items asking adolescents whether they have participated 'never', 'within the last 12 months' or 'more than a year ago' in some civic activities at school. This can help to define the variable of school participation.

Besides civic behaviour, questions were also identified for measuring citizenship efficacy and perception of classroom openness:

When measuring adolescents' self-confidence in undertaking activities in the area of civic participation which represents their citizenship efficacy (Schulz et al., 2010a), Q30 was identified, 'How well do you think you would do the following activities?'. This question includes seven items asking adolescent to rate how well they thought they could do various activities related to civic participation. This can help to define the variable of citizenship efficacy.

When measuring adolescents' perceptions of what happens in their regular classes relating to classroom openness, Q16 was identified, 'When discussing political and social issues during regular lessons, how often do the following things happen?'. This question includes seven items asking adolescent to rate the frequency of some events which includes discussions of political and social issues, during their regular lessons. This can help to define the variable of open classroom climate.

By reference to the ICCS 2009 Technical Report (Schulz et al., 2011), these questions were suggested to measure the concepts of civic behaviour, citizenship efficacy and classroom openness. The original questions from the ICCS 2009 student questionnaire (Schulz et al., 2009) are presented in Annex A and the summary of variables defined by these questions is presented in Table 3.1.

Table 3.1: Questions identified for the current study

Constructs (Sub-Construct)	Questions and the Items in the Questions
Civic Behaviour (Political Discussion)	<p>Q13 How often are you involved in each of the following activities outside school?</p> <ul style="list-style-type: none"> a. Talking with your parent(s) about political or social issues b. Watching television to inform yourself about national and international news c. Reading the newspaper to inform yourself about national and international news d. Talking with friends about political and social issues e. Using the Internet to inform yourself about national and international news f. Talking with your parent(s) about what is happening in other countries g. Talking with friends about what is happening in other countries h. Participating in a youth group
	<p>Response options for this item were:</p> <p>‘Never or hardly ever’, ‘Monthly (at least once a month)’, ‘Weekly (at least once a week)’ and ‘Daily or almost daily’.</p>

Table 3.1: Questions identified for the current study (continued)

Civic Behaviour (Community Participation)	<p>Q14 Have you ever been involved in activities of any of the following organisations, clubs or groups?</p> <ul style="list-style-type: none"> a. Youth organisation affiliated with a political party or union b. Environmental organisation c. Human Rights organisation d. A voluntary group doing something to help the community e. An organisation collecting money for a social cause f. A cultural organisation based on ethnicity g. A religious group or organisation h. A group of young people campaigning for an issue <p>Response options for this item were:</p> <p>“Yes, I have done this within the last twelve months”, “Yes, I have done this but more than a year ago”, and “No, I have never done this”.</p>
Civic Behaviour (School Participation)	<p>Q15 At school, have you even done any of the following activities?</p> <ul style="list-style-type: none"> a. Voluntary participation in school-based music or drama activities outside of regular lessons b. Active participation in a debate c. Voting for class representative or school parliament d. Taking part in decision-making about how the school is run e. Taking part in discussions at a student assembly f. Becoming a candidate for class representative or school parliament <p>Response options for this item were:</p> <p>“Yes, I have done this within the last twelve months”, “Yes, I have done this but more than a year ago”, and “No, I have never done this”.</p>

Table 3.1: Questions identified for the current study (continued)

	<p>Q30 How well do you think you would do the following activities?</p> <p>a. Discuss a newspaper article about a conflict between countries</p> <p>b. Argue your point of view about a controversial political or social issue</p> <p>c. Stand as a candidate in a school election</p> <p>d. Organise a group of students in order to achieve changes at school</p> <p>e. Follow a television debate about a controversial issue</p> <p>f. Write a letter to a newspaper giving your view on a current issue</p> <p>g. Speak in front of your class about a social or political issue</p>
<p>Citizenship</p> <p>Efficacy</p>	
<p>Response options for this item were:</p> <p>“Very well”, “Fairly well”, “Not very well” and “Not at all”.</p>	
<hr/>	
	<p>Q16 When discussing political and social issues during regular lessons, how often do the following things happen?</p> <p>a. Students are able to disagree openly with their teachers</p> <p>b. Teachers encourage students to make up their own minds</p> <p>c. Teachers encourage students to express their opinions</p> <p>d. Students bring up current political events for discussion in class</p> <p>e. Students express opinions in class even when their opinions are different from most of the other students</p> <p>f. Teachers encourage students to discuss the issues with people having different opinions</p> <p>g. Teachers present several sides of the issues when explaining them in class</p>
<p>Classroom</p> <p>Openness</p>	
<p>Response options for this item were:</p> <p>“Never”, “Rarely”, “Sometimes” and “Often”.</p>	

Step 2. Reversing item score. Questions selected from the ICCS 2009 student questionnaire (Schulz et al., 2009) were made up of Likert-type items, but they

were not always scored in the same direction. For instance, the four response options for Q13, namely ‘Never or hardly ever’, ‘Monthly (at least once a month)’, ‘Weekly (at least once a week)’ and ‘Daily or almost daily’, were scored as 1, 2, 3 and 4, respectively. Coding in this manner meant a high score for Q13 represented greater frequency. On the other hand, the options for Q14, namely ‘Yes, I have done this within the last twelve months’, ‘Yes, I have done this but more than a year ago’, and ‘No, I have never done this’, were coded as 1, 2 and 3, respectively. Coding in this manner meant that a high score for Q14 represented less frequency, so the reverse of Q13. Consequently, all questions and items in this study were coded, with reverse coding where necessary, such that a high score represented greater frequency of the behaviour or a more positive attitude than a low score.

It is critically important to code all items in the same direction by scoring the items so that higher scores represent more of a concept or a higher frequency of a behaviour than lower scores do. After reverse coding of Q14 and Q15, the options, namely ‘No, I have never done this’, ‘Yes, I have done this but more than a year ago’, and ‘Yes, I have done this within the last twelve months’, were recoded as 1, 2 and 3, respectively. Similarly, for Q30, the options ‘Not at all’, ‘Not very well’, ‘Fairly well’ and ‘Very well’ were recoded as 1, 2, 3 and 4, respectively. The descriptive statistics for the questions identified after any necessary score reserving are presented in Table 3.2.

Table 3.2: Descriptive statistics for the identified questions

Questions / Items	n	Mean	Std. Dev.	Missing (%)
Q13 How often are you involved in each of the following activities outside school?				
Civic Behaviour (Political Discussion)				
<i>Std. Error = 0.09</i>				
a Talking with your parent(s) about political or social issues	2817	2.00	0.962	85 (2.9%)
b Watching television to inform yourself about national and international news	2816	3.20	0.969	86 (3.0%)
c Reading the newspaper to inform yourself about national and international news	2812	2.93	0.981	90 (3.1%)
d Talking with friends about political and social issues	2814	1.71	0.800	88 (3.0%)
e Using the Internet to inform yourself about national and international news	2814	2.61	1.302	88 (3.0%)
f Talking with your parent(s) about what is happening in other countries	2816	2.34	0.962	86 (3.0%)
g Talking with friends about what is happening in other countries	2815	1.84	0.864	87 (3.0%)
h Participating in a youth group	2816	1.83	0.975	86 (3.0%)
Q14 Have you ever been involved in activities of any of the following organisations, clubs or groups?				
Civic Behaviour (Community Participation)				
<i>Std. Error = 0.05</i>				
a Youth organisation affiliated with a political party or union	2815	2.90	0.382	87 (3.0%)
b Environmental organisation	2816	2.64	0.605	86 (3.0%)
c Human Rights organisation	2816	2.93	0.324	86 (3.0%)
d A voluntary group doing something to help the community	2815	2.51	0.752	87 (3.0%)
e An organisation collecting money for a social cause	2819	2.52	0.735	83 (2.9%)
f A cultural organisation based on ethnicity	2813	2.90	0.371	89 (3.1%)
g A religious group or organisation	2816	2.44	0.801	86 (3.0%)
h A group of young people campaigning for an issue	2818	2.88	0.409	84 (2.9%)
Q15 At school, have you even done any of the following activities?				
Civic Behaviour (School Participation)				
<i>Std. Error = 0.05</i>				
a Voluntary participation in school-based music or drama activities outside of regular lessons	2815	1.95	0.803	87 (3.0%)
b Active participation in a debate	2811	2.53	0.696	91 (3.1%)
c Voting for class representative or school parliament	2812	1.78	0.837	90 (3.1%)
d Taking part in decision-making about how the school is run	2811	2.61	0.674	91 (3.1%)
e Taking part in discussions at a student assembly	2813	2.53	0.718	89 (3.1%)
f Becoming a candidate for class representative or school parliament	2814	2.56	0.703	88 (3.0%)

Table 3.2: Descriptive statistics for the identified questions (continued)

Questions / Items	n	Mean	Std. Dev.	Missing (%)
Q30 How well do you think you would do the following activities?				
Citizenship Efficacy				
<i>Std. Error = 0.08</i>				
a Discuss a newspaper article about a conflict between countries	2804	2.25	0.696	98 (3.4%)
b Argue your point of view about a controversial political or social issue	2803	2.28	0.742	99 (3.4%)
c Stand as a candidate in a school election	2803	2.43	0.834	99 (3.4%)
d Organise a group of students in order to achieve changes at school	2800	2.39	0.847	102 (3.5%)
e Follow a television debate about a controversial issue	2800	2.27	0.794	102 (3.5%)
f Write a letter to a newspaper giving your view on a current issue	2802	2.41	0.841	100 (3.4%)
g Speak in front of your class about a social or political issue	2803	2.35	0.821	99 (3.4%)
Q16 When discussing political and social issues during regular lessons, how often do the following things happen?				
Classroom Openness				
<i>Std. Error = 0.08</i>				
a Students are able to disagree openly with their teachers	2814	2.70	0.847	88 (3.0%)
b Teachers encourage students to make up their own minds	2812	3.17	0.799	90 (3.1%)
c Teachers encourage students to express their opinions	2808	3.46	0.756	94 (3.2%)
d Students bring up current political events for discussion in class	2812	2.39	0.836	90 (3.1%)
e Students express opinions in class even when their opinions are different from most of the other students	2811	2.96	0.827	91 (3.1%)
f Teachers encourage students to discuss the issues with people having different opinions	2811	3.08	0.855	91 (3.1%)
g Teachers present several sides of the issues when explaining them in class	2813	3.16	0.831	89 (3.1%)

Step 3. Exploring the underlying factor using Exploratory Factor Analysis (EFA). Based on the assessment framework (Schulz et al., 2008), ICCS 2009 had intended concepts or constructs for questions and items when they designed the student questionnaire. For example, as the ICCS 2009 Technical Report stated, Q13 of the student questionnaire was intended to measure adolescents' discussion of political and social issues (Schulz et al., 2011). However, whether or not the items were interpreted by the respondents as measuring a single

construct still needs to be evaluated. As such, exploratory factor analysis (EFA) (Kline, 2011) was used to test whether the items making up a scale were underpinned by a single latent variable or factor. Using SPSS software (IBM, 2013) to conduct EFA, the number of factors underpinning a set of items could be reported. Maximum likelihood factoring with oblimin rotation was used to identify a simple factor structure. By referring to the scree plot, this can inform the number of factors extracted. Items with factor loading larger or equal to 0.4 were retained, while its other factor loading should not be larger or equal to 0.4 at the same time (Stevens, 2002). Ultimately, each set of items for measuring a construct should yield a single factor in EFA. If EFA is identified more than one factor, the factor loading will be checked carefully to see if there are sub-constructs within the items. The factors tested by EFA would become the latent variables of the study if other indicators were satisfied. These other indicators included the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) test and Bartlett's sphericity test (Bartlett's Test).

KMO measures the sampling adequacy and predictive power (Kaiser, 1970). It indicates whether or not there are sufficient items to predict the factor. It is better if the KMO is greater than 0.7 and inadequate if it is less than 0.05. Bartlett's Test tests the null hypothesis that variables are uncorrelated in the correlation matrix (Snedecor & Cochran, 1980). In other words, the correlation matrix should differ significantly from an identity matrix. It should be significant with the p -value less than 0.05.

The results of EFA for Q13 suggested that two factors were identified from eight Likert-type items ($KMO = 0.757$, Bartlett's Test $p = 0.000$). Q13 surveyed how often adolescents involved in political discussions outside of school. Due to the low and unclear distribution of factor loading for Q13h (Factor 1 = 0.256, Factor 2 = 0.071), an item concerning "Participating in a youth group", it was removed for rechecking the factor structure. By redoing the EFA with seven items, the two-factor structure of Q13 (designed to measure the construct of political discussion with seven items, $KMO = 0.744$, Bartlett's Test $p = 0.000$) was suggested. The tables of factor loading are presented in Tables 3.3 and 3.4.

In the ICCS 2009 Technical Report (Schulz et al., 2011), this scale was measured by four items for the pooled ICCS sample. The additional items proposed in this study include how often adolescents were involved in 'watching television to inform yourself about national and international news', 'reading the newspaper to inform yourself about national and international news' and 'talking with friends about what is happening in other countries'. This new contextual finding will be further discussed in Chapter Five.

Table 3.3: Factor loading (with eight items) of adolescents' civic behaviour (Political Discussion)

Questions / Items	Factor 1	Factor 2
Q13 How often are you involved in each of the following activities outside school?		
d. Talking with friends about political and social issues	0.690	-0.402
g. Talking with friends about what is happening in other countries	0.679	-0.418
f. Talking with your parent(s) about what is happening in other countries	0.645	-0.062
a. Talking with your parent(s) about political or social issues	0.643	-0.014
b. Watching television to inform yourself about national and international news	0.627	0.529
c. Reading the newspaper to inform yourself about national and international news	0.621	0.406
e. Using the Internet to inform yourself about national and international news	0.559	0.092
h. Participating in a youth group	0.292	-0.060

Table 3.4: Factor loading (with seven items) of adolescents' civic behaviour (Political Discussion)

Questions / Items	Factor 1	Factor 2
Q13 How often are you involved in each of the following activities outside school?		
d. Talking with friends about political and social issues	0.687	-0.402
g. Talking with friends about what is happening in other countries	0.682	-0.425
f. Talking with your parent(s) about what is happening in other countries	0.643	-0.063
a. Talking with your parent(s) about political or social issues	0.639	-0.012
b. Watching television to inform yourself about national and international news	0.630	0.528
c. Reading the newspaper to inform yourself about national and international news	0.621	0.403
e. Using the Internet to inform yourself about national and international news	0.558	0.091

Q14 (designed to measure the construct of community participation with eight items, KMO = 0.826, Bartlett's Test $p = 0.000$) surveyed adolescents' civic participation in the wider community. EFA suggested that one factor was identified from eight Likert-type items. The table of factor structure is presented in Table 3.5.

*Table 3.5: Factor loading of adolescents' civic behaviour
(Community Participation)*

Questions / Items	Factor 1
Q14 Have you ever been involved in activities of any of the following organisations, clubs or groups?	
c. Human Rights organisation	0.650
f. A cultural organisation based on ethnicity	0.602
e. An organisation collecting money for a social cause	0.568
a. Youth organisation affiliated with a political party or union	0.565
b. Environmental organisation	0.561
h. A group of young people campaigning for an issue	0.560
d. A voluntary group doing something to help the community	0.546
g. A religious group or organisation	0.360

Q15 (designed to measure the construct of school participation with six items, KMO = 0.788, Bartlett's Test $p = 0.000$) surveyed adolescents' participation in civic activities at school. EFA suggested that one factor was identified from six Likert-type items. The table of factor loading is presented in Table 3.6.

*Table 3.6: Factor loading of adolescents' civic behaviour
(School Participation)*

Questions / Items	Factor 1
Q15 At school, have you even done any of the following activities?	
e. Taking part in discussions at a student assemble	0.700
d. Taking part in decision-making about how the school is run	0.583
b. Active participation in a debate	0.545
f. Becoming a candidate for class representative or school parliament	0.526
c. Voting for class representative or school parliament	0.472
a. Voluntary participation in school-based music or drama activities outside of regular lessons	0.433

As for Q16 (designed to measure the construct of classroom openness with seven items, KMO = 0.847, Bartlett's Test $p = 0.000$), it surveyed adolescents' perceptions of what happened in their regular classes. EFA suggested that one factor was identified from seven Likert-type items. The table of factor loading is presented in Table 3.7.

In the ICCS 2009 Technical Report (Schulz et al., 2011), this scale was measured by six items for the pooled ICCS sample instead of seven items. The difference was one item about how often adolescents were 'able to disagree openly with their teachers'. This contextual finding will be further discussed in Chapter Five.

Table 3.7: Factor loading of adolescents' perception of classroom openness (Open Classroom Climate)

Questions / Items	Factor 1
Q16 When discussing political and social issues during regular lessons, how often do the following things happen?	
a. Students are able to disagree openly with their teachers	0.400
b. Teachers encourage students to make up their own minds	0.732
c. Teachers encourage students to express their opinions	0.631
d. Students bring up current political events for discussion in class	0.464
e. Students express opinions in class even when their opinions are different from most of the other students	0.735
f. Teachers encourage students to discuss the issues with people having different opinions	0.765
g. Teachers present several sides of the issues when explaining them in class	0.747

Q30 (designed to measure the construct of citizenship efficacy with seven items, KMO = 0.872, Bartlett's Test $p = 0.000$) surveyed adolescents' perceptions of what happened in their regular classes in term of classroom openness. EFA suggested that one factor was identified from seven Likert-type items. This factor structure is presented in Table 3.8.

Table 3.8: Factor loading of adolescents' citizenship efficacy

Questions / Items	Factor 1
Q30 How well do you think you would do the following activities?	
b. Argue your point of view about a controversial political or social issue	0.762
e. Follow a television debate about a controversial issue	0.759
g. Speak in front of your class about a social or political issue	0.741
a. Discuss a newspaper article about a conflict between countries	0.718
f. Write a letter to a newspaper giving your view on a current issue	0.715
d. Organise a group of students in order to achieve changes at school	0.681
c. Stand as a candidate in a school election about national and international news	0.641

Step 4. Assessing internal consistency reliability. As all the latent variables or factors in this study are scales made up of multiple items, assessing the reliability or internal consistency of the items is necessary. This is achieved by computing Cronbach's coefficient alpha (α) using the computer software SPSS. Cronbach's coefficient alpha is used to check a summated scale, which is formed by several Likert-type items. The higher the Cronbach's coefficient alpha values, the more consistency there is among the items.

Cronbach's coefficient alpha (α) is known to be affected by the variability of the sample and by the Likert scale length (Cronbach, 1951). The more items forming the scale, the greater α values that are likely as a result (Kline, 1999).

As a general rule of thumb, scales with a Cronbach's coefficient α greater than 0.7 are considered reasonably reliable, while scales with α greater than 0.9 are considered highly reliable (Cortina, 1993).

All six proposed factors among the five identified questions had acceptable Cronbach's coefficient α values. This means that all the factors in this study were reliable to their constituent items and had good internal consistency. The results are summarised in Table 3.9.

Table 3.9: Scale reliability and descriptive statistics

Question (Scale)	Factor	Cronbach Alpha (α)	<i>n</i>	<i>Mean</i>	<i>Std. Dev.</i>
Q13	1	0.794	11262	1.97	0.900
(Political Discussion)	2	0.725	844	2.91	1.095
Q14	1	0.728	22528	2.72	0.578
(Community Participation)					
Q15	1	0.709	16876	2.33	0.741
(School Participation)					
Q30	1	0.880	19615	2.34	0.798
(Citizenship Efficacy)					
Q16	1	0.828	19681	2.99	0.822
(Open Classroom Climate)					

Step 5. Checking dimensionality. It is important to confirm every latent variable or factor in this study is unidimensional, which means there is only one underlying dimension of a latent variable. The theoretical foundation presented in Chapter Two and the EFA discussed in the previous step offer very strong foundations for measurement scales to be established using the Rasch model (Rasch, 1980). When unidimensionality is the foundation of the Rasch model, Linacre (1998) provided detailed explanations of the principles behind using Principal Components Analysis (PCA) on the residuals under the Rasch measurement framework. The argument goes like this: If the items are underpinned by a single dimension (the measurement scale) only, then the residual of any one item will have no association with another item. In other words, the common factors of the residuals in the PCA explain nothing more than random noise, or that there is no meaningful structure identified by the PCA of the residuals. This provides evidence for the researcher to refute communality across items, which in turn means that the result gives credence to the claim that the items are underpinned by a single dimension (unidimensionality). In the PCA of residuals, this study tries to falsify the hypothesis that there are meaningful structures in the residuals. This is done by extracting the common factor, called the ‘first contrast’, which explains the maximum amount of variance in the residuals. A large eigenvalue of the first contrast indicates that there is a meaningful structure, while a small eigenvalue indicates no meaningful structure or just random noise in the residuals. Simulation work conducted by Smith (1996) suggested using a cut-off value of



2.0 for the eigenvalue of the first contrast to determine the hypothesis of meaningful structures in the residuals.

In this study, the computer software WINSTEPS (Linacre, 2014) was used to conduct PCA on the item residuals of each scale in order to checked whether each scale was unidimensional. The results showed that items in Q14 (*eigenvalue* = 1.4), Q15 (*eigenvalue* = 1.9) and Q16 (*eigenvalue* = 1.8) each formed a unidimensional scale in accordance with the Rasch model. On the other hand, for Q13 and Q30, their eigenvalues of the first contrast were greater than 2.0. Further exploration of them is therefore needed.

According to the EFA results, two factors were identified in Q13 as presented in Table 3.3. The items making up each factor identified by EFA were subjected to the satisfied results of PCA on residuals using WINSTEPS (Linacre, 2014). As reported by the PCA of residuals on the items that loaded on the first and second EFA factor, the eigenvalues of the first contrast were 2.0 and 1.7 respectively. These results indicated that the first EFA factor was multidimensional and the second EFA factor was likely unidimensional (Smith, 1996).

Moreover, further inspection on the semantics of items was then conducted. Those items which loaded on the first EFA factor were found to be concerned with discussing political and social issues with parents and friends in general. Items which loaded on the second EFA factor, generally, were concerned about

the discussion on media and Internet. However, both sets of items literally shared a common focus on adolescents' involvement in discussing political and social issues outside of school. In fact, Q13 asked adolescents how often they were involved in various activities related to civic participation outside of school. In connection with this, PCA on the residuals of a scale combining both sets of items was conducted to check whether these items could form a unidimensional scale. As a result, the eigenvalues of the first contrast was 1.9. This implied that the seven items in Q13 did form a unidimensional scale in accordance with the Rasch model.

Another inspection was also undertaken on the semantics of items found and loaded on the EFA factor in Q30 when PCA on the residuals reported that this factor was likely multidimensional (*eigenvalue* = 2.1). All the seven items in Q30 were concerned about adolescents' confidence belief in how well they could do various activities related to civic participation. Nevertheless, these civic-related activities could be divided into two groups literally: activities outside of school (Subscale 1, items including 'Discuss a newspaper article about a conflict between countries', 'Argue your point of view about a controversial political or social issue', 'Follow a television debate about a controversial issue', 'Write a letter to a newspaper giving your view on a current issue') and activities inside school (Subscale 2, items including 'Stand as a candidate in a school election', 'Organise a group of students in order to achieve changes at school', 'Speak in front of your class about a social or political issue'). In consideration of this, PCA on the residuals of two sets of

items was conducted separately to check whether they could form unidimensional subscales individually. The results showed that both intended subscales were unidimensional, in accordance with the Rasch model when the eigenvalues of them both were 1.7. In other words, it could be safely concluded that both subscales of Q30 were unidimensional.

3.4 Hypothesised Model and Variable Measurement

After completing the procedures illustrated in the previous section, the measures for present study were developed. As presented in Figure 3.1, these measures were used as the scales of the finalised hypothesised model in this study. In the figure, a single-headed arrow was used to represent a predictive relationship between a pair of variables. On the other hand, a double-headed arrow was used to represent no specified predictive relationship between the pair of variables. For example, there was no specified predictive relationship between political discussion, community participation and school participation.

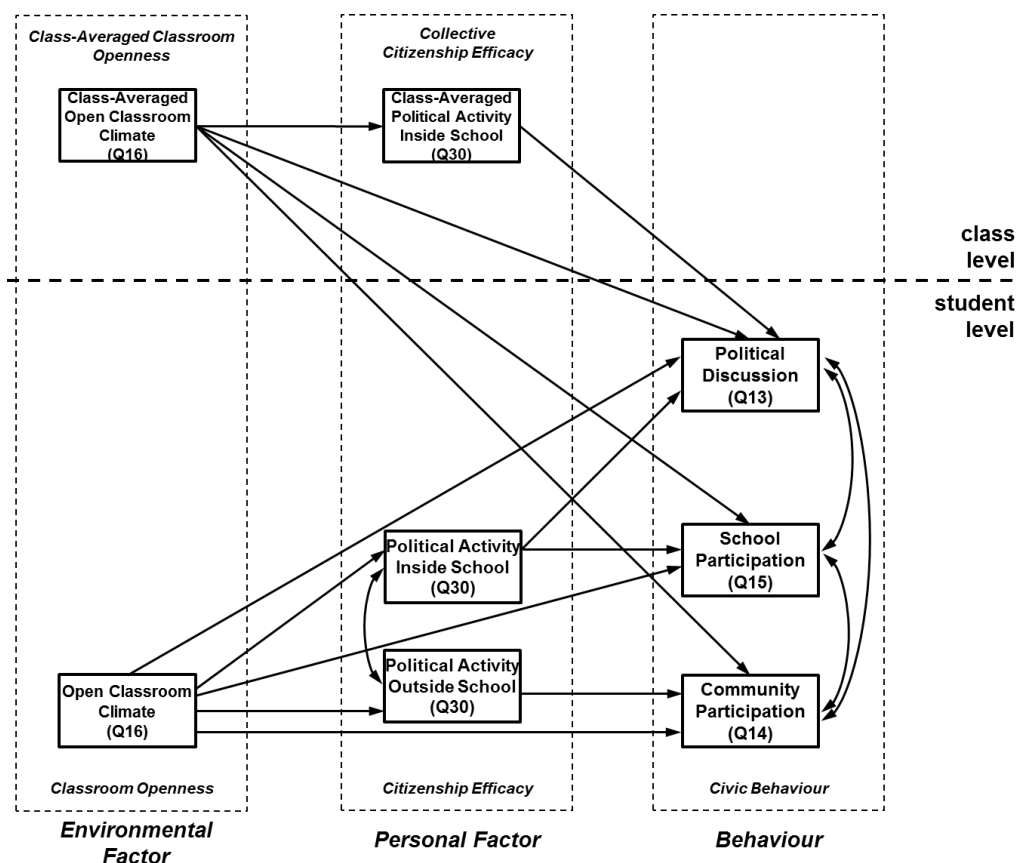


Figure 3.1: Finalised hypothesised model

In the model, the construct of **civic behaviour** was measured by three scales in order to address the complexity. These three scales could help to investigate civic behaviour in different aspects. They scales included the following:

- **Political Discussion (Q13):** This scale measured how frequently the adolescents had political discussions with family and friends through different means;
- **Community Participation (Q14):** This scale measured how frequently the adolescents participated in different civic-related activities in the community; and

- ***School Participation (Q15)***: This scale measured how frequently the adolescents participated in different civic-related activities in their schools.

Political Discussion was a scale constructed from Q13 of the ICCS 2009 student questionnaire using the procedures described in Section 3.3. It was made up of seven Likert-type items and is represented by the symbol **PD** in subsequent path models. It was created according to the Rasch rating scale model (Bond & Fox, 2007; Wright & Masters, 1982) using the ConQuest software (Version 3.0.1) (Wu, Adams, Wilson, & Haldane, 2012). The higher the score, the greater the frequency with which the adolescent discussed political issues with family or friends. The political discussion measured civic behaviour by asking each adolescent, ‘How often are you involved in each of the activities outside of school?’. The activities within the items included talking with their parents about political or social issues; watching television to inform themselves about national and international news; reading newspapers to inform themselves about national and international news; talking with friends about political and social issues; using the Internet to inform themselves about national and international news; and talking with parents about what is happening in other countries. The response scale was a five-point Likert-type scale with options ranging from ‘*never or hardly ever*’ to ‘*daily or almost daily*’. Empirical evidence supported the unidimensionality of this scale (eigenvalue = 1.9 in the first contrast of the PCA of residuals). Additionally, this scale was found to be internally consistent (Cronbach’s $\alpha = 0.814$; EAP/PV reliability =

0.832). There was evidence of a strong data-model fit with the Rasch rating scale model (in-fit and out-fit values were all between 0.5 and 1.5).

Community Participation was a scale constructed from Q14 of the ICCS 2009 student questionnaire using the procedures described in Section 3.3. It was made up of seven Likert-type items and is represented by the symbol **CP** in subsequent path models. It was created according to the Rasch rating scale model (Bond & Fox, 2007; Wright & Masters, 1982) using ConQuest software (Version 3.0.1) (Wu, Adams, Wilson, & Haldane, 2012). The higher the score, the greater the frequency with which the adolescent had participated in political or social issues in the community. Community participation measured civic behaviour by asking each adolescent: ‘Have you even been involved in activities of any of the following organisations, clubs or groups?’. The activities in the items included youth organisations affiliated with a political party or union; environmental organisations; human rights organisations; a voluntary group doing something to help the community; an organisation collecting money for a social cause; a cultural organisation based on ethnicity; a religious group or organisation; and a group of young people campaigning for an issue. The response scale was a three-point Likert-type scale with options ranging from ‘*No, I have never done this*’ to ‘*Yes, I have done this within the last twelve months*’. Empirical evidence supported the unidimensionality of the scale (eigenvalue = 1.4 in the first contrast of the PCA of residuals). Additionally, this scale was found to be internally consistent (Cronbach’s $\alpha = 0.728$; EAP/PV

reliability = 0.711). There was evidence of a strong data-model fit with the Rasch rating scale model (in-fit and out-fit values were all between 0.5 and 1.5).

School Participation was a scale constructed from Q15 of the ICCS 2009 student questionnaire using the procedures described in Section 3.3. It was made up of six Likert-type items and represented by the symbol **SP** in subsequent path models. It was created according to the Rasch rating scale model (Bond & Fox, 2007; Wright & Masters, 1982) using ConQuest software (Version 3.0.1) (Wu, Adams, Wilson, & Haldane, 2012). The higher the score, the greater the frequency with which the student had participated in political or social issues at school. School participation measured civic behaviour by asking each adolescent: ‘At school, have you ever done any of the following activities?’ The activities in the items included voluntary participation in school-based music or drama activities outside of regular lessons; active participation in a debate; voting for class representative or school parliament; taking part in decision-making about how the school is run; taking part in discussions at a student assembly and becoming a candidate for class representative or school parliament. The response scale was a three-point Likert-type scale with options ranging from ‘No, I have never done this’ to ‘Yes, I have done this within the last twelve months’. Empirical evidence supported the unidimensionality of the scale (eigenvalue = 1.4 in the first contrast of the PCA of residuals). Additionally, this scale was found to be internally consistent (Cronbach’s α = 0.709; EAP/PV reliability = 0.706). There was evidence of a strong data-model

fit with the Rasch rating scale model (in-fit and out-fit values were all between 0.5 and 1.5).

In Figure 3.1, the construct of **citizenship efficacy** was measured by two scales in the hypothesised model. These scales included the following:

- ***Political Activity Inside School (Q30)***: This scale measured the adolescents' perceptions of how well they could perform certain civic- or citizenship-related activities inside school;
- ***Political Activity Outside School (Q30)***: This scale measured the adolescents' perceptions of how well they could perform certain civic- or citizenship-related activities outside school

Political Activity Inside School was a scale constructed from Q30 of the ICCS 2009 student questionnaire using the procedures described in Section 3.3. It was made up of three Likert-type items and represented by the symbol **AIS** in subsequent path models. It was created according to the Rasch rating scale model (Bond & Fox, 2007; Wright & Masters, 1982) using ConQuest software (Version 3.0.1) (Wu, Adams, Wilson, & Haldane, 2012). The higher the score, the more confident the student was about participating in political or social activities at school. **Political activity inside school** measured citizenship efficacy by asking each adolescent the question 'How well do you think you would do the following activities?'. The activities in the items included stand as a candidate in a school election, organise a group of students in order to achieve changes at school and speak in front of their class about a social or political

issue. The response scale was a four-point Likert-type scale with options ranging from ‘*Not at all*’ to ‘*Very well*’. Empirical evidence supported the unidimensionality of the scale (eigenvalue = 1.7). Additionally, this scale was found to be internally consistent (Cronbach’s $\alpha = 0.791$; EAP/PV reliability = 0.825). There was evidence of a strong data-model fit with the Rasch rating scale model (in-fit and out-fit values were all between 0.5 and 1.5).

Another scale considered was **Collective Citizenship Efficacy**. It was represented by the symbol **CCE**. By averaging students’ perceptions on their ability to carry out political or social activities at school according to the school they came from, **Collective Citizenship Efficacy** was created for the multilevel model analysis at the class-level.

Political Activity Outside School was a scale constructed from Q30 of the ICCS 2009 student questionnaire using the procedures described in Section 3.3. It was made up of four Likert-type items and is represented by the symbol **AOS** in subsequent path models. It was created according to the Rasch rating scale model (Bond & Fox, 2007; Wright & Masters, 1982) using ConQuest software (Version 3.0.1) (Wu, Adams, Wilson, & Haldane, 2012). The higher the score, the more confident the student was to participate in political or social activities outside school. This scale measured citizenship efficacy in undertaking civic-related activities outside of school by asking the adolescent: ‘How well do you think you would do the following activities?’. The activities in the items included the following: discuss a newspaper article about a conflict between

countries; argue their point of view about a controversial political or social issue; follow a television debate about a controversial issue; and write a letter to a newspaper giving their view on a current issue. The response scale was a four-point Likert-type scale with options ranging from ‘*Not at all*’ to ‘*Very well*’. Empirical evidence supported the unidimensionality of the scale (eigenvalue = 1.7). Additionally, this scale was found to be internally consistent (Cronbach’s $\alpha = 0.834$; EAP/PV reliability = 0.822). There was evidence of a strong data-model fit with the Rasch rating scale model (in-fit and out-fit values were all between 0.5 and 1.5).

In the hypothesised model presented in Figure 3.1, the construct of **classroom openness** was measured by a scale called *open classroom climate*. It was constructed from Q16 of the ICCS 2009 student questionnaire using the procedures described in Section 3.3. The **open classroom climate** scale was represented by the symbol **OCC** in subsequent path models, and was created according to the Rasch rating scale model (Bond & Fox, 2007; Wright & Masters, 1982) using ConQuest software (Version 3.0.1) (Wu, Adams, Wilson, & Haldane, 2012). The higher the score, the more open the classroom was. It measured adolescents’ perceptions of classroom openness and the belief that they can express their opinions in a supportive environment by asking: ‘When discussing political and social issues during regular lessons, how often do the following things happen?’. The activities in the items included the following: students are able to disagree openly with their teachers; teachers encourage students to make up their own minds; teachers encourage students to express

their opinions; students bring up current political events for discussion in class; students express opinions in class even when their opinions are different from most of the other students; teachers encourage students to discuss the issues with people having different opinions; and teachers present several sides of the issues when explaining them in class. The response scale was a four-point Likert-type scale with options ranging from ‘*Never*’ to ‘*Often*’. Empirical evidence supported the unidimensionality of the scale (eigenvalue = 1.8). Additionally, this scale was found to be internally consistent (Cronbach’s α = 0.828; EAP/PV reliability = 0.787). There was evidence of a strong data-model fit with the Rasch rating scale model (in-fit and out-fit values were all between 0.5 and 1.5).

Another scale used was **Class-Averaged Open Classroom Climate**. It was represented by the acronym **CAOCC** in subsequent path models. By averaging the adolescents’ perceptions of open classroom climate according to the school they came from, **Class-Averaged Open Classroom Climate** was created for the multilevel model analysis at class-level.

For ease of reference, the psychometric properties of the variables considered in this study are summarised in Table 3.10.

Table 3.10: Psychometric properties of scale

Scales (Question)	No. of Items	Cronbach's Alpha (α)	EAP/PV Reliability	Range of Item Out-fit MNSQ	Range of Item In-fit MNSQ	Eigen -value
Political Discussion (Q13)	7	0.814	0.832	0.98-1.28	0.95-1.36	1.9
Community Participation (Q14)	8	0.728	0.711	0.64-1.26	0.88-1.25	1.4
School Participation (Q15)	6	0.709	0.706	0.84-0.99	0.85-1.04	1.4
Political Activity Inside School (Q30)	3	0.791	0.825	1.01-1.06	1.04-1.07	1.7
Political Activity Outside School (Q30)	4	0.834	0.822	0.83-1.12	0.84-1.14	1.7
Open Classroom Climate (Q16)	7	0.828	0.787	0.89-1.29	0.90-1.23	1.8

3.5 Methods of Analysis

As suggested by Cheung and Chan (2005), a two-stage structural equation modelling method (two-stage approach) was adopted for the analysis in this

study. In this approach, stage one is about scale building and the stage two is about fitting structural equation models. This arrangement can help to incorporate meta-analytic techniques and Structural Equation Modelling (SEM) into a unified framework. Additionally, Cheung and Chan's (2005) simulation results revealed that this two-stage approach performs better in testing the homogeneity of correlation matrices when compared with other methods, such as applying Pearson correlations (univariate r), Fisher z scores (univariate z), or generalised least squares (GLS) to combine the correlation matrices and then analyse the pooled correlation matrix using SEM.

Using this two-stage approach, the analysis of this study was undertaken in two steps, namely (Step 1) the imputation of plausible values (Mislevy, Beaton, Kaplan, & Sheehan, 1992; Wu, 2005), and (Step 2) the fitting of the hypothesised model.

3.5.1 Step 1: Imputing Plausible Values

In order to address any concerns of bias in the estimation of scales while the point estimates were used, as suggested by Wu (2005), plausible values methodology (Mislevy, Beaton, Kaplan, & Sheehan, 1992) was used before fitting the multilevel structural equation modelling (MSEM). Wu (2005) pointed out that plausible values are useful to 'allow [the] secondary data analyst to employ standard techniques and tools to analyse achievement data that contains substantial measurement error components' (Wu, 2005, p. 114).

Additionally, another possibility of employing the plausible values methodology can be to ‘facilitate the computation of standard errors of estimates when the sample design is complex’ (Wu, 2005, p. 114). Such methodology is useful when reducing student burden or when inconvenience caused to their school schedule was taken into consideration. Large-scale surveys, like the Programme for International Student Achievement (PISA), will divide the pool of items into blocks and then produce booklets with different block combinations (Monseur & Adams, 2009). For example, as illustrated by Von Davier, Gonzalez and Mislevy (2009), 270 minutes’ worth of test items may have to be arranged into six 45-minute blocks and then six booklets, which include all the combinations of any two of them produced in order to achieve the test duration of 90 minutes. However, this is not applicable to this study since all the items and questions involved come only from the student questionnaire booklet in ICCS 2009.

In this study, instead of having point-estimates of both three and four Likert scales, plausible values were computed for every variable by multiple imputation. As presented in Tables 3.2 and 3.3, although the proportion of missing values in the sample is small (2.9% - 3.4%), as is the standard error of values (0.05 – 0.09), multiple imputation could help to replace each missing value with a set of plausible values that represents the uncertainty about the right value to impute (Yang, 2000, p.1). By using ConQuest computer software (Version 3.0.1) (Wu, Adams, Wilson, & Haldane, 2012), plausible values were

imputed as latent variables under the scaling methods based on the Rasch rating scale model (Bond & Fox, 2007). These plausible values, with their associated likelihoods, were randomly drawn from the point-estimate distribution (Wu, 2005). As suggested by Little and Rubin (1987), five sets of plausible values were imputed for every latent variable or factor in this study.

3.5.2 Step 2: Multilevel Structural Equation Modelling (MSEM)

Structural equation modelling was used to explore the constellation of relationships between variables as specified in the finalised hypothesised model (Figure 3.1). In order to address the nested nature of the data (students were nested in classes and schools) and ensure accurate estimates, a multilevel model (Goldstein, 2011) was adopted when fitting the structural equation model. Since the school or the class effect could not be distinguished easily due to the confounding effect of school and class, class-level was chosen instead of school-level. This choice has an impact on the interpretation of results in Chapter Five. The measurement model consisted of three constructs (open classroom climate, citizenship efficacy, and civic behaviour) and six sub-constructs (open classroom climate, political activity inside school, political activity outside school, political discussion, community participation and school participation). The variables and their names for each construct in the model are presented in Table 3.11.

Table 3.11: Variable and variable name of the study

Construct	Classroom Openness	Citizenship Efficacy	Civic Behaviour
<i>Student-level</i>			
Variable	Open Classroom Climate (OCC)	Political Activity Inside School (AIS) Political Activity Outside School (AOS)	Political Discussion (PD) Community Participation (CP) School Participation (SP)
<i>Class-level</i>			
Variable	Class Averaged Open Classroom Climate (CAOCC)	Class Averaged Political Activity Inside School (CCE)	Political Discussion (PD) Community Participation (CP) School Participation (SP)

Multilevel modelling is considered applicable when the model satisfies two conditions. One of these conditions concerns the nature of the data, while the other relates to the statistical consideration. In this study, the data from the ICCS 2009 was collected from the same class of students in each participating school. The data was nested in nature due to this sampling method. Besides, multilevel modelling is suggested statistically when the clustering in the data

needs to be taken into account during the estimation. To address this, the design effect can be calculated using the formula: $1 + (\text{average cluster size} - 1) \times \text{intraclass correlation}$. When the design effect is larger than 2, multilevel modelling is recommended (Muthén & Satorra, 1995). In the case of this study, the design effects of each set of plausible values, as well as their average values, were computed and presented in Table 3.12. The design effects of each set of plausible values, including their average values, of political discussion, community participation and school participation were larger than 2.0.

Table 3.12: Intraclass correlation coefficient and design effect of civic behaviour

Variable / Variable Name	Averaged	PV1	PV2	PV3	PV4	PV5
<i>Intraclass Correlation Coefficient</i>						
Civic Behaviour						
Political Discussion / PD	4.9%	4.2%	5.5%	5.1%	4.7%	5.0%
Community Participation / CP	4.6%	4.2%	4.5%	4.7%	5.0%	4.5%
School Participation / SP	5.1%	4.3%	6.1%	4.6%	6.0%	4.3%
<i>Design Effect</i>						
Civic Behaviour						
Political Discussion / PD	2.822	2.562	3.045	2.896	2.748	2.859
Community Participation / CP	2.703	2.562	2.673	2.748	2.859	2.673
School Participation / SP	2.882	2.599	3.268	2.710	3.231	2.599
Average Cluster Size	38.184	38.184	38.184	38.184	38.184	38.184

Therefore, to ensure that the estimates are accurate, multilevel modelling (Goldstein, 2011) was adopted to develop a two-level model, i.e. student at level 1 and class at level 2.

After confirming the applicability, two perspectives were considered in term of adopting the multilevel model (Goldstein, 2011) in this study. First, to what extent does the class influence adolescents' civic behaviour? Using MPLUS computer software (Muthén & Muthén, 2013), this was investigated by analysing the proportion of variance explained for the variables measuring civic behaviour (i.e. Political Discussion, Community Participation and School Participation) decomposed into both student- and class-levels in an unconditional model, from which the predictors were taken away. In order to check the statistical significance, the class-level variances of the variables were divided by their standard deviation to obtain the t-ratio. Values of t-ratio which were greater than 2 implied that there was a significant class impact on adolescents' civic behaviour. To understand how similar the adolescents' civic behaviour was within the same class, the intraclass correlation coefficient was calculated. Again, the larger the intraclass correlation coefficient, the more the adolescents within the same class that were similar to each other.

The second perspective questioned what influenced the adolescents' civic behaviour. To further understand adolescents' civic behaviour in this direction, a Multilevel Structural Equation Model (MSEM) was fitted to the data under the two-stage approach. Five sets of plausible values were used as latent

variables for developing the structural models. Each set of plausible values was fitted into the multilevel path model using the MPLUS computer software (Muthén & Muthén, 2013). Maximum likelihood estimates were adopted for analysis. The relationship between the constructs could be understood by studying the path coefficient of the models. Using the t-ratio (the path coefficient divided by its variance), the statistical significance of every path coefficient was also examined. The average values of the path coefficients after analysing five sets of plausible values can help to illuminate the influence of classroom openness and citizenship efficacy on adolescents' civic behaviour at both the student-level (personal impact) and the class-level (social impact). The predictive power between them and their significance could also be identified.

Further, various goodness of fit indices were calculated in order to measure the goodness of fit of the hypothesised model. These indices included the chi-square, Comparative Fit Index (CFI) (Bentler, 1990), Tucker Lewis Index (TLI) (Tucker & Lewis, 1973), Root Mean Square Error of Approximation (RMSEA) (Steiger & Lind, 1980), and Standardised Root Mean Square Residual (SRMR) (Bentler, 1995). Although Hooper, Coughlan, and Mullen (2008) pointed out that the chi-square might not be a good indicator for model fit, it was presented together with other goodness of fit indices to serve as a reference when the chi-squared test retains its popularity as a fit statistic. Among several goodness of fit indices, Hu and Bentler (1999) suggested that a mix of reporting two indices for a model can offer a better understanding of the model fit. Following their 'two-index presentation strategy', Hu and Bentler (1999) recommended that a



model may be considered as a good or acceptable model fit when it satisfies either: (1) TLI is equal to or greater than 0.95 and SRMR is equal to or smaller than 0.09, (2) CFI is equal to or greater than 0.96 and SRMR is equal to or smaller than 0.09, or (3) RMSEA is equal to or smaller than 0.06 and SRMR equal or smaller than 0.09.

3.6 Summary

This chapter detailed the methodology used in this study. The Hong Kong dataset from ICCS 2009 was used as the sample. Before proceeding to analysis, this data was processed by a series of statistical methods. These methods included EFA for identifying six underlying scales from five questions with an internal consistency reliability check using SPSS computer software (IBM, 2013), a dimensionality check of scales using WINSTEPS computer software (Linacre, 2014), and the imputation of five sets of plausible values for each scale using ConQuest computer software (Version 3.0.1) (Wu, Adams, Wilson, & Haldane, 2012). A multilevel structural equation model (MSEM) was fitted to the five sets of plausible values, one set at a time. The plausible values were used as inputs for the multilevel path model using the MPLUS computer software (Muthén & Muthén, 2013). Ultimately the final path coefficients were computed by averaging the results of these five models. These path coefficients could help to identify the relationships between constructs in the model. In the next chapter, the results of MSEM will be presented.

CHAPTER 4

RESULTS

4.1 Introduction

A hypothesised model showing the prediction of civic behaviour by classroom openness and citizenship efficacy was developed in Chapter Three. In this chapter, results of the multilevel path modelling are reported. These results include the relationships between the identified variables discovered using Multilevel Structural Equation Modelling (MSEM). Five sets of plausible values (Mislevy, Beaton, Kaplan, & Sheehan, 1992; Wu, 2005) were generated in Chapter Three. Each of the five sets of plausible values was used in this chapter as inputs for the cross-level analysis using a single multilevel path model on the prediction of civic behaviour. In line with advice from the literature (Davies, Gonzalez, & Mislevy, 2009), the analyses were undertaken separately using each set of plausible values, and the results are averaged and presented in this chapter. Maximum likelihood estimates of the path coefficients of the structural equation model were generated using the MPLUS computer software (Muthén & Muthén, 2013). The overall model fit was first inspected by examining a number of indices, including CFI, TLI and the RMSEA according to criteria discussed in Chapter Three. Estimates of individual paths and their statistical significance are reported.



4.2 Variance of Variables Measuring Civic Behaviour

As discussed in Chapter Three, two perspectives were considered when adopting the multilevel model (Goldstein, 2011) in this study. The first concerned the extent to which the class influenced adolescents' civic behaviour. This was investigated by calculating the proportion of variance of the variables measuring adolescents' civic behaviour.

As presented in Table 4.1, the two-level analysis (Goldstein, 2011) showed that student-level variance of civic behaviour variables were statistically significant (at $\alpha = 1\%$ level) for each set of plausible values and the averaged result. Also, the class-level variance of civic behaviour variables was statistically significant (at $\alpha = 1\%$ level).

Table 4.1: Student- and class-level variance of civic behaviour

Variable / Variable Name	Averaged	PV1	PV2	PV3	PV4	PV5
<i>Student-level Variance (Standard Error)</i>						
Civic Behaviour						
Political Discussion / PD	0.087 (0.011)	0.093 (0.012)	0.085 (0.012)	0.087 (0.011)	0.083 (0.011)	0.087 (0.011)
Community Participation / CP	0.037 (0.007)	0.035 (0.007)	0.035 (0.007)	0.043 (0.009)	0.035 (0.006)	0.038 (0.007)
School Participation / SP	0.073 (0.010)	0.079 (0.009)	0.072 (0.011)	0.076 (0.011)	0.066 (0.009)	0.070 (0.010)
<i>Class-level Variance (Standard Error)</i>						
Civic Behaviour						
Political Discussion / PD	0.177 (0.097)	0.210 (0.103)	0.202 (0.112)	0.195 (0.097)	0.120 (0.083)	0.156 (0.092)
Community Participation / CP	0.156 (0.103)	0.118 (0.099)	0.234 (0.119)	0.103 (0.091)	0.093 (0.086)	0.233 (0.120)
School Participation / SP	0.227 (0.101)	0.188 (0.095)	0.349 (0.107)	0.176 (0.102)	0.126 (0.085)	0.294 (0.114)
<i>Intraclass Correlation Coefficient</i>						
Civic Behaviour						
Political Discussion / PD	7.1%	6.6%	7.7%	7.4%	6.5%	7.1%
Community Participation / CP	5.7%	5.3%	5.7%	5.8%	5.9%	5.6%
School Participation / SP	6.9%	6.1%	8.3%	6.4%	7.5%	6.1%

Also, intraclass correlation coefficient (Goldstein, 2011) was taken into account: the larger the intraclass correlation coefficient, the more the adolescents within the same class that were similar to each other. In the current study, the intraclass correlation coefficients of civic behaviour ranged from 6.6% to 7.7% for political discussion, 5.3% to 5.9% for community participation, and 6.1% to 8.3% for school participation.

Therefore, the results concerning the proportion of variance and the size of the intraclass correlation indicated that classes could have a significant impact on adolescents' civic behaviour.

4.3 Multilevel Path Model

The second perspective on adopting a multilevel model (Goldstein, 2011) concerned what actually influenced the adolescents' civic behaviour. In this case, a Multilevel Structural Equation Model (MSEM) was fitted to the data. Five sets of plausible values were used as latent variables for developing the structural models.

4.3.1 Hypothesised Model Fit

As presented in Table 4.2, the results of the analysis showed good data-model fit as indicated by the fit indices.

Table 4.2: Model fit

	Averaged	PV1	PV2	PV3	PV4	PV5
Model Chi-Sq (<i>df</i> = 5)	69.748	74.223	48.994	83.134	84.308	58.081
Baseline Chi-Sq (<i>df</i> = 25)	7282.541	8130.280	7051.880	7117.001	7255.548	6857.995
CFI	0.991	0.991	0.994	0.989	0.989	0.992
TLI	0.955	0.957	0.969	0.945	0.945	0.961
RMSEA	0.066	0.069	0.055	0.073	0.074	0.060
SRMR (Within)	0.019	0.018	0.016	0.022	0.020	0.017
SRMR (Between)	0.024	0.016	0.041	0.014	0.034	0.014

For the results of five sets of plausible values, the CFI and TLI of the model ranged from 0.989 to 0.992 and from 0.945 to 0.969 respectively. Also, the average CFI (0.991) and average TLI (0.955) were both greater than 0.95. In the case of RMSEA, results ranged from 0.055 to 0.074. They all satisfied the cut-off of 0.07 or below recommended by Steiger (2007).

As indicated in Table 4.2, for models fitted with five sets of plausible values, the SRMR at student-level (within-class level) ranged from 0.017 to 0.022 and the SRMR at class-level (between-class level) ranged from 0.014 to 0.041. The averages of SRMR (across the results of plausible values) were 0.019 at student-level and 0.024 at class-level. They were smaller than the suggested acceptable threshold of 0.09 recommended by Hu and Bentler (1999). These results implied that the multilevel model was supported by the ICCS 2009 Hong Kong data.

In addition, the social economic status of the students was not controlled for the models in this study. It was introduced at the early stage. However, the models were not converged when poor model fit was reported. The results implied that social economic status was not significant to explain adolescents' civic behaviour in the Hong Kong sample of ICCS 2009. Similarly, the model with reverse direction of influence was considered but again not converged.

4.3.2 Multilevel Path Analysis

Given that the multilevel model (Goldstein, 2011) was supported by the data, a multilevel path analysis was adopted to examine the effects of open classroom climate (OCC) and citizenship efficacy (including political activity inside school (AIS) and political activity outside school (AOS) at the student-level, and class-averaged political activity inside school (CCE) at the class-level) on civic behaviour (including political discussion (PD), community participation (CP) and school participation (SP) at both student-level and class-level). The predictive power and the direct and indirect effects among scales were determined using MPLUS software (Muthén & Muthén, 2013). The path diagram is presented in Figure 4.1. In the figure, a single-headed arrow was used to represent the predictive relationship between a pair of variables in question. For example, OCC is related to AIS as illustrated in Figure 4.1. Further, a double-headed arrow was used to represent a case where there was no specified causal relationship between a pair of variables but correlation. For example, there are correlation relationships between PD, CP and SP, as shown in Figure 4.1. In addition, all the path coefficients in the figure were reported in standardised values. To facilitate the computation of statistical significance of path coefficients, values of standard errors of corresponding path coefficients were displayed in parentheses after the path coefficients. When a path coefficient was divided by its standard error, the t-ratio was computed to check its statistical significance. If the value of the t-ratio is greater than 2, the path coefficient is statistically significant at $\alpha = 0.05$ level. This also implies that there is a significant impact of one variable (pointing to) to another (being

pointed at) connected by a path. In the current study, only statistically significant paths are shown in the figure.

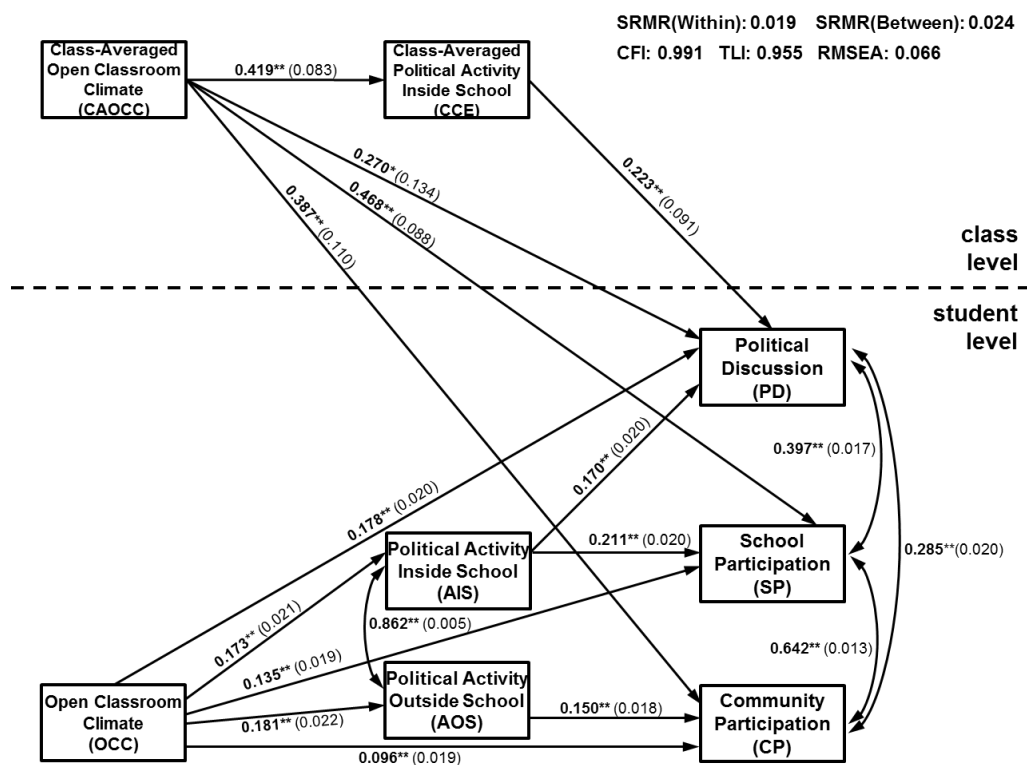


Figure 4.1: Path diagram of hypothesised model
(Only statistically significant paths are shown, * $p < 0.05$; ** $p < 0.001$)

The path coefficients shown in Figure 4.1 are the averaged standardised path coefficients of five path models fitted to five sets of plausible values as latent variables. The summary of averaged standardised path coefficients across five sets of plausible values is presented in Table 4.3.

Table 4.3: Standardised path coefficients

	Averaged	PV1	PV2	PV3	PV4	PV5
Student-level						
PD ON						
OCC	0.178	0.180	0.169	0.180	0.174	0.188
(Standard Error)	(0.020)	(0.018)	(0.021)	(0.021)	(0.020)	(0.019)
AIS	0.170	0.217	0.209	0.206	0.196	0.020
(Standard Error)	(0.020)	(0.020)	(0.020)	(0.020)	(0.019)	(0.021)
CP ON						
OCC	0.096	0.093	0.096	0.114	0.096	0.082
(Standard Error)	(0.019)	(0.018)	(0.020)	(0.020)	(0.021)	(0.018)
AOS	0.150	0.148	0.144	0.155	0.141	0.164
(Standard Error)	(0.018)	(0.018)	(0.019)	(0.020)	(0.017)	(0.018)
SP ON						
OCC	0.135	0.148	0.126	0.140	0.126	0.137
(Standard Error)	(0.019)	(0.015)	(0.021)	(0.021)	(0.019)	(0.017)
AIS	0.211	0.216	0.216	0.216	0.200	0.206
(Standard Error)	(0.020)	(0.019)	(0.021)	(0.019)	(0.018)	(0.021)
AIS ON						
OCC	0.173	0.168	0.172	0.165	0.205	0.154
(Standard Error)	(0.021)	(0.021)	(0.021)	(0.022)	(0.021)	(0.020)
AOS ON						
OCC	0.181	0.175	0.181	0.174	0.204	0.172
(Standard Error)	(0.022)	(0.022)	(0.021)	(0.022)	(0.020)	(0.023)
PD WITH						
CP	0.285	0.284	0.281	0.268	0.293	0.299
(Standard Error)	(0.020)	(0.020)	(0.020)	(0.021)	(0.021)	(0.020)
SP	0.397	0.385	0.396	0.385	0.411	0.408
(Standard Error)	(0.017)	(0.017)	(0.019)	(0.017)	(0.016)	(0.016)
CP WITH						
SP	0.642	0.651	0.648	0.636	0.637	0.639
(Standard Error)	(0.013)	(0.012)	(0.013)	(0.014)	(0.013)	(0.012)
AIS WITH						
AOS	0.862	0.863	0.864	0.862	0.861	0.859
(Standard Error)	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.006)

Table 4.3: Standardised path coefficients (continued)

Class-level						
PD ON						
CAOCC	0.270	0.294	0.348	0.247	0.173	0.287
(Standard Error)	(0.134)	(0.139)	(0.134)	(0.123)	(0.148)	(0.127)
CCE	0.223	0.241	0.186	0.275	0.229	0.183
(Standard Error)	(0.091)	(0.098)	(0.082)	(0.096)	(0.088)	(0.090)
CP ON						
CAOCC	0.387	0.343	0.483	0.322	0.305	0.483
(Standard Error)	(0.110)	(0.145)	(0.123)	(0.142)	(0.014)	(0.124)
SP ON						
CAOCC	0.468	0.433	0.591	0.419	0.355	0.542
(Standard Error)	(0.088)	(0.109)	(0.091)	(0.121)	(0.012)	(0.105)
CCE ON						
CAOCC	0.419	0.461	0.364	0.429	0.467	0.376
(Standard Error)	(0.083)	(0.081)	(0.072)	(0.096)	(0.077)	(0.087)

At the student-level, as presented in Figure 4.1, an open classroom climate (OCC) was a significant predictor of political activity inside school (AIS), political activity outside school (AOS), political discussion (PD), school participation (SP) and community participation (CP). The direct effects of open classroom climate (OCC) on political activity inside school (AIS), political activity outside school (AOS), political discussion (PD), school participation (SP) and community participation (CP) were 0.173, 0.181, 0.178, 0.135 and 0.096 respectively. For citizenship self-efficacy, political activity inside school (AIS) was a significant predictor of political discussion (PD) and school participation (SP) with the direct effects of 0.170 and 0.211 respectively. Also,

political activity outside school (AOS) was another significant predictor of community participation (CP) with a direct effect of 0.150.

Besides the direct effects, open classroom climate (OCC) also had indirect effects on political discussion (PD) and school participation (SP) mediated through political activity inside school (AIS), and on community participation (CP) mediated through political activity outside school (AOS). The indirect effects of open classroom climate (OCC) on political discussion (PD), school participation (SP) and community participation (CP) were 0.029, 0.037 and 0.027 respectively.

At the class-level, the class-averaged open classroom climate (CAOCC) was a significant predictor of collective efficacy (CCE), political discussion (PD), school participation (SP) and community participation (CP). The direct effects of class-averaged open classroom climate (CAOCC) on class-averaged political activity inside school (CCE), political discussion (PD), school participation (SP) and community participation (CP) were 0.419, 0.270, 0.468 and 0.387 respectively. Apart from the direct effects, the class-averaged open classroom climate (CAOCC) also had an indirect effect of 0.093 on political discussion (PD) mediated through class-averaged political activity inside school (CCE).

For ease of reference, a summary of the total, direct and indirect effects of classroom openness and citizenship efficacy on adolescents' civic behaviour at both the student- and class-level is presented in Table 4.4.

Table 4.4: Total, direct and indirect effects on civic behaviour

	Civic Behaviour	Political Discussion (PD)	School Participation (SP)	Community Participation (CP)
Student-level				
Classroom Openness				
		<u>Open Classroom Climate (OCC)</u>		
Total	0.502	0.207	0.172	0.123
Direct	0.409	0.178	0.135	0.096
(Pathway)		(OCC to PD)	(OCC to SP)	(OCC to CP)
Indirect	0.093	0.029	0.037	0.027
(Pathway)		(OCC to AIS to PD)	(OCC to AIS to SP)	(OCC to AOS to CP)
Citizenship Efficacy				
		<u>Political Activity Inside School (AIS)</u>		
Total	0.381	0.170	0.211	0.000
Direct	0.381	0.170	0.211	0.000
(Pathway)		(AIS to PD)	(AIS to SP)	
Indirect	0.000	0.000	0.000	0.000
		<u>Political Activity Outside School (AOS)</u>		
Total	0.150	0.000	0.000	0.150
Direct	0.150	0.000	0.000	0.150
(Pathway)				(AOS to CP)
Indirect	0.000	0.000	0.000	0.000

Table 4.4: Total, direct and indirect effects on civic behaviour (continued)

	Civic Behaviour	Political Discussion (PD)	School Participation (SP)	Community Participation (CP)
Class-level				
Classroom Openness				
		<u>Class-Averaged Open Classroom Climate (CAOCC)</u>		
Total	1.218	0.363	0.468	0.387
Direct (Pathway)	1.125	0.270 (CAOCC to SP)	0.468 (CAOCC to SP)	0.387 (CAOCC to CP)
Indirect (Pathway)	0.093	0.093 (CAOCC to CCE to PD)	0.000	0.000
Citizenship Efficacy				
		<u>Collective Citizenship Efficacy (CCE)</u>		
Total	0.223	0.223	0.000	0.000
Direct (Pathway)	0.223	0.223 (CCE to PD)	0.000	0.000
Indirect	0.000	0.000	0.000	0.000

4.4 Summary

This chapter presented the results of multilevel structural equation modelling. Using the MPLUS computer software (Version 7) (Muthén & Muthén, 2013), a multilevel path model was fitted to the variables according to the hypothesised model using five sets of plausible values individually. Maximum likelihood estimates and the path coefficients of the hypothesised model were produced and examined. Due to the nested nature of data and statistical consideration (with the design effect larger than two), multilevel path modelling was

conducted to investigate the personal and social impact (at student-level and class-level) on adolescents' civic behaviour.

At the student-level, the analysis identified significant direct effects of classroom openness on civic behaviour. Indirect effects of classroom openness on civic behaviour via citizenship efficacy were also discovered. These results indicated that there were random effects related to what happened in the classrooms. These classroom practices had the potential to influence the civic behaviour of individual adolescents. In other words, the identified random effects stemming from teachers' strategies adopted in the classroom may provide personal benefits to adolescents in terms of higher levels of civic engagement.

In addition, there were also fixed effects on adolescents' civic behaviour. They were indicated by the effect of high class-averaged levels of openness that influenced adolescents' civic behaviour directly and indirectly through, and high average levels of collective citizenship efficacy. In other words, fixed effects provide a kind of social benefit to adolescents thus enhancing their civic engagement.

In the next chapter, these statistical results will be further discussed. This will be followed by a discussion of the implications for further research and the conclusions that can be drawn from this study.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Introduction

The purpose of this chapter is to explore possible reasons for the results – Why does classroom openness exert effects on civic behaviour and what are the implications for classroom practice? Specifically, the aims are to identify possible reasons for the direct and indirect effects of the classroom climate and, similarly, for the effects of citizenship efficacy and collective efficacy on adolescents' civic behaviour. The conceptual framework for this study was underpinned by the Social Cognitive Theory (SCT) (Bandura, 2012a). In this chapter, the statistical results will be interpreted and discussed in terms of answering the central research questions:

RQ1. At the student-level, does classroom openness predict adolescents' civic behaviour?

RQ2. What is the role of the school at the class-level in enhancing the relationship between classroom openness and adolescents' civic behaviour?

The results will be explained in relation to the existing literature and the broad theoretical framework that has guided this study. In particular, the results of the

study will be linked to the theoretical underpinning of SCT and the extent to which classroom practices may provide a demonstration of SCT in action.

5.2 Personal Impact (Student-level)

The personal impact of predictors on adolescents' civic behaviour was studied at the student-level. In the following sections, possible explanations for the results are explored.

5.2.1 What Predicts Adolescents' Civic Behaviour?

At the student-level, civic behaviour was conceptualised as comprising three components: political discussion, community participation, and school participation. Findings from the current study indicated that each of the three components of adolescents' civic behaviour was positively affected by both classroom openness and citizenship efficacy. The strong influence of classroom openness on adolescents' civic behaviour exerted a direct effect, as well as an indirect effect via citizenship efficacy. In the following sections, both the direct and indirect effects of classroom openness on adolescents' civic behaviour are discussed.

5.2.2 How and Why does Classroom Openness Predict Adolescents' Civic Behaviour?

Classroom openness was operationalised as an open classroom climate consisting of the feeling that adolescents can participate in the discussion of political and social issues freely in a supportive environment. For instance, adolescents were asked in the survey (Schulz et al., 2009) if whether the following takes place:

- students are able to disagree openly with their teachers;
- teachers encourage students to make up their own minds;
- teachers encourage students to express their opinions;
- students bring up current political events for discussion in class;
- students express opinions in class even when their opinions are different from most of the other students;
- teachers encourage students to discuss the issues with people having different opinions and
- teachers present several sides of the issues when explaining them in class.

Classroom openness had direct effects on political discussion, community participation, and school participation. Referring to the ICCS 2009 student questionnaire (Schulz et al., 2009), political discussion measured adolescents' involvement in discussing political and social issues outside of school by asking each adolescent to rate the frequency of their participation in some activities, including the following:

- talking with your parent(s) about political or social issues;
- watching television to inform yourself about national and international news;
- reading the newspaper to inform yourself about national and international news;

- talking with friends about political and social issues;
- using the Internet to inform yourself about national and international news;
- talking with your parent(s) about what is happening in other countries; and
- talking with friends about what is happening in other countries.

Community participation measured adolescents' civic participation in the wider community by asking each adolescent to state how frequently they had participated in some civic-related organisations or activities, including the following:

- voluntary participation in school-based music or drama activities outside of regular lessons;
- active participation in a debate;
- voting for class representative or school parliament;
- taking part in decision-making about how the school is run;
- taking part in discussions at a student assembly; and
- becoming a candidate for class representative or school parliament.

School participation measured adolescents' participation in civic activities at school by asking each adolescent how frequently they had participated in some civic-related activities at school, including:

- voluntary participation in school-based music or drama activities outside of regular lessons;
- active participation in a debate;
- voting for class representative or school parliament;
- taking part in decision-making about how the school is run;
- taking part in discussions at a student assembly; and

- becoming a candidate for class representative or school parliament.

How and why might classroom openness support political discussion?

When teachers create an open classroom climate they encourage adolescents to make up their own minds, express their opinions, and discuss issues with people holding different opinions. Adolescents' attention might be drawn to learning something new through observational learning (Bandura, 2012a). In these ways, the classroom could become a social system, with interactions between groups of two or more people (Getzels & Thelen, 1960). Since in this context adolescents are allowed to disagree openly with their teachers, to bring up current political events for discussion in class and to express opinions in class even when their opinions were different from most of the other classmates, the learning environment could provide adolescents with models to learn from each other. It could also serve as a kind of vicarious reinforcement (Bandura et al., 1963) for adolescents. The retention of similar behaviour from their classmates might be formed imaginably and verbally (Bandura, 1986). A key issue for reflection is how might this kind of environment influence what happens outside the classroom.

One possible explanation is that through the attention and retention process, adolescents could acquire behaviour from the learning environment by modelling (Bandura, 1997). After acquiring the particular behaviour, adolescents might perform the behaviour by reproducing the modelled behaviour outside of school. Political discussion, such as talking with parents

and friends about political and social issues, might serve as an example of modelled behaviour during their regular lessons. Besides repeating similar behaviour, adolescents were further discussing with their parents and friends what was happening in other countries. The process of reproduction of the modelled behaviour might be further extended to produce a new pattern of behaviour. This idea is aligned with previous findings related to how discussion in an open classroom climate can promote engagement with political issues and elections (Kahne, Crow & Lee, 2013), and it supports the contextual framework of this study as well as the broader literature (Quintelier & Hooghe, 2013).

How and why might classroom openness support community participation?

Similarly, community participation might be encouraged with an open classroom climate. For example, Lewin's (1936) field theory asserted that behaviour could be formed by the interaction between person and environment. When adolescents are encouraged to discuss political issues and events openly, their classroom might become the "field", which allows interaction between people and the environment. When adolescents experience openness in the classroom environment, it might allow them to clarify their interests and understand more about different civic-related areas throughout their discussion on issues such as politics, the environment, human rights, communities in need, social issues, religion, culture and ethnicity. Similarly, previous studies also found that adolescents' participation in various kinds of voluntary associations could be encouraged when they have a better understanding of themselves (Beck & Jennings, 1982; McFarland & Thomas, 2006; Quintelier, 2008).

In addition, modelling (Bandura, 1997) could also occur when the models are easily identified in an open classroom. Instead of the direct modelling between an open classroom climate and political discussion, it could be a kind of indirect modelling (Bandura, 1997). An open classroom climate that involves teachers' encouraging adolescents to make up their own minds or express their own opinions, has the possibility for adolescents to acquire civic-related abstractions. These abstractions might inspire the adolescents to participate more in civic-related activities in the community, such as joining different organisations, clubs or groups. As such, an open classroom climate has the potential to influence adolescents' value systems inspired possibly by the process of abstract modelling (Bandura, 1997). This aligns with previous findings regarding the association between open classroom climate and adolescents' intended political participation in civic-related activities in the community (Quintelier & Hooghe, 2013).

How and why might classroom openness support school participation?

Adolescents' school participation could be motivated by their classmates. Previous studies found that an open classroom climate was positively related to adolescents' development of involvement and participation in some civic-related school activities, such as human rights and environmental protection (Edwards, 2012). When adolescents engaged in discussion within an open classroom climate, the involvement of their classmates could become the models (Bandura, 1997) from which adolescents can learn similar activities and



knowledge. It could also trigger their exposure to the behavioural norm and the skills required for participating in civic-related activities in school (Youniss & Yates, 1997). As a result, via synthesised modelling (Bandura, 2003), they might develop their own behaviour imaginatively and verbally through the discussion allowed by the teacher when the teacher facilitated more openness in the classroom. School participation, such as voluntary participation in school-based music or drama activities outside of regular lessons, active participation in a debate, taking part in decision-making about how the school is run and discussions at a student assembly and voting or even becoming a candidate for class representative or school parliament could be inspired within the ‘life space’ (Lewin, 1936) of the open classroom climate. This ‘life space’ (Lewin, 1936) might provide adolescents with an environment in which they can learn from each other in different aspects (Parsons, 1951).

5.2.3 Through Citizenship Efficacy, How Does Classroom Openness Predict Adolescents’ Civic Behaviour?

Besides the direct effects between classroom openness and the adolescents’ civic behaviour, there were indirect effects identified through citizenship efficacy in this study. In other words, classroom openness influenced adolescents’ citizenship efficacy, and adolescents’ citizenship efficacy in turn influenced their civic behaviour. Besides the concepts of classroom openness and civic behaviour mentioned earlier, citizenship efficacy was conceptualised by two concepts, as presented in Chapter Three. These concepts were political

activity inside school and political activity outside school. The ICCS 2009 student questionnaire (Schulz et al., 2009) asked about civic-related activities undertaken by the adolescent in order to demonstrate their self-confidence in the area of civic participation. The political activities inside school included the following:

- standing as a candidate in a school election;
- organising a group of students in order to achieve changes at school; and
- speaking in front of your class about a social or political issue.

Political activities outside school included the following:

- discussing a newspaper article about a conflict between countries;
- arguing your point of view about a controversial political or social issue;
- following a television debate about a controversial issue; and
- writing a letter to a newspaper giving your view on a current issue.

5.2.3.1 Effect of Classroom Openness on Citizenship Efficacy

As discussed in Chapter Two, Bandura (2012b) suggested that self-efficacy might be cultivated by relying on four major sources of information. performance accomplishment, vicarious experience, verbal persuasion and emotional arousal (Bandura, 1986). If so, how does an open classroom climate serve as a source of influence in adolescents' political activity inside school and political activity outside school? It might be a possible explanation of how classroom openness could influence adolescents' efficacy beliefs about participating in political activity inside and outside school.

How and why might classroom openness support political activity inside school?

In this study, an open classroom climate was found to affect adolescents' citizenship efficacy. As the empirical findings suggested, traditional teaching combined with an open classroom climate could be helpful for stimulating internal efficacy (Martens & Gainous, 2013). Adolescents' beliefs that they can perform well in speaking in front of the class about a social or political issue, as they answered in the ICCS 2009 (Schulz et al., 2009, p. 30), might reflect how an open classroom climate might help to develop adolescents' citizenship efficacy, in particular through activities inside school (Benware & Deci, 1984). One of the possibilities is that the open classroom climate might encourage participation and engagement. Thus, adolescents might come to believe that they can stand in front of the class and speak because they are encouraged to do so. The open classroom climate deliberately builds adolescents' citizenship efficacy.

Another possible explanation is that teachers' verbal persuasion (Bandura, 1986) can strengthen adolescents' citizenship efficacy for participating in civic-related activities inside school. The teacher's encouragement to adolescents to express their opinions and discuss the issues with people who have different opinions has the potential to stimulate adolescents' political preferences and identity (Campbell, 2006b). There is the possibility that such encouragement creates an open classroom climate, which in turn enhances adolescents' citizenship efficacy through teachers' verbal persuasion (Bandura, 2010). In particular, the exposure to civics instruction and civics topics through teachers' verbal

persuasion may possibly enhance adolescents' democratic capacity and efficacy during the discussion (Gainous & Martens, 2012; Hartry & Porter, 2004; Turnbull et al., 2007). Through interaction between students and teachers, democratic practice inside the classroom might be an important consideration developing adolescents' citizenship efficacy (Torney-Purta et al., 2001).

Furthermore, adolescents' citizenship efficacy has the potential to be further reinforced by vicarious experience (Bandura, 1986), when similar behaviour of other adolescents has been encouraged and performed successfully. Conway et al. (2009) also found that adolescents' citizenship efficacy could be influenced by encouragement of discussion and reflection in the classroom. Through an open classroom climate, the repeated success of the discussion or reflection could develop adolescents' confidence by vicarious experience.

How and why might classroom openness support political activity outside school?

In addition, an influence of open classroom climate on adolescents' citizenship efficacy for undertaking political activities outside school was found in this study. As Godfrey and Grayman (2014) identified from the American sample of the CIVED, open classroom climate was positively related to adolescents' social and political efficacy. Within an open classroom, more open discussion and exchange of civic or political ideas among students was allowed. This open atmosphere inside the classroom has the potential not only to offer an opportunity to practise but also to inform adolescents that similar behaviour is

allowed. One of the possibilities is that such an observation might reinforce adolescents' self-efficacy through their vicarious experiences (Bandura, 1986), while more successful discussion could possibly bring personal vicarious experience to the adolescents. Adolescents who believed that they were capable of discussing a newspaper article (Schulz et al., 2009, p. 30) about a conflict between countries and of arguing their point of view about controversial political or social issues were possibly influenced by vicarious experience and mastery experiences that enhanced their citizenship efficacy (Bandura, 1986). Many such non-cognitive outcomes can be influenced by the school experience (Hess, 2009; Torney-Purta, Wilkenfeld, & Barber, 2009; Westheimer & Kahne, 2004b), and adolescents' citizenship efficacy for undertaking political activities outside school could be one of these outcomes. Some studies have also pointed out that an open classroom climate is positively related to democratic and tolerant political attitudes (Gimpel, Lay, & Schuknecht, 2003; Torney-Purta et al., 2007). These attitudes are influenced by an open classroom climate and so they have the potential to encourage adolescents to be involved in various political activities outside school, such as those included in the ICCS 2009 student questionnaire (Schulz et al., 2009, p. 30). For example, adolescents surveyed had the confidence to write a letter to a newspaper giving their view on a current issue. This might be the consequence of their citizenship efficacy being enhanced by classroom openness. Similarly, Youniss and Levine (2009) found that the democratic values of adolescents could be inspired within an open classroom climate. As a result, these democratic values might influence adolescents to engage in various forms of active and democratic citizenship.



This might also help to explain how adolescents' citizenship efficacy for undertaking political activity outside school was enhanced.

5.2.3.2 Effect of Citizenship Efficacy on Civic Behaviour

According to the results presented in Chapter Four, adolescents' civic behaviour, in particular their political discussion and school participation in civic-related activity, was influenced by their citizenship efficacy for undertaking political activity inside school. Also, their community participation in civic-related activity was influenced by citizenship efficacy for undertaking political activity outside school. Previous sections have described how the ICCS 2009 student questionnaire (Schulz et al., 2009, p. 30) measured the concepts of political discussion, school participation, and community. The following section explores how and why they might be supported by political activity inside and outside school.

How and why might political activity inside school support political discussion and school participation?

Adolescents' citizenship efficacy for political activity inside school might possibly prepare themselves for political discussion and school participation. This may be how to motivate adolescents' political discussion, such as talking with parents and friends about political and social issues and discussing with

parents and friends what is happening in other countries (Schulz et al., 2009) and may lead to self-managed reinforcement (Bandura, 1976b). Adolescents' citizenship efficacy has the potential to influence their value system and can therefore become self-regulated behaviour or so-called self-regulation (Bandura, 1991). Some previous studies also found that an increase in citizenship efficacy can influence adolescents' discussion of political and social issues, as well as their participation in civic-related activities in school on a regular basis (Pasek et al., 2008; Vercellotti & Matto, 2010). These findings support contextual framework of this study.

How and why might political activity outside school support community participation?

Additionally, this study found that adolescents' community participation in civic-related activities could be influenced by their citizenship efficacy for political activity outside school. One possible explanation is that self-efficacy mechanisms in human agency could adjust the behavioural choices of a person (Bandura, 1986). Belief that they can master the civic-related activities outside school may help prepare adolescents for community participation in civic-related activities. Enhancing adolescents' citizenship efficacy for undertaking political activity outside school could be one of the possible ways to stimulate their participation in civic-related activities and their drive to be responsible citizens and, eventually, justice-oriented citizens (Westheimer & Kahne, 2004a).

Hence, classroom openness might support adolescents' civic behaviour indirectly through enhancing their citizenship efficacy. Such indirect individual impact is consistent with Bandura's (1986) triadic reciprocal causation that behaviour, personal factor and environment could influence each other, particularly this mechanism does not mean that the different sources of influence are of equal strength or that they occur simultaneously, as it takes time for a causal factor to exert its influence and activate reciprocal influences (Bandura, 1989b, p. 2-3). In this case, classroom openness and adolescents' citizenship efficacy are the casual factors.

5.2.4 Summary

The preceding sections explored how and why classroom openness predicts adolescents' civic behaviour. From a personal impact perspective, the direct and indirect effects of classroom openness on civic behaviour were discussed. In summary, here are possible ways to encourage adolescents' civic behaviour and these have implications for teaching practice.

There is potential that classroom openness can positively affect adolescents' civic behaviour. Adolescents' political discussion, participation in civic-related activities in school and in the community, can be possibly encouraged by creating openness in the classroom. This classroom openness might help to stimulate adolescents' civic behaviour by offering opportunities for agency, social relatedness and political-moral understanding. Also, such classroom

openness might help develop adolescents' commitment to and capacity for civic and political engagement (Youniss & Yates, 1997).

As classroom openness has the potential to influence adolescents' citizenship efficacy, providing openness in the classroom could stimulate adolescents' engagement in political activities inside and outside school. One possible consideration is to cultivate adolescents' citizenship efficacy by presenting several sides of the issue when explaining a topic in the classroom. Teachers could thus enhance adolescents' citizenship efficacy. Encouraging adolescents to make up their own minds, express their own opinions, and discuss issues with people having different opinions, could help teachers to improve adolescents' citizenship efficacy.

Adolescents' citizenship efficacy has the potential to influence civic behaviour such as political discussion as well as participation in civic-related activities in school and the wider community. Therefore, empowering adolescents' ability to master political activity inside and outside school could encourage their civic behaviour. Through their experience of repeated practise and success, adolescents' citizenship efficacy could be enhanced. By utilising the mediating effect of citizenship efficacy, it is possible that adolescents' civic behaviour might be developed not only because of the direct effect of citizenship efficacy, but also the indirect effect of classroom openness.

To summarise, the previous sections explored how and why classroom openness might support civic behaviour and citizenship efficacy directly. While there was a mediating effect on citizenship efficacy between classroom openness and civic behaviour, how and why classroom openness might support civic behaviour indirectly via citizenship efficacy was explored. To address the first research question (RQ1), the direct and indirect effects of the classroom and school climate on adolescent's civic behaviour were identified. This includes the direct effect of classroom openness and citizenship efficacy on adolescents' civic behaviour, as well as the indirect effect (mediated effect) of classroom openness on adolescents' civic behaviour through their citizenship efficacy. In addition, how and why classroom openness might predict adolescents' civic behaviour was also explored.

5.3 Social Impact (Class-level)

The impact of predictors on adolescents' civic behaviour was discussed in the previous section as random effects since they were not experienced by all adolescents in the same way. The average levels of those predictors were the average of all sampled adolescents irrespective of the school they attended. Yet as pointed out in Chapter Three, adolescents were nested in classes within schools. Also, in Chapter Four, the significant class-level variance of civic behaviour variables indicated that classes could have a significant impact on adolescents' civic behaviour. Thus there is a need to examine whether classes themselves (since only a single class in each participating school was sampled)

may have influenced adolescents' civic behaviour. It might be expected, for example, that classes characterised by high average levels of classroom openness might affect adolescents' civic behaviour in a positive way by creating an environment that facilitates such behaviour. This is often referred to as a 'school-averaged effect' but in this study since only one class in each school was sampled it will be referred to as a 'class-averaged effect'. Irrespective of how such an effect is labelled, it is a 'fixed effects' since it was experienced by all students. Why does classroom make a difference when it comes to adolescents' civic behaviour? This is the question to be explored in this chapter in relation to the results reported in Chapter Four of this thesis.

5.3.1 What are the Class Predictors of Adolescents' Civic Behaviour?

Class effects can be conceptualised as averaged class measures of the processes hypothesised to influence civic behaviours. As presented in Figure 4.1, the statistical results indicated that both class-averaged classroom openness and collective citizenship efficacy had positive impacts on adolescents' civic behaviour. In addition, the influence of class-averaged classroom openness on adolescents' civic behaviour was not only a direct effect, but also there was an indirect effect via collective citizenship efficacy. The mediating effects of collective citizenship efficacy were also found. However, such indirect influence of class-averaged classroom openness was statistically significant only on adolescents' political discussion and not on adolescents' participation of civic-related activities at school and in the community.

In the following sections, how and why class-averaged classroom openness might predict adolescents' civic behaviour will be discussed. Further, how and why this influence takes place through collective citizenship efficacy will be explored.

5.3.2 How and Why does Class-Averaged Classroom Openness Predict

Adolescents' Civic Behaviour?

Class-averaged classroom openness was conceptualised in this study as a class's average score on the open classroom climate scale. As presented in Chapter Three, only one class was sampled in each school according to the ICCS sampling framework. All of the participating students came not only from the same school but also from the same class. Therefore, for measuring open classroom climate of classes within schools, the results of the following questions (Schulz et al., 2009) were averaged according to the school that the adolescent came from. In other words, to measure adolescents' perceptions that they can participate in a discussion of political and social issues freely in a supportive environment, adolescents were asked whether they were able to do the following:

- students are able to disagree openly with their teachers;
- teachers encourage students to make up their own minds;
- teachers encourage students to express their opinions;
- students bring up current political events for discussion in class;

- students express opinions in class even when their opinions are different from most of the other students;
- teachers encourage students to discuss the issues with people having different opinions; and
- teachers present several sides of the issues when explaining them in class.

In this study, classroom openness was found to have direct effects on adolescents' political discussion, community participation and school participation. Referring to the ICCS 2009 student questionnaire (Schulz et al., 2009), the basic elements of these three components have been listed in the previous section. For reference, details can be found in Section 5.2.2.

How and why might class-averaged classroom openness support political discussion?

Political discussion might occur in classes when teachers attempt to create an open classroom climate by encouraging adolescents to make up their own minds, express their opinions, and discuss issues with people having different opinions. Classes with high average levels of openness create an environment where there can be a free-flowing exchange of ideas between adolescents and between teachers and adolescents. Openness is the norm in such classrooms creating both safety to speak and an expectation that there is more than one voice in the classroom

Geboers et al. (2013) have argued that discussion within an open and democratic classroom could effectively promote the development of adolescents' citizenship in school. In a class with a high average open classroom climate, there is the possibility that adolescents' attention might be captured (Bandura, 2012a), thus providing vicarious reinforcement (Bandura, 1963). The endorsement of such behaviour in the classroom could impress itself through imagination and verbal expression during the lessons. Given that a person's behaviour could be affected by the environment (Lewin, 1951), the 'life space' (Lewin, 1936) here is the classroom with high average open classroom climate. This life space may facilitate adolescents' political discussion, such as talking with parents and friends about political and social issues. Through the processes of attention and retention, adolescents might acquire behaviour from their common learning environment through group dynamics (Lewin, 1951) - members of a group might form common perceptions based on their beliefs, values, talents and knowledge. Thus, a high class-averaged open classroom climate might influence adolescents' perception of political discussion both within and outside the classroom. This study's contextual framework reflects this relationship between environment and behaviour.

How and why might class-averaged classroom openness support community participation?

Moreover, this study found that adolescents' community participation could be encouraged by a high class-averaged open classroom climate. One of the



possible explanations is that a supportive environment for adolescents could enhance their confidence in participating in political activities as citizens (Sears, Huddy, & Jervis, 2003). This is supported by recent research that has found that schools can influence adolescents' willingness to participate in politics (Eckstein, Noack & Gniewosz, 2012). This suggests that adolescents' political point of view has the potential to be affected by the school's setting. Adolescents' decisions to participate in the community might also be affected by the class context. High average open classroom climate could offer a supportive environment for adolescents to express themselves, to understand issues in a more comprehensive way and to see the value in community engagement (Davies et al., 2013). It seems that allowing adolescents to express themselves freely can also help them to engage in different activities (Sears, Huddy, & Jervis, 2003).

In ICCS 2009 (Schulz et al., 2009), community participation included involvement with different organisations, clubs or groups. Adolescents' value system guiding their involvement could have been influenced by a classroom climate that itself was engaging and that highlighted important issues. Adolescents' participation in these activities might also reflect their values in different areas, such as politics, the environment, human rights, communities in need, and social, religious, cultural and ethnic issues. This is possibly explained by how the group-life space can affect individual behaviour under the group dynamics theory (Lewin, 1951). Therefore, high class-averaged open classroom climate, as a social impact, has the potential to influence adolescents'



community participation positively and directly. Such an influence also supports the contextual framework of this study.

How and why might class-averaged classroom openness support school participation?

In addition, adolescents' school participation could be motivated by the 'beta press' (Murray, 1938) from their classmates who are also influenced by high average classroom climate in this study. One possible explanation is that openness in the classroom or democratic deliberation at school can allow students to have more views on school-related decisions and therefore increases the participation potential of adolescents (Hess, 2009; Quintelier, 2010; Torney-Purta, 2002; Torney-Purta & Vermeer, 2006). Through continuing encouragement, teachers can create a classroom climate that benefits all adolescents and encourages interaction. In this learning environment, it is possible that the classroom could become a social system and there could be pressure (the so-called 'beta press') on adolescents to participate in school activities (Getzels & Thelen, 1960). Discussion and communication within the open classroom climate in the same social situation has the potential to align the values and objectives of adolescents with their civic behaviour (Parsons, 1951). School participation, as defined in the ICCS 2009 student questionnaire (Schulz et al., 2009), included civic-related activities like voluntary participation in school-based arts activities outside of regular lessons, active participation in a debates, participation in decision-making about the running of the school and discussions at a student assembly and voting or even becoming involved in

school government. These activities might well meet the psychological needs of adolescents and provide cognitive feedback (beta press) that is supported by open classroom climate (Murray, 1938). Such a process is consistent with Edward's (2012) findings concerning the positive effect of the open classroom climate on adolescents' participation in certain socially-related school activities, and supports this study's contextual framework as well as being supported by broader literature.

5.3.3 Through Collective Citizenship Efficacy, How Does Class-Averaged Classroom Openness Predict Adolescents' Civic Behaviour?

Besides the direct effects between class-averaged classroom openness and adolescents' civic behaviour, indirect effects were also found in this study via collective citizenship efficacy. In addition to the concepts of class-averaged classroom openness and civic behaviour mentioned earlier, collective citizenship efficacy was also a fixed effect measured by class-averaged political activity inside school. These activities included (Schulz et al., 2009, p. 30) the following:

- stand as a candidate in a school election;
- organise a group of students in order to achieve changes at school; and
- speak in front of your class about a social or political issue.

Classrooms characterised by high average measures of these items and adolescents' willingness to engage in them can be considered to have been

influenced by collective citizenship efficacy. The influence of this construct will be discussed in the following sections.

5.3.3.1 Effect of Class-Averaged Classroom Openness on Collective Citizenship Efficacy

As Bandura (1982) suggested, adolescents' collective efficacy can be enhanced based on four major sources of information. These include performance accomplishment, vicarious experience, verbal persuasion and emotional arousal (Bandura, 1982). One possible explanation for the effect of classroom openness on collective citizenship efficacy is that teachers can create openness in the classroom by encouraging adolescents and instilling confidence in them so that collective citizenship efficacy is enhanced by teachers' verbal persuasion (Bandura, 2010). An open classroom climate in the same school (in this case, class-averaged classroom climate) could possibly provide adolescents with an opportunity to learn from others. Adolescents' collective citizenship efficacy could also be further reinforced through vicarious experience, when similar behaviour from other classmates was allowed and demonstrated successfully (Bandura, 2010). The repeated successes of similar behaviour might instil confidence in the adolescents through their personal mastery experiences (Bandura, 2010) and performance accomplishments (Bandura, 2010) within the open atmosphere inside the classroom. While previous research has addressed the importance of an open classroom climate in school (Ehman, 1970; Hahn, 1998; Torney-Purta et al., 2001), recent studies have specifically identified the



possibility of the social impact of an open classroom climate on the adolescents' collective citizenship efficacy (Campbell, 2006a; 2008; Gainous & Martens, 2012). Based on the experience of a class-averaged open classroom climate, adolescents' collective citizenship efficacy can be developed for undertaking political activities inside school.

5.3.3.2 Effect of Collective Citizenship Efficacy on Civic Behaviour

In addition, this study found that adolescents' participation in political discussions could be cultivated by adolescents' collective citizenship efficacy. Previously, a study in Belgium found that there was a relationship between adolescents' political attitudes and their behaviour, including an association between efficacy and political discussion (Dassonneville et al., 2012). One of the possible explanations is that when adolescents believe they are capable of undertaking some political activities inside school, their citizenship efficacy is a form of collective efficacy (Bandura, 1986) by their classroom experiences. The experience of collective efficacy can empower adolescents' sense of social agency that enables them to respond to social issues. It also has the potential to influence adolescents' social relatedness positively in discussions with others, and their political understanding when discussing social issues. As a result this improved sense of capability can motivate adolescents' political discussion, and they may thus become more engaged (Youniss & Yates, 1997).

Another possibility is that collective citizenship efficacy might influence adolescents' value system in the form of collective agency (Bandura, 1989) and, finally, civic behaviour has the potential to become self-regulated (Bandura, 1991). Their civic behaviour, as measured by ICCS 2009 (Schulz et al., 2009), including informing themselves about national and international news by watching TV, reading newspapers or surfing the Internet, could possibly be developed on a regular basis (Bandura, 1991).

Therefore, class-averaged classroom openness might support adolescents' civic behaviour indirectly through enhancing their collective citizenship efficacy. Such indirect effect is consistent with Lewin's (1951) group dynamics theory whereby behaviour can be predicted by the interaction between personal values, beliefs and the environment.

5.3.4 Summary

How and why class-averaged classroom openness predicts adolescents' civic behaviour was explored in the previous sections. From a social impact perspective, the direct and indirect effects of class-averaged classroom openness on civic behaviour were discussed. By understanding these relationships, the follow section discusses ways in which schools can encourage adolescents' civic behaviour.

Since class-averaged classroom openness is the predictor of adolescents' civic behaviour, adolescents' political discussion, community participation and school participation could be encouraged by creating more openness in the classroom. By suggesting that teachers present several sides of the issues when explaining topics in the lessons and encouraging discussion about the alternatives, teachers have the potential to cultivate adolescents' civic behaviour. Other research has shown that adolescents' civic behaviour can be inspired by teachers' encouraging of independent thinking and sharing adolescents own opinions with others (Campbell, 2008; Hess, 2009). These classroom practices might be helpful for schools to create a suitable learning environment for stimulating adolescents' civic behaviour.

Since class-averaged classroom openness is the predictor of collective citizenship efficacy, what happens in the classroom can have effects beyond the classroom. Schools can seek to align and raise the level of classroom openness by encouraging teachers to present several sides of the issues when explaining a topic in class, encouraging adolescents to make up their own minds and express their own opinions, and encouraging adolescents to discuss issues with people having different opinions. These classroom practices have the potential to cultivate adolescents' collective citizenship efficacy and subsequently their civic engagement outside the classroom.

As the influence of collective citizenship efficacy on adolescents' civic behaviour has been identified, one of the possible ways to stimulate adolescents'



civic behaviour is to consider whether collective citizenship efficacy can be maximized. Some possibilities for developing collective citizenship efficacy can be found in ICCS 2009 (Schulz et al., 2009). For instance, schools might consider encouraging adolescents to stand as candidates in school elections, organise a group of students in order to achieve changes at school, and speak in front of their class about a social or political issue. Rather than waiting for adolescents to decide whether they will participate, such participation can be actively encouraged by teachers and other school personnel, including the principal. Thereby, adolescents' citizenship efficacy has the potential to be enhanced. The experience of collective citizenship efficacy might empower adolescents' sense of social agency while they respond to social issues (Bandura, 1986). This has the potential to influence adolescents' social relatedness when they discuss issues with others, as well as their political understanding during discussion of social issues. As a result, the sense of agency might become a force that fosters more political discussion with one consequence being adolescents engaging in civic behaviour.

To summarise, the previous sections explored how the social impact of class-averaged classroom openness and collective citizenship efficacy affects adolescents' civic behaviour directly and indirectly. Regarding these effects, some possibilities were suggested for schools to consider. In response to the social impact of class-averaged classroom openness on adolescents' civic behaviour indirectly via adolescents' collective citizenship efficacy, some

possible solutions to encourage adolescents' civic behaviour have been suggested to schools for consideration.

To address RQ2, the direct and indirect effects of class-averaged classroom openness on adolescents' civic behaviour were identified. The direct effect of class-averaged classroom openness and collective citizenship efficacy (class-averaged citizenship efficacy) on adolescents' civic behaviour was discussed. The indirect effect (mediated effect) of class-averaged classroom openness on adolescents' civic behaviour through collective efficacy (class-averaged citizenship efficacy) was also discussed. Therefore, there may be a role for teachers and schools to play in encouraging the development of citizenship efficacy that can in turn influence adolescents' civic behaviour.

5.4 Significance of the Study

There are three areas where this study can have a significant influence: method, theory and knowledge. In addition to the results which were presented, this study also offers method-related, theory-related and knowledge-related implications for further research.

This study has made a significant endeavour in utilizing secondary data analysis. The results reported here are based on a reanalysis of data within a new contextual framework and, importantly, within a theoretical framework based on social cognitive theory (Bandura, 2012a). This approach offers new

theoretical insights into the large scale assessment data of ICCS 2009 (Schulz et al., 2010).

Another feature of the secondary analysis of the Hong Kong data reported here is that it goes further than the original analyses (Schulz et al., 2010). The scales and their properties reported here, and not available elsewhere, can be used in subsequent studies. This technical outcome can serve as an important reference point for future studies.

5.4.1 New Contextual Findings of ICCS 2009

As reported in Chapter Three, with the study focus being on Hong Kong cases, statistical analyses similar to ICCS 2009 (Schulz et al., 2011) were conducted and resulted in different scales' structure. These new contextual findings and effects within Hong Kong data will be reported in the following sections.

5.4.1.1 Classroom Openness (or the Open Classroom in ICCS 2009)

The open classroom scale proposed in the ICCS 2009 Technical Report was measured by six items, with scale reliability (Cronbach's alpha) = 0.76 for the pooled ICCS sample. In this study, classroom openness (a seven-item scale) was introduced and proposed, with scale reliability (Cronbach's alpha) = 0.83. The only difference was one item asking adolescents how often they were "able to disagree openly with their teachers". By fitting this into the theoretical

framework of the SCT (Bandura, 2012a), the open disagreement with their teachers in the classroom could be understood as moral agency (Bandura, 2012a).

In fact, when the author revisited the scale structure of classroom openness in this study, there was another item on the same scale that asked adolescents how often “teachers present several sides of the issues when explaining them in class”. By fitting this into the theoretical framework of the SCT (Bandura, 2012a), the teachers’ presentation of several sides of the issue in the classroom could be understood as a performance standard (Bandura, 1991) presented by teachers in the classroom.

According to Bandura (1991), human behaviour is self-regulated and it consists of performance standards, perceived self-efficacy and moral codes. Together with the performance standard (mentioned above) and citizenship efficacy (another separate scale), the additional item of the classroom openness scale in the study could be explained as the moral code received by adolescents in the classroom.

To conclude, in the Hong Kong context, adolescents experienced an open classroom climate, which also offered a moral code in addition to performance standards in school. Together with different activities inside and outside school, adolescents’ citizenship efficacy (perceived self-efficacy) might be further developed. As a result, the civic behaviour of adolescents might become self-

regulated (Bandura, 1991). Future research could explore the self-regulated civic behaviour of adolescents.



5.4.1.2 Civic Behaviour (same scale name in ICCS 2009)

The civic behaviour scales proposed in the ICCS 2009 Technical Report were measured by three sub-scales. These were political discussion, community participation and school participation, which were the same as those used in this study.

Among these three sub-scales, the scale structure of school participation (made up of six items) suggested in the ICCS 2009 Technical Report (Schulz et al., 2011) was the same as that used in this study. The scale structures of the political discussion and community participation scales used in this study, however, differed from those recommended by the ICCS 2009 Technical Report.

The political discussion sub-scale proposed in the ICCS 2009 Technical Report was measured by four items, with scale reliability (Cronbach's alpha) = 0.72 for the pooled ICCS sample. In this study, political discussion (a seven-item scale) was introduced and proposed, with scale reliability (Cronbach's alpha) = 0.81. However, a different set of items to that recommended by the ICCS 2009 Technical Report was proposed to construct the scale. Three more items were proposed in this study to make up the construct of political discussion. These asked adolescents how often they were involved in “watching television to inform yourself about national and international news”, “reading the newspaper

to inform yourself about national and international news” and “talking with friends about what is happening in other countries”.

Within these three items, two asked adolescents how often they were informed “about national and international news” by different means. These items could indicate that adolescents in Hong Kong often watched television or read newspapers in addition to surfing the Internet. This creates an area for further research on the impact of different media on adolescents’ civic behaviour, classroom openness to adolescents’ civic behaviour in selecting different media directly and indirectly, and citizenship efficacy of adolescents’ behaviour in selecting different media.

Besides those two items which asked adolescents how often they were informed “about national and international news” by different means, another item asked adolescents how often they were involved in “talking with friends about what is happening in other countries”. Another similar item in the scale asked adolescents about discussing “what is happening in other countries”, but the target here was parents. This might imply that adolescents in Hong Kong would not only talk to parents but also friends about what is happening in other countries. Besides showing the contextual differences between the Hong Kong sample and the international pool, this could suggest further study. For instance, why do the scales differ from context to context and what are the implications for understanding these constructs within a specific context?

The community participation sub-scale proposed in the ICCS 2009 Technical Report was measured by seven items, with scale reliability (Cronbach's alpha) = 0.74 for the pooled ICCS sample. In this study, community participation (an eight-item scale) was introduced and proposed, with scale reliability (Cronbach's alpha) = 0.73. A different set of items to that recommended by the ICCS 2009 Technical Report was proposed to construct community participation, which included an item asking the adolescents how often they were involved in 'a religious group or organisation'.

In Hong Kong, the main sponsoring bodies of schools are different religious organisations. They have the authority to introduce different religious subjects or activities in their school. This may be one of the reasons for the contextual difference and difference in scale structure of community participation suggested by the ICCS 2009 Technical Report, when comparing the Hong Kong data set with the international pool. This might therefore suggest an area for future study regarding the implication of different religious bodies or sponsoring bodies with different religious backgrounds on adolescents' civic behaviour or, specifically, on their community participation.

5.4.2 Practical Application of Social Cognitive Theory

The theoretical framework for this study was suggested by Bandura's theories (1982; 2012a; 2012b). By introducing the concept of self-efficacy, it reinforced and enriched the overarching theory, particularly the personal factors included



in social cognitive theory (2012a) or when they are referred to later as the ‘self-efficacy mechanisms in human agency’ (Bandura, 1982). While the focus of ‘human agency’ is at the individual level, Bandura attempted to further extend it from the individual level to the social level as a kind of ‘group’s shared belief’, or, as he later termed it, ‘collective agency’ (Bandura, 1986) or ‘collective efficacy’ (Bandura, 1997).

According to Bandura, the measurement of collective efficacy could be achieved through two approaches: the aggregated approach and the collective approach (Bandura, 2000). While the manner of measuring the collective efficacy in this study was the aggregated approach, an individual’s self-efficacy was aggregated according to the group to which they belonged. The reasons for supporting the aggregated approach in this study are numerous.

First, the data set was nested in nature. There were identifiers to differentiate which schools the students attended in the ICCS 2009 data. This formed the natural sample of students nested in their own schools. Thus, two-level multilevel modelling (Goldstein, 2011) was used. While self-efficacy was measured by different items from ICCS 2009 at the student-level, collective efficacy could be calculated using the aggregated approach at the class-level.

Second, the nature of the ICCS 2009 items was favourable for adopting an aggregated approach. While collective efficacy can be measured by either an aggregated approach or a collective approach, the former is more favourable

when the items used for measurement are more independent in nature (Baker, 2001; Bandura, 2000). When measuring citizenship efficacy, all the items asked adolescents their views on handling individual tasks or actions. Therefore, it was appropriate to use an aggregated approach for measuring collective efficacy since the items involved for measuring self-efficacy were all independent in nature.

With the theoretical and methodological support, the concept of “collective efficacy” was introduced in this study. In the multilevel model, the citizenship efficacy scale was used as the personal factor at the student-level to study the random effects (direct and indirect) of classroom openness on adolescents’ civic behaviour. At the class-level, the collective efficacy scale was used as fixed effect on the civic behaviour of individual adolescents.

By using the large-scale data from ICCS 2009, the secondary data analysis in this study provided an opportunity to investigate the application of social cognitive theory (Bandura, 2012a). Using multilevel analysis, this study might serve as a reference for focussing more attention on self-efficacy and collective efficacy as the constructs influencing adolescents’ civic behaviour.

5.4.3 Importance of Classroom Openness

The strong influence of classroom openness is one of the major findings of this study. Its significant influence on the adolescents' development of citizenship efficacy and civic behaviour was found at the student-level, and on collective efficacy and civic behaviour at the class-level.

This major finding could stimulate future research on the influence of different classroom settings and cultures on adolescents. Quantitative and qualitative methods to collect data from different stakeholders, such as teachers or parents could help to achieve a greater understanding of the personal and social impacts on the development of adolescents' citizenship efficacy and civic behaviour within an open classroom climate.

5.4.4 Illustration of Statistical Methods for Secondary Data Analysis

Very often, a large-scale local or international dataset will be used in secondary data analysis, for example the ICCS 2009 dataset in this study. Since it is designed and self-governed by the survey designer or organisation, the sampling method and instrument design of the survey can vary.

In this study, a “mix-and-match” approach was adopted. Various statistical methods and computer software were employed to prepare the data. The seven steps presented in Section 3.3, may serve as a reference for future researchers

on how to manage secondary data in order to cope with their own research design. A summary of the statistical methodologies and computer software employed in this study is presented in Table 5.1.

Table 5.1: Summary of statistical methods used in this study

Step	Statistical Method	Computer Software
Step 1. Identify the questions that operationalise the variables in the study		
Step 2. Reverse scores for negative items if appropriate		
Step 3. Explore the underlying factor by using Exploratory Factor Analysis (EFA)	Exploratory Factor Analysis (EFA)	SPSS 22 (IBM, 2013)
Step 4. Assess internal consistency reliability	Cronbach's Alpha (α)	SPSS 22 (IBM, 2013)
Step 5. Check dimensionality of each scale	Principal Components Analysis (PCA) of Rasch residuals	WINSTEPS 3.81.0 (Linacre, 2014)
Step 6. Generate plausible values	Rasch model	ConQuest 3.0.1 (Wu, Adams, Wilson, & Haldane, 2012)
Step 7. Fit Multilevel Structural Equation Modelling (MSEM) to data according to hypothesised model	Multilevel Structural Equation Modelling (MSEM)	MPLUS 7.11 (Muthén & Muthén, 2013)

5.5 Limitations of the Current Study and Implications for Future Research

5.5.1 Limitations

There are limitations to this study. Although it was a cross-sectional analysis, all the adolescents were surveyed only once in a given period of time. For the time being, the predictors could not be examined by repeating the measures. Instead, longitudinal studies for both qualitative and quantitative approaches are recommended to establish the causal relationships between the dependent variable and its predictors. Since the participating adolescents were aged 14 to 15 years or at secondary two when the survey took place, a similar study for the same sample can be repeated before their secondary school graduation.

In addition, the research design of this study mainly relied on the measures from the ICCS 2009 student questionnaire. Other perspectives can be considered for further study on adolescents' behaviour, such as the influence of parents, teachers and friends.

5.5.2 Implications

The full model of triadic reciprocal causation originally described the interrelationship between environment, personal factor and behaviour (Bandura, 1986). By applying Bandura's (1986) partial triadic reciprocal causation model, this study reported how classroom openness and adolescents' citizenship

efficacy influenced their civic behaviour directly and indirectly. These findings provide important insights for future research into the citizenship education of adolescents.

As mentioned earlier, one of the ways in which the current study can be extended is to ‘rethink’ the contextual framework (see Figure 5.1) presented in Chapter Two. By applying the communities of practice theory (Wenger, 1998), the current study could be extended beyond exploring how Hong Kong adolescents’ civic behaviour was influenced to how it influences adolescents’ civic knowledge building. Future research can begin with the findings of Kennedy et al. (2013) regarding the influence of participation in the open classroom (‘Classroom Openness’ in the current study) and civic activities at school (‘School Participation’ in the current study) on their civic knowledge. A proposed model showing a constructivist perspective is presented in Figure 5.2.

Since a significant correlation between the three different types of civic behaviour (‘Political Discussion’, ‘School Participation’ and ‘Community Participation’ in the current study) was identified in the current study, more sources of influence can be considered in future research. For instance, it might be helpful to explore the influence of other social participation with parents, teachers and friends by studying different communities of practices. Ultimately, using the communities of practice theory, future studies can attempt to explain the political socialisation (Hyman, 1959) of adolescents through citizenship education at school in Hong Kong.



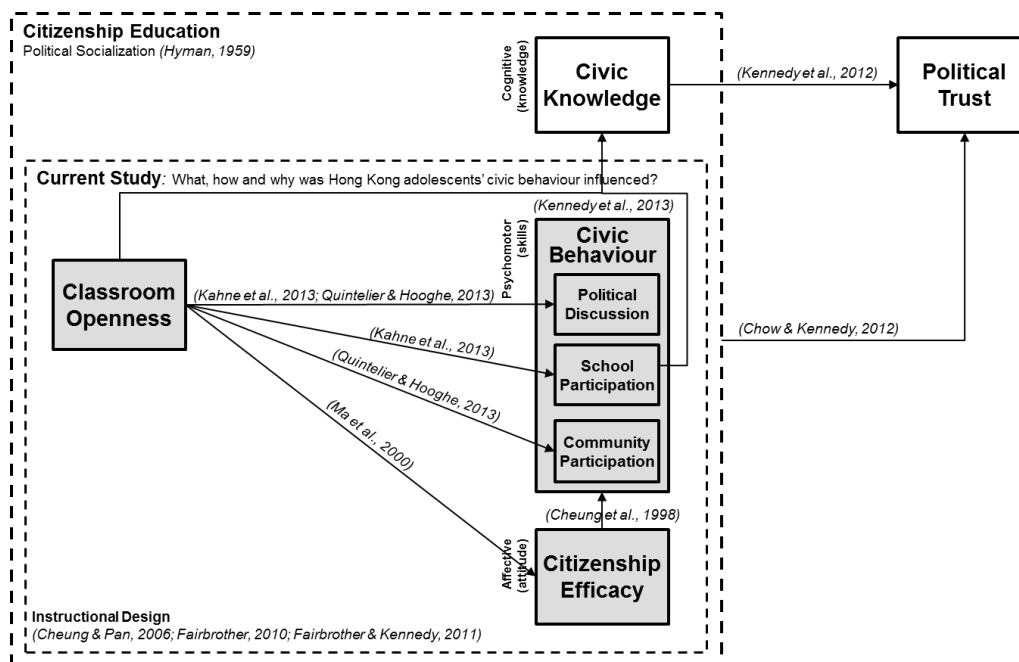


Figure 5.1: Contextual framework of the current study

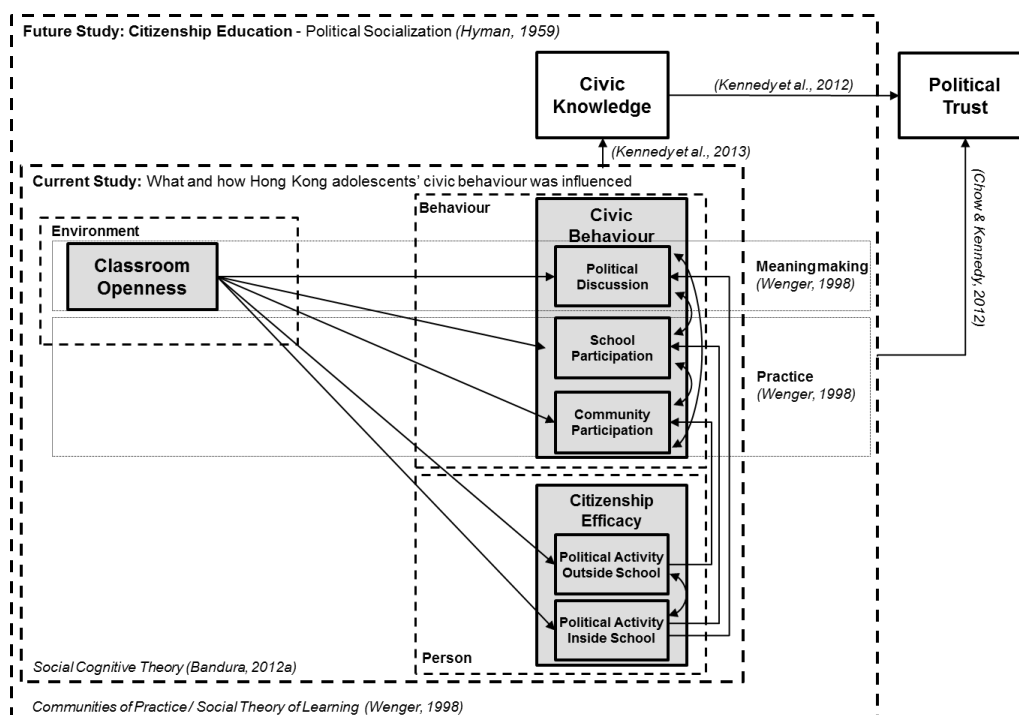


Figure 5.2: Proposed model for future research

5.6 Conclusion

Han Yu, a Chinese philosopher of the Tang dynasty (618 - 906 A.D.), wrote a remarkable piece entitled *On the Teacher*. It opened with the words ‘In ancient times those who wanted to learn would seek out a teacher, one who could propagate the doctrine, impart professional knowledge, and resolve doubts’ (Wu & Wu, 1959, p. 333). As a Hong Kong citizen who was a teacher for over 10 years, and as the author of this study, I have been very much influenced by traditional Chinese culture. I strongly believe that the teacher plays an irreplaceable role in the growth of adolescents that extends beyond imparting professional knowledge.

This study was a journey of self-discovery. Adolescents’ active participation in recent protests stimulated the author’s interest in whether there is a role for the school and, further, how and why adolescents’ citizenship efficacy and civic behaviour was influenced. For my part, this study was conducted not only to understand the interrelationships among classroom openness, adolescents’ citizenship efficacy and their civic behaviour, but also to reflect on how a good teacher acts to ‘propagate the doctrine, impart professional knowledge, and resolve doubts’ (Wu & Wu, 1959, p. 333).

It is commonly acknowledged that education is the key to an adolescent’s future. If so, I suggest that teachers should be “key players” through different stages the growth and development of adolescents. In an interview with 16 local



secondary education leaders, Fairbrother (2010) felt that the permeation approach (Morris & Morris, 2001) was the most suitable for adolescent citizenship education in Hong Kong. In the context of this study, the identified relationships between classroom openness, citizenship efficacy and civic behaviour can help to illuminate pedagogical strategies for citizenship education in schools. For instance, adolescents' civic behaviour can be motivated by raising their citizenship efficacy and creating openness in the classroom. From an operational perspective, I would like to offer some suggestions for teachers and schools to consider:

Teachers may consider different teaching methodologies when they prepare citizenship and civic lessons. Various instructional designs can be introduced in order to raise the learning efficiency of adolescents as well as to develop their civic behaviour. For example, adolescents can be allowed to discuss openly with their classmates and teachers in different learning activities and settings. Including more discussion within the curriculum may encourage adolescents' critical thinking. This may consequently help to develop their civic behaviour directly, as well as indirectly through the enhancement of their citizenship efficacy.

Teachers may consider avoiding indoctrination during citizenship and civic education lessons. While the influence of classroom openness on adolescents' civic behaviour and their citizenship efficacy was identified in this study, teachers may consider creating more openness in the classroom when they plan

citizenship and civic lessons. Additionally, schools may consider including more classroom openness as classroom practice when they develop the school-based curriculum. Indoctrination of citizenship or civic education might not be a very effective curriculum approach. As the findings of the current study suggested, the more open the school or classroom climate, the more that adolescents' citizenship efficacy and civic behaviour can be developed.

Schools may consider fostering an open-minded culture. If the development of adolescents' civic behaviour is the focus of schools, they can consider adjusting their policies to be more tolerant and to accept different ideas from their students. As it is critical to the development of adolescents' civic behaviour development, it may be a good idea to motivate adolescents to voice their opinions, even they are not in the mainstream or in accordance with the school's original plan. Under the influence of such a school culture, adolescents' critical thinking skills can be further developed. An acceptance of the need to discuss controversial issues can help adolescents develop their civic behaviour.

Schools may consider offering a greater variety of extra-curricular activities. By introducing more options that are civic-related, adolescents may have more opportunities to bring their skills fully into play. These extra-curricular activities, such as uniform groups or environmental protection organisations, can be organised by either the schools or an external organisations. Participation in these activities can help to develop adolescents' self-confidence

and their citizenship efficacy. As a result, their civic behaviour can be further developed through the enhancement of their citizenship efficacy.

In all likelihood, adolescents' civic behaviour can be influenced by classroom openness. Classroom openness seems to be an important element that has an environmental impact on adolescents, individually and socially. As shown in the results of this study, this influence applies not only to adolescents' behaviour but also to their efficacy beliefs (Bandura, 2012b). Classroom openness can affect adolescents' civic behaviour directly and indirectly through their citizenship efficacy. Triadic reciprocal causation (Bandura, 1986) in the current study tries to explain this phenomenon. Hopefully, the multi-level and cross-level analysis reported here helps school encourage adolescents' civic behaviour and yields new understandings that will be helpful in broadening future research agenda, particularly in the Hong Kong context.

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Appendix A

ICCS Student Questionnaires (extracted)

IDENTIFICATION LABEL

International Civic and Citizenship Education Study

ICCS 2009 Main Survey



Student Questionnaire

<Name and address of national centre>



International Association for the Evaluation
of Educational Achievement
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Q13 How often are you involved in each of the following activities outside of school?

(Please tick only one box in each row)

	<i>Never or hardly ever</i>	<i>Monthly (at least once a month)</i>	<i>Weekly (at least once a week)</i>	<i>Daily or almost daily</i>
a) Talking with your parent(s) about political or social issues	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
b) Watching television to inform yourself about national and international news	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
c) Reading the newspaper to inform yourself about national and international news	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
d) Talking with friends about political and social issues	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
e) Using the internet to inform yourself about national and international news	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
f) Talking with your parent(s) about what is happening in other countries	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
g) Talking with friends about what is happening in other countries	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
h) Participating in a youth group (such as <boys/girls scouts>, <YMCA>, <computer club> or <chess club>)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄



Q14 Have you ever been involved in activities of any of the following organisations, clubs or groups?

(Please tick only one box in each row)

	<i>Yes, I have done this <u>within</u> <u>the last twelve</u> <u>months</u></i>	<i>Yes, I have done this but <u>more than a</u> <u>year ago</u></i>	<i>No, I have never done this</i>
a) Youth organisation affiliated with a political party or union	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
b) Environmental organisation	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
c) Human Rights organisation	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
d) A voluntary group doing something to help the community	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
e) An organisation collecting money for a social cause	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
f) A cultural organisation based on ethnicity	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
g) A religious group or organisation	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
h) A group of young people campaigning for an issue	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃

Q15 At school, have you ever done any of the following activities?

Please think about all schools you have been enrolled at since the first year of <ISCED level 1>.

(Please tick only one box in each row)

	<i>Yes, I have done this within the last twelve months</i>	<i>Yes, I have done this but more than a year ago</i>	<i>No, I have never done this</i>
a) Voluntary participation in school-based music or drama activities outside of regular lessons	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
b) Active participation in a debate	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
c) Voting for <class representative> or <school parliament>	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
d) Taking part in decision-making about how the school is run	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
e) Taking part in discussions at a <student assembly>	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
f) Becoming a candidate for <class representative> or <school parliament>	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃

YOUR SCHOOL

Q16 When discussing political and social issues during regular lessons, how often do the following things happen?

(Please tick only one box in each row)

	<i>Never</i>	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>
a) Students are able to disagree openly with their teachers	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
b) Teachers encourage students to make up their own minds	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
c) Teachers encourage students to express their opinions	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
d) Students bring up current political events for discussion in class	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
e) Students express opinions in class even when their opinions are different from most of the other students	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
f) Teachers encourage students to discuss the issues with people having different opinions	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
g) Teachers present several sides of the issues when explaining them in class	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄



PARTICIPATING IN SOCIETY

Q30 How well do you think you would do the following activities?

(Please tick only one box in each row)

	<i>Very well</i>	<i>Fairly well</i>	<i>Not very well</i>	<i>Not at all</i>
a) Discuss a newspaper article about a conflict between countries	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
b) Argue your point of view about a controversial political or social issue	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
c) Stand as a candidate in a <school election>	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
d) Organise a group of students in order to achieve changes at school	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
e) Follow a television debate about a controversial issue	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
f) Write a letter to a newspaper giving your view on a current issue	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
g) Speak in front of your class about a social or political issue	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄



Appendix B

Program Code for WINSTEPS

Political Discussion (Q13)

&INST

Title= "R13R14R15R16R30.xlsx"

; Excel file created or last modified: 1/2/2012 21:01:19

; R13R14R15R16R30

; Excel Cases processed = 2902

; Excel Variables processed = 35

ITEM1 = 1 ; Starting column of item responses

NI = 7 ; Number of items

NAME1 = 9 ; Starting column for person label in data record

NAMLEN = 0 ; Length of person label

XWIDE = 1 ; Matches the widest data value observed

GROUPS = 0 ; Partial Credit model: in case items have different rating scales

CODES = 12349 ; matches the data



TOTALSCORE = Yes ; Include extreme responses in reported scores

; Person Label variables: columns in label: columns in line

&END ; Item labels follow: columns in label

R13A ; Item 1 : 1-1

R13B ; Item 2 : 2-2

R13C ; Item 3 : 3-3

R13D ; Item 4 : 4-4

R13E ; Item 5 : 5-5

R13F ; Item 6 : 6-6

R13G ; Item 7 : 7-7

END NAMES

Community Participation (Q14)

&INST

Title= "R13R14R15R16R30.xlsx"



; Excel file created or last modified: 1/2/2012 21:01:19

; R13R14R15R16R30

; Excel Cases processed = 2902

; Excel Variables processed = 35

ITEM1 = 1 ; Starting column of item responses

NI = 8 ; Number of items

NAME1 = 10 ; Starting column for person label in data record

NAMLEN = 0 ; Length of person label

XWIDE = 1 ; Matches the widest data value observed

GROUPS = 0 ; Partial Credit model: in case items have different rating scales

CODES = 123 ; matches the data

TOTALSCORE = Yes ; Include extreme responses in reported scores

; Person Label variables: columns in label: columns in line

&END ; Item labels follow: columns in label

R14A ; Item 1 : 1-1

R14B ; Item 2 : 2-2

R14C ; Item 3 : 3-3

R14D ; Item 4 : 4-4

R14E ; Item 5 : 5-5

R14F ; Item 6 : 6-6

R14G ; Item 7 : 7-7

R14H ; Item 8 : 8-8

END NAMES

School Participation (Q15)

&INST

Title= "R13R14R15R16R30.xlsx"

; Excel file created or last modified: 1/2/2012 21:01:19

; R13R14R15R16R30

; Excel Cases processed = 2902

; Excel Variables processed = 35

ITEM1 = 1 ; Starting column of item responses



NI = 6 ; Number of items

NAME1 = 8 ; Starting column for person label in data record

NAMLEN = 0 ; Length of person label

XWIDE = 1 ; Matches the widest data value observed

GROUPS = 0 ; Partial Credit model: in case items have different rating scales

CODES = 123 ; matches the data

TOTALSCORE = Yes ; Include extreme responses in reported scores

; Person Label variables: columns in label: columns in line

&END ; Item labels follow: columns in label

R15A ; Item 1 : 1-1

R15B ; Item 2 : 2-2

R15C ; Item 3 : 3-3

R15D ; Item 4 : 4-4

R15E ; Item 5 : 5-5

R15F ; Item 6 : 6-6

END NAMES

Open Classroom Climate (Q16)

&INST

Title= "R13R14R15R16R30.xlsx"

; Excel file created or last modified: 1/2/2012 21:01:19

; R13R14R15R16R30

; Excel Cases processed = 2902

; Excel Variables processed = 35

ITEM1 = 1 ; Starting column of item responses

NI = 7 ; Number of items

NAME1 = 9 ; Starting column for person label in data record

NAMLEN = 0 ; Length of person label

XWIDE = 1 ; Matches the widest data value observed

GROUPS = 0 ; Partial Credit model: in case items have different rating scales

CODES = 1234 ; matches the data

TOTALSCORE = Yes ; Include extreme responses in reported scores



; Person Label variables: columns in label: columns in line

&END ; Item labels follow: columns in label

R16A ; Item 1 : 1-1

R16B ; Item 2 : 2-2

R16C ; Item 3 : 3-3

R16D ; Item 4 : 4-4

R16E ; Item 5 : 5-5

R16F ; Item 6 : 6-6

R16G ; Item 7 : 7-7

END NAMES

Political Activity Outside School (Q30)

&INST

Title= "R13R14R15R16R30.xlsx"



; Excel file created or last modified: 1/2/2012 21:01:19

; R13R14R15R16R30

; Excel Cases processed = 2902

; Excel Variables processed = 35

ITEM1 = 1 ; Starting column of item responses

NI = 4 ; Number of items

NAME1 = 6 ; Starting column for person label in data record

NAMLEN = 0 ; Length of person label

XWIDE = 1 ; Matches the widest data value observed

GROUPS = 0 ; Partial Credit model: in case items have different rating scales

CODES = 1234 ; matches the data

TOTALSCORE = Yes ; Include extreme responses in reported scores

; Person Label variables: columns in label: columns in line

&END ; Item labels follow: columns in label

R30A ; Item 1 : 1-1

R30B ; Item 2 : 2-2

R30E ; Item 3 : 3-3

R30F ; Item 4 : 4-4

END NAMES

Political Activity Inside School (Q30)

&INST

Title= "R13R14R15R16R30.xlsx"

; Excel file created or last modified: 1/2/2012 21:01:19

; R13R14R15R16R30

; Excel Cases processed = 2902

; Excel Variables processed = 35

ITEM1 = 1 ; Starting column of item responses

NI = 3 ; Number of items

NAME1 = 5 ; Starting column for person label in data record

NAMLEN = 0 ; Length of person label

XWIDE = 1 ; Matches the widest data value observed



GROUPS = 0 ; Partial Credit model: in case items have different rating scales

CODES = 1234 ; matches the data

TOTALSCORE = Yes ; Include extreme responses in reported scores

; Person Label variables: columns in label: columns in line

&END ; Item labels follow: columns in label

R30C ; Item 1 : 1-1

R30D ; Item 2 : 2-2

R30G ; Item 3 : 3-3

END NAMES



Appendix C

Program Code for ConQuest

Civic Behaviour (Q13, Q14, Q15)

/* The following is an example of 3 dimensions */

/* ConQuest Rating Scale model: SCT Behaviour */

/* ConQuest Rating scale model on BEHAVIOUR */

/* 3 dimensions model */

/* DATA FILE called SCT_Behaviour.dat */

/* 1.Political Discussion:(POLDISC) 7items (1-7) positn (5-11) */

/* 2.Community Participation:(PARTCOM) 8items (8-15) positn (12-19)*/

/* 3.Civic Participation at school:(PARTSCHL) 6items (16-21)positn (20-25)*/

title SCT Behaviour;

Datafile SCT_Behaviour.dat;

format stu 1-4 responses 5-25;



```
codes 0,1,2,3;
```

```
recode (1,2,3,4)(0,1,2,3) !item(1-21);
```

```
labels << SCT_Behaviour.lab;
```

```
set warnings=no, update=yes;
```

```
score (0,1,2,3) (0,1,2,3)() !items (1-7);
```

```
score (0,1,2,3) ()(0,1,2,3)() !items (8-15);
```

```
score (0,1,2,3) ()(0,1,2,3) !items (16-21);
```

```
model item+step;
```

```
estimate !method=montecarlo, nodes=10000, iterations =3000;
```

```
export design >>SCT_Behaviour.des;
```

```
export parameters >> SCT_Behaviour.prm;
```

```
export reg_coefficients >> SCT_Behaviour.reg;
```

```
export covariance >> SCT_Behaviour.cov;
```


show cases !estimate=EAP >> SCT_Behaviour.eap;

show cases !estimate=latent >> SCT_Behaviour.pls;

show !estimate=latent, tables=1:2:3:4:5:9 >> SCT_Behaviour.shw;

Itanal >> SCT_Behaviour.tra;

Classroom Openness (Q16)

/* The following is an example of 1 dimensions */

/* ConQuest Rating Scale model: SCT Environment */

/* ConQuest Rating scale model on Environment */

/* 1 dimensions model */

/* DATA FILE called SCT_Environment.dat */

/* 1.Political Discussion: 7items (1-7) positn (5-11) */



```
title SCT Environment;

Datafile SCT_Environment.dat;

format stu 1-4 responses 5-11;

codes 0,1,2,3;

recode (1,2,3,4)(0,1,2,3) !item(1-7);

labels << SCT_Environment.lab;

set warnings=no, update=yes;

score (0,1,2,3) (0,1,2,3) !items (1-7);


model item+step;


estimate !method=montecarlo, nodes=10000, iterations =3000;


export design >>SCT_Environment.des;
```



export parameters >> SCT_Environment.prm;

export reg_coefficients >> SCT_Environment.reg;

export covariance >> SCT_Environment.cov;

show cases !estimate=EAP >> SCT_Environment.eap;

show cases !estimate=latent >> SCT_Environment.pls;

show !estimate=latent, tables=1:2:3:4:5:9 >> SCT_Environment.shw;

Itanal >> SCT_Environment.tra;

Citizenship Efficacy (Q30)

/* The following is an example of 2 dimensions */

/* ConQuest Rating Scale model: SCT Person */

/* ConQuest Rating scale model on Person */

/* 1 dimensions model */

/* DATA FILE called SCT_Person.dat */



```
/* 1.Political Discussion - OUTSCHL: 4items (1-4) positn (5-8) */
```

```
/* 2.Political Discussion - INSCHL: 3items (5-7) positn (9-11) */
```

```
title SCT Person;
```

```
Datafile SCT_Person.dat;
```

```
format stu 1-4 responses 5-11;
```

```
codes 0,1,2,3;
```

```
recode (1,2,3,4)(0,1,2,3) !item(1-7);
```

```
labels << SCT_Person.lab;
```

```
set warnings=no, update=yes;
```

```
score (0,1,2,3) (0,1,2,3)() !items (1-4);
```

```
score (0,1,2,3) ()(0,1,2,3) !items (5-7);
```

```
model item+step;
```

```
estimate !method=montecarlo, nodes=10000, iterations =3000;
```

```
export design >>SCT_Person.des;
```

```
export parameters >> SCT_Person.prm;
```

```
export reg_coefficients >> SCT_Person.reg;
```

```
export covariance >> SCT_Person.cov;
```

```
show cases !estimate=EAP >> SCT_Person.eap;
```

```
show cases !estimate=latent >> SCT_Person.pls;
```

```
show !estimate=latent, tables=1:2:3:4:5:9 >> SCT_Person.shw;
```

```
Itanal >> SCT_Person.tra;
```



Appendix D

Program Code for R

```
setwd("c:/PV")

#Read the data

B <- scan("SCT_Behaviour.pls", what="character") #3 var

E <- scan("SCT_Environment.pls", what="character") #1 var

P <- scan("SCT_Person.pls", what="character") #2 var


#PV1 for all variables in each scale

PV1 <- matrix ("NA", ncol=6, nrow=2902, byrow=TRUE,
dimnames=list(seq(1,2902), c("POLDISC", "PARTCOM", "PARTSCHL",
"OPDISC", "OUTSCHL", "INSCHL"))))

for (i in 1:2902){

  PV1[i,1] = B[(3+27*(i-1))]

  PV1[i,2] = B[(4+27*(i-1))]

  PV1[i,3] = B[(5+27*(i-1))]
```



```

PV1[i,4] = E[(3+13*(i-1))]

PV1[i,5] = P[(3+20*(i-1))]

PV1[i,6] = P[(4+20*(i-1))]

}

#PV2 for all variables in each scale

PV2 <- matrix ("NA", ncol=6, nrow=2902, byrow=TRUE,
dimnames=list(seq(1,2902), c("POLDISC", "PARTCOM", "PARTSCHL",
"OPDISC", "OUTSCHL", "INSCHL")))

for (i in 1:2902){

PV2[i,1] = B[(7+27*(i-1))]

PV2[i,2] = B[(8+27*(i-1))]

PV2[i,3] = B[(9+27*(i-1))]

PV2[i,4] = E[(5+13*(i-1))]

PV2[i,5] = P[(6+20*(i-1))]

PV2[i,6] = P[(7+20*(i-1))]

}

```

#PV3 for all variables in each scale

```
PV3 <- matrix ("NA", ncol=6, nrow=2902, byrow=TRUE,  
dimnames=list(seq(1,2902), c("POLDISC", "PARTCOM", "PARTSCHL",  
"OPDISC", "OUTSCHL", "INSCHL")))
```

```
for (i in 1:2902){
```

```
  PV3[i,1] = B[(11+27*(i-1))]
```

```
  PV3[i,2] = B[(12+27*(i-1))]
```

```
  PV3[i,3] = B[(13+27*(i-1))]
```

```
  PV3[i,4] = E[(7+13*(i-1))]
```

```
  PV3[i,5] = P[(9+20*(i-1))]
```

```
  PV3[i,6] = P[(10+20*(i-1))]
```

```
}
```

#PV4 for all variables in each scale

```
PV4 <- matrix ("NA", ncol=6, nrow=2902, byrow=TRUE,  
dimnames=list(seq(1,2902), c("POLDISC", "PARTCOM", "PARTSCHL",
```

```
"OPDISC", "OUTSCHL", "INSCHL"))))
```

```
for (i in 1:2902){
```

```
  PV4[i,1] = B[(15+27*(i-1))]
```

```
  PV4[i,2] = B[(16+27*(i-1))]
```

```
  PV4[i,3] = B[(17+27*(i-1))]
```

```
  PV4[i,4] = E[(9+13*(i-1))]
```

```
  PV4[i,5] = P[(12+20*(i-1))]
```

```
  PV4[i,6] = P[(13+20*(i-1))]
```

```
}
```

```
#PV5 for all variables in each scale
```

```
PV5 <- matrix ("NA", ncol=6, nrow=2902, byrow=TRUE,
```

```
dimnames=list(seq(1,2902), c("POLDISC", "PARTCOM", "PARTSCHL",
```

```
"OPDISC", "OUTSCHL", "INSCHL"))))
```

```
for (i in 1:2902){
```

```
  PV5[i,1] = B[(19+27*(i-1))]
```

```

PV5[i,2] = B[(20+27*(i-1))]

PV5[i,3] = B[(21+27*(i-1))]

PV5[i,4] = E[(11+13*(i-1))]

PV5[i,5] = P[(15+20*(i-1))]

PV5[i,6] = P[(16+20*(i-1))]

}

# mean of distribution for all variables in each scale

mean <- matrix ("NA", ncol=6, nrow=2902, byrow=TRUE,
dimnames=list(seq(1,2902), c("POLDISC", "PARTCOM", "PARTSCHL",
"OPDISC", "OUTSCHL", "INSCHL")))

for (i in 1:2902){

mean[i,1] = B[(22+27*(i-1))]

mean[i,2] = B[(23+27*(i-1))]

mean[i,3] = B[(24+27*(i-1))]

mean[i,4] = E[(12+13*(i-1))]

mean[i,5] = P[(17+20*(i-1))]

```

```

    mean[i,6] = P[(18+20*(i-1))]

}

# SD of distribution for all variables in each scale

SD <- matrix ("NA", ncol=6, nrow=2902, byrow=TRUE,
dimnames=list(seq(1,2902), c("POLDISC", "PARTCOM", "PARTSCHL",
"OPDISC", "OUTSCHL", "INSCHL")))

for (i in 1:2902){

    SD[i,1] = B[(25+27*(i-1))]

    SD[i,2] = B[(26+27*(i-1))]

    SD[i,3] = B[(27+27*(i-1))]

    SD[i,4] = E[(13+13*(i-1))]

    SD[i,5] = P[(19+20*(i-1))]

    SD[i,6] = P[(20+20*(i-1))]

}

write.csv(PV1,"PV1.csv")

```

```
write.csv(PV2,"PV2.csv")
```

```
write.csv(PV3,"PV3.csv")
```

```
write.csv(PV4,"PV4.csv")
```

```
write.csv(PV5,"PV5.csv")
```

```
write.csv(mean,"mean.csv")
```

```
write.csv(SD,"SD.csv")
```



Appendix E

Program Code for MPLUS

TITLE: PV1 MSEM;

DATA: FILE IS PV1wClus.prn;

VARIABLE: NAMES ARE y1 y2 y3 x1 xm1 x3 xm3 x2 xm2 clus;

USEVARIABLES ARE y1 y2 y3 x1 xm1 x3 x2 xm2 clus;

WITHIN ARE x1 x3 x2;

BETWEEN ARE xm1 xm2;

CLUSTER IS clus;

ANALYSIS: TYPE IS TWOLEVEL;

MODEL:

% WITHIN%

y1 ON x1 x2;

y2 ON x1 x3;

y3 ON x1 x2;



y1 WITH y2;

y1 WITH y3;

y2 WITH y3;

x2 WITH x3;

x2 ON x1;

x3 ON x1;

%BETWEEN%

y1 ON xm1 xm2;

y2 ON xm1;

y3 ON xm1;

xm2 ON xm1;

OUTPUT: Standardized;
