THE EFFECTS OF EXPERIENCES WITH CONSTRUCTIVIST INSTRUCTION ON ATTITUDES TOWARD DEMOCRACY AMONG THAI COLLEGE STUDENTS

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ABSTRACT

The study draws on Dewey's theory that constructivist instruction embraces the philosophy of democracy with regards to enhancing students' individual and social constructivist learning. As a result, the hypothesis is that constructivist learning practices might be an effective indirect way to learn and value democracy. The hypothesis was confirmed by the structural-equation-modeling analysis result, indicating that Thai students' prior experiences with constructivist instruction were positively correlated with their attitudes toward democracy.

Through a multistage sampling method, a group of 717 freshman college students were randomly selected from one public university in Bangkok, Thailand. They were surveyed by group-administration with a student questionnaire about their prior constructivist learning experiences in high school, as well as about their attitudes towards democracy. Moreover, the students' personal profiles such as gender, parent education, hometown location, and academic department were examined to find potential variables in the Thai students' attitudes toward democracy. The key findings derived from these statistical results were highlighted and discussed in order to provide some educational policy implications for Thailand.

CHAPTER ONE

Introduction

This dissertation examined the relationship between constructivist theory as an educational approach and democratic theory as a socio-political philosophy. Constructivist learning theory suggests that students develop clear, deep understanding and advanced cognitive skills when they learn independently, think critically, and work to gain direct experience through teacher scaffolding and peer collaboration (Bonk & Cunningham, 1998; Ormrod, 2004). Based on Dewey (1916) and Noddings (1998), the hypothesis of the study is that this learning approach would provide an opportunity to practice and value key democratic principles such as freedom, independence, critical thinking, communication, and social concerns. Thus, conceptually, experiences in constructivist instruction would stimulate students' engagement in democratic practices and promote positive attitudes toward democracy.

In Thailand, people have experienced a society with limited democratic understanding, practice, and value, as well as an education system focusing heavily on a teacher-centered approaches and rote memorization. As Chiangkul (2004) and Dhiravegin (n.d.) claimed, these problems would be mainly influenced by the traditional Thai cultural pattern of paternalism. As a result, Thai students may lack critical thinking skills; this problem limits human and social development. This study explores whether constructivist instruction may be the key to stimulating not only advanced cognitive skills but also democratic values for Thai students, and eventually for Thai society. The case of Thailand would provide unique and significant findings of these effects and suggest

implications for other South-east Asian contexts whose cultures are different from those of Western countries.

Thailand's Background

Thailand is a loosely collective social system (Embree, 1950; see also Albritton & Bureekul, 2004 a). Like other East Asian societies, Thai society is basically collective with emphasis on the paternalistic, or parent-child, relation. In this relation, although the leaders have absolute power over the followers, and the followers must be obedient to the leaders, the leaders with care and morality are obligated to nurture and patronize the followers (Conners, 2003). Such a patronage system instills in Thai people a motivation to develop their patron-client relations, in which they tend to emphasize relation-based over task-based concern and thus tend to bend the rules in order to reciprocate favors to each other (Arghiros, 2001). As a result, Thai society is closely tied with high respect to elders, religion, and monarchy (Baker, 1999; Matzen, 1996), and emphasizes relations-oriented behaviors for maintaining social networks and teamwork (Baker, 1999; Parkay et al., 1999).

Under the influence of Buddhism, Thai characteristics embrace the values of moderation, self-sufficiency, self-control, and a peaceful mind (Matzen, 1996; Mulder, 1996). These values make Thai society loosen its collective social structure, and thus enable Thai people to balance their lives and be flexible and adaptive to changing situations (Ukosakul, 2005). In Thai society good characteristics include playfulness, politeness, hospitality, consideration for others, and being open to foreigners as well as a variety of religions and cultures (Hongladadom & Hongladadom, 2005; Moore, 1974; Mulder, 1996; Parkay et al., 1999).

However, due to deep hierarchical organization, the Thai government is highly centralized (Mulder, 1996; Ockey, 2004), and due to deep rooted collectivism, Thai people have been subject to authoritative powers: monarchy, military dictatorship, and the capitalist ruling class (Chiangkul, 2004; Ungpakorn, n.d.; Visathavethaya, 2001). Responding to the recent influx of Western and global influences, particularly capitalism and the free market, Thai society has been attracted to democracy's focus on liberation from governmental oppression. Because liberal democracy emphasizes individual liberty over social concerns, however, Thailand has adopted democracy only in part and thus, has continued the legacy of oppression (Chiangkul, 2001, 2004). In addition, the national economy and social development has heavily emphasized consumerism, materialism, and dependence on the world market and international supports. As a result, the Thai economic and social structure is highly unstable, dependent, self-centered, and arguably, unjust (Office of the Education Council [OEC], 2002).

Traditional Thai educational practices are intended to produce personnel to serve the bureaucracy and to be subject to the ruling class (Visathavethaya, 2001). Although Thailand is no longer under monarchy rule and has become a democracy, the Thai education system still maintains its traditional approach (Chiangkul, 2001). Through this approach, Thai students are taught to follow directives of both parents and teachers. Most students are prepared to pursue careers as dependent workers rather than to be self-employed and independent. They scarcely experience active participation in discussion and shared decision making. The Thai education system mitigates against students fully practicing and valuing democratic principles (Visathavethaya, 2001).

Because of the strong influence of these traditional values, Thai people are kept away from educational and experiential opportunities to engage in a variety of democratic activities (Chiangkul, 2004; Ungpakorn, n.d.). To Thai people, democracy seems beyond their concerns because applications of democratic principles are not involved in their careers and daily lives, but are limited to sophisticated academic affairs such as economic and political processes (Albritton & Bureekul, 2004 a). Therefore, these principles may not extend to day-to-day practices in Thai individuals' lives. Consequently, Thai society is not fully democratic.

The inadequacy of democratic understanding, practice, and value makes Thai people avoid critical discussions in shared decision making. Correspondingly, the traditional Thai education approach emphasizes teacher-centered learning and rote memorization (Visathavethaya, 2001). Educated in such a "banking" system (Freire, 1986), designed to merely transmit knowledge, Thai students lack the development of cognitive skills and the capacity to think critically. As a result, too many Thai workers have remained in low-level careers that require low-level skills. They appear to lack critical thinking to evaluate and select ways to improve their ways of life and the larger society (Chiangkul, 2004). Because of the inadequacy in high-level skills and critical thinking to survive in the current competitive world, Thailand's economic growth has proceeded very slowly compared with other developing countries (Fry, 2002; OEC, 2002).

As the OEC (2002) claimed, poverty in Thailand stems from economic regression, resulting in a high level of unemployment, as well as other social problems such as drugs, crime, and civil unrest. Poverty and its sociological effects are critical and

perpetual problems among Thai people, the majority of whom are working class (Chiangkul, 2004). According to Chiangkul (2004) and Dhiravegin, (n.d.), limited human capital and human development, influenced by the traditional culture and education, are at the root of these economic and social problems. The perpetual poverty and limited governmental support seem to just worsen the possibilities of democratic development in Thai society (Albritton & Bureekul, 2004 b).

Thailand's National Education Plan and Reform

In Thailand, the government has spent significant portions of the budget on education, but students' academic achievement remains unchanged and continues to be relatively low, specifically in science and mathematics (OEC, 2002). In a comparative study using data from the Trends in International Mathematics and Science Study (TIMSS 1999), Fry (2002) indicated that Thailand was ranked 25th and 27th for student achievement in science and mathematics among 38 countries world-wide. Although some students show knowledge proficiency as measured by exams and course grades, they do not achieve well-developed cognitive skills to apply theory to daily-life practices. Also, they lack ethical and critical thinking skills. This indicates the failure of Thai education and human development (OEC, 2002).

Therefore, as stated in Section 81 of the new 1997 constitution, "the State will improve education in harmony with global economic and social changes, support science and technology development, and inculcate traditional Thai values, culture, and wisdom" (OEC, 2002, p. 4). In accordance with the constitution and the National Education Act, the 2002-2016 National Education Plan is developed based on the King's philosophy of economic moderation, embracing 1) a balance and integration of all aspects of the quality

of life, 2) human-centered development to become rational, ethical, happy individuals, and 3) a community of ethical learners.

As one key concept of education reform corresponding with the King's philosophy, a constructivist instruction approach has been mandated in the National Education Plan (NEP) to facilitate students' independent learning and to stimulate students' critical thinking, cognition, creativity, and deep understanding (OEC, 2004). The concept of constructivism is recommended by Thai and international scholars who were specifically asked to study and assess Thailand's education situation and to recommend education reform. The results of their qualitative and quantitative studies as well as of pilot school programs showed satisfactory learning effectiveness of constructivism as applied in Thai contexts (Fry, 2002; OEC, 2008). In addition, the reform adopts the concept of standards-based education to assess and improve the quality of students and to maintain a high standard of school-based management in schools nationwide (OEC, 2008).

Actually, the term "constructivist learning" never appears in the NEP, but the document uses the common term of "student-centered learning." Thus, the NEP may not include the whole concept of constructivism. The NEP stipulates 3 objectives and 11 policy guidelines for implementation, and some of the guidelines reflect the concept of constructivism. For example, Guideline 2 , "Learning reform for the benefit of learner" (OEC, 2004, p. 19), supports student-centered learning and teacher scaffolding; Guideline 5, "Developing a learning society to create knowledge, cognition, the good behaviour and integrity of the people" (OEC, 2004, p. 19), supports collaborative learning in regards to a community of learners, as well as cognitive and problem-solving skills

development; Guideline 7 "Creation, application, and dissemination of knowledge and learning" (OEC, 2004, p. 19), partly supports discussion limited to knowledge sharing. However, there is an absence of some constructivist principles such as reflective thinking and relevance to daily life.

According to the official report on monitoring and evaluation of Thai education reform implementation, the Office of the Education Council (OEC, 2008) indicated that 1) the mean of standardized test scores in most subjects was considered low (a mean score lower than 50%); 2) despite school-based management, most schools were not capable of developing their own curricula, but depended on manuals; 3) most schools still focused on drilling workbooks and knowledge content, rather than individual cognitive development and practices in authentic work; 4) teachers had a low level of contribution in curricular and instructional development and mostly adopted commercially prescribed instruction for convenience; and 5) although teachers appeared to integrate various relevant subjects and various learning activities, they seldom provided conceptual teaching, or practiced critical thinking, cognitive, and problem-solving skills.

With regards to democracy in education, the NEP does not address the concept of democracy and instruction in democracy, but emphasizes inculcating traditional Thai characteristics as appearing in Guideline 3 – "Inculcating and strengthening morally, integrity, ethics, and desirable values and characteristics" (OEC, 2004, p. 19). However, one democratic principle perhaps applied in the plan is social responsibility with regards to getting students involved in community activities to learn local wisdom and traditions from the community, as well as getting the whole community (particularly parents) involved in school activities and student learning development. In the education reform

implementation, the OEC (2008) revealed that there was a low level of student involvement in the community activities. Also, it reported just a moderate level of parental and societal participation in school management, including curricular and instructional development.

In Thailand, civics is a discrete school subject. It is a part of the social studies core courses taught in two periods per week for one year. The formal civics curriculum emphasizes moral education, Buddhism, and traditional Thai culture, rather than democracy (Morris & Cogan, 2001). The lecture method, focusing on knowledge content, is popular for civics instruction (Morris & Cogan, 2001; Pitiyanuwat & Sujiva, 2006). Because the NEP does not stress education in democracy, there has appeared to be inadequacy in democratic practices in educational institutions. However, it is the premise of this study that an unintended consequence of the movement toward constructivism might be better preparation of Thai people to practice democratic governance.

Statement of the Problem

A body of research focuses on constructivist learning theory in terms of cognitive and individual development, but no studies explore this learning theory in terms of socio-political development of democracy. Democracy is a philosophy that sustains healthy social development by living together without oppression, without discrimination, and with inter-dependence (Gutmann, 1997; Noddings, 1998). The practice of democracy leads to the maintenance of both good mental and intellectual health among individuals and the whole society (Dewey, 1916).

Based on the philosophies of Dewey (1916) and Noddings (1998), democratic principles conceptually correspond to constructivist learning principles. They both

embrace individual and social characteristics, including the values of freedom, independence, critical thinking, and communication. Thai students would learn the democratic values of cooperative relation, open-mindedness, and respect for equal voices from being engaged in collaboration and discussion in the classroom as put forward by Dewey and Noddings. This dissertation is intended to pioneer a study of the relationships between both concepts, and to explore the potential of constructivist instruction in stimulating students' democratic practices in school and democratic values.

In addition, little is known about Thai students' key characteristics, particularly about their attitudes toward democracy. For this reason, this dissertation makes an attempt to provide empirical data to understand this characteristic and its key factors. This insight is part of understanding a wider scope of Thai students' characteristics and Thai culture in order to find efficient and effective ways to improve Thai educational and social systems, particularly democracy and civic mindedness.

Conceptual Framework

The conceptual framework for this study was constructed by synthesizing constructivist learning theory and democratic theory to identify potential conceptual links. This framework supported the formation of the researcher's hypothesis that student experience of constructivist classrooms might be positively related to democratic attitudes.

Constructivist learning theory

The theory of constructivist learning suggests that students learn when they construct their own knowledge. That is, learners do not learn by merely accumulating information from the outside world or transferring knowledge from one to another, but

they learn by critically thinking and making sense of information to understand it in their own ways (Ormrod, 2004; Prawat & Floden, 1994). In this theory, the development of student learning should focus on student-centered rather than teacher-centered approaches and higher-order thinking and cognition rather than rote memorization.

Knowledge construction can occur within 1) each individual and 2) a community of learners. Individual constructivist learning is based on Piaget's developmental theory (Piaget, 1959). According to this theory, students actively respond to the environment and engage themselves in developing knowledge through interaction between their schema and the environment (Ormrod, 2004), or by linking the newly received information to their existing knowledge and experience (Alexander et al., 1991; Blumentritt & Johnston, 1999). Thus, curriculum and instruction need to be designed to match individual students' learning nature and needs, as well as provide them opportunities for autonomy and discovery through learning and rational explanation (Bonk & Cunningham, 1998).

Social constructivist learning is based on Vygotsky's developmental theory (Vygotsky, 1978). According to Vygotsky, students' learning is first mediated by tools and signs within their contexts. Thus, learning activities and materials should be contextualized; that is, they should be relevant to their daily lives. Secondly, their learning develops through social interaction and dialogue, in which students gradually absorb others' knowledge and co-construct new knowledge. Key approaches in this concept include collaborative learning and discussion (Bonk & Cunningham, 1998; Ormrod, 2004). Thirdly, students need assistance from experts (i.e., the teachers) to reach

higher levels of learning. Accordingly, social learning plays a major role in enhancing individual learning (Salomon & Perkins, 1998).

Rather than rote memorization and routine practices, constructivist learning stimulates the development of students' critical thinking skills (Salomon & Perkins, 1998, Noddings, 1998). These skills, in turn, stimulate intrinsic motivation to continue and to enjoy learning (Bonk & Cunningham, 1998). Without these skills, innovative ideas and life-long learning of individual students may not occur (Chiangkul, 2001; Fry, 2002; Noddings, 1998; Visathavethaya, 2001).

The application of a constructivist approach in formal education began in the United States in the late 20th century. Constructivist methods have been developed and applied extensively in education in developed countries. According to an international comparative study on student achievement, Desimone et al. (2005) using the TIMSS 1999 dataset indicated that developed countries with high test scores focused heavily on constructivist instruction methods such as rational explanation, knowledge application in daily-life, scientific inquiry, complex problem-solving, discussion, collaborative work, and open-ended tests.

In Thailand, the constructivist approach has first been adopted and applied in higher education by professors who earned graduate degrees in Western countries, and then disseminated to some K-12 schools. As Atagi (2002) asserted, the dominant teaching style Thai teachers were taught and feel comfortable with is "chalk and talk." While the educational reform has required some aspects of constructivist instruction in all academic levels, most classes in K-12 and undergraduate postsecondary levels still overemphasize the teacher-centered approach (i.e., lecture-based instruction and testing); however, in

graduate levels, classes are more constructivist. Overall in Thai education, there are low levels of critical discussion, reflection, collaborative learning, research projects, and creative learning activities (Atagi, 2002; Fry, 2002).

Democratic theory as a philosophy

Democracy is not just a form of political system and process, in which everyone votes for representatives and the majority rules the government, but it is a socio-political philosophy, or a mode of social life, in which everyone as an individual actively participates in discussion for shared decision making with community concerns (Dewey, 1916; Noddings, 1998). Because individuals need autonomy to grow in their own ways but still need communication and cooperation with others (Gutmann, 1997; Noddings, 1998; Thayer-Bacon & Bacon, 1998), democracy is a concept that aims to balance between both individual and social aspects.

The theory of democracy embraces the following key notions. In a democratic community, all members have free interactions with others without repression and discrimination (Gutmann, 1997; Noddings, 1998). People have different characteristics and backgrounds and are knowledgeable and independent, so they can choose their own interests and thoughts (Noddings, 1998) and be immune to the influence of authority and patron-client relations (Conners, 2003). The community is open to diversity in groups by including all individuals and groups across social class, religion, race, and region (Noddings, 1998).

Communication is the way to develop shared interests among all members, hold them together, and make strong relationships. During discussion, all individuals' voices and various ideas are respected equally to make decision (Dewey, 1916; Noddings,

1998). In the discussion, they have a right to deliberate and disagree without dominating and being dominated by others (Gutmann, 1997). Also, they develop rationality and critical thinking to evaluate and negotiate competing concepts (Gutmann, 1997; Noddings, 1998).

Social responsibility is important to making deliberately shared decision and sustaining community development. This notion emphasizes the concern of social benefits over personal interests (Noddings, 1998), and it suggests that everyone should be interdependent, voluntarily cooperative, and active in shared decision making (Thayer-Bacon & Bacon, 1998). In the democratic community, outcomes from shared decision making are social constructions (re)shaped by everyone and for everyone (Bull, Fruehling, & Chattergy, 1992; Dewey, 1916).

Thayer-Bacon and Bacon (1998) suggested that the integration of democracy into formal education can be implemented through building a democratic classroom. In the democratic classroom, in line with a community of learners, all students as independent learners learn together through critical discussion with respects of diverse ideas, equal voices, and cooperative relations. However, the Thai literature has not widely reported democracy in education and its learning activities applied in Thai contexts.

As will be demonstrated at more length in Chapter 2, democratic theory corresponds in some important aspects to constructivist learning theory. Both constructivist learning theory and democratic theory embrace individual liberty, active participation, and critical thinking. However, individuals need others' assistance in their difficult tasks. Both theories also emphasize a community of learners, collaboration, and discussion in cooperative relation to enhance shared decision making and knowledge

construction (Thayer-Bacon & Bacon, 1998). Diversity of thoughts and equal voices among all groups bring varieties of fresh ideas to develop deep knowledge and understanding (Dewey, 1916; Noddings, 1998). In sum, both concepts entail both individual and social characteristics (Dewey, 1916; see also Beane & Apple, 1995).

Purpose of the Study

By the conceptual synthesis of the existing literature about democratic theory and constructivist learning theory, this quantitative study aims to statistically examine the effects of experience in constructivist instruction on Thai college students' attitudes toward democracy. The study seeks to explore whether students' experience in constructivist instruction is a key factor in promoting their attitudes toward democracy. The study also seeks to understand one of Thai students' key characteristics: attitudes toward democracy. That is, the study focuses on identifying and measuring the domains of Thai student perceptions in both democratic principles and constructivist learning principles. This insight provides information about which domains in democratic principles and constructivist learning need to be improved or otherwise preserved for educational policy implications. In addition, the study pays attention to the relationship between attitudes toward democracy among college students and the demographic factors such as gender, parent education, hometown location, and academic department.

Research Questions

1. What are Thai college students' prior experiences of constructivist instruction in high school and current attitudes toward democracy?
2. How do Thai college students' attitudes toward democracy differ by gender, parent education, hometown location, and academic department?

3. To what extent are Thai college students' prior experiences of constructivist instruction associated with their attitudes toward democracy, when controlling for gender, parent education, hometown location, and academic department?

Significance of the Study

There are at least four potential benefits of this study. Firstly, to date there is no literature focusing on the intersection of constructivist learning theory and democratic theory. The study is intended to pioneer research on this topic to promote the value of constructivist instruction in regard to not only raising cognitive development and academic achievement in individuals, but also promoting democratic development in the society. Specifically, the study explains, synthesizes, and (re)confirms the relevant theoretical concepts derived from the literature with advanced statistical analyses on current data. Secondly, in Thailand, this new research topic would be a major aid to the current national education reform that has emphasized constructivist teaching and learning. Particularly, to overcome perpetual poverty, both constructivist learning and democratic values doubly enhance Thai people's development in critical thinking skills, the most needed for economic and political development. Thirdly, it provides an insight on Thai students' key characteristics such as democratic values and their key factors in order to find efficient and effective ways to adapt Western-style constructivist instruction and democratic philosophy into the Thai context. These unique and significant findings derived from Thailand may contribute knowledge to other Southeast Asian contexts, whose cultures are very different from those of Western countries. Fourthly, along with other policy implications, it ultimately promotes the educational policies on democratic

constructivist instruction as the most effective learning approach, which has been missing in Thai national education reform.

Limitations

There are some limitations to this study. Firstly, because of budgetary and time constraints, the research is limited to only one university and cross-sectional analyses. Thus, the sample does not represent the whole population of postsecondary students in Thailand, and the study results are not generalizable to all groups of Thai students in all settings. Secondly, due to differences in cultural background, students from different countries may have quite different interpretations of some concepts in the survey questionnaire. Thus, the findings and recommendations from this study, which are tailored for the case of Thailand, may not be applicable for other countries. Thirdly, the instrument for the study was developed based on Western literature on the two constructs: constructivism and democracy. Further study would be needed to understand how these constructs might be reinterpreted or adapted in a Thai cultural context. Fourthly, there were no large databases about undergraduate students in Thailand both nationwide and university-wide, so it is difficult to find complete, updated, and accurate student datasets. Fifthly, the researcher employed survey administrators to collect the data, so the instruction for this staff was needed to properly conduct the survey, and the researcher needed to regularly monitor the staff.

Definitions

Critical thinking. Critical thinking is the mode of high-order thinking, which aims to improve the quality of thinking by careful rational analysis, evaluation, and creation, with freedom and independence in inquiry, open-mindedness to new ideas, and

awareness of biased, erroneous, doubtful, and immoral notions (Hare, 2001). Apparently, it is not blindly accepting of social order and norms without actively questioning and criticizing them for social changes.

***Reflection*.** Reflection is part of critical thinking. It is a process that where learners critically think about practices and ideas they already learned, evaluate what they have done, and develop alternative ways to improve their work and learning (Stein, 2000).

***Creativity*.** Creativity is the ability to produce new ideas that are surprising but intelligible, valuable, and effective in some way. It is also divergent thinking; for example, it is thinking across disciplines, or diverse ideas, which is out of a conventional framework (Wheeler et al., 2002).

***Collaborative learning*.** Ormrod (2004) says that collaborative learning is when students work in small groups to achieve a common goal, such as in a problem-solving project, helping each other out, scaffolding for each other's efforts, applying effective learning strategies for each other, and co-constructing new ideas.

***Community of practice*.** Community of practice is "groups of people informally bound together by shared expertise and passion for a joint enterprise" (Wenger & Snyder, 2000, p.139). This term is consistent with a community of learners, in which "teacher and students actively and cooperatively work to help one another learn" (Ormrod, 2004, p. 420-421),

***The forms of capital*.** Firstly, economic capital is a form of resources that can be exchanged into money (e.g., machines, buildings, and money itself). Secondly, human capital is acquired through learning and experience (e.g., knowledge, skills, and labor).

Thirdly, social capital is considers social relationships a form of resources. Fourthly, cultural capital is one that is used for social stratification; that is, privileged individuals were “trained from birth to possess cultural disposition, attitude, and style,” (Arum & Beattie, 1999, p. 4) which places them superior to ordinary members of society.

Social class. Social class is the hierarchical divide between groups within society. Regarding the forms of capital, social class is determined by not only economic capital, but also by cultural capital. For example, upper-class people not only have higher levels of incomes and resources, but also higher levels of education, occupation, and life-styles than lower-class people do (Arum & Beattie, 1999; Lareau, 2003). This term is interchangeable with socio-economic status (SES).

Individualism and socialism. Individualists stress freedom and independence so that they make their own choices as they desire without the influence of the state, or any other group. In contrast, socialists stress common goods, shared interests, and cooperation. Thus, they prefer conforming to social order and sacrificing for social benefits (Claeys, 1986; Gutmann, 1997). Due to the connotation of communism, socialism is preferably termed as communitarianism.

CHAPTER TWO

Literature Review

Introduction

This chapter provides a discussion of relevant literature that informed and guided this study. The organization of the chapter begins with theoretical constructs and empirical findings, as well as student characteristic factors all derived from international studies of constructivist learning and democratic principles. These concepts are then synthesized to demonstrate their connections. The discussion reveals 1) the scarce existing literature about the thesis: the effect of constructivist instruction on attitudes toward democracy, 2) conceptual correspondences between both concepts, and 3) the particular relevance of the thesis to the focus sample (Thai college students). Finally, the conceptual model of this study is presented with relationships between both concepts and their control variables.

Constructivist Learning Theory

What is constructivist learning?

Constructivist learning is based on the theory that students do not learn by directly memorizing information from the outside world or by the transference of knowledge from the teacher to students, but instead that students learn by actively organizing and making sense of information in their own ways (Ormrod, 2004; Prawat & Floden, 1994). In this way, students are constructing their own knowledge or meaningful ideas by linking the newly received information to their existing knowledge and experience (Alexander et al., 1991; Blumentritt & Johnston, 1999). It also implies that students have

their own ways of learning (Bonk & Cunningham, 1998), and their learning approaches focus on student-centered and cognitive learning (Ormrod, 2004).

Regarding epistemology, constructivist learning supports the belief that knowledge is not simple and certain, but holistic and evolving; learning ability is not instantly formed and fixed, but develops gradually over time (Hofer, 1999; Paulsen & Fledman, 1999). Unlike objectivity (the absolute truth from the outside), knowledge is subjective (multiple truths depending on individual interpretation) and created inside the human mind. Subjectivity implies that: 1) all students can learn, and 2) all students are individuals with differences in experience and nature (Airasian & Walsh, 1997; Noddings, 1998).

According to constructivist theory (Ormrod, 2004), knowledge construction can occur within 1) each individual and 2) a community of learners. The first type is labeled *cognitive constructivist learning*, and the second one is labeled *social constructivist learning.*

Cognitive constructivist learning

Cognitive constructivist learning is based on Piaget's learning theory (Piaget, 1959). The theory suggests that students actively respond to the environment (rather than through stimulus-response behavior), apply their mental models, and engage in developmental learning through interaction with the environment (Ormrod, 2004). Cognitive constructivist learning occurs by both *assimilation* (making information and environment fit in mental models) and *accommodation* (modifying mental models or forming new ones to fit the environment). Thus, curriculum and instruction need to be

designed to match each student's learning nature and individual needs, providing them with the autonomy to find their own ways of learning (Bonk & Cunningham, 1998).

To implement learning autonomy, instruction should: 1) provide a variety of knowledge sources, learning activities and tools; 2) apply flexible standards, criteria, and judgment systems; and 3) encourage a diversity of opinion through open-ended questions (Airasian & Walsh, 1997). Instruction aimed at cognitive development should encourage critical examination of knowledge, as well as self-reflection for learning improvement, through practicing thinking skills: abilities to generalize, analyze, synthesize, and evaluate (Airasian & Walsh, 1997). To promote interaction with the environment, the instruction should provide direct experience and learning by doing, rather than only studying theory and fact (Bonk & Cunningham, 1998). Lastly, regarding active scientific inquiry, the instruction should include individual research projects to solve certain problems based on students' own interests (Churach & Fisher, 2001).

Social constructivist learning

Social constructivist learning is based on Vygotsky's learning theory (Vygotsky, 1978). Three precepts are embedded within Vygosky's Theory. Firstly, students' learning is mediated by tools and signs within the students' cultural and historical context; these signs and tools include languages, technology, and learning materials (Bonk & Cunningham, 1998; Ormrod, 2004). Thus, students' learning is effective when they work in authentic situations, such as in daily life and on the job (Blackler, 1995).

Secondly, students' learning develops through social interaction and dialogue, in which they gradually learn the others' knowledge and co-construct new knowledge (Bonk & Cunningham, 1998). Based on this notion, Prawat and Floden (1994)

recommend discussions, debates, and ongoing conversations that are less-structured and free to the open expression of ideas. According to Wenger and Snyder (2000), the concept of communities of practice, which they define as "groups of people informally bound together by shared expertise and passion for a joint enterprise" (p.139), entails collaborative learning, knowledge sharing, and group-work tasks (Bhatt, 2000; Brown & Duguid, 1991; Nonaka & Takeuchi, 1995).

Thirdly, students need assistance from teachers (or experts) to accomplish difficult tasks or reach higher levels of learning (Bonk & Cunningham, 1998). Bonk and Cunningham (1998) suggest that teachers should provide challenging tasks to promote maximum cognitive growth. They further suggest the inclusion of relevant learning activities such as *cognitive apprenticeship* or learning by on-the job practice with the teacher in a real-world situation. Goldstein (1999) emphasizes applying *ethics of care* in relationships between teachers and students, which not only promotes intellectual development through guidance and scaffolding, but also affective development through raising motivation, building trust, and being responsive. She proposes that an effective learning situation is one in which teachers perceive their students' problem, and adjust their guidance to fit the students' needs. This notion indicates the importance of learning in a face-to-face classroom setting.

Salomon and Perkins (1998) and Cobb (1996) assert that individual and social aspects of learning interact in complementary and dynamic relations. They explain that individual learning focuses on cognition, in which knowledge is constructed within each learner's mind; but social learning focuses on conditions enhancing individuals' own cognitive learning and a collective process of active knowledge sharing and development.

In regard to the dynamic interaction between both aspects of learning, as collective ideas are pooled and shared among group members, each individual takes some of the collective ideas to construct his or her own knowledge and then shares with the group the new ideas he or she just constructed (Bonk & Cunningham, 1998). Learning normally occurs in social context; even for cognitive learning, assimilation and accommodation require interaction between each individual and the environment (Prawat & Floden, 1994). Prawat and Floden (1994) point to Dewey's *systematic inquiry* as an integration of both aspects of learning. That is, theory of practice, or learning by doing, is based on the context by examining a hypothesis, verifying it in the environment, and discussing it for collective reflection and feedback to develop original knowledge.

Constructivist learning principles

In sum, based on this synthesis of the literature, the theory of constructivist learning includes seven major principles: 1) learning personalization, 2) reflective thinking, 3) problem-solving and investigation, 4) relevance to daily-life, 5) collaborative learning, 6) discussion, and 7) teacher scaffolding. See the description and references that support each constructivist learning principle in Table 2.1.

Theoretically, constructivist learning should stimulate the development of students' critical thinking skills in that this approach encourages students to actively and rationally think about their and others' existing knowledge during knowledge construction (Airasian & Walsh, 1997; Noddings, 1998; Salomon & Perkins, 1998). This learning approach also stimulates intrinsic motivation to keep students' learning enjoyable through promoting natural curiosity, personal interests, autonomy, and novelty and challenge of tasks (Bonk & Cunningham, 1998; Ryan & Deci, 2000). Because of the

TABLE 2.1

Summary of Constructivist Learning Principles

Constructivist Learning Principles	
Description	**Reference**
Learning Personalization:	
- curriculum and instruction designed to match students' learning nature and individual needs - autonomy to find their own ways of learning (self-management in their own learning paces and how they learn) - impose flexible learning standards, criteria, and judgment system	Airasian and Walsh (1997), Bonk and Cunningham (1998), Taylor et al. (1997)
Reflective Thinking:	
- stimulate thinking skills - critical evaluation of knowledge - question teachers' instruction	Airasian and Walsh (1997), Dewey (1916), Taylor et al. (1997)
Problem-solving and Investigation:	
- learning by doing (practice) - stimulate skills and process of inquiry in solving problems and doing research - discovery learning	Bonk and Cunningham (1998), Churach and Fisher (2001), Dewey (1916), Prawat and Floden (1994)
Relevance to daily-life:	
- learn in authentic situations, such as in daily life and on the job - relevant to students' experiences	Blackler (1995), Bonk and Cunningham (1998), Dewey (1916), Taylor et al. (1997)
Collaborative Learning:	
- a community of learners - group-work tasks - knowledge (expertise) sharing - learn together and help out each other	Brown and Duguid, (1991), Dewey (1916), Dorman and Adams (2004), Wenger and Snyder (2000)
Discussion	
- discourse, debates, ongoing conversation - open expression of ideas - negotiation - verbally (linguistically) social interaction	Dewey (1916), Levine (2007), Prawat and Floden (1994), Wertsch (1991)
Teacher Scaffolding	
- guidance from teachers to achieve tasks - challenge difficult tasks - learning encouragement and motivation	Bonk and Cunningham (1998), Goldstein (1999), Simons and Klein (2007)

freedom to think and learn in one's own ways (Wheeler et al., 2002), constructivist learners are likely to be creative. Likewise, freedom of distribution and sharing of knowledge boosts innovation (Brown & Duguid, 1991; Nonaka & Takeuchi, 1995). Moreover, learners tend to develop metacognition and self-regulation as they are able and encouraged to manage their own learning (Ormrod, 2004). Ultimately, students may acquire deep understanding in knowledge and ongoing development of career skills (Chiangkul, 2001; Fry, 2002; Visathavethaya, 2001). Do empirical studies bear this out?

Empirical findings in constructivist learning

All researchers do not operationalize "constructivist" teaching in the same way, which complicates comparisons and summaries of this work. Studies have shown mixed effects of constructivist learning on K-12 students' achievement as measured by standardized tests. For example, the studies of House (2005) and Taylor (2004) indicated a positive effect, but the studies of Cohen (2001) and O'Dwyer (2005) showed no differences or even lower effects when compared to traditional approaches. Basically, the principles of constructivist learning – toward a subjective, student-centered, cognitive orientation would not be compatible with standardized tests – toward an objective, teacher-centered, memorizing orientation. Thus, the test scores may not completely measure student achievement in constructivist instruction.

However, according to an international comparative study on student achievement, using the TIMSS 1999 dataset, Desimone et al. (2005) indicated that developed countries with high test scores focused heavily on constructivist instruction methods, but the high-achieving East Asian counties (and the U.S.) focused on both constructivist and traditional approaches. This indicates that constructivist learning is a

vital approach to enhancing cognitive development emphasized in math and science, and accordingly helps students have high achievement in the test scores.

In international K-12 studies, constructivist learning activities used in the classroom included applying theory into daily life situations, scientific inquiry, complex problem solving, reflection, discussion, and collaborative work (Cohen, 2001; Desimone et al., 2005; House, 2005; O'Dwyer, 2005; Taylor et al., 2004; Wheeler et al., 2002). Collaborative learning, particularly, was perceived as the most effective and satisfying to secondary-school (House, 2005) and college students (Van Eijl et al., 2005). Molesworth (2004) asserted that not only collaboration but also reflection and discussion were valued by college students; however, the students did not demonstrate learning up to the level of knowledge exploration and creation, as well as critical conversation. Furthermore, K-12 and higher-education studies suggested that this approach raised learning motivation and engagement (House, 2005; O'Dwyer, 2005; Van Eijl et al., 2005), and stimulated creativity (Wheeler et al., 2002), which are purportedly key predictors of student achievement (O'Dwyer, 2005).

Empirical findings on constructivist education in Thailand

In the case of Thailand, the National Education Plan (2002-2016) has required education reform to move toward constructivist approaches in terms of student-centered learning and a community of learners (OEC, 2002). Thai scholars suggest that educators should provide students with cognitive and hands-on teaching, integrated subjects, research projects, and active discussion (Davivongse, 1998; Sumalee, 1999; Tantraporn, 2000), as well as alternative assessments such as open-ended tests and performance tests (Pravalpruk, 1999). However, studies show that at K-12 levels, there is still a low level of

constructivist instruction, particularly in mathematics and science (Sangtong 2000; Tantraporn, 2000). Constructivist approaches are new to Thai students and teachers. Because of their tacit knowledge of traditional practices, Thai teachers prefer these practices even while understanding the potential value of constructivist approaches (Prapaisit, 2003; Sangtong 2000).

Two qualitative studies used classroom observations and interviews with the teachers in urban elementary schools. One study of three sixth-grade English teachers indicated that the Thai teachers focused heavily on the teacher-centered approach, that is, drill activities without communicative activities (Prapaisit, 2003). On the other hand, in another study of four first-grade classrooms, Tsailexthim (2007) found that the Thai teachers focused heavily on constructivist approaches. The inconsistency of both studies might stem from the fact that the Tsailexthim's study, compared to the Prapaisit's, was conducted more recently, at the time that the constructivist instruction was more widely applied under the educational reform. Also, the former captured teaching in the first-grade level, in which not much knowledge content was required to cover.

In addition to the preference for the traditional instruction, large class-sizes, heavy teaching workload, limited resources standardized testing, time constraints, and wide content coverage are barriers to implementation of constructivist instruction for K-12 schools in Thailand (Pravalpruk, 1999; OEC, 2008; Tsailexthim, 2007; Vanichakorn, 2003). Class size has been shown to be one key factor in the effectiveness of constructivist learning in secondary-schools (Pong & Pallas, 2001; Pravalpruk, 1999). Two Thai studies used a quasi-experimental pretest-posttest method (nonequivalent control group design). The first one selected four mathematics classes with 164 ninth-

grade students in an urban school (Makanong, 2000), whereas the other selected four electronics classes with 108 vocational students at the age of 19 from two technical colleges in an urban area (Maunsaiyat, 2002). According to both studies, there were no statistically significant differences in test scores between students taught by teachers using constructivist instruction practices and students taught by teachers using traditional instruction practices. However, the constructivist-instructed students had higher scores on the delayed posttest (Maunsaiyat, 2002), indicating their deeper understanding as well as greater engagement in learning.

Student characteristics associated with constructivist instruction

Hannum (2003) asserted that basic social attributes such as gender, SES, and regionality influence learning opportunity and achievement. For example, being female (Bettie, 2003), having low SES (Holsinger, 2005), and living in a rural area (Parkay et al., 1999) lead to disadvantage in educational access and support through low levels of resources and preparation provided by families. These conditions, in turn, lead to low levels of student achievement (Baker et al., 2002; Coleman & Hoffer, 2000; Jencks et al., 2000; Lareau, 2003; Silova & Magno, 2004). Rural and low-SES groups in Latin America (Stromquist, 2001) and in China (Hannum, 2003) were more culturally conservative, and this seemed to exacerbate the inequality in scores between male and female K-12 students. In a Thai secondary-school study, Sangtong (2000) also indicated that SES and regionality are key factors that affect learning opportunity and achievement among students.

Specifically, in one international secondary-school study, Desimone et al. (2005) stated that the SES of students is the key factor in adoption of constructivist learning style

and accordingly gaining high achievement in math and science. They explained that SES is directly correlated with student competence, and thus it influences teachers' teaching style to cater individual students. In the case of the US, for example, teachers preferred providing intensive constructivist (conceptual) instruction for highly competent students and direct-teaching (procedural) instruction for their less competence counterparts. Other international secondary-school studies (e.g., Baker et al., 2002; O'Dwyer, 2005) also asserted SES as the predictor of student achievement linked to opportunity to engage in constructivist learning environments.

The proposed study will focus not on student achievement but on student experiences of secondary-school instruction based on the principles of constructivism. Little is known about the extent of these practices or about students' perceptions to them in Thailand, particularly higher-education levels. The studies in this review suggest that demographic variables such as parent education (as a proxy of SES) and hometown location (rural or urban) may influence learning experiences as perceived by Thai students. Moreover, this study will attempt to link student experiences of constructivist instruction with their attitudes toward democracy.

Democratic Theory as a Philosophy

What is democracy as a philosophy?

Democracy, according to Dewey's *Democracy and Education* (1916, p. 130), "is more than a form of government, it's a mode of associated living, of conjoint communicated experience." In other words, democracy is not merely "a system of government in which everyone votes and the majority prevails... [; but rather it was a mode of social life, in which] decisions were to be made by a shared process of inquiry"

(Noddings, 1998, p. 35). That is, democracy is a philosophy, or set of principles, influencing people's thoughts, actions, and interactions with others in daily life (Pryor, 2005), including politics, economics, and education.

The essence of democracy is active and full participation including all people's opinions and deliberation to make collective decisions that shape and reshape their society (Bull, Fruehling, & Chattergy, 1992). This notion corresponds to the concepts of *social democracy* (Fowler, 2004), *participatory democracy* (Levin, 2000), and *deliberative democracy* (Davies, 1999; Reykowski, 2006; Schou, 2001). Democracy is a socio-political theory that balances both individual and social concerns (Levin, 2000; Pearl, 2005; Schou, 2001). It serves not only individuals' need for autonomy and independence to practice critical judgment and discussion, but also the need for communication and interaction with each other to open up opinion brainstorming and full participation in shared decision making in order to shape society (Gutmann, 1997; Noddings, 1998; Thayer-Bacon & Bacon, 1998). Democracy entails a balance between liberalism and communitarianism, conflict and consensus, diversity and unity, independence and interdependence, participation and representation, and majority rule and inclusiveness (Bull, Fruehling, & Chattergy, 1992; Davies, 1999; Levin, 2000).

In a democratic community, members need to value and maintain these two key elements: 1) varied and free expression and communication with each other and 2) development of consciously shared interests (Noddings, 1998; Thayer-Bacon & Bacon, 1998). Regarding the first element, free interactions among its members, the community is non-repressive and non-discriminatory (Gutmann, 1997; Levin, 2000; Thayer-Bacon & Bacon, 1998); that is, it includes all individuals and groups across social class, religion,

race, and region. Diversity in groups is not a concern as long as groups keep strong connections and open interactions with each other (Noddings, 1998). Participation in democratic dialogue requires every member to be active, open-minded, and independent. In short, democratic dialogues are participatory, rather than representative. Through active participation in civic dialogue, the qualities and voices of all individual members are recognized and encouraged with appreciation that all individuals make contributions to enhance the community and its members' growth and understanding (Levin, 2000; Thayer-Bacon & Bacon, 1998).

The second element is the development of consciously shared interests, where everyone has freedom to deliberate and disagree without dominating and being dominated by others (Gutmann, 1997; Reykowski, 2006; Schou, 2001). Conversation (or discussion) is based on rationality and fellow feeling (Noddings, 1998). The notion of *rationality* refers to the individual capacity to critically evaluate competing concepts in the conversation (Gutmann, 1997; Reykowski, 2006), while the notion of *fellow feeling*, or social concern, the concern for social benefits over personal interests (Levin, 2000; Noddings, 1998). The notion of rationality must be accompanied by ethics to guide people to act properly (Black, 2005; Ligon, 2005). The notion of fellow feeling implies that everyone cares for and helps out each other (Thayer-Bacon & Bacon, 1998) in cooperative relations (Reykowski, 2006). Reykowski (2006) concludes that effective discussions require *mutual respect*, *reasoned argument*, and *equal participation*. Democratically shared outcomes (e.g., interests, rules, and thoughts) are socially constructed through persuasion and negotiation by everyone and for everyone. They are developmental "under continual scrutiny, revision, and creation" (Noddings, 1998, p.34).

Democratic principles

In sum, based on this synthesis, the theory of democracy includes seven major principles: 1) freedom, 2) self-independence, 3) critical thinking in shared decisions, 4) social responsibility, 5) diversity, 6) equality, and 7) communication. See the description and references to each democratic principle in Table 2.2.

Democracy in education

This study will examine which principles of democracy are most supported among students in a Thai university. Many democratic theorists see education as the process of learning about and acting in accordance with democratic principles. Laguardia and Pearl (2005) and Ligon (2005) assert that democratic education requires 1) social skills and knowledge of discussion, negotiation, and collaboration; 2) individual attitudes of self confidence and free expression (see also Levin, 2000); 3) cognitive skills, including problem solving and critical thinking; and 4) ethical decision making. To promote democracy, moral education that promotes values of honesty, courage, respect, responsibility, and justice needs to be included in the curriculum and instruction (Black, 2005). However, democratic education and moral education are not necessarily separate subjects, but rather integrated in all other subjects and school lives (Noddings, 1998). Davies (1999) and Schou (2001) add that students need to learn to make joint decisions and take joint responsibility for their decisions, as well as rights and duties in a democratic society. Also, schools should provide students with free and open forums for argument and decision making, encourage them to actively participate in discussion (Levin, 2000; Schou, 2001), maintain fairness in school practices, and establish a school governance system that empowers teachers, students, parents, and the whole community

TABLE 2.2

Summary of Democratic Principles

Democratic Principles	
Description	**Reference**
Freedom:	
- the right to basic freedoms (e.g., freedom of opinion, expression, association, actions) - social choice (e.g., school choice) - no arbitrary restriction - non-oppressive	Dewey (1916), Fowler (2004), Gay (2003), Gutmann (1997), Pearl (2005), Noddings (1998), Thayer-Bacon and Bacon (1998),
Self-Independence:	
- active - initiative - individuality (identity preservation) - self-reliance/sufficiency	Dewey (1916), Gutmann (1997), Noddings (1998), Levin (2000), Saparnis (2006), Thayer-Bacon and Bacon (1998)
Critical Thinking in Shared Decisions:	
- deliberate to make collective decisions that shape and reshape their society - contribute to critical discussion - evaluate competing concepts in the conversation - reflection: continual scrutiny, revision, and creation of decision outcomes	Bull, Fruehling, and Chattergy (1992), Dewey (1916), Gutmann (1997), Laguardia and Pearl (2005), Levin (2000), Ligon (2005), Noddings (1998), Pearl (2005), Thayer-Bacon and Bacon (1998)
Social Responsibility:	
- social concerns - cooperative relations - participative - community involvement/contribution - political participation	Dewey (1916), Fowler (2004), Gutmann (1997), Noddings (1998), Pryor (2005), Reykowski (2006), Thayer-Bacon and Bacon (1998)
Diversity	
- diversity in cultures, opinions, voices - diversity in demographic characteristics: gender, SES, race, regionality, age - open-mindedness, tolerate and respect to different ideas	Dewey (1916), Gutmann (1997), Levin (2000), Ligon (2005) Noddings (1998), Pearl (2005), Thayer-Bacon and Bacon (1998)
Equality:	
- fair procedure, fair opportunity in decision making, and fair advantage gains - non-discriminatory - social justice: equalities in gender, SES, race, regionality, age	Dewey (1916), Fowler (2004), Gutmann (1997), Laguardia and Pearl (2005), Levin (2000), Ligon (2005), Noddings (1998), Pearl (2005), Thayer-Bacon and Bacon (1998)

TABLE 2.2 (continued)

Description	Reference
Communication:	
- keep strong connections and open interactions among group - discussion and ongoing conversation - negotiation for conflict resolution	Dewey (1916), Gutmann (1997), Laguardia and Pearl (2005), Ligon (2005), Noddings (1998), Pryor (2005), Thayer-Bacon and Bacon (1998)

(Levin, 2000). Schou (2001) relates democratic education to lifelong learning in terms of developmental and free learning for individual learners.

According to Thayer-Bacon and Bacon (1998), the integration of democracy into formal education can be implemented through building a democratic community in the classroom, where 1) all students as independent learners learn together in cooperative relation, 2) they critically discuss their ideas, 3) they appreciate other contributions to a diversity of ideas, and 4) all of their voices are considered. Two-way bilingual education is an exemplar in regard to democratic collaborative learning and peer tutoring, because it is open to students' cultural differences, promotes fluency in both native and second languages, and supports learning course content in students' stronger language (Laguardia & Pearl, 2005; Thayer-Bacon & Bacon, 1998). However, the concept of democracy and its application to learning activities has not been applied extensively in Thai education (see the evidence in Baker, 1999; OEC, 2002, 2004; Morris & Cogan, 2001; Parkay et al., 1999; Pitiyanuwat & Sujiva, 1999, 2006).

Empirical findings on democratic attitudes

Because the definition of democracy, like the concept of constructivism, is dynamic and subjective, there have been diverse translations depending on groups of

people and their contexts (Davies, 1999). Despite the diverse meanings and values applied to this concept, there appear to be some shared understandings and attitudes.

A prime example of these shared understandings and attitudes is the high value of individual liberty with emphasis upon freedom (e.g., human rights) above independence (e.g., self-reliance, initiative). As indicated in a secondary-school study in Croatia (Domovic et al., 2001), although students and teachers expressed high levels of various democratic values, the highest were freedom of speech and action, and diversity in religions, ethnics, and opinions; in contrast, the lowest were self-governance in local community, and organized groups for socio-political movement. Similarly, in a K-12 study in Lithuania (Saparnis, 2006), teachers put the democratic emphases on free expression and shared decision making above self-governance and community involvement in school. In China (Shi, 2003), people strongly supported human rights, freedom, and equality, but they were less concerned with active and full participation in shared decision making. Moreover, two studies in Africa, (Bratton & Mattes, 2000; Green, 2004) indicated that most people perceived democracy as freedom and human rights, but few were concerned with the values of independence and critical thinking.

Traditional cultures affect popular attitudes toward democracy (Mattes & Shin, 2005). For example, Chang et al. (2005), Shi (2003), and Shin (2007), asserted that in Chinese society, which was also founded on a paternalist culture, most people perceived democracy as the paternalistic government that cares for and listens to people' needs rather than active participation in shared decision making and social-political movement. Also, in Japan, a conservative bureaucratic culture prevented people from embracing the concept of democracy as a philosophy; it was, rather, perceived just as a political system

(Ikeda et al., 2004). According to Ikeda and Kobayashi (2007), the traditional East Asian values of collectivism and paternalism suppressed an orientation toward dissent in order to maintain the traditional orientation toward harmony and, thus, suppressed active participation in shared decision making. Thailand is a case in point of this pattern (Buasuwan, 2003).

Traditional values do not prevent people from absorbing new ones, but due to long and deeply held attachment, rejection of traditional values is unlikely (Chu & Huang, 2007; Shin, 2007). In order to fully grasp democratic values, Chu and Huang (2007), Shi (2003), and Dhiravegin (n.d.) suggest that the government and schools should maintain an emphasis on understanding, practicing, and valuing democracy. Geoffrey and Pauline (2007) add that engaging students in democracy should begin in primary schooling. However, in developing countries, K-12 students reportedly lacked rigorous civic education and genuine democratic practice in school (Domovic et al., 2001).

Empirical findings on democratic attitudes and practices in Thailand

Since there have been no empirical studies on democratic attitudes among students in Thailand, the discussion in this section needs to be aimed at general people in Thailand instead. There are two empirical studies on democratic attitudes in Thailand: One study is conducted by Albritton and Bureekul using the Asian Barometer's comparative survey in 2001. This survey is designed for assessing citizens' attitudes toward democracy and governance in various Asian countries. In the cross-national survey in Thailand, a three-stage clustered sampling method was used to select districts and voting units first, and then all eligible voters at the age of 18 or above were selected

(with the sample size at 1546); the survey data were collected through interview with various sets of close-ended questions. Their key findings are as follows:

Firstly almost all Thai people (more than 90%) strongly supported democracy for the nation and the government. Only a half of them (49%) would like the nation to focus on economic above democratic development. Also, their democratic values seemed to decline when conflicted with the Thai paternalistic values. For example, for Thai people, individual liberty was important (e.g., 75% arguing for freedom of speech), but social order seemed to prevail over freedom (e.g., 76% disagreeing with the society consisting of diverse views; more than 70% highly respecting authority of governmental agencies, and 45% intolerant to ideas different from the majority).

Secondly, most Thai people had a low level of participation in civil society (less than 17% joining more than one association), and civil society seemed to be viewed as a cause of political resistance (i.e., 84% viewing organized groups as a threat to the society). Albritton and Bureekul (2002 b) indicated that organized groups were not initiated or supported by Thai people, because those groups normally were associated with socio-political movements against the government. With paternalistic values, Thai people opted for conflict avoidance.

Thirdly, in an open-ended question about the meaning of democracy, Thai people overall perceived democracy as just a political process, and many of them had partial understanding about it. Among their democratic notions, the most captured was freedom (38%), followed by political equality (15%), individualism (12%), social equality and justice (8%), and active participation/citizen empowerment (7%).

The other study was conducted by LoGerfo (1996) by using his own survey. In this survey, a three-stage clustered sampling method was used through random selection of districts, voting units, and eligible voters, with the total sample of 76 people in Bangkok and 93 in rural northern areas. The survey data was collected by interview with sets of close-ended questions about attitudes toward democracy and institutions, as well as other key relevant variables. Similar to the Albritton and Bureekul's (2004 a), the key findings were as follows: all respondents overall expressed high values of democratic concepts (e.g., human rights, freedom, equality, and political participation). However, most of them argued for the importance of centralization; for example, 1) expecting the government to be responsive to people's needs, and 2) favoring appointed senators to be more powerful than elected members of parliament. In addition, they opted for social order over freedom in the condition of "a conflict between the right to free expression and the maintenance of order and unity" (LoGerfo, 1996, p. 919).

According to the empirical study of Green (2004), even with a high level of democratic values most people had a considerably low level of democratic practices. This incidence appeared to be supported by empirical studies on democratic practices in Thailand (e.g., Arghiros, 2001; Conner, 2003; Girling, 1996; Mulder, 1996; Ockey, 2004). Those studies are ethnographic done with field work and extensive discussion with Thai scholars. The key findings basically revealed inadequacy in democratic practices among Thai people in contrast to their expression of highly valuing democracy as indicated in the empirical studies on democratic attitudes in Thailand.

That is to say, in the regard that a capitalist economy drove democratic development in Thailand, many Thai people increasingly developed their attitudes toward

personal interest and materialism (Conner, 2003; Girling, 1996; Mulder, 1996). As a result, democracy was prone to be used by the neo-liberal elite as the means of controlling the government and nation for securing their own business and competitiveness (Girling, 1996). Otherwise, democracy was prone to be used as values inculcation (i.e., instilling in people to perceive democracy as a national identity) by the nationalist governments for making people attached to the nation and the traditional collectivism without democratic understanding (Ockey, 2004). Also, the constitution had still been highly involved by an elite group of scholars without including all citizens' voices (Conner, 2003).

Based on the majority rule, low-SES people, as the majority, had been manipulated by and subject to the elite through material offerings and patron-client relations to gain popular votes for representatives (Arghiros, 2001; Mulder, 1996; Ockey, 2004). Due to the absence of citizen empowerment and civil society, Thai people lacked opportunities to participate in shared decision making and negotiation with the government (Conner, 2003), so they appeared to be reactive rather than proactive to political involvement and social movement (Mulder, 1996).

Ockey (2004) showed the evidence of self-governing local communities existing in Thailand in the past, and so he argued for reviving this tradition in accordance with the democratic constitution. However, the recent decentralization seemed to worsen the government efficacy and to mask elite hegemony and centralization in regard to augmenting local bureaucratic powers, as well as empowering only the local influential elite over local community (Arghiros, 2001). In sum, high centralization deep-rooted in

paternalistic values influenced Thai people to avoid democratic practices, and thus delayed the democratization in Thailand (Mulder, 1996; Ockey, 2004).

Student characteristics associated with democratic attitudes

SES, gender, and regionality are the key factors affecting individuals' support of democracy. Regarding SES, Reykowski (2006) suggests that people with lower levels of education had higher levels of support for democracy due to having higher levels of cooperation and lower levels of egocentricism. Conversely, in other studies, people with higher levels of education had higher levels of democratic understanding (Shi, 2003; Geoffrey & Pauline, 200) and support (Chongdarakul, 2003; Geoffrey & Pauline, 2007; Green, 2004; Ikeda at al., 2004). Similarly, people with wealth were likely to support democracy (Gay, 2003); the poor, however, were likely to support paternalism and lack democratic understanding (Bratton, 2006).

Regarding gender, some studies suggest that female groups appeared to prefer consensus, dissent and conflict avoidance, passive participation, and low competitiveness (Logan & Bratton, 2006; Reykowski, 2006), and thus support the individual liberty aspects of democracy less than their male counterparts (Geoffrey & Pauline, 2007; Ikeda at al., 2004). Other studies, however, contradict these findings. Green (2004) indicated that female groups had higher levels of support for democracy, while Logan and Bratton (2006) suggested that females and males did not differ on this variable. According to Silova and Magno (2004), democratization could mask gender inequality. They explained that depicted as a full democratic society, the whole nation was assumed to fully support gender equality, but under the strong influence of nationalist, religious, and patriarchal

values, there was the issue of women regarded as a second class. Poverty, rurality, and minority status are also likely to increase gender inequities.

Regarding regionality, urban groups had higher levels of democratic understanding (Buasuwan, 2003; Shi, 2003) and value (Buasuwan, 2003; Geoffrey & Pauline, 2007). Particularly in studies in Thailand, the urban individuals, oriented to modernism and isolation, had a positive view of democracy in terms of valuing liberalism and individualism, but the rural counterparts, oriented to traditionalism and collectivism, had a negative view in terms of valuing relation-based over task-based concern and trust in institutions (Albritton & Bureekul, 2002 a, 2004 b; LoGerfo, 1996).

LoGerfo (1996) added that Thai people in urban areas were concerned with national economic development, and task-based orientation in terms of valuing representatives who work hard; in contrast, their rural counterparts were concerned with tangible offerings (e.g., roads) for their own local communities, and relation-based orientation in terms of valuing representatives who visit them regularly. However, many people in urban areas, although more democratic than those in rural areas, supported democratic activities less (Albritton & Bureekul, 2002 a, 2004 b). In the views of those in urban areas, the rural majority was not ready for democratic processes and could easily become tools of a certain elite's misuse. Rural groups, in contrast, had a higher level of political participation than urban groups (Albritton & Bureekul, 2002 b, 2004 a).

Lastly, there have been no studies indicating whether or not academic departments have a significant influence on democratic attitudes; however, due to the involvement in social-political issues, students in the field of humanities and social

sciences might have higher levels of democratic values than those in the fields of science and technology.

Accordingly, in this study, which involves Thai students' attitudes toward democracy and experiences with constructivist instruction, demographic factors such as parent education as a proxy of SES, gender, hometown location, and academic department must be included.

The Connections between Democracy and Constructivist Learning

The effects of constructivist instruction on attitudes toward democracy

Up to now, there is no empirical literature that posits an effect of constructivist instruction on attitudes toward democracy. The closest one would be Dewey's *Democracy and Education* (1916). Although not labeling his approach "constructivist learning", Dewey emphasizes constructivist-style learning through critical discussion for knowledge sharing and development, scientific inquiry for discovering new knowledge, reflection of existing knowledge, and direct experiences in on-the-job training. However, he did not support only constructivist learning, but integrated democratic and constructivist principles into education – altogether called *democratic learning*. Since he did not separate individual principles of both concepts, he did not provide a conceptual explanation of their correspondences.

With regards to balancing between individual and social learning, promoting diversity, cooperative relation, and equality in social learning, as well as focusing on critical thinking and independence in discussion, Dewey's "democratic learning" could be considered an effective approach for constructivist learning (see also Beane & Apple, 1995). On the other hand, constructivist learning theory basically embraces the

philosophy of democracy, because both of their concepts and principles overlap and support each other.

Dewey (1916) asserted further that democratic, constructivist education would contribute to social movement and change in terms of breaking the perpetual reproduction of cultural (Bourdieu, 2000) and social inequality (Bowles & Gintis, 2000), as well as sustaining the full development of democracy in the larger society. This effect of constructivist education on social development toward democracy corresponds to Tongthew's suggestion (2005) that the integration of educational innovation into the traditional culture contributes to the reform of individual and social development. As Beane and Apple (1995) suggest, direct application of democratic principles into education is important to create a democratic society (see also Bowles & Gintis, 2000). However, in the case of Thailand, it seems impractical because of the inadequacy of civic education and democratic practices in schools. Thus, constructivist instruction may be an effective indirect way to promote attitudes toward democracy and the democratization of Thai society.

Do democratic principles correspond with principles of constructivist learning?

There appears to be an absence of research exploring the connections between principles of constructivist learning theory and those of democratic theory within the scholarly literature. Thus, in this chapter, the researcher is attempting to demonstrate and explain how democratic principles could be enhanced through constructivist learning. What are the commonalities?

***Individual freedom*.** Democratic principles are the foundations for sustaining individualism in teaching and learning (Chongdarakul, 2003; Geoffrey & Pauline, 2007).

Individual liberty is strongly supported by both democracy and constructivism. That is, democratic principles promote freedom of action and expression (Bull, Fruehling, & Chattergy, 1992), whereas constructivist learning promotes freedom of learning in one's own way (Ormrod, 2004). However, the concept of democracy is highly concerned with non-oppressive freedom, in which students should not have absolute freedom, but the freedom that is not intended to oppress or interfere with others (Gutmann, 1997; Thayer-Bacon & Bacon, 1998). Such non-oppressive freedom is a democratic value that maintains all students' individual freedom in the constructivist classroom.

Independence. Independence, another democratic value, stimulates not only critical judgment, active discussion, and original opinions in shared decision making (Bull, Fruehling, & Chattergy, 1992), but also critical thinking and active discovery in a constructivist learning environment (Ormrod, 2004). Independence also entails students' recognition and preservation of their identities and roots, enabling those students to self-regulate their own learning development (Bonk & Cunningham, 1998).

Critical thinking. Both democracy and constructivism emphasize rationality, critical thinking, and deliberation in discussion. Constructivist learning emphasizes critical thinking in terms of reflection and argument in the existing knowledge for improvement as well as learning stimulation (Airasian & Walsh, 1997; Noddings, 1998; Salomon & Perkins, 1998). Similarly, democracy emphasizes critical thinking in terms of questioning, evaluation, and criticism of shared ideas, as well as the existing social systems and assumptions, for shared-decision improvement and social development (Bull, Fruehling, & Chattergy, 1992; Laguardia & Pearl, 2005; Ligon, 2005).

***Collaboration*.** Because individuals need each other for assistance to scaffold their learning and make their shared decisions, both constructivist learning and democratic principles support not only individualism but also social interaction. Both are concerned with communication and interaction among all students as the basics for building relationships and opening up collaborations. Another democratic notion is that the government serves as a decision-making facilitator and relevant information provider (Bull, Fruehling, & Chattergy, 1992) rather than the decision maker. This supports the constructivist notion of teacher scaffolding (Bonk & Cunningham, 1998), in which teachers serve as student learning facilitators and consultants.

***Mutual regard*.** Democracy values, social concern, mutual support, care for others (Goldstein, 1999), and active and full participation in discussion among all stakeholders (Laguardia & Pearl, 2005; Ligon, 2005). These cooperative values maximize the synergy achieved by collaborative learning among students and teachers' scaffolding (Thayer-Bacon & Bacon, 1998). In addition, open-mindedness for diverse opinions and equal voices among all groups bring a variety of fresh ideas to develop shared knowledge and deepen understanding (Airasian & Walsh, 1997; Noddings, 1998).

How does constructivist instruction potentially promote student attitudes toward democracy?

In this final section, the researcher will explain how college students' prior experience with constructivist instruction in secondary school potentially promotes their attitudes toward democracy by following the seven principles of constructivist learning, which correspond to the principles of democracy.

***Learning personalization*.** This constructivist principle entails learning in one' own ways that match one's individual nature and needs. Instruction based on this principle such as conceptual teaching in math (Desimone et al., 2005) provides freedom to discover how to solve math problems and explain ideas under a conceptual framework. Relating this to democratic values, students exposed to constructivist education might support academic freedom under university codes, such as freedom of choice in coursework and research interests that support their future careers. Conceptual teaching promotes independence in terms of individuality; that is, acquiring one's own ways of working on learning tasks requires perceiving one's strengths and weaknesses, as well as one's identity and roots. Constructivist learning in this way might help students understand and value their own national and local cultures.

***Problem-solving and investigation*.** This constructivist principle entails inquiry processes and discovery learning, such as by working on a scientific research. This type of instruction promotes independence in terms of activeness and initiative derived from learning by doing and self-management for planning and solving problems during the inquiry process. Consequently, students exposed to constructivist learning might be enthusiastic to life-long learning and competent in self-regulation and self-reliance.

***Reflective thinking*.** This constructivist principle emphasizes critical thinking and reflection. Instruction based on this principle, such as critical discussion for knowledge development, stimulates students' deeper thoughts and understandings. This benefit would encourage students to value and engage in other types of critical discussion, such as critical discussion in shared decision making for resolving social issues.

Relevance to daily life. This constructivist principle suggests that students gain deep conceptual understanding when learning in real-world situations, relevant to their own daily-life experiences. As a consequence, students might appreciate the freedom to choose from a diversity of educational resources that match their own experiences.

Discussion. According to Dewey (1916), democratic learning requires inquiry and construction of common values and knowledge through student dialogues. As a type of dialogue, discussion supports the democratic principles of communication, diversity, and equality. That is, students are likely to learn the value of communication as an effective way to share knowledge and learn together, as well as getting connected for the sake of asking for help. Thus, students would prefer opening up dialogues with others. In dialogues, students are then likely to learn the value of the diversity of ideas, as well as the value of equality in terms of equal voices from all groups of students, to obtain new ideas and making better shared decisions. As a result, they would become open minded to various groups of students and respect each other's cultural background.

Collaborative learning. Like Discussion, this type of social constructivist instruction explicitly promotes the democratic principle of communication, diversity, and equality in terms of maintaining peer relationships among all groups of students (and teachers) to maximize the collaboration. Also, students are likely to learn the value of social responsibility in terms of cooperative relations for helping each other out, so they would be highly participatory and contribute to their group work projects.

Teacher scaffolding. This principle complements the principle of learning personalization in regard to teacher support to help students achieve higher-level learning. Based on the student-centered learning orientation, teachers should provide their

students with guidance and advice, rather than directives and commands; Teachers must teach how to construct knowledge rather than feed students with knowledge. Moreover, teachers need to stimulate thinking about values rather than inculcate them with that value. Therefore, the principle of teacher scaffolding would give students some sense of learning autonomy.

The researcher hopes that this chapter has made the case that the principles of democracy correspond to the principles of constructivist learning. The thesis of the study is that student engagement in constructivist learning may be related to their commitment to democratic principles. In many developed countries worldwide, constructivist learning and democratic principles are fundamentals of global modern education that have been applied together. However, no research has been conducted on their potential interrelationships.

In the case of Thailand, national education policies have merely focused on constructivist learning, but have not addressed civic education and democratic practices in school (OEC, 2002, 2004). Although included in civic education, democracy has been taught in a lecture style that focuses on separate principles rather than discussed in a holistic view with connections to daily-life situations (Morris & Cogan, 2001; Pitiyanuwat & Sujiva, 2006). As a result, Thailand's democracy has appeared partial and has swayed toward both a *neo-liberal ideology* – focusing on high individualism, elitist majority rule, and economic growth, and a *nationalist ideology* – focusing on high collectivism, conservative values, and social order (Conners, 2003; Mulder, 1996). This study wonders if constructivist learning practices would bring full democratic practices and value into the lives of Thai students

Rationales of Selecting College Students as the Focus Group of Study

The problem of inadequate values and practices in both constructivist instruction and democratic philosophy in Thailand has prevailed in both K-12 and higher education levels. This research selected students at the higher education level as the focus group for study because, first according to Ormrod (2004), the concepts of constructivist learning emphasize cognitive development, in which "as children grow, they become capable of increasingly more sophisticated thought" (p. 182). Advanced cognition such as abstract reasoning basically occurs in adolescence and develops through adulthood. Therefore, the experiences of constructivist instruction should be measured at least in secondary education in order to maximize all principles of this learning theory, including discussion and problem-solving skills, which all require advanced levels of cognition. Similarly in the second rationale, the concepts of democracy, which requires an advanced level of cognition to understand the abstract principles and develop sophisticated critical thought during shared decision-making, seem to apply more readily or directly to adults than children (Bull, Fruehling, & Chattergy, 1992). Therefore, like constructivist experiences, attitudes toward democracy could be measured best at the secondary level.

Third, and most importantly, this research aimed to examine correlations between experience and attitude, in which an appropriate time sequence matters. Thus, the experiences of constructivist instruction as the independent variable should be measured at an easier level before explicit attitudes toward democracy are developed as the dependent variable. In the case of this survey, with regard to the first two rationales about the two abstract concepts requiring advanced cognition, it would be appropriate to ask college students about their current attitudes toward democracy and past experiences of

constructivist instruction in secondary education. In addition, according to Tongthew (2002), the process of students' accepting and valuing innovative instruction, and then reshaping their philosophy and ways of life takes a long period of time to complete. Thus, measuring students' experiences of constructivist instruction and attitudes toward democracy at different academic levels seems to reveal substantial evidence of the correlation.

Research Questions and Hypotheses

1. What are Thai college students' prior experiences of constructivist instruction in high school and current attitudes toward democracy?
2. How do Thai college students' attitudes toward democracy differ by gender, parent education, hometown location, and academic department?
3. To what extent are Thai college students' prior experiences of constructivist instruction associated with their attitudes toward democracy, when controlling for gender, parent education, hometown location, and academic department?

The following hypotheses based on prior research were tested in this study:

H1: Thai college students with highly-educated parents have more positive attitudes toward democracy than those with less-educated parents. Also, urban Thai college students have more positive attitudes toward democracy than their rural counterparts. However, there is no statistically significant difference in Thai college students' attitudes toward democracy by gender and academic department.

H2: Thai college students who received more constructivist instruction in high school report more positive attitudes toward democracy when gender, parental education, hometown location, and academic department are controlled.

Figure 2.1 provides a conceptual model for the study including the two key concepts, constructivist learning and democratic principles, with control factors such as gender, parent education, hometown location, and academic department as suggested by the literature review. The next chapter describes a study designed to examine the model in the context of one university in Thailand.

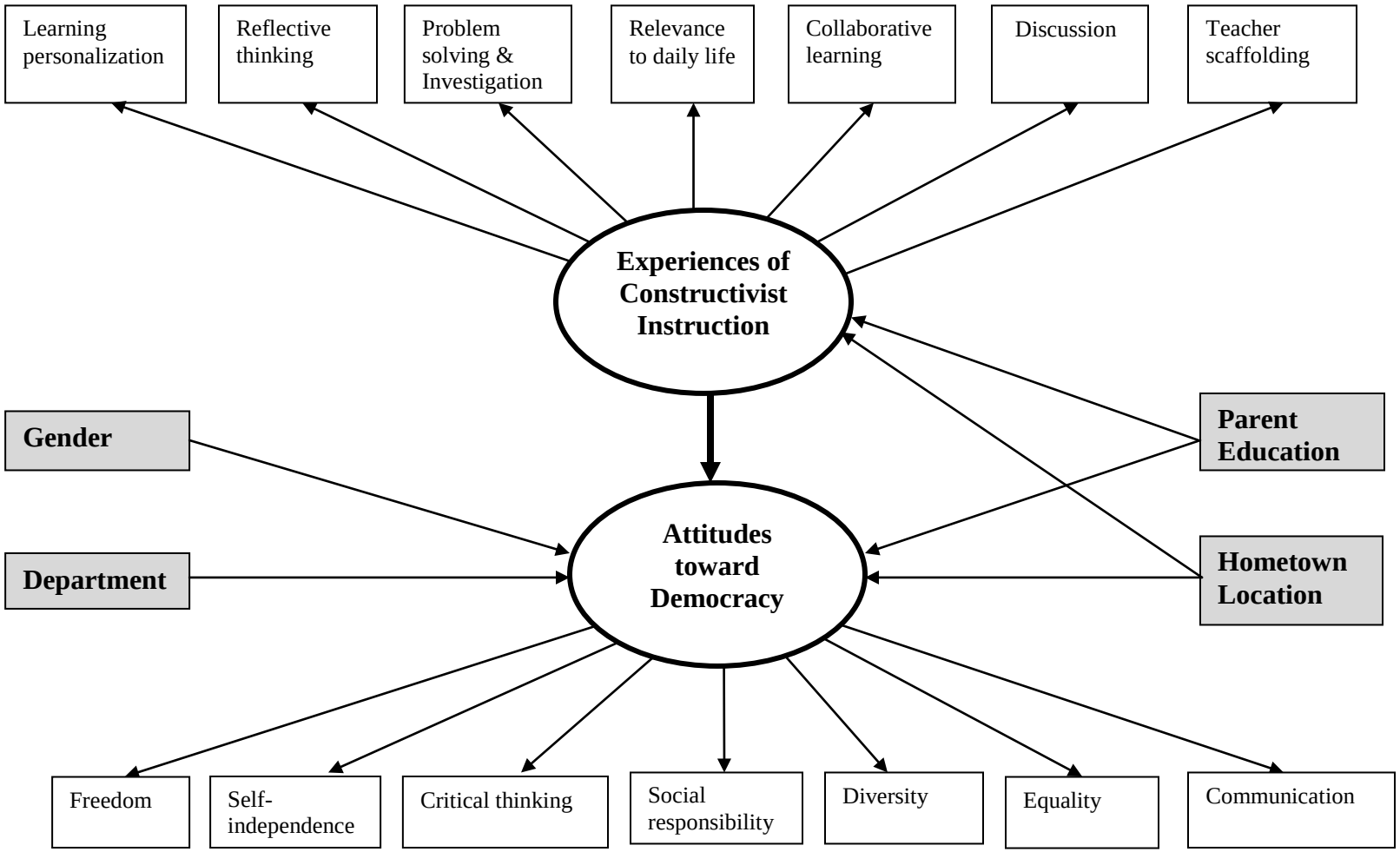

Figure 2.1. Conceptual model on the two key variables: constructivist learning and democratic principles, when controlling for gender, parent education, hometown location, and academic department.

CHAPTER THREE

Research Method

Introduction

The purpose of this study is to examine the relationship between college students' high-school experiences of constructivist instruction and their attitudes toward democracy in one university in Thailand. Further, the study seeks to explore whether or not individual factors such as gender, hometown location and parental education predict student perceptions of democracy. The study employs survey research methods, because it aims to (re)confirm and highlight the correlations between two key factors as well as multiple background factors based on data collected from a sample. It also aims to statistically identify and measure the domains of attitudes toward democracy and experiences of constructivist instruction.

There have been no existing educational databases on students' perceptions of democracy and constructivist instruction in Thailand; thus, a secondary analysis of an existing dataset was not possible. To obtain primary data, the researcher conducted a survey of college students enrolled in a core course in one national university. The researcher selected a cross-sectional design, which entailed collecting and analyzing data from one sample in one point in time. In this study, the conceptual model for statistical analyses was developed based on the existing literature on democracy and constructivist instruction. In the conceptual model, the experience of constructivist instruction is the independent variable, and the attitude toward democracy is the dependent variable. Key

student background characteristics such as gender, parental education, hometown location, and academic department were analyzed as control variables.

The researcher selected one large university in Bangkok, Thailand, and surveyed 717 college students from various departments in one particular academic semester and course. In this university - Kasetsart University *Foundational English* is a required course for all freshman undergraduate students from all departments. Thus, the sample for this study is the freshman undergraduate students who are enrolled in randomly selected 24 sections of *Foundational English* during the second semester of the 2008-2009 academic year (from November 2008 to February 2009).

Using a multiple-stage sampling method, the researcher randomly selected 24 out of a total of 80 English classes and asked all 717 students who were present on the day of the survey administration in the selected classes (about 30 out of a total of 40 students per class) to voluntarily complete the survey. A student questionnaire was used to collect the students' opinions about prior experiences of constructivist instruction and attitudes toward democracy. Because all the students participated in the survey, the response rate was 100%. However, the elimination of 8 student records with excessive missing data made the final sample size down to 709, making the final response rate 99%. The data were collected through group administration in classroom settings. Structural equation modeling was used to analyze the data.

Research Questions

1. What are Thai college students' prior experiences of constructivist instruction in high school and current attitudes toward democracy?

2. How do Thai college students' attitudes toward democracy differ by gender, parental education, hometown location, and academic department?
3. To what extent are Thai college students' prior experiences of constructivist instruction associated with their attitudes toward democracy when controlling for gender, parental education, hometown location, and academic department?

The following hypotheses based on prior research were tested in this study:

H1: Thai college students with highly-educated parents have more positive attitudes toward democracy than those with less-educated parents. Also, urban Thai college students have more positive attitudes toward democracy than their rural counterparts. However, there is no statistically significant difference in Thai college students' attitudes toward democracy by gender and academic department.

H2: Thai college students who received more constructivist instruction in high school report more positive attitudes toward democracy when gender, parental education, hometown location, and academic department are controlled.

Setting

The setting selected in this study is Kasetsart University, a large public university in Bangkok, Thailand. Thailand is situated in the Southeast Asia, spreading out over 513,115 square kilometers - about the size of the state of Texas. According to the National Statistic Office (NSO, 2007) and the Library of Congress (2007), with the total population of about 64 million, the majority are ethnic Thai (75% of the population), and the others include ethnic Chinese (14%) and Malay (4%). Thai language is the major and formal language (94% of the population). The predominant religion is Buddhism (94% of the population). The major economic sectors of the country emphasize agriculture.

Bangkok is the capital of Thailand, and has its own local government office. It is the largest city in Thailand and it has higher levels of economic, industrial, and technological development than other regions (NSO, 2007). With this regard, Bangkok attracts many people from other provinces migrating into it, and has the largest number of the population and the highest density of the population in Thailand (NSO, 2007; Office of Education Council [OEC], 2004).

According to the National Statistics Office (2007), there were 139 higher education institutions in 2005 with 78 public and 61 private institutions nationwide. The total number of undergraduate students was 2,086,029 (1,721,167 in the public and 364,862 in the private sector, with the proportion between both groups at 83:17). Compared to the whole population in the school-age of 18-21, the undergraduate student population was considered small, with a ratio of the latter group to the former group in 2003 at 29.5% (OEC, 2004).

According to the National Economic and Social Development Board (NESDB), there is a divide between urban and rural groups, as well as between Bangkok and other regions in functional literacy – sufficient basic competence to learn and work in formal institutions. Statistically, in functional literacy rate, the urban and rural groups were at 70% and 52.9%; the groups from Bangkok and other regions were at 75.5% and 55.9% (NESDB, 2005). Moreover, there is a scarcity of science and technology manpower in Thailand due to the small number of postsecondary students in this knowledge field (Tasakorn & Pongtabodee, 2005).

Kasetsart University is a large public university in Bangkok – a magnet institution for students nationwide; students in this institution are diverse in gender, social class,

regionality, and academic department. The total number of undergraduate students was 22587 in 2008 (Office of the Registrar, 2008 a). Focusing only on freshman undergraduate students, the total number was 6468. It has eight major academic departments: 1) Agriculture (with 13% of the total population in the university), 2) Agro-Industry (9%), 3) Engineering (25%), 4) Science (11%), 5) Business (10%), 6) Economics (9%), 7) Humanity (9%), and 8) Social Science (14%). Comparison of some key demographic characteristics between the undergraduate student populations in the whole kingdom of Thailand and Kasetsart University are provided in Table 3.1.

The proportions of students in some key characteristics between both college student populations across the country and Kasetsart University are fairly different. As reported in both populations, females are greater in number than males. In regionality across the country, urban students are nearly four times in number as the rural; specifically, the students from Bangkok areas make up one third of the whole population. However, students from Bangkok areas at Kasetsart University make up almost half of the whole university. Thirdly, the upper SES are greater far in number than the lower SES in both populations. However, the ratio of the upper SES to the lower SES in the entire country (5:1) is much higher than the ratio in Kasetsart University (2:1).

The major difference between both populations is the difference in academic department. That is, for the entire country, students majoring in humanities and social science are greater far in number than those in science and technology, but for Kasetsart University, the latter group is slightly more than the former group. The fields of science and technology originally focused on agricultural and mechanical fields, and low SES students tend to choose these fields. In sum, the students in Kasetsart University can

TABLE 3.1

The Comparison in Some Key Characteristics between the Undergraduate Student Populations in the Whole Kingdom of Thailand and Kasetsart University

	The whole kingdom of Thailand	**Kasetsart University in Bangkok**
Total undergraduate student population	729903 (100%) [1]	22587 (100%) [6]
Categorized by gender		
- Male	322988 (44%) [1]	9672 (43%) [6]
- Female	406915 (56%) [1]	12915 (57%) [6]
Categorized by area		
- Urban	522166 (72%) [1]	Not Available
- Rural	207737 (28%) [1]	Not Available
Categorized by region		
- Bangkok	32% [2]	46% [5]
- Others	68% [2]	54% [5]
- Central	25% [2]	23% [5]
- North	13% [2]	9% [5]
- Northeastern	21% [2]	11% [5]
- South	9% [2]	11% [5]
Categorized by SES		
- Upper	84% [3]	63% [5]
- Lower	16% [3]	37% [5]
Categorized by academic department		
- Science & Technology	20% [4]	13016 (58%) [6]
- Humanity & Social Science	80% [4]	9571 (42%) [6]

Note: [1]National Statistic Office (2000): educational attendance of undergraduate students; [2]National Statistic Office (2000): educational attainment in undergraduate level; [3]Nitungkorn (2001): students in higher education in 1994; [4]Tasakorn and Pongtabodee (2005): approximate ratios of new students in higher education each year; [5]KU Planning Division (2009): freshmen undergraduate students in 2008; [6]Office of the Registrar (2008 a): all undergraduate students in 2008.

be representative of entire college students only in regard to gender, but they include a larger population from Bangkok areas and low SES, and a greater number of science and technological majors

Sampling

Larger sample sizes lead to lower sampling errors, yield more power to detect statistical differences, and provide higher accuracy in the results as well as representativeness for the population (de Vaus, 1995; Newman & McNeil, 1998). Also, probability sampling, using random selection to provide an equal chance of everyone in the population being selected, makes the sample generalizable to the population (Dillman, 2007; Fowler, 2002). However, the sampling should be considered in terms of adequate proportions of participants in key characteristics (Fink, 2003). As the data collection is limited to one university, the findings are not generalizable to the entire undergraduate student population in Thailand.

In the case of Kasetsart University, *Foundational English* is one of the courses required for all freshman undergraduate students in all departments. This English course offers three one-hour classes per week. All freshmen can take this course in either the first or second semester. To specify a sample of freshmen in this university, a sampling frame was drawn from a list of classes including freshmen enrolled in the English course in the second semester. Because the sampling frame came from one of the two semesters that freshmen could enroll in the English course, it does not include all freshmen. However, students were randomly enrolled in one of the two semesters. In the second semester of 2008/2009, this course consisted of 80 sections, each of which 40 students were registered. (Office of the Registrar, 2008 b).

The study needs a large sample size to gain strong statistical power to detect statistical differences and lower sample errors, which leads to an increased possibility of finding effects and accuracy in the results (de Vaus, 1995; Kline, 2005; Newman &

McNeil, 1998). With the recommended levels of power of .80 (Heppner & Heppner, 2004), as well as the control margin of error ±3-5% at 95% confidence level (Fowler, 2002) for the population greater than 10000 (Dillman, 2007), the sample size was suggested to be at least 400.

Specifically in structural equation modeling analyses, Kline (2005) suggests the ratio of at least 20 cases (participants) per parameter (variable) for determining an appropriate sample size. In this study, with total 18 parameters, the minimum sample size should be 360. In addition, according to MacCallum, Browne, and Sugawara (1996), with the degree of freedom for the path model used in this study greater than 100 and a recommended power of .80, the sample size was suggested to be at least 200.

However, the suggested sample size for this study was doubled for considering the potential low response rates (de Vaus, 1995). Therefore, the sample size became at least 800. Focusing on the designated university, the student participants were sampled through a multistage sampling method (Fowler, 2002). To implement the multistage sampling method, the researcher randomly selected 24 from a total of 80 classes of the *Foundational English* course. Then, all attending students in each of the 24 selected classes were asked to complete the survey in classroom, with a potential sample of up to 960 (total 40 registered students per class).

Data Collection

A group-administered survey was used to collect data in this study. Among various survey methods such as personal interview, telephone survey, mail survey, and Internet survey, group-administered survey was the most appropriate data collection method for this study. As a self-reporting survey, a group-administered survey provides

the participants with adequate time for critical reflection to answer and private and comfortable space to answer sensitive questions (Fowler, 2002) such as their attitudes toward democracy.

In addition, a group-administered survey is likely to produce a higher response rate than mail survey and Internet survey. Moreover, in group-administered surveys, the survey administrators can answer the questions participants may have in completing their questionnaires (de Vaus 1995; Fink, 2003; Fowler, 2002; Fraenkel & Wallen, 2003; Newman & McNeil, 1998). Because the questionnaire in this study used only close-ended questions, which allow the respondents to simply respond by marking the proper answer from a set of alternative responses, it is easy for students to complete the questionnaire.

The researcher sent a letter that explains the purpose of this study and how to implement the survey to the Vice President of Research and then the Dean of Faculty of Humanity to ask for permission to conduct the "official survey" during the English classes at Kasetsart University. These university administrators approved the survey (see the official permission letter in Appendix 1) and it was implemented in February, 2009. The survey was administrated by three graduate students (as survey administrators) in the university under the supervision and monitoring of the researcher with assistance from the Department Head of the Foreign Languages. The researcher provided instructions for the survey implementations to the survey administrators (see Appendix 2) and kept close communications with them throughout the implementation process.

In the process of data collection, first the survey administrators received training from the researcher and prepared for the survey administration. Secondly, during consultation with the Department Head for arranging survey schedules, the survey

administrators handed to the Department Head the official permission letter from the university, and a list of the randomly selected classrooms. In accordance with the university bureaucracy, in each requested classroom, the Department Head contacted the instructor and asked for his/her cooperation for the survey conducted at the beginning of the class, with a letter introducing the purpose of the study and the official permission letter from the university. With his/her agreement to cooperate, the Department Head talked with the instructor to find an appropriate schedule for conducting the survey. Then, after all survey schedules were given by the Department Head, the survey administrators confirmed the set date and time with each instructor for survey administration.

The survey was conducted between February 11 and February 19, 2009. As scheduled, at the beginning of each scheduled class, the instructor announced the survey and introduced the survey administrators to the whole class. Then, the survey administrators briefly introduced the survey to the class. The survey administrators handed out a cover letter that explained the purpose of study, brief description of the questionnaire, and ethical considerations (see Appendix 3) and the paper-based copies of the Thai-version questionnaire to the students. All the students were asked to participate in this survey by completing their individual student questionnaires.

Adhering to the ethical requirements established by the University of Missouri Institutional Review Board, anonymity of all participants was strictly followed throughout the study, along with the assurance that the study would pose no threat to the participants. Individual information was treated as anonymous, and the data were presented in the aggregate only. To assure that the study does not pose a threat to participants, the survey administrators explained to the students that no instructor had

access to the survey data and the survey had nothing to do with grading. The survey administrators also explained that participants could withdraw from the study at any time without penalty throughout the research process.

Participants took about 15 minutes to complete the survey. With all the instructors' cooperation, all the students attending in the selected classes participated in the survey. While participants completed the survey, the survey administrators stayed to explain and clarify unclear items. Based on the report by the survey administrators, there were no major problems during the data collection; all the students understood the questionnaire content (question items); a few minor questions were asked to the survey staff during the survey. The copies of the survey completed by all student participants were promptly collected, and all survey data were entered into a dataset file and re-checked by the survey administrators. This dataset file was electronically sent to the researcher. Then, the researcher cleaned up and analyzed the data.

Because the survey was conducted in the week before the final exam, there were relatively large absences (about 10 out of 40 students) for each class. Although all of the students participated in the survey, the sample size was reduced down to 717 out of 960 students. This smaller sample size made the response rate at 74.69%. In addition, there was a considerable non-item-response rate (7% – 54 out of the total of 717 students). Among the non-item-response group, 46 students missed only their parent education information and 8 students missed many more items. Therefore, all 46 surveys with the few-missing-data were kept and the parental education items were computed through the statistical technique of multiple imputation, generated by the software program "*NORM*" (Schafer, 1999), but all 8 surveys with excessive-missing-data were removed. With the

final sample size of 709 students (out of the total of 960, who were all potential students participating in this survey), the survey maintained a fairly large sample close to the designated sample size of 800 students with a final response rate of 73.85%.

Instrumentation and Measurement

Because no pre-existing questionnaire assessed both student experiences of constructivist instruction and student attitudes toward democracy, the researcher developed his own questionnaire to collect the data. To measure a complex and abstract concept, this questionnaire included a set of question items, rather than a single one, involving students' behavior and perception as the indicators for multiple dimensions of that concept (de Vaus, 1995). The questionnaire used closed questions and Likert-scale type answer choices for measuring experiences and attitudes.

The research instrument in this study was a student questionnaire developed specifically for measuring students' prior experiences with constructivist instruction and their attitudes toward democracy. Since this questionnaire was developed based upon the theoretical concepts in the literature, the question items and scales deliberately covered all the principles of both concepts. With regard to the reliability and validity of the questionnaire, the original question items and scales were selected and adapted from well-established surveys and studies.

Regarding constructivist learning theory, the first existing instrument was a teacher questionnaire: Constructivist Learning Environment Survey (CLES) 2.0 which was developed by Johnson and McClure (2004). This questionnaire was a shortened, revised version of the CLES (Taylor, Fraser & Fisher, 1997), which aimed to assess the constructivist learning environment of school science classes. The second instrument was

a student questionnaire: What Is Happening In This Classroom? (WIHIC), which was used by Dorman and Adams (2004) for assessing the learning environment of school math classes in general. The validity and reliability of both instruments were statistically confirmed through internal consistency analyses (Fraser, 1998), exploratory factor analyses (Johnson & McClure, 2004) and discriminant validity analyses (Dorman & Adams, 2004; Fraser, 1998).

Corresponding to the constructivist learning principles applied for this study, the four scales drawn from the existing CLES 2.0 instrument were as follows: *Personal Relevance*, *Critical Voice*, *Shared Control*, and *Student Negotiation*. From WIHIC, the two scales were *Investigation* and *Cooperation*. However, both instruments did not provide one major scale to measure the principle of teacher scaffolding. Thus, all question items of this scale needed to be created based on a theoretical concept, for example, the instructional techniques suggested by Simons and Klein (2007) and Goldstein (1999).

Regarding democratic theory, the first existing instrument was an Asian Barometer's questionnaire (Asian Barometer, 2001) developed and used in a comparative survey for assessing citizens' attitudes and values toward democracy and governance in various Asian countries. The other instruments were Harris Social Responsibility Scale (Berkowitz & Lutterman, 1968), and the democracy survey by Almond and Verba (1963). Like the Asian Barometer questionnaire, the Almond and Verba's democracy survey measured attitudes toward democracy in various aspects. In contrast, Harris Social Responsibility Scale was one measuring social responsibility attitudes.

Corresponding to the democratic principles applied for this dissertation, some existing instrument question items and scales were selected. Particularly for the Asian Barometer questionnaire, the pertinent sections were *Authoritarian/Democratic Values*, *Ideological Cleavage*, and *Belief in Procedural Norms of Democracy*. Although it covers various democratic principles, all the question items in the Asian Barometer questionnaire and the Almond and Verba's democracy survey needed to be organized into appropriate democracy scales. In contrast, the Harris Social Responsibility Scale was used as the scale of social responsibility.

After a pilot test was conducted to improve the reliability and validity of the questionnaire, the original question items and scales were further revised for the purpose of clarification and applicability to Thai contexts. Some items not really pertinent to their scales were dropped, whereas some were created and added into appropriate scales to comprehensively measure principles of both theoretical concepts.

For measuring experiences of constructivist instruction, seven scales were developed based on the theoretical principles in the literature: 1) learning personalization, 2) reflective thinking, 3) problem-solving and investigation, 4) relevance to daily-life, 5) collaborative learning, 6) discussion, and 7) teacher scaffolding (for their references see Table 2.1 in Chapter 2).

In brief, learning personalization is the principle suggesting curriculum and instruction should match students' learning nature; an example of items in this scale is allowing students to adjust time to finish their tasks. Reflective thinking is the principle that focuses on stimulating thinking skills; an example is students question what or how they are being taught. Problem-solving and investigation is the principle that focuses on

learning by doing through a process of inquiry in solving problems; an example is working on a research project. Relevance to daily-life is the principle focusing on learning in authentic situations, for example by providing learning materials related to students' daily-life experience. Collaborative learning is the principle suggesting students should learn together in groups in order to help each other out in their learning, for example, by providing group-work tasks for knowledge sharing. Discussion is the principle focusing on on-going verbally social interaction to stimulate thinking and learning skills. An example would be having debates and negotiation. Lastly, teacher scaffolding is the principle focusing on teacher challenge and guidance to help student achieve their higher-level learning tasks.

For measuring attitudes toward democracy, the researcher developed seven scales based on the theoretical principles in the literature: 1) freedom, 2) independence, 3) critical thinking in shared decisions, 4) social responsibility, 5) diversity, 6) equality, and 7) communication (for their references see Table 2.2 in Chapter 2).

Freedom is the principle of being free from arbitrary restriction, such as, freedom of speech to criticize the government. Independence is the principle of being active and taking initiative, for example, actions like self-governance and decentralization. Critical thinking in shared decisions is the principle focusing on deliberately thinking to make contributions to a good shared decision, for example, shared decision making based on majority support that takes concern of all stakeholders' voices. Social responsibility is the principle referring to social concerns and reciprocal supports. An example is that students usually volunteered for different types of projects in school. Diversity is the principle focusing on open- mindedness to diversification of groups of people; for example, people

should tolerate the views of those who challenge political ideals. Equality is the principle promoting equal learning opportunities and equal voices from all groups of people; for example, people with little or no education should have as much say in politics as highly-educated people. Lastly, communication focuses on strong connection and open conversation among groups. When one has a conflict with a neighbor, the best way to deal with it is to negotiate with the neighbor.

Pilot Study and Validity and Reliability

The pilot study was needed to improve and confirm the reliability and validity of the survey constructs in Thai contexts. First, the review panel, consisting of one professor in the field of education and two graduate students in the target Thai university was asked to review all the questionnaire items, the appropriateness and organization of their scales, and the application of the two concepts into the Thai educational context.

After reviewing the questionnaire, the panel commented that the overall vocabulary and meaning of the questions were understandable for Thai college students. However, they provided suggestions on how to simplify a few specific terms that were difficult or confusing, and clarify a few questions with similar or incomplete meanings, especially in the section of constructivist instruction. In the question about hometown location, for example, all reviewers were confused with the differences among city, town, and rural areas. They suggested using Thai specific terms for municipality instead. In the format of answers about constructivist instruction for: the Likert scale of frequency, one reviewer suggested using ranges of percentage (e.g., 80%-100%), instead of frequency words (e.g., always) or numbers (e.g., 5), which are difficult to differentiate. In addition, another reviewer suggested modifying a sequence of the questions about constructivist

instruction; that is, grouping all questions asking about students first and then those asking about the teacher, or vice versa. This order would be efficient to retrieve past memory, and expedite answering.

Secondly, since a Thai-version of the questionnaire was used for surveying Thai students, the back-translation technique was applied to ensure the same meaning in the Thai questionnaire and original English questionnaire. For this study, one Thai professor who is an editor of national and international academic journals was asked to do so. After examining the back-translation English version by comparing with the original English version, the researcher found both to be similar and Thai educators and college students can answer the questions easily without any misunderstanding. Although the Thai professor translated using different vocabulary in some places, she did not change the meaning of the sentences. Particularly, technical terms, such as self-regulation and self-determination, were translated with general vocabulary or phrases that cover the meaning, because there have been no Thai specific vocabulary for these terms.

Lastly, a group of 61 freshman undergraduate students in the target university participated in the pilot study and the data were used for reliability testing. These students' responses to the questions, technical problems, and comments were also used to improve the questionnaire items. In reliability testing, the reliability of the instrument was considered relatively high when Alpha Coefficient of each scale (variable) was above or close to 0.7 (Heppner and Heppner, 2004). Because some of the scales originally had the Alpha Coefficient values lower than 0.6, they needed to be revised to improve their reliability. In improving the reliability, the researcher assessed the meaning of each item and its explanation to the overall meaning of the problematic scale to decide whether that

item should be deleted or modified. First, the researcher deleted all of the least relevant items and rechecked the reliability of each scale. Then, the scales that still had low reliability were revised by modifying their wordings and adding a few more items.

With the actual sample, the high Alpha Coefficient values (greater than .70) for most of the scales showed internal consistency of items in the questionnaire. The reliability for each scale is presented in Table 3.2. The scales with the least reliability are the scale of Relevance to Daily Life in Constructivist Instruction, the scales of Freedom, Self-independence, and Social Responsibility in Democratic Philosophy (.609, .655, .672, and .642 respectively).

Variables

The independent variable in this study is college students' prior experiences with constructivist instruction, and the dependent variable is their attitudes toward democracy. In the variable of the experiences with constructivist instruction, twenty-nine question items were organized into seven scales: 1) learning personalization, 2) reflective thinking, 3) problem-solving and investigation, 4) relevance to daily-life, 5) collaborative learning, 6) discussion, and 7) teacher scaffolding. In the variable of attitude toward democracy, thirty question items were organized into seven scales: 1) freedom, 2) independence, 3) critical thinking in shared decision, 4) social responsibility, 5) diversity, 6) equality, and 7) communication. The control variables are gender, parent education, hometown location, and academic department.

Experiences with constructivist instruction

This variable was measured by a set of questions about student past experiences of secondary-school instruction based on the constructivist theory. This variable was

measured through twenty-nine question items covering seven constructivist learning principles mentioned above. Students were asked, “To what extent do the following sentences describe your prior experience in classroom during high school?” Table 3.2 presents all the items, grouped by the seven principles. The responses to each of the statements are by the Likert scale with a range of one to five from never (1), seldom (2), sometimes (3), often (4), to always (5). For each of the participants, each of their responses to the question items was coded as one number, and then the researcher calculated the mean of the responses for each of the constructivist learning scales. All of these responses have only a positive direction, that is, the more frequency, the higher the constructivist instruction score.

Attitudes toward democracy

This variable was measured by a set of questions about student attitudes toward the democratic theory. This variable was assessed through thirty question items covering the above mentioned seven democratic principles. Students were asked: “how much do you agree with these statements about your socio-political attitudes?” Table 3.2 presents all of the items grouped by the seven principles. The responses to each of the statements are by the Likert scale with a range of one to five from strongly disagree (1), disagree (2), depend (3), agree (4), to strongly agree (5). For each of the participants, each of their responses to the question items was coded as one number, and then the researcher calculated the mean of the responses for each of the democracy scales. All of these responses have only a positive direction, that is, the more agreement, the higher the democratic support score.

TABLE 3.2

All the Question Items and Scales for Constructivist Learning and Democratic Principles with Alpha Coefficients and Final Coding

Scale	Item	Final Coding
Constructivist Learning Principles: To what extent do the following sentences describe your experience in classrooms during high school? *(29 items)*		
Learning Personalization **Alpha = .767**	1. Students let the teacher know how they prefer to learn. 2. Students let the teacher know how well they are learning. 3. Students let the teacher know what their topics of interests are. 4. Students let the teacher know if they need more/less time to complete an activity.	0 = never 1 = seldom 2 = sometime 3 = often 4 = always .: Sysmis
Reflective Thinking **Alpha = .744**	1. Students express how to improve their learning. 2. Students are allowed to question what or how they are being taught. 3. Students ask for clarification about activities that are confusing. 4. Students express concern about anything that gets in the way of their learning.	0 = never 1 = seldom 2 = sometime 3 = often 4 = always .: Sysmis
Problem solving & Investigation **Alpha = .792**	1. Students carry out investigations to answer questions coming from discussions. 2. Students explain the meaning of statements, diagrams, and graphs. 3. Students carry out investigations to answer questions which puzzle them. 4. Students carry out investigations to answer the teacher's questions. 5. Students find out answers to questions by doing investigations.	0 = never 1 = seldom 2 = sometime 3 = often 4 = always .: Sysmis
Relevance to Daily life **Alpha = .609**	1. The teacher provides daily-life examples to explain concepts to the class. 2. Students discuss daily life issues in relation to the concepts introduced in the class. 3. The teacher uses pictures, videos, models of daily life situations to explain concepts to the class.	0 = never 1 = seldom 2 = sometime 3 = often 4 = always .: Sysmis

TABLE 3.2 (continued)

Scale	Item	Final Coding
Collaborative Learning **Alpha = .758**	1. Students work with others on projects in this class. 2. Students learn from others in this class. 3. Students work with others in this class. 4. Students cooperate with others on class activities.	0 = never 1 = seldom 2 = sometime 3 = often 4 = always .: Sysmis
Discussion **Alpha = .764**	1. Students talk with others about how to deal with learning or school problems. 2. Students explain their ideas to others. 3. Students ask others to explain their ideas. 4. Students are asked by others to explain their ideas.	0 = never 1 = seldom 2 = sometime 3 = often 4 = always .: Sysmis
Teacher Scaffolding **Alpha = .824**	1. The teacher challenges students to work on a difficult task. 2. The teacher guides students how to finish a difficult task. 3. The teacher stimulates students to work on more difficult tasks. 4. The teacher gives students feedback and/or comment to finish a difficult task. 5. The teacher motivates students to finish a difficult task.	0 = never 1 = seldom 2 = sometime 3 = often 4 = always .: Sysmis

Democratic Principles: How much do you agree with these statements? *(30 items)*

Freedom **Alpha = .655**	1. Parents should allow their children to decide how to lead their lives. 2. People should have a right to criticize what the government does. 3. People should have a right to have access to public information. 4. The government should let people share ownership of major state-owned enterprises.	0 = strongly disagree 1 = agree 2 = depend 3 = disagree 4 = strongly disagree .: Sysmis
Self-independence **Alpha = .672**	1. Self-determination and self-regulation are important virtues children should learn. 2. We should make our own decisions on our lives. 3. We should have our own styles of living, rather than copying others' styles. 4. Success and failure in our lives should be determined by our deed rather than luck.	0 = strongly disagree 1 = agree 2 = depend 3 = disagree 4 = strongly disagree .: Sysmis

TABLE 3.2 (continued)

Scale	Item	Final Coding
Critical Thinking in Shared Decision **Alpha = .773**	1. We should contribute our voices in shared decision making. 2. We should contribute constructive criticism to other ideas in shared decision making. 3. We should evaluate shared decisions for providing some suggestions. 4. Although getting majority support, we should consider the view of the minority.	0 = strongly disagree 1 = agree 2 = depend 3 = disagree 4 = strongly disagree .: Sysmis
Social Responsibility **Alpha = .642**	1. I am worried about current events and public affairs, and try to involve in them. 2. Every person should give some of his/her time for the good of his/her community or country. 3. People should live together and help each other out. 4. It is the duty of each person to do his/her job the very best he/she can. 5. In school I usually volunteered for different types of projects.	0 = strongly disagree 1 = agree 2 = depend 3 = disagree 4 = strongly disagree .: Sysmis
Diversity **Alpha = .760**	1. Being open to various views from other people can promote new perspectives. 2. Harmony of the community can be maintained even if people organize various interest groups. 3. Society can function well although people have various ways of thinking. 4. Society can be stronger when people recognize the contributions of different regional groups.	0 = strongly disagree 1 = agree 2 = depend 3 = disagree 4 = strongly disagree .: Sysmis
Equality **Alpha = .736**	1. Opportunities for social advancement should be the same for everyone. 2. Opportunities for political participation should be the same for everyone. 3. Everyone should receive the same quality of education, regardless of wealth, gender, or region. 4. Everyone should have opportunities for leadership roles.	0 = strongly disagree 1 = agree 2 = depend 3 = disagree 4 = strongly disagree .: Sysmis
Communication **Alpha = .712**	1. We should keep communication with each other. 2. Parents should often talk to children. 3. People should participate in public hearing about community issues. 4. Employers should consult their employees on the issues affecting the whole company. 5. When one has a conflict with a neighbor, the best way to deal with it is to negotiate with the neighbor.	0 = strongly disagree 1 = agree 2 = depend 3 = disagree 4 = strongly disagree .: Sysmis

Student background characteristics

The control variables are a set of questions about student background characteristics: gender, parental education, hometown location, and academic department. As suggested in the literature, these factors are important in that they influence the key variables; as a result, the researcher needed to statistically control for these factors, or control variables, to reduce the potential bias of estimates of the correlations between independent and dependent variables (Smith et al., 2005).

In student characteristics, gender was coded as female (0) or male (1). Parent education level, used as the socio-economic level, was measured through the mean of both parents' education. The parent education level included 5 categories: *Primary school level and under* (coded as 0), *Secondary school level* (coded as 1), *Technical/vocational level* (coded as 2), *Undergraduate level* (coded as 3), and *Above undergraduate level* (coded as 4). Hometown location offered 5 categories: *Metropolitan area* (all of Bangkok, Samut Prakan, Nonthaburi, and Pathum Thani areas), *City area* (the capital city areas of the other provinces), *Town area* (areas mixed between business and agriculture), and *Rural area* (mainly agricultural and/or natural areas). The town area and rural area were considered rural (coded as 0), whereas the metropolitan area and city area were considered urban (coded as 1). For academic department, the four major departments; Agriculture, Agro-Industry, Engineering, and Science were considered fields of science and technology (coded as 0), whereas the other four departments; Business Management, Economics, Humanities, and Social Science were considered fields of humanities and social science (coded as 1). Appendix 4 presents all of the items in the student questionnaire.

Data Analysis

Prior to data analysis, statistical tests of correlation assumptions were first conducted in order to find the violation of any of those assumptions. Violation of statistical assumptions increases error rates of prediction in statistical analyses (Stevens, 1999). Specifically, the structural equation modeling (SEM) technique requires tests of multivariate normality, basically focusing on 1) univariate normality (normal data distribution), 2) univariate outliers, 3) missing data, 4) linearity and homoscedasticity, and 5) partial correlation (Kline, 2005).

The statistical results from all of the assumption tests indicated that the dataset did not violate those assumptions. That is firstly there was a normal data distribution in every variable with non-extreme skew and kurtosis (both absolute values lower than the cut-off of 3.00). Secondly, there were no obvious outliers based on the Cook's Distance with values lower than the cut-off of 1.00 for each dependent variable (scale of Democratic Philosophy). Thirdly, there were no missing data in this imputed dataset. Fourthly, all the independent variables (all scales in Constructivist Instruction) and control variables (gender, parental education, hometown location, and academic department) could possibly have linear relations with each dependent variable with regard to their homoscedasticity (the consistent variance around the regression line for all values of the predictor variable). Fifthly, partial correlation was used. It is a technique that holds control variables constant (or controlls for them) in order to find dramatic changes (spuriousness) in the coefficient values among the main variables. By using this technique, all the control variables appeared not to excessively influence observed

correlations among the main variables. Thus, there was no need to partial the control variables out; rather, they would be included in all SEM analyses.

Then, confirmatory factor analysis (CFA) was used to test the goodness of model fit to the empirical data. In CFA, the statistical model undergoes a few adjustments to get close to a model that is well-explained by the data. However, the model adjustment strictly conforms to theoretical concepts in the literature review. In the final model-fit testing with the adjusted statistical model, the results were considerably close to the recommended good-fits for the following tests: 1) CFI (the Comparative Fit Index) above 0.9; 2) TLI (Tucker-Lewis Index) close to 1.0; 3) RMSEA (Root Mean Square Error of Approximation) between 0 and 0.05; and 4) SRMR (Standardized Root Mean Square Residual) below 0.05 (Heck & Thomas, 2000; Kline, 2005). However, the chi-square test (p-value) value below 0.05 indicated a bad fit. Table 3.3 presents the model-fit testing results.

To answer Research Question 1, descriptive statistics of mean, standard deviation, minimum and minimum were computed. These data provide the information about Thai students' characteristics in democratic values, and the current situation of constructivist instruction in Thailand. The correlation matrix of all the variables used as the input data to analyze the statistical model is presented in Appendix 5.

In the statistical model (see Figure 3.1), there are two key variables and four control variables. The two latent key variables are 1) student experiences of constructivist instruction (explained by seven observed variables) and 2) student attitudes toward democracy (explained by seven observed variables). The four control variables are: 1) gender, 2) parental education, 3) hometown location, and 4) academic department.

TABLE 3.3

The Results of Confirmatory Factor Analysis (CFA): Tests of Model Fit

	The actual model fits	The recommended model fits
Chi-square Test		
P-Value	.000	> 0.05
Comparative Fit Index (CFI)	.968	> 0.90
Tucker-Lewis Index (TLI)	.953	Close to 1.00
RMSEA[1]		
Estimate	.041	
90 Percent C.I.	.034-.049	Between 0.00-0.05
SRMR[2]	.048	< 0.05

Note: [1]RMSEA = Root Mean Square Error of Approximation.

[2]SRMR = Standardized Root Mean Square Residual.

For Research Question 2, independent samples t-test was used for testing the hypotheses of the mean differences in democratic attitudes between groups of students categorized by gender, hometown location, and academic department. Also, ANOVA was used specifically for parent education. The significant mean difference for the t-test analysis (t statistic) was set at $p<.05$ (two-tailed), whereas that for ANOVA (F statistic) was set at $p<.05$.

For Research Question 3, the structural equation modeling (SEM) analysis was conducted for testing hypotheses at higher levels of complexity such as the concepts of constructivism and democracy (Kline, 2005). That is, it explicitly represents the distinction between observed and latent variables. This distinction enables the study to test a wide range of hypotheses such as correlations between latent variables, between observed variables, and between latent and observed variables. In the regard that this

technique takes the whole model, and all factors into account, it potentially produces unbiased statistical results.

The statistical software program, *Mplus*, was used as the tool to analyze the structural equation models. This software sets a maximum likelihood (ML) function by default to minimize the differences between a sample variance/covariance matrix and the reproduced population variance/covariance matrix (Kline, 2005). The ML function is most frequently used in multivariate research, but assumes the multivariate normality to yield accurate parameter estimates (Heck & Thomas, 2000). Because the normality assumption was not violated, The ML function is robust and effective for data analysis in this study. The significant coefficient of correlations for this SEM analysis was set at $p<.05$.

Limitations in the Research Method

There are several limitations in this research method. Firstly, because of budgetary and time constraints, only one university in Thailand was selected for the cross-sectional data collection. Thus, the sample does not represent the whole population of postsecondary students in Thailand, and the study results are not generalizable to all groups of students in all settings. Secondly, although the time order of both constructivist learning and democratic attitude constructs was specified in the survey, the relationship between these two constructs should be considered a correlation rather than a cause-effect relation because the study employed cross-sectional data collection. Thirdly, instead of classroom observation, student self-report of past classroom experiences can be erroneous and biased because memories could fade over time and may be mixed together and distorted with emotion.

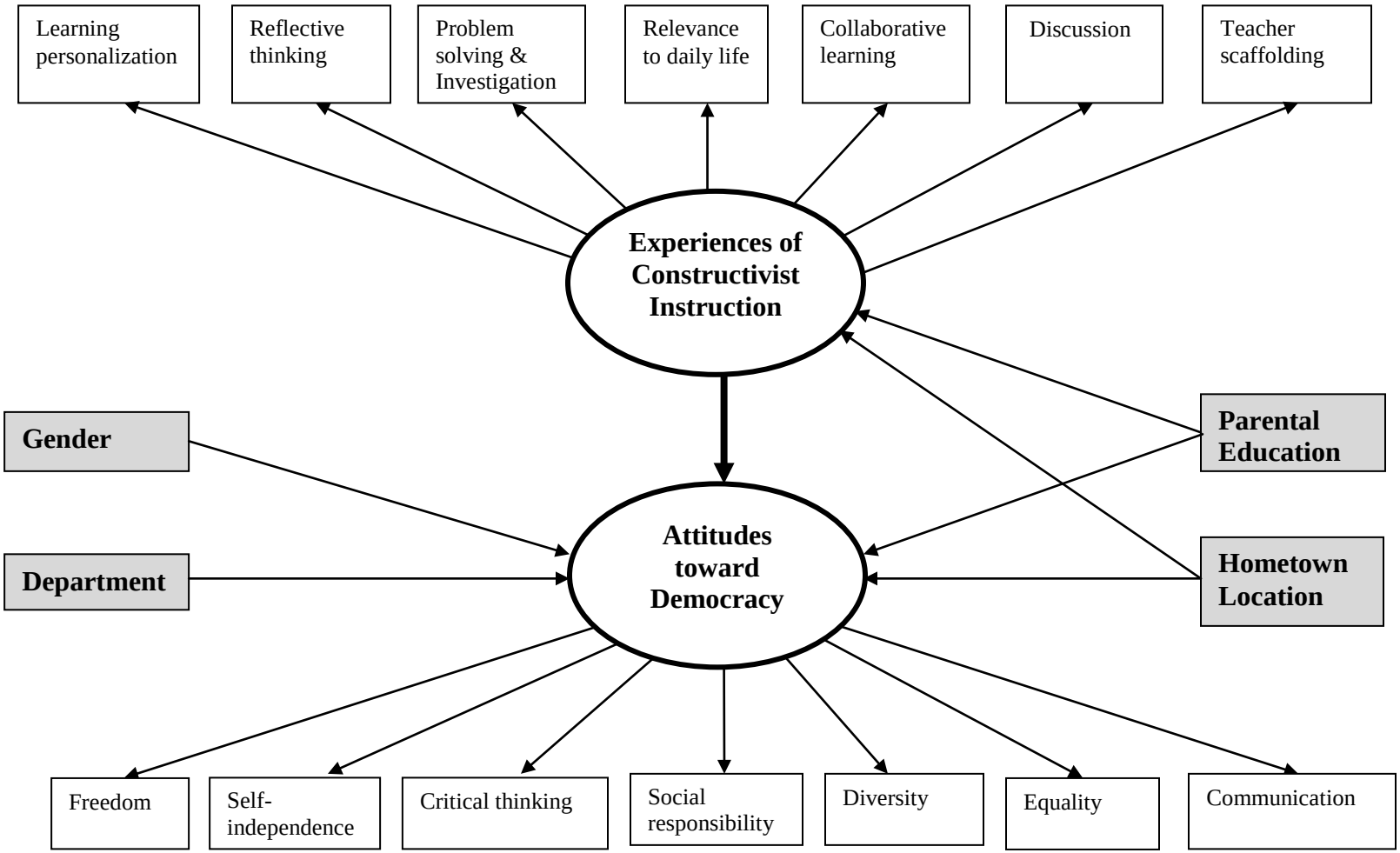

Figure 3.1. Conceptual model on the two key variables: constructivist learning and democratic principles, when controlling for gender, parental education, hometown location, and academic department.

CHAPTER FOUR

Research Findings

Introduction

The purpose of this study is to examine the relationship between college students' prior experiences with constructivist instruction in high school and their attitudes toward democracy. Further, the study seeks to explore whether individual factors such as gender, parent education, hometown location, and academic department predict student perceptions of democracy.

The study answered the following research questions.

4. What are Thai college students' prior experiences of constructivist instruction in high school and current attitudes toward democracy?
5. How do Thai college students' attitudes toward democracy differ by gender, parent education, hometown location, and academic department?
6. To what extent are Thai college students' prior experiences of constructivist instruction associated with their attitudes toward democracy when controlling for gender, parent education, hometown location, and academic department?

The following hypotheses based on prior research were tested in this study:

H1: Thai college students with highly-educated parents have more positive attitudes toward democracy than the students with less-educated parents. Also, urban Thai college students have more positive attitudes toward democracy than their rural counterparts. However, there is no statistically significant difference in Thai college students' attitudes toward democracy by gender and academic department.

H2: Thai college students who received more constructivist instruction in high school report more positive attitudes toward democracy when gender, parent education, hometown location, and academic department are controlled.

Demographic Characteristics of Sample

The sample was a randomly-selected group of freshman undergraduate students enrolled in the *Foundational English* course in Kasetsart University (KU), Bangkok, Thailand in the second semester (November-February) of the 2008-2009 academic year. A descriptive comparison of the key characteristics of the sample and whole student population in Kasetsart University is presented in Table 4.1. Of the sample, the total number of students was 709 (11% of the population). With the students' ages ranging between 17 and 22 years old, the majority (96% of the sample) were between 17 and 20. This age range is common for Thai college students (including those in KU).

In the sample, 69% were female students and 31% were male. Like the population of KU freshmen undergraduate students, the sample had a greater portion of females than males. The phenomenon of female dominance in enrollment might stem from the new constitution focusing on gender equality, particularly revoking the educational policy of a quota for male students to correct the gender imbalance in scientific academic fields. Basically, Thai females outperformed the male counterparts in the entrance exam and school grades, so the female majority has now become prevalent in many academic departments. In the sample, an even larger portion of students in each class were female because the survey was implemented a few weeks before the final exam, in which there were a number of student absentees, mostly males, in the English classes. This incidence might be explained by one professor's observation that females were more diligent than

TABLE 4.1

Key Characteristics of the Sample and the Whole Population in Kasetsart University

	Student Sample		Whole population[1]	
	Number	**Percent**	**Number**	**Percent**
Total students	709	100%	6403	100%
Gender				
Female	490	69%	3769	60%
Male	219	31%	2634	40%
Parent Education				
Primary school level and under	63	9%	1081	17%
Secondary school level	108	15%	1745	27%
Vocational/technical level	164	23%	595	9%
Undergraduate level	275	39%	2129	33%
Postgraduate level	99	14%	794	13%
Not available	-	-	59	1%
Hometown Location				
Urban Area	525	74%	n/a	n/a
Metropolitan area	353	50%	3284	51%
City Area	172	24%	n/a	n/a
Rural Area	184	26%	n/a	n/a
Town area	111	16%	n/a	n/a
Rural area	73	10%	n/a	n/a
Academic Department				
Science and Technology	391	55%	3765	58%
Agriculture	151	21%	830	13%
Agro-Industry	171	24%	533	9%
Engineering	37	5%	1623	24%
Science	32	5%	779	12%
Social Science and Humanity	318	45%	2638	42%
Business Management	109	15%	602	10%
Economics	92	13%	604	10%
Humanity	47	7%	496	8%
Social Science	70	10%	936	14%

Note: [1] Data derived from the report on preliminary inquiry and analysis of freshmen undergraduate students in Kasetsart University (KU Planning Division, 2008).

n/a = not available.

males about their academic classes, which reflected in a high level of class attendance, even in the week before the final exam. In contrast, males chose to skip classes including these English classes and pay attention to finishing the urgent class assignments and preparing for the urgent exams in other core courses (V. Haruthaithanasan, personal communication, April 15, 2009).

In this study, parent education level was used as a proxy of SES. In the five education levels, 9% of the sample were students with parents who only achieved in primary school level and below, 15% were those with parents who achieved in secondary school level, 23% were those with parents who studied at the vocational/technical level, 39% were those with parents who reached undergraduate level, and 14% were those with parents who studied above undergraduate level. In sum, the proportion of the students whose parents had and had not a higher education degree was 53% and 47% which is similar to the population, that has a balanced proportion of both groups (46% and 54% respectively). However, the sample had a slightly greater number of students whose parents had a higher education degree. This incidence might be explained by the fact that students with highly-educated parents were better-prepared for the college entrance exam than those with less-educated parents, so the former normally had better scores and were more likely to get into top academic departments than did the latter. In the regard that the sample had the greater proportion of students in top academic departments (e.g., Agro-Industry, Business Management), the greater proportion of these students might reflect the group with highly-educated parents as well.

In terms of hometown location, 50% of students were from the metropolitan area (Bangkok and its peripheries), which corresponded to those in the population (51%). The

phenomenon of urban student dominance (particularly from the metropolitan area) might stem from the fact that urban areas are the center of economy, technology, and culture, and provide excellent educational facilities to better prepare urban students for advanced education. Particularly, most top and high-quality high schools, as well as cram schools, are located in Bangkok. The large portion of metropolitan students might also stem from the educational policy that requires public universities to focus on their local students; in the case of Kasetsart University, the focus area is the metropolitan area.

For academic department, 55% were students in the fields of science and technology and 45% were students in the fields of social science and humanities. In this regard, the sample was similar to the population. Among the fields of science and technology, the majority of the students were in the departments of agriculture and agro-industry, and a small number were in the departments of engineering and science. On the other hand, all four departments (Business Management, Economic, Humanities, and Social Science) in the field of social science and humanity were more equally distributed.

Accordingly, the sample is relatively representative of the whole population in Kasetsart University with regard to gender, parent education, hometown location (particularly in the metropolitan area), and academic department. However, the sample included a greater number of female students and students with highly-educated parents.

Thai College Students' Experiences with Constructivist Instruction and Attitudes toward Democratic Philosophy

Descriptive statistics were used to answer Research Question 1, which explored Thai college students' experiences with constructivist instruction and attitudes toward democratic philosophy. Table 4.2 presents a summary for all variables' means and

TABLE 4.2

Summary of the Entire Variables' Mean and Standard Deviation

Variable	Mean	SD	Minimum	Maximum
Constructivist Instruction[1]				
1. Learning Personalization	1.90	.72	0	4
2. Reflective Thinking	2.10	.68	0	4
3. Problem-Solving and Investigation	2.16	.63	0	4
4. Relevance to Daily life	2.29	.65	0	4
5. Collaborative Learning	2.70	.66	0	4
6. Discussion	2.29	.62	0	4
7. Teacher Scaffolding	2.25	.66	0	4
Democratic Philosophy[2]				
1. Freedom	2.87	.56	.50	4
2. Self Independence	3.21	.50	1.25	4
3. Critical Thinking in Shared Decision	3.04	.55	1.50	4
4. Social Responsibility	2.87	.44	1.20	4
5. Diversity	3.11	.57	.75	4
6. Equality	3.17	.54	1.00	4
7. Communication	3.09	.47	.80	4
Student Characteristics				
1. Gender[3]	.31	.46	0	1
2. Parent Education[4]	2.16	1.12	0	4
3. Hometown Location[5]	.74	.44	0	1
4. Academic Department[6]	.45	.50	0	1

Note. SD = Standard Deviation; N (Sample Size) = 709.

[1]Constructivist Learning: 0 = almost never; 1= seldom; 2 = sometimes; 3 = Often; 4 almost always.

[2]Democratic Philosophy: 0 = strongly disagree; 1 = disagree; 2 = depend; 3 = agree; 4 = strongly agree.

[3]Gender: 0 = female; 1 = male.

[4]Parent Education: 0 = primary school level and under; 1 = secondary school level; 2 = vocational/technical level; 3 = undergraduate level; 4 above undergraduate level.

[5]Hometown Location: 0 = rural Area; 1 = urban Area.

[6]Academic Department: 0 = science and technology; 1 = social science and humanity.

standard deviations. Regarding the experiences with constructivist instruction, there was the maximum range from *never* (0) to *always* (4) in each constructivist principle, but the standard deviations were moderate (.62-.72). Overall, this student sample had a moderate level of experiences in constructivist instruction, with the mean between 1.90 and 2.70, or within the range of *sometimes*. This finding indicated that current Thai college students have some constructivist learning experience in high school.

Among the seven constructivist principles, the lowest mean of the constructivist learning experience was *Learning Personalization* (1.90), which fell into the level of *seldom* but close to the level of *sometimes*, and the highest mean was *Collaborative Learning* (2.70), which fell into the level of *sometimes* but close to the level of *often*. The means of the other constructivist learning experiences were clustered in the middle and just fell into the level of *sometimes*: *Reflective Thinking* (2.10), *Problem Solving and Investigation* (2.16), *Teacher Scaffolding* (2.25), *Discussion* (2.29), and *Relevance to Daily Life* (2.29). These statistics indicated that this sample of Thai college students had rarely experienced involvement in their own learning development (*Learning Personalization*), and only sometimes experienced self-reflection on what they learned (*Reflective Thinking*), scientific inquiry to solve a problem (*Problem Solving and Investigation*), learning support by the teacher (*Teacher Scaffolding*), debate and exchange of ideas (*Discussion*), and learning by linking to familiar situations (*Relevance to Daily Life*). However, they had more often experienced learning together in group, or helping each other to finish a task (*Collaborative Learning*).

Thai students' rare experience of *Learning Personalization* (1.90) might be explained by the fact that this learning concept, founded on the value of individual

autonomy, conflicted with the Thai traditional paternalist culture, in which teacher authority in the classroom prevailed over student autonomy, and students should be obedient and follow the teacher directives. Because this concept could be construed as student empowerment against teacher authority, which is a threat to the status of the superiors, it has never been embraced and applied in the traditional Thai education (Visathavethaya, 2001). The unfamiliar notion of student autonomy is at odds with traditional approaches, making it difficult to integrate the concept into Thai education. Thai teachers and students may thus be unwilling to apply the concept. That is, Thai teachers were highly concerned about students' misuse of learning autonomy due to their immaturity and lack of good judgment, and moreover Thai students felt lost in learning without the teacher. Besides, the students were afraid that their initiatives might conflict with the teachers' opinions and thus kept silent to avoid punishment.

On the other hand, the frequent experience with *Collaborative Learning* (2.70) might be caused by the common application of group assignments in traditional Thai education. Collaboration in group work was compatible with traditional Thai society, which focused on collectivism, relation-based orientation, patron-client relation, and interdependence (Embree, 1950; Mulder, 1996). Group work was also beneficial to Thai teachers, who had heavy workloads, so group work is generally convenient for class management, instructional implementation, and student evaluation. Particularly, due to the large class sizes, a common condition of the Thai school classroom, group work enabled all students in the class to finish learning tasks or school projects through cooperation with limited operational time and sharing limited educational resources. This approach, in turn, was appreciated by Thai students as an effective learning practice in

terms of helping each other and learning together. It also gave them opportunities to learn how to work together in groups make friendships with other students and absorb the Thai-style work culture. Thai students actually felt comfortable and confident working as well as learning in groups rather than individually (OEC, 2008).

The moderate experience in the other constructivist learning principles, such as *Reflective Thinking* (2.10), *Problem Solving and Investigation* (2.16), *Teacher Scaffolding* (2.25), *Discussion* (2.29) and *Relevance to Daily Life* (2.29), indicated that they were applied only sometimes in Thai traditional education. The application of these principles in the past was limited to progressive private schools and demonstration public schools under university supervision, which were few but high-quality. The principles, found in Western instructional manuals, may be applied as supplemental learning strategies in traditional instruction to enhance students' understanding. Although Thai teachers are fairly familiar with those principles, it is difficult for them to fully apply the principles of the constructivist approach. Particularly, the principle of reflective thinking and the principle of discussion are prone to conflict with traditional Thai education based on the teacher-centered approach (Visathavethaya, 2001). That is, both principles might stimulate students to criticize and question teacher authority, as well as weaken teacher control. As a result, both principles tend to be initiated and applied by students rather than teachers.

Nevertheless, the constructivist principles in regard to cognitive learning are crucial for national economic growth in the era of globalization, in which the nation needs competent people who can handle complex, unpredictable, changing situations to maintain high national competitiveness. Under this condition, the constructivist principles

were strongly supported by the governments for enhancing people's competence in high-level careers, focusing on higher-order thinking skills, advanced management skills, and complex problem-solving skills (Fry, 2002; OEC, 2002, 2004).

Regarding the attitudes toward democracy, compared to the experiences of constructivist instruction, the range in each democratic principle was narrower; that is, the minimum scores in average fell into the level of *disagree* (1) whereas the maximum scores fell into the level of *strongly agree* (4), and the standard deviations were smaller (SD = .44-.57) than those of constructivist instruction. Overall, the student sample had a fairly high level in attitudes toward democracy, with the mean between 2.87 and 3.21 (or within the range of *agree*). This finding indicated that most Thai college students had positive attitudes about democracy.

The lowest means for positive democratic attitudes were *Freedom* (2.87) and *Social Responsibility* (2.87), which were close to the level of *agree*. The other democratic principles had the high means clustered slightly above the level of *agree*: *Critical Thinking in Shared Decision* (3.04), *Communication* (3.09), *Diversity* (3.11), *Equality* (3.17), and *Self Independence* (3.21). These statistics indicated that Thai college students partly agreed with the principle of *Freedom* that focuses on liberating people from oppression to have individual rights, and the principle of *Social Responsibility* that focuses on social concerns and active community involvement. However, they agreed with the principles of *Critical Thinking in Shared Decision* (contributing to thoughtful discussion for shared decision making); *Communication* (interacting among all people to build strong relationships); *Diversity* (opening to and accepting a variety of ideas,

cultures, and personalities); *Equality* in gender, SES, and regionality, as well as social justice; and *Self Independence* (embracing self-reliance, initiative, and individuality).

Among all of the seven democratic principles, the lowest level of agreement with the principles of freedom and social responsibility might stem from the influence of Thai traditional culture. That is, regarding the lowest value of freedom, Thai society is based on paternalist culture, high centralization, and deep respect for hierarchy, which is highly valued maintaining social order and stability and limiting people's freedom (Mulder, 1996). Therefore, in Thai society, a great deal of freedom delegated to people was considered inappropriate because it risked social disorder and fragmentation, making them undisciplined and uncooperative, and eventually creating social problems (Fukuyama, 1995).

Regarding the lowest value of social responsibility, Thai society is also based on a collective culture, in which people depend on each other and basically volunteer their cooperation in social activities. Thus, there appears to be the traditional Thai value of mutual regard. However, due to the prevalence of patron-client relations, Thai society is highly relation-oriented over task-oriented (Ockey, 2004), which indicates the intent of cooperation for relationship building and maintenance rather than concern for the whole organization and its benefits. As a result, Thai people do not necessarily feel concerned about and responsible for other groups as well as the larger society. In addition, the inadequacy in social responsibility may stem from the student sample's characteristic of lacking experience in the real-world work and involvement in the larger society. Thus, they might not take into account concerns of social affairs and issues.

On the other hand, a high level of agreement with the principles of communication and diversity might stem from their compatibility with Thai traditional culture. Firstly, the value of communication as the means of building and maintaining people's relationships was vital for Thai people, who needed to depend on each other in the collective society. Secondly, the value of diversity was rooted in Thai traditional culture, which was open to diverse foreigners and interested in learning their cultures, knowledge, and ideas in order to adapt them into Thai society (Mulder, 1996).

There appeared to be a high level of agreement with three democratic principles that were incompatible with traditional Thai culture: 1) self-independence, 2) critical thinking in shared decision, and 3) equality. The deeply hierarchical centralization of Thai society aims to limit people's freedom, competency, and independence for the efficacy of management and control. Also, disagreement and criticism was not tolerated as a threat to social order and stability. Moreover, social equality could threaten absolute power and resources of the elite. However, the high level of agreement might stem from the influence of the characteristics of the sample. That is, as a group of students, who were absorbed in the value of academic freedom and prepared to be highly competent, they tended to strongly support independence. Particularly, a considerable number of the sample were female, low SES, and/or lived in rural areas. In Thai society, these groups are the underprivileged, who strongly supported social change for breaking the hegemonic reproduction and bringing on social justice and equal voices.

Thai College Students' Attitudes toward Democratic Philosophy and Student Characteristics

T-tests and an ANOVA were used to answer Research Question 2. Question 2 was to examine the differences in Thai college students' attitudes toward democracy by gender, parent education, hometown location, and academic department. Table 4.3 presents the ANOVA results of the mean differences in the attitudes toward the seven democratic principles controlled for parent education. Table 4.4 presents the t-test results of the mean differences in the attitudes toward the seven democratic principles controlled for gender, hometown location, and academic department. Overall, there was a significant mean difference in the attitudes toward democracy for parental education ($F(4, 704) = 3.559$, $p = .007$). With the ANOVA post-hoc test using the Tukey HSD procedure, the results indicated that Thai college students whose parents had a secondary school level education ($M = 3.13$, $SD = .36$) had a significantly higher level of attitudes toward democracy than those whose parents had an undergraduate level education ($M = 2.99$, $SD = .38$).

Specifically in the seven democratic principles, there were no significant mean differences in the attitudes toward freedom, critical thinking in shared decision, and communication by all the four student characteristics. This finding indicated that regardless of gender, parent education, hometown location, and academic department, Thai college students had similar attitudes toward freedom, critical thinking in shared decisions, and communication.

In the attitude toward self-independence, there was a significant mean difference for parent education ($F(4, 704) = 3.221$, $p = .012$). The ANOVA post-hoc test results

TABLE 4.3

ANOVA for the Mean Differences in Attitudes toward Democracy by Parent Education [1]

Democratic Principles	Attitudes toward Democracy				
	N	Mean	SD	F-Value	Sig
Overall [2]					
Parent Education [a]				3.559	.007*
Primary school level	63	3.07	.44		
Secondary school level	108	3.13	.36		
Vocational/technical level	164	3.09	.41		
Undergraduate level	275	3.00	.38		
Postgraduate level	99	3.08	.31		
Freedom					
Parent Education				2.367	.051
Primary school level	63	2.82	.55		
Secondary school level	108	2.94	.54		
Vocational/technical level	164	2.92	.55		
Undergraduate level	275	2.80	.56		
Postgraduate level	99	2.92	.57		
Self Independence					
Parent Education [b]				3.221	.012*
Primary school level	63	3.17	.56		
Secondary school level	108	3.30	.46		
Vocational/technical level	164	3.22	.54		
Undergraduate level	275	3.14	.50		
Postgraduate level	99	3.30	.43		
Critical Thinking in Shared Decision					
Parent Education				1.668	.156
Primary school level	63	3.07	.59		
Secondary school level	108	3.12	.53		
Vocational/technical level	164	3.07	.55		
Undergraduate level	275	2.98	.55		
Postgraduate level	99	3.05	.50		
Social Responsibility					
Parent Education				1.918	.106
Primary school level	63	2.97	.46		
Secondary school level	108	2.90	.43		
Vocational/technical level	164	2.89	.44		
Undergraduate level	275	2.82	.45		
Postgraduate level	99	2.91	.41		

TABLE 4.3 *(Continued)*

Democratic Principles	Attitudes toward Democracy				
	N	Mean	SD	F-Value	Sig
Diversity					
Parent Education [c]				3.465	.008*
Primary school level	63	3.21	.57		
Secondary school level	108	3.20	.56		
Vocational/technical level	164	3.18	.60		
Undergraduate level	275	3.03	.56		
Postgraduate level	99	3.07	.53		
Equality					
Parent Education [d]				2.824	.024*
Primary school level	63	3.13	.52		
Secondary school level	108	3.30	.50		
Vocational/technical level	164	3.22	.58		
Undergraduate level	275	3.11	.54		
Postgraduate level	99	3.15	.52		
Communication					
Parent Education				1.446	.217
Primary school level	63	3.12	.56		
Secondary school level	108	3.15	.41		
Vocational/technical level	164	3.09	.51		
Undergraduate level	275	3.04	.45		
Postgraduate level	99	3.13	.44		

Note. N = total number in the group; SD = Standard Deviation; Sig = Significant.

[1] the ANOVA and post-hoc test results are presented in detail in Appendix 6

[2] Overall = the mean of all the seven democratic principles.

* Significant mean difference at $p < .05$.

Attitudes toward Democracy: 0 = strongly disagree; 1 = disagree; 2 = depend; 3 = agree; 4 = strongly agree.

Based on the Tukey HSD analysis, [a] secondary-school level > undergraduate level; [b] secondary-school level and postgraduate level > undergraduate level; [c] vocational/technical level > undergraduate level;

[d] secondary-school level > undergraduate level.

TABLE 4.4

T-tests for the Mean Differences in Attitudes toward Democracy by Gender, Hometown Location, and Academic Department

Democratic Principles	Attitudes toward Democracy				
	N	Mean	SD	T-Value	Sig
Overall[1]					
Gender					
Female	490	3.06	.39	1.336	.182
Male	219	3.02	.38		
Hometown Location					
Urban	525	3.04	.36	-1.063	.289
Rural	184	3.08	.43		
Academic Department					
Science & Technology	391	3.03	.37	-1.345	.179
Social Science & Humanity	318	3.07	.40		
Freedom					
Gender					
Female	490	2.86	.56	-.087	.931
Male	219	2.87	.54		
Hometown Location					
Urban	525	2.86	.54	-.639	.523
Rural	184	2.89	.59		
Academic Department					
Science & Technology	391	2.84	.53	-1.254	.210
Social Science & Humanity	318	2.90	.59		
Self Independence					
Gender					
Female	490	3.21	.50	.667	.505
Male	219	3.19	.51		
Hometown Location					
Urban	525	3.20	.49	-.663	.507
Rural	184	3.23	.54		
Academic Department					
Science & Technology	391	3.17	.50	-.666	.506
Social Science & Humanity	318	3.25	.51		
Critical Thinking in Shared Decision					
Gender					
Female	490	3.04	.54	.549	.583
Male	219	3.02	.55		

TABLE 4.4 *(Continued)*

Democratic Principles	Attitudes toward Democracy				
	N	Mean	SD	T-Value	Sig
Hometown Location					
Urban	525	3.02	.54	-1.434	.152
Rural	184	3.09	.56		
Academic Department					
Science & Technology	391	3.02	.52	-.673	.501
Social Science & Humanity	318	3.05	.58		
Social Responsibility					
Gender					
Female	490	2.89	.45	1.627	.104
Male	219	2.83	.42		
Hometown Location					
Urban	525	2.89	.44	-2.308	.021*
Rural	184	2.94	.46		
Academic Department					
Science & Technology	391	2.87	.44	-.149	.881
Social Science & Humanity	318	2.88	.45		
Diversity					
Gender					
Female	490	3.15	.57	2.796	.005*
Male	219	3.02	.55		
Hometown Location					
Urban	525	3.09	.56	-1.459	.145
Rural	184	3.16	.60		
Academic Department					
Science & Technology	391	3.12	.58	-.425	.671
Social Science & Humanity	318	3.14	.54		
Equality					
Gender					
Female	490	3.19	.55	1.404	.161
Male	219	3.12	.54		
Hometown Location					
Urban	525	3.17	.52	.142	.887
Rural	184	3.17	.60		
Academic Department					
Science & Technology	391	3.14	.54	-1.738	.083
Social Science & Humanity	318	3.20	.55		

TABLE 4.4 *(Continued)*

Democratic Principles	Attitudes toward Democracy				
	N	Mean	SD	T-Value	Sig
Communication					
Gender					
Female	490	3.09	.47	-.149	.881
Male	219	3.09	.48		
Hometown Location					
Urban	525	3.09	.45	.300	.764
Rural	184	3.08	.52		
Academic Department					
Science & Technology	391	3.08	.46	-.566	.571
Social Science & Humanity	318	3.10	.48		

Note. N = total number in the group; SD = Standard Deviation; Sig = Significant (two-tailed).

[1] Overall = the mean of all the seven democratic principles.

* $p < .05$, two-tailed.

Attitudes toward Democracy: 0 = strongly disagree; 1 = disagree; 2 = depend; 3 = agree; 4 = strongly agree.

indicated that Thai college students with parents who achieved in secondary school level (M = 3.30, SD = .46) and postgraduate level (M = 3.30, SD = .43) had a significantly higher level of attitude toward self-independence significantly higher than those with parents who studied at the undergraduate level (M = 3.14, SD = .50).

For the attitude toward social responsibility, there was a significant mean difference by hometown location (t(707) = -2.308, p = .021 (two-tailed)). The t-test results indicated that Thai college students who lived in rural areas (M = 2.94, SD = .46) had a significantly higher level of attitude toward social responsibility than those who lived in urban areas (M=2.89, SD=.44).

For the attitude toward diversity, there was a significant mean difference by gender (t(707) = 2.796, p = .005 (two-tailed)), as well as by parent education (F(4, 704) =

3.465, p = .008). The t-test results indicated that Thai college female students (M = 3.15, SD = .57) had a significantly higher level of attitude toward diversity than the male counterparts (M = 3.02., SD = .55). Also, the ANOVA post-hoc test results indicated that Thai college students with parents who had vocational/technical level (M = 3.18, SD = .60) had a significantly higher level of attitude toward diversity significantly higher than those with parents who had undergraduate level education (M = 3.03, SD = .56).

For the attitude toward equality, there was a significant mean difference by parent education (F(4, 704) = 2.824, p = .024). The ANOVA post-hoc test results indicated that Thai college students with parents who had secondary school level (M = 3.30, SD = .50) had a significantly higher level of attitude toward equality than those with parents who had undergraduate level (M = 3.11, SD = .54).

In sum, among the four student characteristics, parent education (a proxy for SES) appeared to be the only factor effecting in Thai college students' attitudes toward democracy in regard to the significant mean differences by parent education in overall democratic attitudes, particularly self-independence, diversity, and equality. That is, students with highly-educated parents had a lower level of positive democratic attitudes than those with less-educated parents. Gender, hometown location, and academic department did not appear to be factors in mean differences in the students' attitudes toward democracy. However, regarding gender, female students had a higher level of attitude toward diversity than the male counterparts. Also regarding hometown location, students who lived in rural areas had a higher level of attitude toward social responsibility than those in urban areas.

These findings above supported the hypothesis H1 in the regard that parent education was a factor in Thai students' democratic attitudes, but gender and academic department were not. However, the findings did not support the hypothesis H1, which speculated that hometown location was a factor in the students' democratic attitudes. Moreover, in the hypothesis H1 the students who had highly-educated parents had a higher level of positive democratic attitudes than those who had less-educated parents, but the findings revealed the reverse incidence. This reverse incidence might be influenced by the characteristics of the sample as a group of students. The hypothesis was based on studies of Thai people in general, whose groups had extreme differences in resource access, culture, and attitudes. According to these studies, the inadequacy in education and democratic understanding among the less-educated groups might directly contribute to a level of democratic values and practices lower than the well-educated. In contrast, the group of students, who were well-educated and engaged in a democratic learning environment, would have high competency and clear democratic understanding. In this study, all groups of students basically had a high level of positive democratic attitudes. However, due to the lack of experience of inequality and social problems, the students with highly-educated parents appeared to be less concerned about democratic attitudes. Those with less-educated parents need social change to overcome these inequalities.

Relationships between Prior Experiences with Constructivist Instruction and Attitudes toward Democracy

SEM analysis results were conducted to answer Research Question 3, "to what extent are Thai college students' prior experiences of constructivist instruction associated with their attitudes toward democracy, when controlling for gender, parent education, hometown location, and academic department?" Figure 4.1 presents a summary of the structural equation modeling (SEM) analysis results. According to the results, there was a significant positive correlation (at $p < .01$) between experiences of constructivist instruction and attitudes toward democracy, indicating a standardized coefficient of .272 when controlling for gender, parent education, hometown location, and academic department. According to Kline (2005), standardized path coefficients with absolute values of around .30 may be interpreted as a "typical" or medium effect. Greater than .50 would be a large effect. Therefore, the constructivist learning experiences might have a medium effect on the increase in attitudes toward democracy among Thai college students.

In regard to constructivist learning principles, all of the correlations (R) with their latent variable (construct) were considered "large" (Kline, 2005), with the standardized coefficients ranging from .597-.691. The lowest coefficients were *Reflective Thinking* (R = .597) and *Relevance to Daily Life* (R= .601), while the other principles evidently had greater coefficients (above .640). These statistics might indicate that in the constructivist instruction, the Thai students were very likely to have all the seven constructivist learning experiences.

However, *Teacher Scaffolding* (R = .691), *Problem Solving and Investigation* (R = .668), *Discussion* (R = .667), *Learning Personalization* (R = .644), and *Collaborative Learning* (R = .641) were emphasized over *Relevance to Daily Life* (R = .601) and *Reflective Thinking* (R = .597). This incidence might stem from the influence of the educational reform policy, which required teachers to apply the constructivist principles in their instruction and curricula. However, *Reflective Thinking* and *Relevance to Daily Life* seemed to be less addressed in the policy. Based on the SEM statistics, *Learning Personalization* specifically was very likely to be experienced in the constructivist instruction. However, due to a moderate level of applying the constructivist approach in the instruction, the traditional approach might be still mostly applied; in effect, the Thai students reported a low level of learning experience of this principle.

Similarly, the correlations among democratic principles to their latent variable were considered "large" (Kline, 2005), with the standardized coefficients ranging from .470-.806. The lowest coefficients were *Freedom* (R = .470) while the other principles had much greater coefficients (above .640). These statistics might indicate that students in Thailand were very likely to value all the seven democratic principles, but *Diversity* (R = .806), *Equality* (R = .762), *Communication* (R = .724), *Social Responsibility* (R = .712), *Critical Thinking in Shared Decision* (R = .664), and *Self Independence* (R = .644) were emphasized over *Freedom* (R = .470).

Diversity, *Equality*, *Communication*, and *Social Responsibility* had very high coefficients (above .700). These principles were greater than all the liberal principles such as *Critical Thinking in Shared Decision*, *Self Independence*, and *Freedom*. This may indicate that democratic students are likely to support the democracy toward

communitarianism. This incidence might stem from the characteristics of students with democratic values, who were competent and individualist but needed social network to help their learning. Specifically, *Social Responsibility* was very likely to be valued by the democratic students. However, due to the influence of traditional culture and the characteristic of youths, the Thai students in average reported a moderate level of positive attitude toward social responsibility.

Among the student characteristics as control variables in the SEM model, parent education had a significant effect (at $p < .05$) on the attitudes toward democracy, with the standardized coefficient of -.086. In contrast, the other student characteristics did not have significant effects: gender with the coefficient of -.058, hometown location with the coefficient of -.075, and academic department with the coefficient of .068. In other words, based on the SEM statistics, a part from parent education, these student characteristics would not be the factors in attitudes toward democracy among Thai college students. In addition, the negative correlations of the democratic attitudes with parent education indicated that the students who had highly-educated parents were likely to have a low level of positive democratic attitudes.

Like the t-test and ANOVA results of the mean difference in Thai students' democratic attitudes controlled for the four student characteristics, parent education as the main factor affecting the democratic attitudes might stem from the fact that it was commonly used for social stratification in the Thai society. In contrast, gender and hometown location, in which the inequalities and advantages between groups were now narrowing to some extent, as well as academic department, which had never been considered as a social status in the society, appeared to show just small correlations with

democratic attitudes. For students with highly educated parents, the tendency to hold a low level of positive democratic attitudes might be rooted in their privileged status tending to take for granted the equalities in society,

Also, there were no significant correlations of parent education (R = -.022) and hometown location (R = .002) with the experiences of constructivist instruction. Since the coefficients were close to zero, parent education and hometown location would be considered to have no correlation with the experiences of constructivist instruction. However, parent education and hometown location had a significant covariance (R = .276), which indicated both variables influenced each other.

In the model (Figure 4.1), the effects of the extraneous variables (error terms) on both constructs of constructivist learning and democracy were extremely high (R = 0.999 and R = .950 respectively). However, the error term of the construct of democracy was smaller than the error term of the construct of constructivist learning. This finding indicated that there were no significant independent variables in the model affecting the construct of constructivist learning, but there would be an independent variable that considerably affects the construct of democracy (i.e., the construct of constructivist learning). Also, the SEM statistics suggested that there would be other factors affecting both constructs, which needed to be taken into account.

Summary of the Key Findings

In accordance with the research questions, the key findings were as follows:

Firstly, Thai college students reported a moderate level of experiences in constructivist instruction on all of these seven principles: learning personalization, problem solving and investigation, reflective thinking, relevance to daily life,

collaborative learning, discussion, and teacher scaffolding. Among the seven constructivist principles, collaborative learning was the most commonly experienced whereas learning personalization was the least.

Secondly, the students expressed highly positive democratic attitudes: freedom, self independence, critical thinking in shared decisions, social responsibility, diversity, equality, and communication. Among these seven democratic principles, the highest value was the attitude toward self-independence, whereas the lowest was the attitude toward freedom, as well as social responsibility.

Thirdly, among the four student characteristics, parent education was the only factor in the mean differences for the students' attitudes toward democracy. Specifically, students with highly-educated parents had a lower level of positive democratic attitudes than those with less-educated parents. Gender, hometown location, and academic department appeared not to be factors in the attitudes toward democracy.

Lastly, based on a significant correlation between both constructs of constructivist learning and democracy, the level of prior experiences with constructivist instruction might have a moderate effect on the increasing level of positivity toward democracy, when controlling for gender, parent education, hometown location, and academic department.

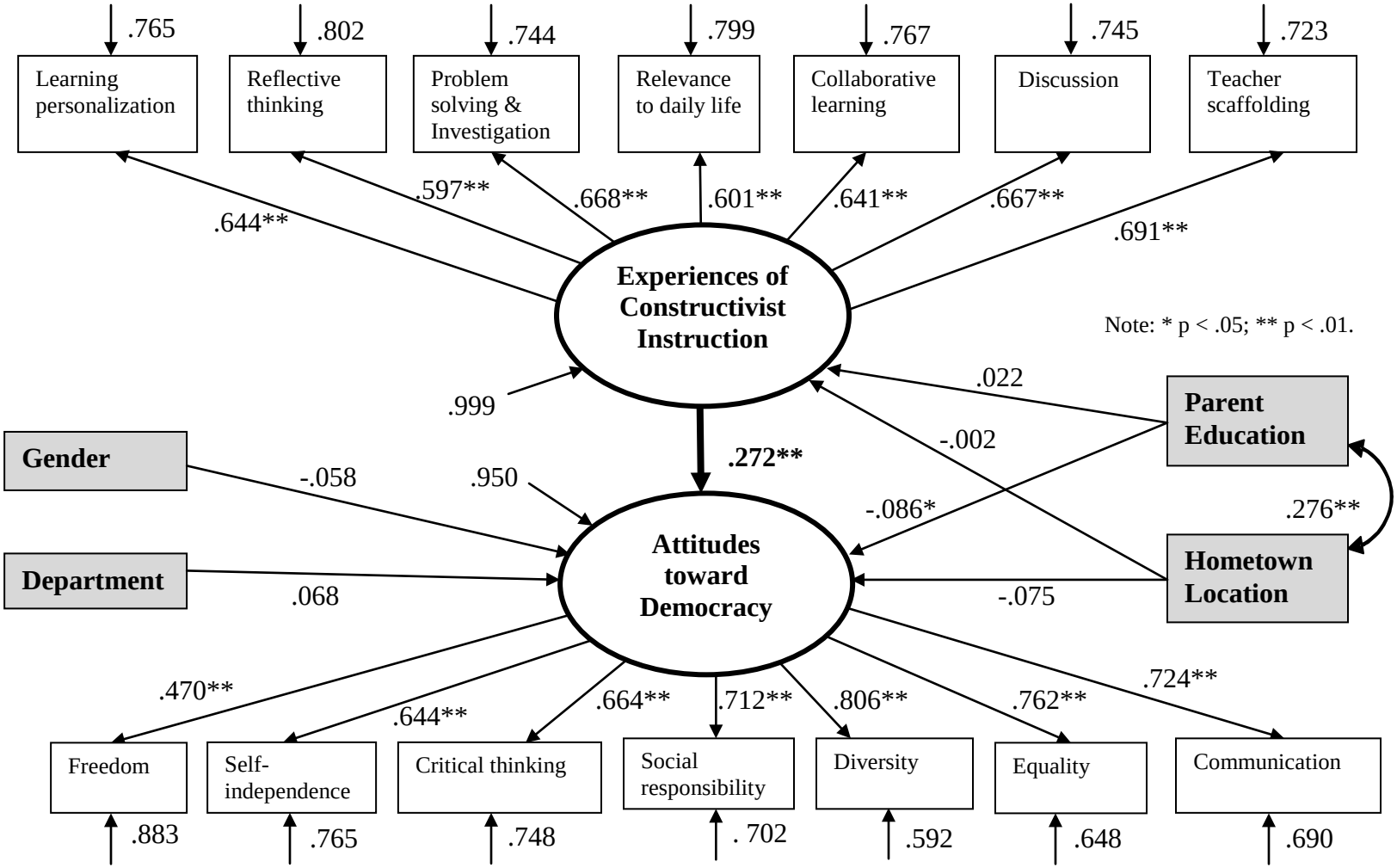

Figure 4.1. Structural equation modeling analysis results: Effects of experiences with constructivist instruction on attitudes toward democracy, when controlling for gender, parent education, hometown location, and academic department

CHAPTER FIVE

Discussion and Conclusion

Introduction

In this chapter, I will discuss the key findings. Firstly, experiences with constructivist instruction and attitudes toward democracy among college students in Thailand will be discussed in conjunction with educational reform policy and implementation, as well as the ramifications for Thai socio-political and educational situations. Secondly, the discussion aims to explain the significance and moderation of the positive correlation between the students' experiences with constructivist instruction and their attitudes about democracy. In addition, I will discuss the limitations of the study and make recommendations for future research. I will finally describe this study's implications for education policy.

Discussion

Student experiences with constructivist instruction in Thailand

Among Thai college students in this study, there appeared to be a moderate level of learning experiences in the seven constructivist principles. This finding reflected a moderate level of Thai teachers' applying these constructivist principles in their instructional design and implementing constructivist instruction as reflected by the official report on reform monitoring and evaluation (OEC, 2008). According to this OEC report, most teachers were not capable of developing their own instruction and depended on manuals. They just copied learning units from the manuals to plan their instruction as a convenient method. Constructivist instruction was hardly implemented as the policy

intended. The teachers still heavily emphasized drilling and rote memorization rather than the constructivist approach. This report indicated the persistence of the Thai traditional approach and its influence on teaching and learning in Thai education.

The moderate level of Thai teachers applying the constructivist principles in their instruction could be rooted in various issues. The first issue was the characteristics of constructivist instruction itself that could cause some difficulties for development and implementation. Compared to the Thai traditional approach, the constructivist approach required teachers to reorient their teaching to nurture students' individual learning instead of giving them directives (Airasian & Walsh, 1997). Also, it is time-consuming. Teachers must spend much time to prepare creative learning lessons, tools, and environments; and students must spend much time to finish learning activities requiring inquiry and critical thinking (Kiefer-O'Donnell & Spooner, 2002; Wallace, 2004). According to Taylor et al. (2004), constructivist instruction requires time, tools, and strategies. The OEC report (2008) showed that Thai teachers already had heavy teaching workloads, along with other school workloads, so they might not be able to develop and implement the constructivist instruction well.

In addition, the constructivist instruction focused on student-centered learning and cognitive practices, but Thai traditional instruction focused on teacher-centered learning and rote memorization. The conflicts between the two approaches made it hard for Thai teachers to appropriate the constructivist concepts and fully accept and apply this approach. As reported by the OEC (2008), Thai teachers still taught in the Thai traditional rather than in the constructivist approach. This incidence was illustrated by a body of Thai research literature (e.g., Atagi 2002; Prapaisit, 2003; Sangtong 2000).

The second issue was a shortage of competent Thai teachers to apply the constructivist learning theory. As an abstract concept, the constructivist learning theory required teachers to gain higher-order thinking skills to interpret and construct concrete models, so it might be difficult for many Thai people who were taught by rote memorization to apprehend this learning theory. In the OEC report (2008), most Thai teachers were unfamiliar with and confused by constructivist terms and principles and lacked the confidence of applying these principles in their instruction. Also, they were not competent in their teaching subjects, as well as psychological theories, which were needed to adjust the instruction and guidance to fit students' individual needs and problems. The shortage of qualified teachers in Thailand might be rooted in the fact that the career is unappealing because of low income and heavy workload. Also, the schools of education, as well as teachers colleges, are overcrowded with low-achieving students and then stereotyped as a refuge for this group. Thus, in Thailand, teaching careers usually failed to attract competent students to pursue this field.

The third issue is standards-based education, another element of educational reform in Thailand, which might discourage teachers from implementing constructivist instruction. The standards-based policy is intended to guarantee high-quality education for Thai students, so it requires teachers to develop and implement instruction that enhances students' learning competence to reach the standards. As a main standard, the standardized test scores are used as indicators of student achievement (OEC, 2008). Although Thai teachers appear willing to implement constructivist instruction, they finally turn toward the traditional approach to prepare students for the standardized exams in order to improve test scores and grades as prescribed by this policy.

In addition, the moderate level of Thai students' experiences in constructivist instruction might stem from their own characteristics. According to Romiszowski (2004), the keys to student achievement in constructivist learning were time management and self-regulation, because students need to learn on their own. The inadequacy of self-discipline, time management, and proactive learning may limit their learning when teachers attempt the constructivist approach (OEC, 2008). Specifically, the relatively lack of experience with the principles of learning personalization might be rooted in Thai teachers' paternalist values and apparent emphasis on teacher scaffolding over personalized learning. Learning personalization, which aims to give students freedom to learn, might not be a learning concept successfully applied without support from teachers and other experts because students basically lack skills, knowledge, and experience to make the best decisions about planning and implementation on their own. Therefore, if there is a tension between student-centered and teacher-centered learning, it may be because learning personalization is at odds with the process of teacher scaffolding.

However, in the Thai context of paternalism, teachers are considered the superior authorities who reinforce social norms, so they should take care of students who are incompetent and helpless to learn. Due to a high concern for maintaining social order, Thai society is not tolerant of the risk of students' misusing freedom to learn if it challenges society (LoGerfo, 1996; Mulder, 1996). Thus, Thai teachers tend be very protective of their students by limiting their freedom and taking control over their learning. For example, in the educational reform policy (OEC, 2002), teachers are required to develop the instruction to fit students' needs, but there was no mention about student involvement in the instructional development.

According to the OEC report (2008), Thai teachers commonly implemented the concept of learning personalization by providing a variety of learning activities and then giving their students some freedom to select the learning approach matching the students' individual nature and needs. However, this implementation might limit the students' freedom too much. Firstly, Thai teachers did not seem to encourage the students to get involved in suggesting and customizing their learning activities. In other words, the students were not allowed to work with the teachers on their own learning development. Empowering students to be responsible for their learning is important to engage them in learning improvement and enhancing their competence and self-reliance (McQuillan, 2005). Secondly, the teachers seemed to guide and support the students just for making them finish the learning activities rather than stimulating them to explore new knowledge from different attempts or thinking outside the box for creative ideas.

In contrast, a high level of students' experience with the principle of collaborative learning might stem from the legacy of the traditional education, which focuses learning activities in groups. According to the OEC (2008) report, the principle of collaborative learning appeared to be commonly applied by Thai teachers through smaller-group activities, and group activity with peers was valued by Thai students as an effective learning approach. However, group-learning activities experienced by Thai students might not reach the full concept of collaborative learning as defined by experts in constructivist theory as "a community of learners" (Wenger & Snyder, 2000). Firstly, the lack of whole-class discussion after smaller-group work might not provide the students with full opportunities to get engaged in knowledge construction and sharing; as a result, they might separately learn their own parts without synthesizing across groups. Secondly,

due to the prevalence of group work, the lack of individual learning might prevent the students from fully learning knowledge and skills and instill in them a sense of overdependence (Mulder, 1996). Thirdly, due to traditional value of highly relation-based concerns (Arghiros, 2001; Ockey, 2004), the students might tend to form their own cliques, rather than open up to anyone from other groups with common interests.

Student attitudes toward democracy in Thailand

Overall, Thai college students expressed a high level of positivity toward the seven democratic principles. This finding suggested that the students seemed to highly value the whole philosophy of democracy. The high value for full democracy might stem from the following influences.

***1. The new democratic constitution*.** In Thailand, national democratization has been developed over 70 years. Founded on a democratic constitution, the political system focuses on a democratic process of election for representatives, and the government is required to promote the values of democracy and to democratize local communities. As a result, Thai society has been developing towards a democracy, and its people have learned and have been absorbed in democratic values of freedom and equality. In 1997, a new constitution was formed by electoral representatives in each local community under the advice of distinguished Thai scholars from various fields. This constitution is intended to reform the political system toward full democratic governance (Albritton & Bureekul, 2004 a).

According to the new constitution, the development of democratization has emphasized decentralization and self-governance in local communities in order to build strong self-governing communities that will be immune to the patronage and domination

of external forces (Conners, 2003; Ockey, 2004). This democratic concept is developed to fit with traditional Thai society as a collectivist society (Ockey, 2004). The concept required people 1) to develop a sense of community with social concerns, 2) to be capable of self-reliance, 3) to collaborate and share resources within the community and among other communities, and 4) to maintain a moral market-based local economy (Conners, 2003). Also, corresponding to Mathews's (2005) suggestion, the democratic community should be a community of learners, focusing on collaborative learning for community development. As society and politics are developing toward this end, Thai people will engage in the full concept of democracy.

2. The democratic learning environment. Due to the new constitution and the educational reform, decentralization of Thai educational institutions has been implemented through school-based management. In this approach, schools have autonomy in their own administration, and students have rights to participate in school affairs and their own learning management. As a result, Thai students would have been engaged in a democratic learning environment with academic freedom shielded from the governmental influence and paternalist traditions. Also, under the educational reform, the curricular and instructional development has focused on a constructivist approach, so Thai students might learn and value a full democracy through the development of advanced cognitive skills for self-reliance and experience in a community of learners for a sense of community (OEC, 2002, 2004).

3. Student characteristics. The characteristics of young learners would reflect their strong positive attitudes about optimism, idealism, and enthusiasm for inquiry and learning. People with such attitudes tend to invest great effort, and they look forward to

individual and social reforms to create a more perfect world. Since Thai college students were a group who were competent in higher-order thinking skills, they might need autonomy to thrive in their own ways and expect to be included in the society to participate in sharing decision making. To them, democracy would be the ideal philosophy to overcome the oppression of a paternalist society (e.g., arbitrary obedience to teachers and parents), which limits their opportunities and demands.

However, the findings of this study did not correspond with those of two survey studies on the democratic attitudes among Thai people in general. According to the study of LoGerfo (1996) and that of Albritton and Bureekul (2004 a), Thai people appeared to have a low level of understanding and appreciation for a full democracy. They perceived the concept of democracy to be limited to political elections and focused mainly on individual liberty. Despite the high value of freedom and equality, they appeared to give a high priority to the paternalist values in the regard of maintaining social order, relying on governmental agencies, and waiting for the government to subsidize their needs rather than actively participating in shared decision making.

These traditional values held by Thai people might stem from their adult lives in Thai society, which is deep rooted in a paternalist culture, supported by the social structure of a deeply hierarchical bureaucracy, highly centralized in the high-level administration and run by the elite class (Conners, 2003; McCargo, 2002). In contrast, young students lived in the academic world, in which they were sheltered from the adult world and were engaged in a democratic learning environment. Although they might have been exposed to some influence of the traditional values in their school lives, when starting to work and coming into adulthood, they would become engaged in the strong

traditional culture and eventually institutionalized into the typical "Thai people", who seemed to juggle both traditional and democratic values (Girling, 1996). An alternative explanation would be that these students' responses show that Thai society may change as they take leadership positions and act on their support for democratic principles.

Despite a high value of democracy in general, Thai students supported least the principle of freedom. This finding corresponded with the findings of Albritton and Bureekul (2004 a) and LeGerfo (1996). Both studies indicated that Thai people perceived freedom as the essence of democracy, but they were not in great favor of it because "… [In] a conflict between the right to free expression and the maintenance of order and unity, [Thai people] tended to choose order over freedom … [, with] the purpose of maintaining public order of good morals or security of the State" (LeGerfo, 1996, p. 919-920). Thus, Thai society seemed to opt for limiting people's freedom because of a high concern that extreme freedom poses a risk of disrupting social order and stability.

Also, the principle of social responsibility was of low concern among Thai students. This finding corresponded with the OEC report, asserting that Thai students expressed a moderate value of involvement in community (OEC, 2008). However, the value of this principle has been shown to be low among Thai people in general, with regard to them avoiding political activities and civil society (Albritton & Bureekul, 2002 b; Conners, 2003; LeGerfo, 1996; Ockey, 2004). In a collective society, although Thai people basically supported cooperation and mutual regard, with highly relation-based concern, they seemed to cooperate to maintain their relationships and reciprocate favors within their own cliques rather than caring for the goodwill of the larger society (Ockey,

2004). The influence of this traditional value in Thai society might mitigate the value of social responsibility among Thai students.

The lower responses for social responsibility might also stem from student characteristics as youths, who lack experience in the real-world of work and involvement in the larger society, and thus they might not yet be concerned about civil society and social issues. Nevertheless, with higher-order thinking skills and a high value for independence, Thai students would be able to balance relation-based and task-based concerns, and to take initiatives and actively participate in interest group activities. Thus, once aware of the socio-political situation, they would hold a high value of social responsibility.

On the other hand, the high level of positivity toward self-independence among Thai students might stem from the educational reform that focuses on preparing Thai students to be self-reliant citizens with competence in cognitive and thinking skills (OEC, 2002, 2008). This finding, however, did not correspond with that of the study by LeGerfo (1996), indicating that Thai people in general appeared to have a low level of positivity attitudes toward independence. To them, “democracy means a responsive government and the provision of material benefits, and it is the duty of the people’s elected representatives to deliver those goods” (p. 918). This viewpoint indicated that Thai people, who are basically less-educated compared to the group of students, seemed to be inactive and very dependent on the government. Although Thai students highly valued the principles of individual liberty related to competence in academic skills and knowledge, do they really believe in the value of self-reliance? A low level of activeness, initiative, self-awareness, and self-regulation among Thai students (Mulder, 1996; OEC,

2008), which are required for their life-long learning and survival in a changing world, might impede them from gaining this value.

Thailand has been moving toward the more individualist aspects of democracy such as freedom and autonomy due to the influence of globalization and capitalism on increasing national competitiveness (Albritton & Bureekul, 2002 b; Chiangkul, 2001, 2004). As a result, Thai people are increasingly developing their attitudes toward personal interest and materialism (Conner, 2003; Girling, 1996; Mulder, 1996). The adoption of the classical liberal of individual liberty has the major drawback of ignoring the sense of community and local community involvement, which are good characteristics of traditional Thai culture. In addition, democratic development in this direction is at odds with Dewey (1916) and Noddings (1998)'s democratic theory and constructivist learning theory, which support a balance of individualist and communitarian values (see also, Bull, Fruehling, & Chattergy, 1992; Davies, 1999; Levin, 2000).

Correlation between prior experiences with constructivist instruction and attitudes toward democracy

According to the SEM analysis results, there was a significant positive correlation between prior experiences with constructivist instruction and attitudes toward democracy among Thai college students, when controlling for gender, parent education, hometown location, and academic department. This finding confirmed the hypothesis that Thai students who had more constructivist learning experiences in high school were more likely to hold strong positive democratic attitudes. The finding also supported the theories of Dewey (1916) and Noddings (1998), which asserted correspondences between both

constructs. While the theory of constructivist learning aims to promote individual development and knowledge construction, the philosophy of democracy aims for social and political development and group management. The former reflects democratic values embedded in knowledge construction and the latter implies that society is a community of individual learners (see also Mathews, 2005).

Moreover, both constructs support both liberal and communitarian values. Regarding the liberal orientation, both constructs require people to be rational learners with higher-order thinking skills and support them to have autonomy to pursue their individual way of life. Regarding the communitarian orientation, both also support people to maintain their relationships through discussion and negotiation, and to actively participate in a community of learners for sharing their interests and experiences. In sum, the theory of constructivist learning implicitly embraces democratic values such as freedom, independence, rationality, cooperation, and communication.

Actually, democratic learning encompasses more than constructivist learning (Dewey, 1916). In addition to the principles of constructivist learning, a democratic approach to education requires a democratic community in the classroom (Thayer-Bacon and Bacon, 1998). In such a self-governing community, all students and teachers as individuals work on and discuss issues together in a cooperative way, respecting diverse ideas and equal voices. They also open collaboration and knowledge sharing within the community and among other communities. With this notion in mind, the constructivist learning approach would embrace all of the democratic principles and students would learn a balance between both individual learning and a community of learners. Particularly, they would emphasize collaborative learning to support their own individual

learning. By this approach, students would apply multiple constructivist learning principles; in effect, this practice would comprehensively enhance their learning development. Furthermore, encouraging everyone to learn together, as well as to care for and help each other, would give them more opportunities to find new ideas and grasp deep understanding. Thus, students who are engaged in a constructivist learning approach would appreciate the philosophy of democracy by optimizing their cognitive skills development and knowledge construction.

The significant positive correlation between the students' experiences with constructivist instruction and their attitudes toward democracy appearing might stem from the fact that the concepts of democracy and constructivist learning have been widely applied in Thailand due to the new constitution. Under school-based management and academic freedom, Thai schools have had the autonomy to develop their own curricula and instruction in a constructivist approach. As a result, Thai students as individuals now have been at least moderately engaged in constructivist learning environments. This condition would generate a correlation between Thai students' constructivist learning experiences and democratic attitudes. Since the theory of constructivist learning embraces democratic values, instruction based upon this theory would give students opportunities to experience a democratic learning approach. Therefore, as they practice constructivist learning activities and are engaged in a constructivist learning environment, they would have opportunities to practice democratic principles in daily-life situations and learn to appreciate these principles in terms of optimizing their individual and social constructivist learning. The democratic values held by Thai students during school would stimulate them to support these values in the world of work and the whole society.

However, the SEM analysis results indicated a moderate, rather than a strong, positive correlation between constructivist learning experiences and democratic attitudes among Thai students. Although there are many causes accounting for this moderate correlation, the following potential causes could be noted for discussion and further research:

1. Constructivist learning practices may be an indirect way to learn and value the philosophy of democracy. Because of the different knowledge fields, the correspondences and links between concepts of constructivist learning and democracy seem to be implicit and subtle. Thus, students could not directly acquire democratic principles through constructivist learning practices. Rather, they need to apply higher-order reasoning to induce these abstract principles. In addition to the difficulty of the inductive method, students might learn democratic principles by practicing them without solid theory because they lack explicit instruction about them in social studies, so they might not properly understand and value the full concept of democracy.

2. There is some conceptual incongruence between concepts of constructivist learning and democracy. Since the theory of constructivist learning is not directly intended to fully support the philosophy of democracy, the concepts might not match perfectly. However, they overlap, so different constructivist learning approaches tend to embrace different democratic principles. For example, constructivist instruction that focuses on self or independent study would strongly support liberal values, whereas the philosophy of democracy emphasizes a balance of both liberal and communitarian values.

3. Limited implementation of constructivist instruction. This issue was rooted in the influence of Thai traditional education on constructivist instruction. In the Thai

context, instruction tends to be a hybrid of both the constructivist and traditional approaches. Limited implementation of constructivism has been found in many international studies (Airasian & Walsh, 1997; Churach & Fisher, 2001; Kirschner, Sweller, & Clark, 2006; Liang & Gabel, 2005; Windschitl, 1999). A hybrid instruction may contribute to a moderate level of frequency and intensity in constructivist learning practices among Thai students. Also, the difficulties of developing and implementing instruction that integrates all of the constructivist principles could hinder the quality and effectiveness of the instruction. Therefore, the Thai-style constructivist instruction might not provide the students with ample opportunities and strong encouragement to explore the implicit links with the philosophy of democracy.

Limitations of the Study and Recommendations of Future Research

***1. Bias in selecting the sample*.** The sample of this study was a group of young college students in a large public university in Bangkok, Thailand. This sample was considerably biased because the target university, like other top public universities in Thailand, admitted students with high scores in the entrance exam. As a result, students in this university basically have a high level of learning competence. The university has a main focus on agricultural research and development, and students there may differ from students at universities with other curricular emphases. However, the statistical results of the sample might be generalizable to Thai college students in other regions with similar characteristics. In addition, the sample was missing a considerable number of students who did not attend the class at the time of survey administration. Characteristics of the absent students might be related to the two constructs in the study. For example, absent students might highly value democracy, particularly freedom of actions or individualism,

or may think that a formal class does not fit their individual nature of learning. This is highly speculative, of course, but the absence of so many students may have affected the findings.

The sample would have different attitudes toward democracy and different experiences in constructivist instruction from those of other groups of Thai people. This means the sample does not represent any other groups of Thai people nor is representative of the whole Thai population. The statistical results in this study are also not generalizable to all groups. In future research, repeated studies with different groups of students (e.g., studies of more institutions) and/or different contexts (e.g., studies in K-12 schools) in Thailand need to be conducted to reconfirm the theory and the empirical findings in this study.

2. Biases in measurement. Such abstract concepts as constructivist learning and democracy have multiple approaches to interpretation depending on the perspective and context of the individual interpreter. Thus, different studies define an abstract concept as different principles and have different formats of measurement. In addition, self-report was used to collect the students' classroom experiences. However, a survey cannot measure the nature of constructivist instruction students received accurately. In the future qualitative studies such as field observation and open-ended interviews would need to be conducted to more accurately examine the implementation of constructivist instruction.

3. Bias in not including other factors affecting democratic attitudes. In this study, t-test and ANOVA results showed that among four student characteristics parent education was the factor that affected democratic attitudes, but gender, hometown location, and academic department were not. SEM analysis results also indicated few

significant correlations of independent variables (i.e., constructivist instruction and parent education) with democratic attitudes. These statistics suggested that just a small percentage of variation in democratic attitudes was explained in this study. Because of this limitation, the effect size of the correlations may have been either over- or under-estimated. Therefore, more variables that potentially affect Thai students' attitudes toward democracy should be taken into account.

The variables to be added in the future studies to improve the statistical results might be divided into three categories: student characteristics, teacher characteristics, and school characteristics. Student characteristics could include learning achievement (GPA), out-of-school activities (e.g. frequency of working paid jobs), social networks (e.g., type and number of associations), and Buddhist values. These variables could reflect students' learning competence, thinking skills, and civic knowledge. Teacher characteristics could include teacher qualification (e.g., academic degree, teaching license, and knowledge field), teaching style (conceptual/computational teaching), and teacher attitudes toward democracy; these factors can be measured by a teacher survey. School characteristics could include school SES, school type (public, private, international, or religious), and school curricula that focuses on democracy.

Policy Implications

***1. Promoting educational policy focused on constructivist instruction*.** Because the constructivist learning approach is a key to enhancing not only higher-order thinking skills but also positive attitudes toward democracy, the Thai educational policy should strongly promote the constructivist learning approach nationwide. Particularly, as asserted by Westheimer and Kahne (2004), the instruction should include all of the

constructivist principles in order to give students opportunities to practice and be aware of various democratic principles. Also, the instruction should balance individual learning and a community of learners in order to gain a full sense of democracy, which balances between individual liberty and community concern. Moreover, the policy should get societal support for the development of constructivist learning and democratic values for Thai students.

A hybrid instruction integrating both constructivist and traditional approaches could optimize student learning to gain benefits of both approaches: deep understanding from cognition and knowledge retrieval from memorization, discovery learning from doing research, and skill acquisition from drilling, and learning autonomy from student-centered learning and teacher support from teacher-centered learning. The hybrid instruction would be the way to harmonize constructivist learning with Thai education and culture. A hybrid instruction for Thai education would still emphasize the teacher-centered approach in the regard that teachers provide, supervise, and evaluate their students' learning lessons, but the lessons should be student-centered in terms of allowing students to work in their own ways and to negotiate with the teachers in the lesson framework and evaluation criteria. Moreover, the instruction would balance between individual and collaborative learning; for example, students first work in smaller groups to learn together basic knowledge and skills, and then they work individually on their own projects, along with whole-class discussion for knowledge sharing.

***2. Enhancing the development of a democratic Thai society with constructivist learning practices*.** The new democratic constitution, which supports decentralization and local governance, has moved Thai society toward a full democracy by empowering

people to be self-reliant citizens who actively participate in shared decisions to develop their local communities. The constructivist learning approach could enhance the development of these democratic processes by building a knowledge-based society that supports people regardless of SES, educational level, and academic knowledge to sustain their life-long learning with emphasis on higher-order thinking practice and critical discussion in a community of learners. Keeping Thai people engaged in such a full constructivist learning environment could help them to fully develop their knowledge and skills and maintain their competence of self-reliance. Also, full constructivist learning practices could give them full opportunities in democratic practices and prepare them to be more active democratic citizens.

School-based management aims to support self-governance in schools and give teachers autonomy to develop individual instruction for their students. The constructivist learning approach could enhance this democratic learning environment by empowering students to be the co-owner in their instructional development with the teachers (McQuillan, 2005). Involving the students in their own learning with their teachers, as well as in school and community activities, could stimulate not only the students' learning activeness and collaboration, but also democratic practices and values with a balance between their sense of individual liberty and sense of community.

However, standards-based education, as emphasized by the Thai educational reform to ensure that teachers implement instruction that enhances students' learning of the standards, could limit teachers and students' autonomy in school-based management and thus limit their instructional application of the constructivist approach. If the policy overemphasizes the standardized test scores as indicators of student achievement, schools

and teachers may need to heavily focus their curricula and instruction on rote-memorization and drilling to help the students perform better on the tests. To harmonize with the constructivist learning approach, the policy should be loosened but keep high standards and comprehensive criteria. It is very important to accept flexible frameworks, practical alternatives, and low-stakes evaluation, as well as promote constructivist learning experiences above student achievement (i.e., test scores).

Conclusion

Based upon Dewey's *Democracy and Education* (1916), constructivist instruction basically embraces the philosophy of democracy in relation to enhancing students' individual and social learning. As a result, I hypothesized that constructivist learning practices might be an effective indirect way to learn and value democracy. This hypothesis was confirmed by the finding that Thai students' prior experiences with constructivist instruction were positively associated with their attitudes toward democracy. Therefore, educational policy focused on integrating all of the constructivist principles into instruction should be strongly promoted in order to stimulate students in not only advanced cognitive skills but also in full democratic values.

Although this study was intended to strongly support full constructivist learning experiences and full democratic values among Thai students, this may not mean that the Western-style constructivist instruction, as well as the Western-style philosophy of democracy, is appropriate for Thai society. To gain benefits of the Thai traditional approach, it is suggested that Thai-style constructivist instruction be developed toward a hybrid of both student-centered and teacher centered approaches, as well as a hybrid of both democratic and paternalist values. Accordingly, the research findings that show a

moderate level of constructivist learning experiences and democratic attitudes in the Thai context should not be interpreted only as an inadequacy in Thai society because it might also reflect typical Thai characteristics of the hybrid approaches.

Appendix 1

The Official Permission Letter from Kasetsart University

KU INTER
International Affairs Division

Ref. No. 0513.10109/ 12020 July 25, 2008

Mr. Theera Haruthaithanasan
Department of Educational Leadership
and Policy Analysis
College of Education
University of Missouri
U.S.A.

Dear Mr. Theera :

Refer to your letter on the July 8, 2008, asked for permission to conduct the survey. Kasetsart University permits you to do the research survey at our main campus.

Your dissertation study title is good. I bless you success on your work and good luck.

Sincerely yours,

Supamard

(Professor Supamard Panichsakpatana)
Vice President for Academic Affairs

SP/wt

Office of the President : Kasetsart University 50 Phahon Yothin Road, Chatuchak, Bangkok 10900, Thailand
Tel. 66-02-942-8171-3, 66-02-942-8858 Fax. 66-02-942-8179, 66-02-942-8726 E-Mail : fvp@ku.ac.th Home Page : http://www.intaff.ku.ac.th

Appendix 2

Survey Administration Instruction

Survey Administration Instruction

Introduction

This survey is designed for a study on Thai freshman undergraduate students in Kasetsart University. This study is a PhD dissertation in educational policy studies, School of Education, University of Missouri. The study aims to examining the effect of the students' prior experiences with constructivist (student-centered) instruction in high school on increasing their positive attitudes toward democracy, and measuring the level of constructivist learning experiences and the level of attitudes toward democracy perceived by these students. The major benefits of the study include 1) promoting democratic constructivist instruction and 2) providing educational policy implications to improve the students' constructivist learning and democratic attitudes. Specifically, both constructivist learning and democratic philosophy are key factors in enhancing the development of critical thinking skills, most needed for Thai people.

The survey will group-administrated with one student questionnaire, the Thai-version closed-ended, embracing 3 sets of questions: 1) high-school experiences with constructivist instruction, 2) attitudes toward democracy, and 3) student characteristics. Through a multistage sampling method, 24 out of 80 sections of the English Foundation III course will be randomly selected. In each selected section, all students will be asked to complete their individual questionnaires. Student participation is voluntary, and with participants' agreement, the survey administrators will survey those participants. Anonymity and confidentiality will be assured to all students who participated in the study. As the instructors allow the survey administrators to conduct the survey at the beginning of their classes, the survey administrators will have 20 minutes to implement the survey. In a survey period, the survey administrators will explain and distribute the questionnaires to all participants, facilitate them to complete their questionnaires, and collect all the completed questionnaires. This questionnaire basically takes 10-15 minutes to finish.

Basic rules

- This study needs a few survey administrators who have been experienced in conducting surveys.
- The survey administrators must strictly follow the guideline; if any adjustment needed, inform and consult the researcher before taking the action.
- The original content in the student questionnaire must be kept intact throughout the survey process.
- The survey administrators must be the same persons who administrate the entire survey process. No one else is allowed to involve the administration (except the Head Department of Foreign Languages and the involved instructors).

Timeline and survey process guidelines

The whole survey process should finish in 1 month. In the timeline, there are two phases, that is, survey preparation phase in the first two weeks and survey conduct phase in the last two weeks.

Week 1 and 2: preparation for conducting the survey
The survey administrators must do the following:

- Make 500 hard copies of the questionnaire with a separate cover letter.
- Read carefully the questionnaire and this instruction to understand clearly the content.
- Set up a mandatory meeting through telecommunication with the researcher to clarify the survey and discuss on comments and issues that may occur.
- If any further comments, issues, or changes, consult the researcher via email (th2n4@mizzou.edu). Any other telecommunication can be used if needed.
- Contact the Office of Registrar for the whole official list of English Foundation III (code: 355113) sections opened in the current semester. Then, randomly select 24 classes from the whole official list of the English sections.
- Contact the Head Department of Foreign Languages; submit the Head Department the permission letters from the Vice President of Research, as well as a list of the randomly selected English sections.
- Discuss with the Head Department to make schedules for conducting the survey in the 24 selected English classrooms during Week 3 and 4, as well as clarifying the survey process. The other 5 selected classes may be used to replace any of the first 24 classes not available. During this time, the Head Department will ask all the involved instructors to allow the survey conducted in their classrooms, and then talk with them to find available class schedules for the survey. No longer than Week 2, all the survey schedules should be finished with all the involved instructors' agreement.
- Email all the survey schedules to the Head Department, all the involved instructors, and the researcher for records, as well as print it out as a hard-copy record used for the survey administrators to officially remind all stakeholders of the schedules.
- Thank the Head Department for generous cooperation.

Week 3 and 4: conducting the survey in the 24 English classrooms
For each of the selected classrooms, the survey administrators must do the following:

- Email to the instructor a reminder of the survey schedule in a few days before the time.

- Come to the classroom at least 10 minutes earlier and make sure of bringing adequate hard copies of the questionnaires, supply pencils, and a hard copy of all the survey schedules as the official record.

- Talk with the instructor about the transition from his/her introduction to the survey. Inform the instructor of announcing the survey at the beginning of the class, and introducing the staff to the class.

- When the class starts, the instructor will announce the survey at the beginning of the class and introduce the staff to the class. In this time, the instructor will allow the staff to conduct the survey for 20 minutes.

- Distribute copies of the cover letter for the survey to all students in the class.

- Introduce the survey to the class by briefly explaining the content in the cover letter. Then, ask all the students to complete their own questionnaires. Emphasize that their participation is voluntary, and anonymity and confidentiality will be assured to all students who participate in the study. This step should be finished in 5 minutes

- Make sure of participants' agreement before letting them do the survey.

- Distribute copies of the questionnaire to all participants. Provide pencils to any participants who request them.

- Read the direction of the questionnaire out loud. Then, ask all the students to start working on the questionnaires.

- Ask the instructor for the number of the enrolled students in this class. Then, count all the students who attended the class and those who participated in the survey. Record carefully all of this information.

- Facilitate participants to complete their questionnaires by clarifying questions in the questionnaire and how to properly answer the questions, when the participants ask for help.

- Note any comments and issues occurring during the survey. This information is used to improve the survey process for the next classrooms

- Stay in the classroom for survey assistance until the last participant finished.

- Collect all the completed questionnaires returned by the participants.

- Thank the instructor and the class for their generous cooperation before leaving the classroom.

After conducting the survey in each the classroom, the survey administrators must do the following:

- Write the classroom ID on the first page of every questionnaire. Then, note the classroom ID and its description (e.g., section number, survey date/time, the numbers of students attending in the class, and so on).
- Bind all the completed questionnaires together with a rubber band, and label this pack with the classroom ID. Then, put it in the box prepared for shipping the researcher.
- Collect all notes about comments and issues during the survey in one folder.
- Inform and consult the researcher about the emergent comments, issues, and changes in the survey process.

After conducting all the 24 selected classrooms, the survey administrators must do the following:

- Express-mail the box to the researcher as soon as possible.
- Email to the researcher about shipping the questionnaires and the expected date of delivery (including a tracking number). In the email, attach a report on all the numbers of enrolled students, attending students, and participating students for calculating a response rate, as well as all comments, issues, and changes in the actual survey.

Tips for assisting participants in completing their questionnaires

- Any of the participants can refuse or quit the survey at anytime. The survey administrators should respect their decisions and will not ask them again. However, the survey administrators should ask them for returning their questionnaires and mark those questionnaires as incomplete ones; make sure to separate them from the completed questionnaires.
- The survey administrators should not try to lead participants to particular answers, but rather try to ask them to find their own answers, particularly in questions about the students' perceptions (in Section 2 and 3). However, in questions about student characteristics (in Section 1), the survey administrators can suggest one answer for participants who ask for help.
- The survey administrators should clarify questions by giving some examples relevant to participants' experience.

- The survey administrators should ask them to tell any outstanding stories in high school, an effective way to stimulate their memory about past experience in constructivist instruction.
- The survey administrators should emphasize and encourage participants to try the best guess they can to every question. Make sure to utter this point in the class.
- The survey administrators should emphasize and encourage participants to feel free to ask the staff for help. Make sure to utter this point in the class.
- The survey administrators should be patient to participants who may have some meaningless questions, keep asking for help, hesitate to answer, or do any other ways irritating. Rather, the survey administrators should be friendly and try the best they can to help participants.
- The survey administrators should not rush participants to finish their questionnaires.
- It is fine that participants help each other out in their questionnaires. However, the survey administrators should come to help them, rather than let them continue helping each other, in order to avoid the influence of their opinions on others' answers, and wrong directions of their clarification.
- The survey administrators should friendly and politely greet and thank all involved people (e.g., the Head Department, the instructors, and the student participants) for their cooperation.

Appendix 3

The Cover Letter for the Student Survey

< *Current Date* >

Dear the student participant
Kasetsart University

I am writing to ask your help in a study on Thai freshman undergraduate students in Kasetsart University. This study is a PhD dissertation in educational policy studies, School of Education, University of Missouri. This study aims to examining the effect of the students' prior experiences with constructivist (student-centered) instruction in high schools on their attitudes toward democracy, and measuring the level of constructivist learning experiences and the level of democratic attitudes perceived by Thai students.

The major benefits the survey include 1) promoting democratic constructivist instruction and 2) providing educational policy implications to improve the students' constructivist learning and attitudes toward democracy. Specifically, both constructivist learning and democratic philosophy are key factors in enhancing the development of critical thinking skills, most needed for Thai people.

The survey of this study will be implemented through one student questionnaire, the Thai-version closed-ended, embracing 3 sets of questions: 1) high-school experiences with constructivist instruction, 2) attitudes toward democracy, and 3) student characteristics. In this survey, 24 out of 80 sections of the English Foundation III course are randomly selected. In each selected section, all students will be asked to complete their individual questionnaires.

Your entire class, including you, is one selected for the survey of this study. Your participation is voluntary, and with your agreement, the survey administrators will conduct the survey to collect your information. That is, the survey administrators will distribute the questionnaire to you, facilitate you to complete it, and collect it after you finished. This questionnaire basically takes 10-15 minutes to finish.

Anonymity and confidentiality will be assured to all students who participated in the study.

Thank you very much for your help for this important study.

Sincerely,
Theera Haruthaithanasan
PhD candidate
Department of Educational Leadership and Policy Analysis
School of Education
University of Missouri

Appendix 4

Student Questionnaire

A doctoral research:
The effects of Thai college students' learning on their socio-political attitudes

Student questionnaire:
Sample: freshman undergraduate students enrolled in the Foundation English III course in the second semester of 2008/2009
Content: 3 sections, consisting of
Section 1 about your demographic background (5 questions)
Section 2 about your prior learning experience in high school (29 questions)
Section 3 about your socio-political attitudes (30 questions)
Type of answer: multiple choices for almost of all questions

Direction: The following questions are intended to describe learning and teaching in current Thai education. The survey is not intended as an evaluation of you, as well as your teachers, classes, or institutions. Some questions ask for facts about yourself while other questions ask for your opinions. Read each question carefully and respond as accurately as possible. You may ask for help if you do not understand something, or are not sure how to respond. Your responses are very important to this research and anonymity is assured.

Section 1: About your demographic background

1. What is your department? *Circle one number only*

Agriculture ----------	1	(including Fisheries and Forestry)
Agro-Industry ----------	2	
Business ----------	3	
Economics ----------	4	
Engineering ----------	5	
Humanity ----------	6	
Science ----------	7	(including Veterinary Medicine)
Social Science ----------	8	(including Education)
Other ----------	(Please specify) _____	

2. Are you female or male? *Circle one number only*

Female ----------	1
Male ----------	2

3. What is your age? _____ years old *(please write your answer)*

4. Where is your hometown location? *Circle one number only*

Metropolitan area ----------	4	(including all Bangkok, Samut Prakan, Nonthaburi, and Pathum Thani areas)
City area ----------	3	(capital city area of other provinces)
Town area ----------	2	(areas mixed between business and agriculture)
Rural area ----------	1	(mainly agricultural and/or natural areas)

5. What is the highest level of education completed by your parents?

Circle one number for each column

	Your mother or female guardian	Your father or male guardian
Primary school level and under ----------	----------1----------	----------1----------
Secondary school level ----------	----------2----------	----------2----------
Technical and/or vocational level --------	----------3----------	----------3----------
Undergraduate level ----------	----------4----------	----------4----------
Above undergraduate level ----------	----------5----------	----------5----------
I don't know ----------	----------9----------	----------9----------

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Please go to Section 2 (the next page)

Section 2: past experience of learning in the high-school classroom (27 questions)

To what extent do the following sentences describe your learning experience in the high-school classroom? *Circle one number under the answer that fits you best.*

1. Students let the teacher know how they prefer to learn

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

2. Students let the teacher know how well they are learning.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

3. Students let the teacher know what their topics of interests are.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

4. Students let the teacher know if they need more/less time to complete an activity.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

5. Students express how to improve their learning.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

6. Students are allowed to question what or how they are being taught.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

7. Students ask for clarification about activities that are confusing.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

8. Students express concern about anything that gets in the way of their learning.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

9. Students carry out investigations to answer questions coming from discussions.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

10. Students explain the meaning of statements, diagrams, and graphs.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

11. Students carry out investigations to answer questions which puzzle them.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

12. Students carry out investigations to answer the teacher's questions.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

13. Students find out answers to questions by doing investigations.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

14. The teacher provides daily-life examples to explain concepts to the class.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

15. Students discuss daily life issues in relation to the concepts introduced in the class.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

16. The teacher uses pictures, videos, models of daily life situations to explain concepts to the class.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

17. 1. Students work with others on projects in this class.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

18. Students learn from others in this class.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

19. Students work with others in this class.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

20. Students cooperate with others on class activities.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

21. Students talk with others about how to deal with learning or school problems.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

22. Students explain their ideas to others.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

23. Students ask others to explain their ideas.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

24. Students are asked by others to explain their ideas.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

25. The teacher challenges students to work on a difficult task.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

26. The teacher guides students how to finish a difficult task.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

27. The teacher stimulates students to work on more difficult tasks.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

28. The teacher gives students feedback and/or comment to finish a difficult task.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

29. The teacher motivates students to finish a difficult task.

Almost Always	Often	Sometimes	Seldom	Almost Never
5	4	3	2	1

Please go to Section 3 (the next page)

Section 3: About your socio-political attitudes (28 questions)

How much do you agree with these statements about your socio-political attitudes? *Circle one number under the answer that fits you best.*

1. Parents should allow their children to decide how to lead their lives.

Strongly agree	**Agree**	**Depends**	**Disagree**	**Strongly disagree**
5	4	3	2	1

2. People should have a right to criticize what the government does.

Strongly agree	**Agree**	**Depends**	**Disagree**	**Strongly disagree**
5	4	3	2	1

3. People should have a right to have access to public information.

Strongly agree	**Agree**	**Depends**	**Disagree**	**Strongly disagree**
5	4	3	2	1

4. The government should let people share ownership of major state-owned enterprises.

Strongly agree	**Agree**	**Depends**	**Disagree**	**Strongly disagree**
5	4	3	2	1

5. Self-determination and self-regulation are important virtues children should learn.

Strongly agree	**Agree**	**Depends**	**Disagree**	**Strongly disagree**
5	4	3	2	1

6. We should make our own decisions on our lives.

Strongly agree	**Agree**	**Depends**	**Disagree**	**Strongly disagree**
5	4	3	2	1

7. We should have our own styles of living, rather than copying others' styles.

Strongly agree	**Agree**	**Depends**	**Disagree**	**Strongly disagree**
5	4	3	2	1

8. Success and failure in our lives should be determined by our deed rather than luck.

Strongly agree	**Agree**	**Depends**	**Disagree**	**Strongly disagree**
5	4	3	2	1

9. We should contribute our voices in shared decision making.

Strongly agree	**Agree**	**Depends**	**Disagree**	**Strongly disagree**
5	4	3	2	1

10. We should contribute constructive criticism to other ideas in shared decision making.

Strongly agree	**Agree**	**Depends**	**Disagree**	**Strongly disagree**
5	4	3	2	1

11. We should evaluate shared decisions for providing some suggestions.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

12. Although getting majority support, we should consider the view of the minority.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

13. I am worried about current events and public affairs, and try to involve in them.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

14. Every person should give some of his/her time for the good of his/her community or country.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

15. People should live together and help each other out.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

16. It is the duty of each person to do his/her job the very best he/she can.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

17. In school I usually volunteered for different types of projects.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

18. Being open to various views from other people can promote new perspectives.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

19. Harmony of the community can be maintained even if people organize various interest groups.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

20. Society can function well although people have various ways of thinking.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

21. Society can be stronger when people recognize the contributions of different regional groups.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

22. Opportunities for social advancement should be the same for everyone.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

23. Opportunities for political participation should be the same for everyone.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

24. Everyone should receive the same quality of education, regardless of wealth, gender, or region.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

25. Everyone should have opportunities for leadership roles.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

26. We should keep communication with each other.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

27. Parents should often talk to children.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

28. People should participate in public hearing about community issues.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

29. Employers should consult their employees on the issues affecting the whole company.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

30. When one has a conflict with a neighbor, the best way to deal with it is to negotiate with the neighbor.

Strongly agree	Agree	Depends	Disagree	Strongly disagree
5	4	3	2	1

Thank you very much for your cooperation

Appendix 5

Correlation Matrix of all the Variables

Correlation Matrix of all the Variables (For Structural Equation Modeling Analyses)

	Dept	Gend	Loc	SES	Pers	Refl	Prob	Dly	Coll	Disc	Tchr	Free	Indp	Crit	Soc	Divr	Equa	Com
Dept	1.00																	
Gend	.15*	1.00																
Loc	.13*	.10*	1.00															
SES	.04	.09^{+}	.28*	1.00														
Pers	-.03	.04	-.01	.00	1.00													
Refl	.05	.06	.04	.07	.60*	1.00												
Prob	.02	.02	.02	.06	.45*	.55*	1.00											
Dly	-.09^{+}	-.11*	-.05	-.01	.39*	.38*	.41*	1.00										
Coll	.04	-.09^{+}	.08^{+}	.034	.35*	.36*	.31*	.37	1.00									
Disc	.01	-.03	-.03	-.03	.37*	.35*	.37*	.40*	.53*	1.00								
Tchr	-.01	-.04	-.04	-.01	.45*	.47*	.43*	.47*	.43*	.52*	1.00							
Free	.05	.00	-.04	-.02	.11*	.15*	.08^{+}	.16*	.18*	.19*	.21*	1.00						
Indp	.08^{+}	-.03	-.04	-.01	.00	.08^{+}	.02	.12*	.24*	.13*	.19*	.45*	1.00					
Crit	.03	-.02	-.04	-.07	.00	.02	-.03	.09^{+}	.21*	.17*	.13*	.33*	.60*	1.00				
SocR	.01	-.06	-.12*	-.07	.13*	.09^{+}	.06	.19*	.28*	.24*	.20*	.31*	.44*	.48*	1.00			
Divr	.02	-.11*	-.09^{+}	-.12*	.07	.09^{+}	.05	.18*	.23*	.18*	.19*	.30*	.47*	.53*	.58*	1.00		
Equa	.07	-.05	-.05	-.08^{+}	.01	.02	.04	.12*	.19*	.13*	.12*	.36*	.51*	.47*	.45*	.60*	1.00	
Com	.02	.01	-.05	-.05	.07	.07	.05	.15*	.21*	.19*	.19*	.35*	.49*	.48*	.51	.58*	.65*	1.00

Note: N = 709

* Pearson Correlation is significant at the .01 level (2-tailed).

+ Pearson Correlation is significant at the .05 level (2-tailed).

Dept (Academic Department)
Gend (Gender)
Loc (Hometown Location)
SES (Socio-Economic Status)
Pers (Learning Personalization)
Refl (Reflective Thinking)
Prob (Problem-Solving and Investigation)
Dly (Relevance to Daily Life)
Coll (Collaborative Learning)
Disc (Discussion)
Tchr (Teacher Scaffolding)
Free (Freedom)
Indp (Self Independence)
Crit (Critcal Thinking in Shared Decision
Soc (Social Responsibility)
Divr (Diversity)
Equa (Equality)
Com (Communication)

Appendix 6

ANOVA and Post-Hoc Tests for the Mean Differences in Attitudes toward Democracy by Parent Education

Attitude toward Democracy – Overall[1]

Descriptive Statistics

Parent education	N	Mean	SD
Primary School level	63	3.0705	.44001
Secondary School level	108	3.1286	.36091
Vocational/Technical level	164	3.0851	.40590
Undergraduate level	275	2.9866	.38167
Above undergraduate level	99	3.0751	.30785
Total	709	3.0508	.38338

Analysis of Variance

	Sum of Squares	df	Mean Square	F-Value	Sig.
Between Groups	2.062	4	.516	3.559	.007*
Within Groups	101.998	704	.145		
Total	104.060	708			

Post Hoc Tests: using Tukey HSD Procedure

(I) Parent Education	(J) Parent Education	Mean Difference (I-J)	SE	Sig.
Primary school	Secondary school	-.05812	.06034	.872
	Vocational	-.01454	.05642	.999
	Undergraduate	.08390	.05317	.512
	Above undergraduate	-.00459	.06134	1.000
Secondary school	Primary school	.05812	.06034	.872
	Vocational	.04358	.04717	.888
	Undergraduate	.14201*	.04322	.009
	Above undergraduate	.05353	.05296	.850
Vocational	Primary school	.01454	.05642	.999
	Secondary school	-.04358	.04717	.888
	Undergraduate	.09844	.03755	.068
	Above undergraduate	.00995	.04844	1.000
Undergraduate	Primary school	-.08390	.05317	.512
	Secondary school	-.14201*	.04322	.009
	Vocational	-.09844	.03755	.068
	Above undergraduate	-.08848	.04461	.275
Above-undergraduate	Primary school	.00459	.06134	1.000
	Secondary school	-.05353	.05296	.850
	Vocational	-.00995	.04844	1.000
	Undergraduate	.08848	.04461	.275

Note: N = total number; SD = Standard Deviation; SE = Standard Error; Sig = Significant.

[1] Overall = the mean of all the seven democratic principles.

* The mean difference is significant at the .05 level.

Attitudes toward Democracy: 0 = strongly disagree; 1 = disagree; 2 = depend; 3 = agree; 4 = strongly agree.

Attitude toward Freedom

Descriptive Statistics

Parent education	N	Mean	SD
Primary School level	63	2.8175	.54663
Secondary School level	108	2.9421	.54323
Vocational/Technical level	164	2.9223	.54938
Undergraduate level	275	2.7955	.55757
Above undergraduate level	99	2.9167	.57477
Total	709	2.8660	.55715

Analysis of Variance

	Sum of Squares	df	Mean Square	F-Value	Sig.
Between Groups	2.916	4	.729	2.367	.051
Within Groups	216.855	704	.308		
Total	219.771	708			

Post Hoc Tests: using Tukey HSD Procedure

(I) Parent Education	(J) Parent Education	Mean Difference (I-J)	SE	Sig.
Primary school	Secondary school	-.12467	.08799	.617
	Vocational	-.10480	.08227	.707
	Undergraduate	.02201	.07752	.999
	Above undergraduate	-.09921	.08945	.802
Secondary school	Primary school	.12467	.08799	.617
	Vocational	.01987	.06878	.998
	Undergraduate	.14668	.06303	.137
	Above undergraduate	.02546	.07722	.997
Vocational	Primary school	.10480	.08227	.707
	Secondary school	-.01987	.06878	.998
	Undergraduate	.12680	.05476	.141
	Above undergraduate	.00559	.07064	1.000
Undergraduate	Primary school	-.02201	.07752	.999
	Secondary school	-.14668	.06303	.137
	Vocational	-.12680	.05476	.141
	Above undergraduate	-.12121	.06505	.338
Above-undergraduate	Primary school	.09921	.08945	.802
	Secondary school	-.02546	.07722	.997
	Vocational	-.00559	.07064	1.000
	Undergraduate	.12121	.06505	.338

Note: N = total number; SD = Standard Deviation; SE = Standard Error; Sig = Significant.
* The mean difference is significant at the .05 level.
Attitudes toward Democracy: 0 = strongly disagree; 1 = disagree; 2 = depend; 3 = agree; 4 = strongly agree.

Attitude toward Self Independence

Descriptive Statistics

Parent education	N	Mean	SD
Primary School level	63	3.1667	.56082
Secondary School level	108	3.3009	.45826
Vocational/Technical level	164	3.2241	.54239
Undergraduate level	275	3.1391	.50134
Above undergraduate level	99	3.3005	.42854
Total	709	3.2084	.50425

Analysis of Variance

	Sum of Squares	df	Mean Square	F-Value	Sig.
Between Groups	3.236	4	.809	3.221	.012*
Within Groups	176.787	704	.251		
Total	180.023	708			

Post Hoc Tests: using Tukey HSD Procedure

(I) Parent Education	(J) Parent Education	Mean Difference (I-J)	SE	Sig.
Primary school	Secondary school	-.13426	.07944	.441
	Vocational	-.05742	.07428	.938
	Undergraduate	.02758	.06999	.995
	Above undergraduate	-.13384	.08076	.461
Secondary school	Primary school	.13426	.07944	.441
	Vocational	.07684	.06210	.729
	Undergraduate	.16184*	.05691	.037
	Above undergraduate	.00042	.06973	1.000
Vocational	Primary school	.05742	.07428	.938
	Secondary school	-.07684	.06210	.729
	Undergraduate	.08499	.04944	.423
	Above undergraduate	-.07642	.06378	.752
Undergraduate	Primary school	-.02758	.06999	.995
	Secondary school	-.16184*	.05691	.037
	Vocational	-.08499	.04944	.423
	Above undergraduate	-.16141*	.05873	.048
Above-undergraduate	Primary school	.13384	.08076	.461
	Secondary school	-.00042	.06973	1.000
	Vocational	.07642	.06378	.752
	Undergraduate	.16141*	.05873	.048

Note: N = total number; SD = Standard Deviation; SE = Standard Error; Sig = Significant.
* The mean difference is significant at the .05 level.
Attitudes toward Democracy: 0 = strongly disagree; 1 = disagree; 2 = depend; 3 = agree; 4 = strongly agree.

Attitude toward Critical Thinking in Shared Decision

Descriptive Statistics

Parent education	N	Mean	SD
Primary School level	63	3.0675	.59264
Secondary School level	108	3.1157	.52555
Vocational/Technical level	164	3.0716	.55438
Undergraduate level	275	2.9755	.54838
Above undergraduate level	99	3.0480	.50467
Total	709	3.0374	.54560

Analysis of Variance

	Sum of Squares	df	Mean Square	F-Value	Sig.
Between Groups	1.978	4	.495	1.668	.156
Within Groups	208.781	704	.297		
Total	210.760	708			

Post Hoc Tests: using Tukey HSD Procedure

(I) Parent Education	(J) Parent Education	Mean Difference (I-J)	SE	Sig.
Primary school	Secondary school	-.04828	.08633	.981
	Vocational	-.00419	.08072	1.000
	Undergraduate	.09201	.07606	.746
	Above undergraduate	.01948	.08777	.999
Secondary school	Primary school	.04828	.08633	.981
	Vocational	.04409	.06749	.966
	Undergraduate	.14029	.06184	.156
	Above undergraduate	.06776	.07577	.899
Vocational	Primary school	.00419	.08072	1.000
	Secondary school	-.04409	.06749	.966
	Undergraduate	.09619	.05373	.380
	Above undergraduate	.02367	.06931	.997
Undergraduate	Primary school	-.09201	.07606	.746
	Secondary school	-.14029	.06184	.156
	Vocational	-.09619	.05373	.380
	Above undergraduate	-.07253	.06383	.787
Above-undergraduate	Primary school	-.01948	.08777	.999
	Secondary school	-.06776	.07577	.899
	Vocational	-.02367	.06931	.997
	Undergraduate	.07253	.06383	.787

Note: N = total number; SD = Standard Deviation; SE = Standard Error; Sig = Significant.

* The mean difference is significant at the .05 level.

Attitudes toward Democracy: 0 = strongly disagree; 1 = disagree; 2 = depend; 3 = agree; 4 = strongly agree.

Attitude toward Social Responsibility

Descriptive Statistics

Parent education	N	Mean	SD
Primary School level	63	2.9651	.46077
Secondary School level	108	2.8981	.43277
Vocational/Technical level	164	2.8890	.44433
Undergraduate level	275	2.8211	.45240
Above undergraduate level	99	2.9071	.40639
Total	709	2.8733	.44332

Analysis of Variance

	Sum of Squares	df	Mean Square	F-Value	Sig.
Between Groups	1.500	4	.375	1.918	.106
Within Groups	137.646	704	.196		
Total	139.146	708			

Post Hoc Tests: using Tukey HSD Procedure

(I) Parent Education	(J) Parent Education	Mean Difference (I-J)	SE	Sig.
Primary school	Secondary school	.06693	.07010	.875
	Vocational	.07605	.06554	.774
	Undergraduate	.14399	.06176	.136
	Above undergraduate	.05801	.07126	.926
Secondary school	Primary school	-.06693	.07010	.875
	Vocational	.00912	.05480	1.000
	Undergraduate	.07706	.05021	.540
	Above undergraduate	-.00892	.06152	1.000
Vocational	Primary school	-.07605	.06554	.774
	Secondary school	-.00912	.05480	1.000
	Undergraduate	.06793	.04363	.526
	Above undergraduate	-.01805	.05628	.998
Undergraduate	Primary school	-.14399	.06176	.136
	Secondary school	-.07706	.05021	.540
	Vocational	-.06793	.04363	.526
	Above undergraduate	-.08598	.05183	.460
Above-undergraduate	Primary school	-.05801	.07126	.926
	Secondary school	.00892	.06152	1.000
	Vocational	.01805	.05628	.998
	Undergraduate	.06693	.07010	.875

Note: N = total number; SD = Standard Deviation; SE = Standard Error; Sig = Significant.
* The mean difference is significant at the .05 level.
Attitudes toward Democracy: 0 = strongly disagree; 1 = disagree; 2 = depend; 3 = agree; 4 = strongly agree.

Attitude toward Diversity

Descriptive Statistics

Parent education	N	Mean	SD
Primary School level	63	3.2143	.56771
Secondary School level	108	3.1968	.55855
Vocational/Technical level	164	3.1829	.59658
Undergraduate level	275	3.0264	.56104
Above undergraduate level	99	3.0732	.52641
Total	709	3.1118	.56898

Analysis of Variance

	Sum of Squares	df	Mean Square	F-Value	Sig.
Between Groups	4.426	4	1.106	3.465	.008*
Within Groups	224.779	704	.319		
Total	229.204	708			

Post Hoc Tests: using Tukey HSD Procedure

(I) Parent Education	(J) Parent Education	Mean Difference (I-J)	SE	Sig.
Primary school	Secondary school	.01753	.08958	1.000
	Vocational	.03136	.08376	.996
	Undergraduate	.18792	.07892	.122
	Above undergraduate	.14105	.09107	.531
Secondary school	Primary school	-.01753	.08958	1.000
	Vocational	.01383	.07002	1.000
	Undergraduate	.17040	.06417	.062
	Above undergraduate	.12353	.07862	.516
Vocational	Primary school	-.03136	.08376	.996
	Secondary school	-.01383	.07002	1.000
	Undergraduate	.15656*	.05575	.041
	Above undergraduate	.10969	.07192	.546
Undergraduate	Primary school	-.18792	.07892	.122
	Secondary school	-.17040	.06417	.062
	Vocational	-.15656*	.05575	.041
	Above undergraduate	-.04687	.06623	.955
Above-undergraduate	Primary school	-.14105	.09107	.531
	Secondary school	-.12353	.07862	.516
	Vocational	-.10969	.07192	.546
	Undergraduate	.04687	.06623	.955

Note: N = total number; SD = Standard Deviation; SE = Standard Error; Sig = Significant.

* The mean difference is significant at the .05 level.

Attitudes toward Democracy: 0 = strongly disagree; 1 = disagree; 2 = depend; 3 = agree; 4 = strongly agree.

Attitude toward Equality

Descriptive Statistics

Parent education	N	Mean	SD
Primary School level	63	3.1389	.52128
Secondary School level	108	3.2986	.50170
Vocational/Technical level	164	3.2165	.58452
Undergraduate level	275	3.1082	.53812
Above undergraduate level	99	3.1490	.52113
Total	709	3.1707	.54296

Analysis of Variance

	Sum of Squares	df	Mean Square	F-Value	Sig.
Between Groups	3.296	4	.824	2.824	.024*
Within Groups	205.429	704	.292		
Total	208.725	708			

Post Hoc Tests: using Tukey HSD Procedure

(I) Parent Education	(J) Parent Education	Mean Difference (I-J)	SE	Sig.
Primary school	Secondary school	-.15972	.08564	.337
	Vocational	-.07757	.08007	.869
	Undergraduate	.03071	.07545	.994
	Above undergraduate	-.01010	.08706	1.000
Secondary school	Primary school	.15972	.08564	.337
	Vocational	.08215	.06694	.736
	Undergraduate	.19043*	.06134	.017
	Above undergraduate	.14962	.07516	.272
Vocational	Primary school	.07757	.08007	.869
	Secondary school	-.08215	.06694	.736
	Undergraduate	.10828	.05330	.252
	Above undergraduate	.06747	.06875	.864
Undergraduate	Primary school	-.03071	.07545	.994
	Secondary school	-.19043*	.06134	.017
	Vocational	-.10828	.05330	.252
	Above undergraduate	-.04081	.06331	.968
Above-undergraduate	Primary school	.01010	.08706	1.000
	Secondary school	-.14962	.07516	.272
	Vocational	-.06747	.06875	.864
	Undergraduate	.04081	.06331	.968

Note: N = total number; SD = Standard Deviation; SE = Standard Error; Sig = Significant.
* The mean difference is significant at the .05 level.
Attitudes toward Democracy: 0 = strongly disagree; 1 = disagree; 2 = depend; 3 = agree; 4 = strongly agree.

Attitude toward Communication

Descriptive Statistics

Parent education	N	Mean	SD
Primary School level	63	3.1238	.55698
Secondary School level	108	3.1481	.41049
Vocational/Technical level	164	3.0890	.50870
Undergraduate level	275	3.0407	.45347
Above undergraduate level	99	3.1313	.44093
Total	709	3.0883	.46957

Analysis of Variance

	Sum of Squares	df	Mean Square	F-Value	Sig.
Between Groups	1.272	4	.318	1.446	.217
Within Groups	154.841	704	.220		
Total	156.113	708			

Post Hoc Tests: using Tukey HSD Procedure

(I) Parent Education	(J) Parent Education	Mean Difference (I-J)	SE	Sig.
Primary school	Secondary school	-.02434	.07435	.998
	Vocational	.03479	.06951	.987
	Undergraduate	.08308	.06551	.711
	Above undergraduate	-.00750	.07558	1.000
Secondary school	Primary school	.02434	.07435	.998
	Vocational	.05912	.05812	.847
	Undergraduate	.10742	.05326	.259
	Above undergraduate	.01684	.06525	.999
Vocational	Primary school	-.03479	.06951	.987
	Secondary school	-.05912	.05812	.847
	Undergraduate	.04830	.04627	.835
	Above undergraduate	-.04229	.05969	.955
Undergraduate	Primary school	-.08308	.06551	.711
	Secondary school	-.10742	.05326	.259
	Vocational	-.04830	.04627	.835
	Above undergraduate	-.09059	.05497	.467
Above-undergraduate	Primary school	.00750	.07558	1.000
	Secondary school	-.01684	.06525	.999
	Vocational	.04229	.05969	.955
	Undergraduate	.09059	.05497	.467

Note: N = total number; SD = Standard Deviation; SE = Standard Error; Sig = Significant.

* The mean difference is significant at the .05 level.

Attitudes toward Democracy: 0 = strongly disagree; 1 = disagree; 2 = depend; 3 = agree; 4 = strongly agree.

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VITA

I am just an average learner who tries to balance academic and personal lives. My love of discovery learning may stem from having a warm middle-class family with my parents who worked in academia. I grew up around Kasetsart University, in Bangkok, throughout K-12 education. My school life was normally filled with diverse experiences in the Kasetsart University Laboratory School, and engaged in some sense of learning autonomy and independence. Then, I studied and gained a bachelor agree in Architecture from King Mongkut's Institute of Technology Ladkrabang. Later, I pursued a master degree in Information Technology from Sripatum University.

A big change came into my life when I studied abroad in the US. This change steered me toward the field of Education. I studied and gained another master degree in Learning Technology from the School of Information Science and Learning Technology (SISLT), in the University of Missouri. In SISLT, I focused my study on multimedia and web application for developing online learning and social computing tools. Then, I pursued a Ph.D. degree in Educational Policy Studies from the department of Educational Leadership and Policy Analysis, in the same university. My research interests involve in statistical analysis on the constructs of constructivist learning, Internet use in education, and democracy as a philosophy, as well as critical analysis on application of these constructs in Thai contexts.

I really like traveling in new unique places for exploring new experiences. That is, I like to learn about people, architectures, cultures, and histories in different places. These experiences would stimulate me in appreciating the concept of multiculturalism and learning new knowledge and skills to improve myself and the society.