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Can Co-curricular Activities Enhance the Learning Effectiveness of Students?: An Application to the Sub-degree Students in Hong Kong

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A total of 575 students from the Associate Degree Foundation Program and the Associate Degree Program participated in this study. The two purposes of this study were to use the time series between/within experimental design to examine whether participation in co-curricular activities could (1) enhance student learning effectiveness and (2) have positive effects on the academic performance of self-funded sub-degree students in Hong Kong. It was found that participation in co-curricular activities could not enhance student learning effectiveness. Associate degree students were too preoccupied by the need to attain good academic results in the first 2-3 terms of study. Rather, this study suggests that student learning effectiveness is affected by the time factor. High learning effectiveness was observed in the middle of the academic year but relatively low learning effectiveness at the end of the year.

Introduction

The post-secondary education sector in Hong Kong underwent rapid growth in the past decade.[1] Notably, in large part due to the attempt of the government to boost the quantity of graduates with degree or sub-degree qualifications to meet the fast-changing skills needs of a knowledge-based economy, a number of self-funded community colleges were set up to provide a wide range of sub-degree and top-up degree programs. These new community colleges emerged to play a key role, especially in the privately-funded tertiary education sector.[2] [3]

The self-funded sub-degree sector expanded sharply, and the number of community colleges and associate degree students increased from only 3 and 3,732 in 2001 to more than 10 and 23,300 in 2010 respectively (Hong Kong Government, 2010).[4] Despite the success in developing sub-degree graduates on a privately-funded basis, concerns were expressed over the quality of these community colleges and their programs. Especially, the quality of programs might be compromised in part due to the limited financial resources, as their majority (if not all) of finance was from tuition fees, and the support from government has so far been limited to the land grant and related campus development loans only. There might not be enough funding or resources to support the required student development and other teaching and learning quality enhancement activities to facilitate the all-around development of students, as compared to the government-funded programs in particular. In this regard, the government set up the Quality Enhancement Grant Scheme (QEGS) to fund worthwhile non-work projects or initiatives dedicated to enhancing the quality of teaching and learning of self-financing post-secondary programs. A total of HK$100 million was made available for such purpose for a period of three years. Among other sub-degree providers, the College of International Education, Hong Kong Baptist University was awarded the QEGS grant to support a one-year project to organize various co-curricular activities with a view to enhancing the learning effectiveness of sub-degree students.

Since recognized co-curricular activities under the supervision of an institution can take place in both regular class time and after school, they provide students with the opportunity to integrate skills acquired with actual experience (Scales & Taccogna, 2000). Learning can take the form of site visits, talks, shows, and

[1] The Government provides the following forms of support to self-financing institutions who are non-profit-making and providing full-time accredited post – secondary programs – (a) start-up loan; (b) land at nominal premium (including vacant school premises at nominal rate); (c) quality enhancement grant; (d) accreditation grant; and reimbursement of government rents and rates.

[2] The review of the education system began in early 1999 and was completed in September 2000 (Hong Kong Education Commission, 2000). In the Policy Address, the Chief Executive set the target of providing 60% of senior secondary school leavers with tertiary education within next ten years. Among which, some 12 to 13% of tertiary places were still government-funded, and the remaining places were to be offered by self-financing 'Community Colleges'. This policy target was achieved in the 2005/06 school year (Hong Kong Education Commission, 2006).

[3] Community colleges in Hong Kong refer to those education institutions that perform one or more of the following functions: (a) providing learners with an alternative route to higher education which, to a certain extent, correlates with university programs; (b) providing a second opportunity to learners who have yet to attain qualifications at secondary level through formal education; and (c) providing a variety of learning opportunities to assist individual learners to acquire skills and qualifications to enhance their employability (Hong Kong Government, 2010)

[4] The perspective of higher education in Hong Kong is fully discussed in the following links: http://www.ipass.gov.hk/eng/support_insti.aspx; http://www.hku.hk/caut/new1/cr/higher_education_uk1.htm#wp

competitions, etc. Although schools are concerned with the students' sufficient development in both academic and social aspects, somehow more attention has been given to their academic performance. This has been reflected in numerous researches in the past ten years, which found that co-curricular activities played an important role in students' academic success (Chambers & Schreiber, 2004; Huang & Chang, 2004; Hunt, 2005; Stephens & Schaben, 2002; Tan & Pope, 2007). However, there are not many studies investigating the relationship between co-curricular activities and student learning effectiveness.

Learning effectiveness is defined as the psychosocial factors affecting students' academic performance and outcomes, such as academic self-esteem, efficacy, and confidence (Chemers, Hu, & Garcia, 2001; Friedlander, Reid, Shupak, & Cribbie, 2007; Zajacova, Lynch, & Espenshade, 2005); time utilisation (Lahmers & Zulauf, 2000; Nonis & Hudson, 2006); strategic organization and study (VanZile-Tamsen, 2001); stress and emotional factors (Davidson & Beck, 2006; Pritchard & Wilson, 2003); student involvement in campus life (Anaya, 1996; Cooper, Healy, & Simpson, 1994); motivation and task relevance (Bong, 2004; VanZile-Tamsen, 2001), and communication in the classroom (Cayanus, 2005; Cunconan, 1996). Effective learning can help students survive more successfully in college, both academically and psychologically.

Though conceptually sound, empirical evidence on the relationship between co-curricular activities and academic performance is rather inconclusive so far. Numerous researches found a positive correlation between them (Hanks & Eckland, 1976; Camp, 1990) whereas some reported no such correlation (Light, 1990; Hartnett, 1965). Holland and Andre (1987) and Otto (1982) noted that the strong positive results reported so far might have been caused by the flawed use of crosssectional research designs and inadequate or nonexistent selection control methods. The results are inconsistent in many of the cross-sectional studies, and the literature on this topic is inconclusive either. Hunt (2005) suggested using longitudinal designs to treat the variables at one time point as a possible cause and at a later time point as a possible effect.

Against this background, the present study attempts to apply a time series experimental design to examine whether co-curricular activities boost the learning effectiveness of self-funded sub-degree students by comparing learning effectiveness and academic performance between an experimental group (those participated in co-curricular activities) and a control group (without participation in co-curricular activities) at three time points: the beginning of the academic year (October), the middle of academic year (February) and the end of academic year (May). Equally important, the relationship between co-curricular activities and students' academic performance will also be investigated.

Literature Review

Student Involvement Theory

Student involvement refers to the quantity and quality of physical and psychological energy that students engage in college experience. Such involvement can take many forms, such as absorption in academic work, participation in extracurricular activities, and interaction with faculty and other institutional personnel. Importantly, the more the student's involvement in college activities, the greater will be the student's learning and personal development (Astin, 1999).

Astin's Involvement Theory

Astin studied and wrote extensively in the area of student involvement in higher education (Astin, 1968, 1975, 1984, 1985, 1987; 1993; Astin, Korn & Green, 1987). Astin referred to the academic experience in a broad sense that encompassed both classroom learning and out-of-class experiences.

Astin's theory was predicated on five basic assumptions:

1. Involvement refers to the investment of physical and psychological energy in various objects.
2. Involvement occurs along a continuum.
3. Involvement has both quantitative and qualitative features.
4. The amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in that program.
5. The effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement (Astin, 1984, p. 298).

Astin's theory presented a paradigm for viewing student participation in co-curricular activities, stressing the concepts of commitment and time. Involvement was an active concept that required the student to invest time and energy. Programs that motivate students to make such a commitment were the most successful.

Co-curricular Activities

Co-curricular activities are defined as those

activities that enhance and enrich the regular curriculum during normal school days. They are also referred to as extracurricular, extra-class, non-class, school-life, and student activities (Tan & Pope, 2007). Despite the lack of a precise term, co-curricular activities seem more student-centred than the regular classes. In co-curricular activities, students assume responsible positions of leadership; students' spontaneous interests and immediate needs determine affiliations and experiences; and the teacher-supervisor is often a mentor or guide rather than an instructor (Stevens, 1999).

Students Involvement in Co-curricular Activities

New Undergraduates

The success in the first year of college study depends on whether students are able to connect academically and socially with the institution. Gardner and Siegel (2001) cited data from ACT which indicated that 28% of students in public four-year colleges and universities failed to continue beyond their first year in college. Underprepared students in general lacked the ability to compete with other students in the same institution (Ender & Wilkie, 2000). Central to this readiness issue is "the scope of difference between high school and college--level work in terms of pace, amount, and expectations" (Steele & McDonald, 2008, p. 171). Banta did a three-year longitudinal study following undergraduates through their college life, learning experiences, adjustment issues, and social experiences before and after participating in co-curricular activities at Virginia Commonwealth University (VCU). The results indicated that students became more receptive to ideas and more accepting of people from different backgrounds. They approached studies more seriously in subsequent years than they had in their first year (Banta & Kuh, 1998).

Second-Year Students

When compared, capable students tend to be more participative in co-curricular activities than less capable ones. Among other possibilities, they do not have to worry as much that participation in co-curricular activities might take up their time and cause distraction and hence hinder their school work. They believe that they have more buffer with their academic results which allows them to participate more than those students who are struggling in study (Hunt, 2005).

Besides, high-performing students participate more in co-curricular activities because they believe that participation in such activities can enhance their credentials. They may also attempt to ingratiate themselves with the teachers sponsoring the specific activity as well as with other teachers who might grade their other course work or write letters of recommendation (Hunt, 2005). These students seem to know well how the co-curricular activities can enhance their learning effectiveness, credentials for college, and future career prospects.

Numerous studies have indicated that successful survival in college could well be the result of effective learning, (Chemers, Hu, & Garcia, 2001; Davidson & Beck, 2006; Friedlander, Reid, Shupak, & Cribbie, 2007; Lahmers & Zulauf, 2000), which could be enhanced through co-curricular activities (Engle, Reilly, & LeVine, 2003; Tovar & Simon, 2006; Trombley, 2000; Yeager, 2008).

The Gender Factor

Pascarella and Smart (1991) indicated that "net of other factors, intercollegiate athletic participation has a positive impact on social involvement during college, satisfaction with college, interpersonal and leadership skills, and motivation to complete one's degree" (p. 127). In addition, participation in intercollegiate athletics was found to have a modest positive effect on academic achievement. However, the study only looked at male student-athletes, ignoring nearly 50% of the total student-athlete population.

Finkenberg (1990) conducted a study of the effect on college women's self-concept and participation in a Taekwondo program. The overall result of participating in the martial arts training program showed a significant positive difference on a total self-concept score and on subscale scores measuring their perception of physical self, personal self, social self, identity, and self-satisfaction.

The above studies indicated that the participation in co-curricular activities has positive impact on personal development for both genders. The following section would discuss how the cocurricular activities promote students' personal development.

Chickering's Psychosocial Development Theory

Chickering's psychosocial model is the well-known applied theory of student personal development. Chickering (1969) proposed seven vectors along which traditionally aged college students develop, which included: achieving competence (including intellectual, physical, and social), managing emotions, becoming autonomous, establishing identity, freeing interpersonal relationships, clarifying purposes, and developing

integrity.

Chickering (1969) stated that of the seven vectors, the first three, achieving competence, managing emotions, and becoming autonomous, related directly to the construct of student success in college and represent central and critical developmental tasks that students must cope with during these years. Chickering noted college students' increased confidence in themselves, as well as "increased trust in their abilities" (Chickering, 1969, p. 34), and he referenced the positive impact of satisfaction on the development of competence. "A sense of competence stemmed from the confidence that one can cope with what comes and achieve goals successfully" (Chickering & Reisser, 1993, p. 53).

Chickering's work suggested five major methods for promoting developmental growth:

1. Engage the student in making choices;
2. Require interaction with diverse individuals and ideas;
3. Involve students in direct and varied experiences;
4. Involve students in solving complex intellectual and social problems;
5. Involve students in receiving feedback and making objective self-assumptions

(Knefelkamp, Widick, & Parker, 1978, p. 27).

Co-curricular programs possess various components of the above strategies. In sum, Chickering's work offered an explanation of the concept of success that takes into account student cognitive (grade point average), affective (self-concept, satisfaction), and behavioral (ability to manage emotions and independence) realms.

Co-curricular Activities and Academic Performance

Participation in co-curricular activities is widely thought to play a key role in students' academic success (Huang & Chang, 2004; Hunt, 2005; Camp, 1990; Stephens & Schaben, 2002), and contribute to bachelor's degree attainment (Tan & Pope, 2007). Students also realize the importance of developing overall competences, by joining co-curricular activities and working collaboratively with their student peers on academic work in order to gain hands-on experience (Fung, Lee, & Chow, 2007). Numerous researches were conducted to investigate this relationship and found that co-curricular activities were positively correlated to academic performance (Hanks & Eckland, 1976; Camp, 1990). Some findings, however, found no such correlation between co-curricular involvement and academic performance (Light, 1990; Hartnett, 1965). One research finding suggested that only an academic curriculum would enhance academic performance (Chambers & Schreiber, 2004). It implied that the participation in some nonacademic co-curricular activities might not directly benefit academic performance. Black (2002) suggested that involvement in student clubs and organizations might even distract students from their regular study, and not all activities were of benefit to academic performance. The research results have so far been inconclusive. Among other possibilities, it could be caused by the flawed use of cross-sectional designs and inadequate or non-existent selection control methods (Holland & Andre, 1987; Otto, 1982).

The present study attempts to apply a time series experimental design to examine the cause/effect relationship between participation in co-curricular activities and learning effectiveness The use of experimental design could manipulate one variable at a time, or statistical analysis becomes cumbersome and open to question. It's also more reliable to use traditional mathematical and statistical means to measure cause/effect result conclusively. In addition, it attempts to investigate how to enhance student learning effectiveness by using co-curricular activities. The quantitative results provide some contextual foreground for the future qualitative studies in similar topics.

Method

Participants

Purposive sampling was used to collect the data throughout the academic year 2009-10 from the College of International Education, a self-financed division of the Hong Kong Baptist University providing various sub-degree and top-up degree programs. Students were required to complete and return the questionnaires in class or during the co-curricular activities. The return rate was reasonably high, from 75.1% to 91.9% in the three collection phases.[5]

A total of 575 students were involved in this study. The mean age was 19.2 years, 50.8% of students were male, and 49.2% were female. While 28.7% of them studied the Associate Degree Foundation Program, 71.3% studied the Associate Degree Program. As regards the latter, 102 students (25.9%) were from Creative Communication, 71 students (17.4%) from Business, 65 students from

[5] Phase one: 667 questionnaires distributed to students with 613 returns (return rate of 91.9%); phase two: 598 questionnaires sent to students with 514 returns (86.0%); and phase three: 478 questionnaires given to students with 359 returns (75.1%).

Marketing (15.9%), and 48 (11.7%) from Tourism and Hospitality Management Concentrations respectively. Importantly, 320 students (55.7%) were assigned to the control group (i.e., they did not participate in any co-curricular activities during the period of study). The experimental group referred to those students who participated in the 3 co-curricular activities under the QEGS projects, namely the "Business Talk Series," and "Remake Aberdeen" and "Ad-Here" simulation competitions. Among the 255 students in the experimental group, 116 (20.2%) joined the "Talk Series," 34 students (5.9%) joined "Remake Aberdeen," 50 students (8.7%) joined "Ad-Here," and another 30 students (5.2%) joined both 'Talk Series' and 'Remake Aberdeen'. The remaining 25 students who joined the activities did not return the questionnaires.

Only 359 students from both the experimental and control groups returned the questionnaires at "all" three collection rounds: 205 students from the control group and 154 students from the experimental group.

Description of Co-curricular Activities Under the QEGS Project

"Business Talk Series"

There were a total of five business talks. Students could enrich their learning experience through their exposure to the real business world. Business professionals were invited to give talks and share their practical experiences on various topics including marketing, management and business environment, etc. Students are also required to write a short paper to reflect on how they had benefited from the program and what they had learned too.

"Remake Aberdeen" Business Simulation Competition

The purpose of this business simulation competition was to provide students with the knowledge and skills on the development of a business plan, as well as the chance to apply them to the real business world. Students were required to design a business plan to revitalize and to redevelop Aberdeen, one of the tourist attractions to foreign visitors in Hong Kong Students were required to write a business plan and present their proposals to adjudicators who included business professionals from the industry.

"Ad-Here" – Advertising Simulation Competition

This program aimed to provide a platform for students to connect with the mass communication industry and to offer an opportunity to practice communication and advertising concepts and skills in a real-world setting. Participants were required to formulate and present an advertising plan for a real-world product, and this program also involved marketing or advertising professionals from the industry.

Instrument

A self-report questionnaire was used in this study. It consisted of 2 parts: the College Learning Effectiveness Inventory (CLEI) for measuring students' learning effectiveness, and the demographic data of students, such as gender, age, academic results, program of study, concentration of study and co-curricular activity involvement.

CLEI is an inventory devised by a group of researchers at the Kansas University (Newton, Kim, Wilcox, & Yeager, 2008). It comprises six scales and 50 questions for measuring the factors that impact on student learning. The six scales include academic self-efficacy (ASE), organization and attention to study (OAS), stress and time press (STP), involvement with college activity (ICA), emotional satisfaction (ES), and class communication (CC). This inventory approach was modified by Russell and Petrie (1992), who stated that student learning would likely be influenced by academic, personal, social and environmental factors. Participants shall rate their learning approach and attitude on a five-point scale, from 1 (Never) to 5 (Always).

Academic Self-Efficacy (ASE) Scale

This scale serves to measure students' expectancy of success, effort made in the school setting and academic ability. High scores reflect high anticipation of goal achievement and outcome, whereas low scores indicate high concern about future achievement. The reliability of this scale is found to be 0.87 in this present study.

Organization and Attention to Study (OAS) scale

This measures students' organization of tasks, time management, and goal-planning. High scores reflect effective planning whereas low scores reflect the lack of attention and avoidance of goal planning. The reliability of this scale is 0.81 in this study.

Stress and Time Press (STP) Scale

This scale measures how well students manage to face stressful situations and how this will affect their learning. High scores reflect handling stress well, whereas low scores reflect low efficacy in handling stress. The reliability of this scale is 0.77.

Involvement with College Activity (ICA) Scale

This measures the extent of a student's engagement in activities. High scores reflect active participation in activities or organizations, and low scores reflect social disconnection or being less active in participating. The reliability of this scale is 0.81.

Emotional satisfaction (ES) Scale

This measures the extent of students' emotional response to people and environment. High scores reflect positive feeling about academic life, and low scores reflect negative feeling about, no interest in, or avoidance of academic life. The reliability of this scale is 0.72.

Class Communication (CC) Scale

This measures both verbal and nonverbal efforts to engage in class activity. High scores reflect good involvement in class activity, whereas low scores reflect reluctance in joining class activity. The reliability of this scale is 0.68.

Design and Procedure

A time series between-and-within experimental design was adopted in the current research. Students who participated in any of the three co-curricular activities were assigned to the experimental group and those who did not participate formed the control group. The relationship between involvement in co-curricular activities and student learning effectiveness, as well as between involvement in co-curricular activities and academic performance will be examined. The learning effectiveness of students was observed in three time periods under study: at the beginning (October 2009), middle (February 2010) and end (May 2010) of an academic year. The study intended to examine whether student learning effectiveness was influenced by involvement in co-curricular activities, as well as by the time factor, such as when the academic results of semester 1 were released in February. Students were asked to complete and return the questionnaire within ten minutes in class or during the activities.

Data Analysis

Within-Subject Analysis

A repeated measure was performed to test if there was any difference in the learning effectiveness of both experimental and control groups across three time periods.

Between-Group Analysis

This paper applied the analysis of covariance (ANCOVA) to test if there is any significant difference between the experimental group and the control group for the adjusted Time-3 (May 2010) means for each hypothesis. In each case, the Time-3 mean specified in each of the hypotheses was used as the dependent variable and Time-1 (October 2009) mean as the covariant.

Specifically, the ANCOVA was used to adjust the group means of the post-test on the basis of the pre-test, thus statistically equating the control and experimental groups. The significance of difference between means was tested at the 0.05 level, and the hypotheses were either retained or rejected. Effect size was measured by eta-squared. The use of covariance in this study deemed appropriate as there were no significant correlations among the dependent measures (Stevens, 2002; Dancy & Reidy, 2004).

Results

Part I. Means and Reliabilities of the CLEI Subscales

The means of the six subscales in CLEI for all subjects participating in both the experimental and control groups are listed below in Table 1.

The reliabilities of CLEI of the present study ranged from 0.40 to 0.78 (see Table 2). This range of reliabilities was similar to that of Newton et al.'s study (2008), from 0.68 to 0.87.

Part II. Effects of the Time Factor on Student Learning Effectiveness

A repeated-measure ANCOVA was used to examine whether student learning effectiveness would be influenced by the time factor. For the control group, the estimation results indicated that there was a significant time effect on four of the CLEI subscales, except Organization and Attention to Study (OSA) and Class Communication (CC). The four subscales were FASE (2, 203) = 8.00, $p<.001$, FSTP (2, 203) = 7.23, $p<.001$, FICA (2, 203) = 2.99, $p<.05$, and FES (2, 203) = 5.46, $p<.001$ (see Table 3). However, as for the experimental group, there was a significant time effect on the Academic Self-efficacy subscale only, FASE (2,152) = 3.49, $p<.05$ (see Table 3). Table 3 presents the means of the student learning effectiveness for both groups in the 3 respective time periods, and most of the subscale means in Time-2 appeared to be among the highest.

Table 1
The Means of the Six Subscales of the CLEI

The Six Subscales	Time-1 (10/2009) N = 575		Time-2 (02/2010) N = 575		Time-3 (05/2010) N = 575	
	X	SD	X	SD	X	SD
Academic Self-Efficacy (ASE)	3.43	0.41	3.52	0.45	3.47	0.45
Organization and Attention to Study (OSA)	3.06	0.37	3.13	0.38	3.09	0.39
Stress and Time Press (STP)	2.94	0.43	3.08	0.41	3.03	0.41
Involvement with College Activity (ICA)	3.16	0.52	3.17	0.47	3.23	0.50
Emotional Satisfaction (ES)	3.31	0.40	3.42	0.39	3.37	0.42
Class Communication (CC)	3.08	0.43	3.15	0.43	3.11	0.44

Note. 1 – Never 2 – Rarely 3 – Sometimes 4 – Usually 5 – Always

Table 2
Reliabilities of the Six Subscales of CLEI of the Present Study (Cronbach's alpha)

	Time-1 (10/2009) N = 575	Time-2 (02/2010) N = 514	Time-3 (05/2010) N = 359
Academic Self-Efficacy (ASE)	0.71	0.79	0.78
Organization and Attention to Study (OSA)	0.40	0.53	0.52
Stress and Time Press (STP)	0.43	0.42	0.41
Involvement with College Activity (ICA)	0.73	0.70	0.72
Emotional Satisfaction (ES)	0.45	0.53	0.53
Class Communication (CC)	0.43	0.51	0.45

Part III. Effect of Participation in Co-curricular Activities on Student Learning Effectiveness

An analysis of covariance was used to examine whether the students in the experimental group out-performed those in the control group regarding the improvement in learning effectiveness As seen in Table 5, the Time-1 subscale of Academic Self-efficacy is the significant covariate in the ANCOVA, FASE (1, 236) = 143.21, $p<.001$, $eta^2 = 0.38$. The results for the experimental group (after participating in co-curricular activities where the Time-1 scores were taken as covariates) indicated that FASE (1, 236) = 10.36, $p<.01$, $eta^2 = 0.04$. Importantly, participation in co-curricular activities was found to have a significant but small effect on the growth in academic self-efficacy. Table 4 presents adjusted and unadjusted group means and variability for enhancing student learning effectiveness through participation in co-curricular activities.

Part IV. Impact of Participation in Co-curricular Activities on Academic Performance

A paired-sample T-test was conducted to examine whether the academic performance of students in the experimental group would be enhanced through participation in co-curricular activities. Student GPAs were collected in Time-1 and Time-3, and their means were compared to see if there was any significant difference in academic performance before and after participation in co-curricular activities. The estimation results showed that T, Time-1 – Time-3 (1, 153) = 1.46, df = 153, $p>.05$. Therefore, there seemed no such positive effect on student academic performance (see Table 6).

Discussion

As reported previously, the estimation results do not confirm that co-curricular activities help to enhance the learning effectiveness of students.

Table 3
Student Learning Effectiveness by the Time Effect

		Academic Self-Efficacy (ASE)			
	M	*df*	*MS*	*F*	*p*
Control Group		2	0.58	8.00	<.001
Time-1	3.34				
Time-2	3.49				
Time-3	3.50				
Experimental Group		2	0.23	3.49	<.05
Time-1	3.47				
Time-2	3.53				
Time-3	3.41				
		Organization and Attention to Study (OSA)			
Control Group		2	0.04	0.57	>.05
Time-1	3.08				
Time-2	3.13				
Time-3	3.10				
Experimental Group		2	0.22	0.29	>.05
Time-1	3.07				
Time-2	3.12				
Time-3	3.09				
		Stress and Time Press (STP)			
Control Group		2	0.73	7.23	<.001
Time-1	2.93				
Time-2	3.13				
Time-3	2.99				
Experimental Group		2	0.08	0.75	>.05
Time-1	2.98				
Time-2	3.02				
Time-3	2.05				
		Involvement with College Activity (ICA)			
Control Group		2	0.26	2.99	<.05
Time-1	2.97				
Time-2	3.02				
Time-3	3.09				
Experimental Group		2	0.02	0.13	>.05
Time-1	3.23				
Time-2	3.27				
Time-3	3.24				
		Emotional Satisfaction (ES)			
Control Group		2	0.45	5.46	<.01
Time-1	3.27				
Time-2	3.40				
Time-3	3.26				
Experimental Group		2	0.10	1.02	>.05
Time-1	3.40				
Time-2	3.44				
Time-3	3.36				
		Class Communication (CC)			
Control Group		2	0.09	1.26	>.05
Time-1	3.07				
Time-2	3.12				
Time-3	3.05				
Experimental Group		2	0.04	0.37	>.05
Time-1	3.14				
Time-2	3.16				
Time-3	3.11				

Table 4
Adjusted and Unadjusted Group Means and Variability for Enhancing Student Learning Effectiveness through Participation in Co-Curricular Activities Using the Scores of Time-1 as a Covariate

Academic Self-Efficacy (ASE)					
		Unadjusted		Adjusted	
	N	*M*	*SD*	*M*	*SD*
Experimental Group	154	3.42	0.40	3.34	0.31
Control Group	205	3.49	0.47	3.02	0.28

Table 5
Analysis of Covariance for Enhancing Student Learning Effectiveness through Participation in Co-curricular Activities Using the Scores of Time-1 as a Covariate

Academic Self-Efficacy (ASE)					
Source	*df*	*MS*	*F*	*P*	eta^2
Time-1	1	17.33	143.21	<.001	0.38
Groups	1	1.25	10.36	<.01	0.04
Error	357	0.12			

Table 6
Paired-Sample t-test Comparing Students' Time 1 and Time 3 Academic Performance

Academic Performance (Time 1 – 3)				
Source	*M*	*SD*	*t*	*p*
Time 1	2.81	0.62	1.46	> 0.05
Time 3	2.76	0.65		

Contrarily rather, students who did not participate in co-curricular activities were found to achieve more improvement in learning effectiveness (in the Academic Self-Efficacy, Stress, and Time Press, Involvement with College Activities, and Emotional Satisfaction Subscales) whereas those who participated in such activities improved in the Academic Self-efficacy Subscale only.

This certainly warrants further study. Among other possibilities, this could be attributed to the unique nature of the associate degree program in Hong Kong that it is basically equivalent to the first 2 years of a typical 4-year degree program, and most students aspire to continue on with their degree study, by articulating to the government-funded degree and, less preferably, other self-funded (top-up) degree programs. Either way, students are required to achieve very good academic results and resumes in order to be admitted, especially to the government-funded programs. With such clear study direction and goals in mind, together with the motivation and determination to study, they are eager to work hard to boost their learning effectiveness and academic results. This helps explain their improvement in learning effectiveness, which was likely driven by a clear direction and goal for the advancement of study, rather than by participation in co-curricular activities.

It is worth noting the rather high attrition rate (39.61%) of the co-curricular project too. Among the 255 students who participated in the project in Time-1 (October 2009), only 154 of them continued on in Time-3 (May 2010). This high attrition might also reflect the clear study direction and goals of the associate degree students. After the examination results were released in Time-2 (February 2010), some of them might have thought that participation in co-curricular activities would not help improve their grades or educational expectations as much as they expected. They then decided to withdraw from the project (Hunt, 2005).

As many undergraduate programs in Hong Kong are aimed for well-rounded or whole-person education, expectedly co-curricular and experiential learning will continue to form an integral part of the teaching and learning strategy as well as the overall degree program. As for further development, co-curricular projects should be designed and structured in such a way as to integrate with the core curriculum. The objectives and intended learning outcomes, together with other related activity and assessment details, shall be well spelled out and communicated with students too.

In addition, the academic staff of community colleges might need further training on the design

and implementation of co-curricular activities. Undoubtedly, academic staff members at the tertiary level are well equipped with their own subject expertise, professional knowledge, and industrial exposures, and they might also have experiences on organizing co-curricular activities, though, many of them do not attain any formal teacher training, especially for higher education. Therefore, further training or professional development on the design and implementation of structured and learning-oriented co-curricular activities, (e.g., in-service training for teachers in such areas like pedagogy and curriculum design, should help enhance the overall effectiveness and success of co-curricular projects).

In addition to boosting the learning effectiveness of students, co-curricular and experiential learning activities are widely thought to enrich students' practical exposures, hands-on experiences, and other soft skills like problem-solving, presentation and interpersonal communication, and self-discipline and management skills, etc. Concerted efforts (that will also involve the student affairs unit of the college) should be made to develop such co-curricular projects into an integral part of the undergraduate curriculum. Student affairs professionals are well equipped with the expertise and experiences in organizing various student activities including personal growth, study skills, and career and other extra-curricular development. This synergy between academic and student affairs staff should be able to bring about more comprehensive experiential learning experiences for the students. Consideration should also be given to making it a college-wide initiative, for instance, by setting up a kind of teaching and learning unit to facilitate teachers' professional development. It can among other things provide various talks, seminars, workshops, or even research opportunities related to co-curricular and experiential learning and how they could be integrated with the learning outcomes and missions of the degree programs as a whole.

As discussed previously, the 2-year associate degree program might not be desirable, especially for the offer of comprehensive co-curricular learning programs. Students are too pre-occupied by the single most important target to achieve outstanding academic results, perhaps at the expense of the chance to participate in co-curricular activities. Right now, on average only about 10% of the associate degree graduates could be admitted to the government-funded degree places. Situations should improve if more articulation opportunities are made available for associate degree students. In this regard, the government has increased steps to promote the growth of private universities that will provide 4-year degree programs. Besides, given the self-funded nature of community colleges and private universities, the majority of resources will be allocated to classroom teaching and other necessities like teaching/learning facilities and other campus needs. The government should continue to provide extra funding, on a competitive basis perhaps, to support such teaching and learning quality enhancement projects.

Conclusion and Suggestions for Further Research

The two purposes of this study were to use the time series between/within experimental design to examine whether participation in co-curricular activities could (1) enhance student learning effectiveness, and (2) have positive effects on the academic performance of self-funded sub-degree students in Hong Kong. It was found that participation in co-curricular activities could not enhance student learning effectiveness. Associate degree students were too preoccupied by the need to attain good academic results in the first 2-3 terms of study. The high attrition rate also suggests that many students did not think participation in co-curricular activities could improve their grades, especially when they received the results of semester-1, and they then chose to drop out. Besides, there was no positive effect of participation in co-curricular activities on student academic performance either. Rather, this study suggests that student learning effectiveness is affected by the time factor. High learning effectiveness was observed in the middle of the academic year but relatively low learning effectiveness at the end of the year.

The present study represents at most an early attempt to look into the learning effectiveness of self-funded sub-degree students in Hong Kong, and shall not be generalized to draw conclusions on the overall self-funded tertiary sector. However, it managed to produce some indicative results, which could be further explored to study the development of community colleges in Hong Kong. Apart from the sampling and research approaches, further study could explore the potential of co-curricular activities and other experiential learning opportunities in promoting student learning effectiveness.

Importantly, although much research on classroom learning has already been carried out, the evidence from this research strongly supports the enhancement of academic self-efficacy as a critical element in the learning effectiveness of sub-degree students. Further research could also be conducted to explore the specific strategies of co-curricular activities to promote the students' academic self-efficacy.

Methodologically speaking, the quantitative results provide some contextual foreground for the future

qualitative studies in similar topics. Therefore, triangulation, such as focus group interview, archival study, case study, and so forth, is advised to investigate the potential of co-curricular activities in promoting student learning effectiveness in depth in order to enhance the confidence in the ensuing findings, and to draw convergent findings.

References

Anaya, G. (1996). College experiences and student learning: The influence of active learning, college environments and co-curricular activities. *Journal of College Student Development, 37*(6), 611-622.

Astin, A. W. (1999). Student involvement: A developmental theory for higher education. *Journal of College Student Development, 40*(5), 518-529.

Astin, A. (1968). *The college environment*. Washington, DC: American Council on Education.

Astin, A. (1975). *Preventing students from dropping out*. San Francisco: Jossey-Bass.

Astin, A. (1977). *Four critical years: Effects of college on beliefs, attitudes, and knowledge*. San Francisco: Jossey-Bass.

Astin, A. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 25*(4), 297-308.

Astin, A. (1985). *Achieving educational excellence: A critical assessment of priorities and practices in higher education*. San Francisco: Jossey-Bass.

Astin, A. (1987). Assessment, value-added, and educational excellence. In D. Halpern (Ed.), *Student outcomes assessment: What institutions have to gain* (pp. 89-107). San Francisco, CA: Jossey-Bass.

Astin, A. (1991). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education*. American Council on Education, Toronto: Macmillan.

Astin, A. W. (1998). The Changing American College Student: Thirty-Year Trends, 1966-1996. *The Review of Higher Education, 21*(2), 115-135.

Astin, A. W. (1993). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education*. Phoenix, AZ: Oryx.

Astin, A., Korn, W., & Green, K. (1987) Retaining and satisfying students. *Educational Record, Winter,* 36-42.

Banta, T. W., & Kuh, G. D. (1998). A missing link in assessment. *Change, 30*(2), 40-46.

Black, S. (2002). The well-rounded student. *American School Board Journal, 189*(6), 33-35.

Bong, M. (2004). Academic motivation in self-efficacy, task value, achievement goal orientations, and attributional beliefs. *Journal of Educational Research, 97*(6), 287-297.

Camp, W. (1990). Participation in student activities and achievement: A covariance structural analysis. *Journal of Educational Research, 83*, 272-278.

Cayanus, J. L. (2005). *Student's propensity to ask questions: Do cognitive flexibility, teacher self-disclosure, student motives to communicate, and affective learning influence question asking in the classroom?* (Doctoral dissertation). West Virginia University, Morgantown.

Chambers, E. A., & Schreiber, J. B. (2004). Girls' academic achievement: varying associations of extracurricular activities. *Gender and Education, 16*(3), 327-346.

Chemers, M. M., Hu, L., & Garcia, B. F. (2001). Academic self-efficacy and first-year college student performance and adjustment. *Journal of Educational Psychology, 93*(1), 55-64.

Chickering, A. (1969). *Education and identity*. San Francisco, CA: Jossey-Bass.

Chickering, A. & Reisser, L. (1993). *Education and identity* (2nd ed). San Francisco, CA: Jossey-Bass.

Cooper, D. L., Healy, M. A., & Simpson, J. (1994). Student development through involvement: Specific changes over time. *Journal of College Student Development, 35*(2) 98-102.

Cunconan, T. M. (1996). The conceptualization, measurement, and validation of a student's propensity to ask questions in the college classroom (Doctoral dissertation). University of Oklahoma, Norman, OK.

Dancy, C. P., & Reidy, J. (2004). *Statistics without maths for psychology*. Harlow: Pearson Education.

Davidson, W. B., & Beck, H. P. (2006). Using the survey of academic orientations to predict undergraduates' stress levels. *NACADA Journal, 26(*2), 13-20.

Ender, S. C., & Wilkie, C. J. (2000). Advising students with special needs. In V. N. Gordon & W. R. Habley (Eds.), *Academic advising: A comprehensive handbook* (pp. 118-143). San Francisco, CA: Jossey-Bass.

Engle, C. C., Reilly, N. P., & LeVine, H. B. (2003). A case study of an academic retention program. *Journal of College Student Retention, 5*(4), 366383.

Finkenberg, M. E. (1990). The effect of participation in Taekwondo on college

women's self concept. *Perceptual and Motor Skills, 71*, 891-894.

Friedlander, L. J., Reid, G. J., Shupak, N., & Cribbie, R. (2007). Social support, self-esteem, and stress as predictors of adjustment to university among first-year undergraduates. *Journal of College Student Development, 48*(3), 259-274.

Fung, D., Lee, W., & Chow, C, (2007). A feasibility study on personal development planning process embedded at the 'Special' ePortfolio for generic competencies development. *European Institute for E-Learning (EIFEL)*, 332-340.

Gardner, J. N., & Siegel, M. J. (2001). Focusing on the first-year student. *Priorities, 17*, 1-17.

Hanks, M., & Eckland, B. (1976). Athletics and social participation in the educational attainment process. *Sociology of Education, 49*, 271-294.

Hartnett, R. T. (1965). Involvement in extracurricular activities as a factor in academic performance. *Journal of College Student Personnel, 6,* 272274.

Hong Kong Education Commission (2006). *Hong Kong 2006*. Hong Kong: Hong Kong Government Printer.

Holland, A., & Andre, T. (19897). Participation in extracurricular activities in secondary school: what is know, what needs to be known? *Review of Educational Research, 57*, 437-466.

Huang, Y. R., & Chang, S. M. (2004). Academic and co-curricular involvement: Their relationship and the best combinations for student growth. *Journal of College Student Development, 45*(4), 391-406.

Hunt, D.H. (2005). The effect of extracurricular activities in the educational process: Influence on academic outcomes. *Sociological Spectrum, 2*, 417-445.

Hong Kong Government (2010). *Information portal for accredited self-financing post-secondary programs: Enrolments of full time accredited self-financing programs, 2001*. Hong Kong: Hong Kong Special Administration Region.

Knefelkamp, L., Widick, C., & Parker, C. (Eds.) (1978). *New directions for student services: Applying new developmental findings. No. 4*. San Francisco: Jossey-Bass.

Lahmers, A. G., & Zulauf, C. R. (2000). Factors associated with academic time use and academic performance of college students: A recursive approach. *Journal of College Student Development, 41*(5), 544-556.

Light, R. (1990). *The Harvard assessment seminars: explorations with students and faculty about teaching, learning and student life* (First Report). Cambridge, MA: Harvard University Graduate School of Education.

Newton, F. B., Kim, E., Wilcox, D., & Yeager, M. E. (2008). *Administration and scoring manual for the college learning effectiveness inventory (CLEI)*. Manhattan, KS: Kansas State University Research Foundation.

Nonis, S. A., & Hudson, G. I. (2006). Academic performance of college students: Influence of time spent studying and working. *Journal of Education for Business, 81*(3), 151-159.

Otto, L. B. (1982). Extracurricular activities. In H. J. Walberg (Ed.), *Improving educational standards and productivity: The research basis for policy* (pp. 217-233). Berkeley, CA: McCutchan Publishing Corporation.

Pascarella, E. T. & Smart, J. C. (1991). Impact of intercollegiate athletic participation for African-American and Caucasian men: Some further evidence. *Journal of College Student Development, 32*, 123-130.

Pritchard, M. E., & Wilson, G. S. (2003). Using emotional and social factors to predict student success. *Journal of College Student Development, 44*(1), 18-28.

Scales, R C., & Taccogna, J. (2000). Caring to try: How building students' developmental assets can promote school engagement and success. *NASSP Bulletin, 84*, 69-78.

Steele, G. E., & McDonald, M. L. (2008). Advising Students in Transition. In V. N. Gordon, W. R. Habley, et al. (Eds.), *Academic advising: A comprehensive handbook,* (pp. 144-161). San Francisco, CA: Jossey-Bass.

Stephens, L., & Schaben, L. (2002). The effect of interscholastic sports participation on academic achievement of middle level school students. *NASSP Bulletin, 86*(630), 34-41.

Stevens, C. W. (1999). *Co-curricular activities: An element of solution-focused oriented interventions for middle school seriously emotionally disturbed students* (Doctoral dissertation). Oregon State University.

Stevens, J. P. (2002). *Applied multivariate statistics for the social sciences* (4th ed). Hillsdale, NJ: Erlbaum.

Tan, D., & Pope, M. (2007). Participation in co-curricular activities: Non traditional student perspectives. *College & University, 83*(1), 2-9.

Tovar, E., & Simon, M. A. (2006). Academic probation as a dangerous opportunity: Factors influencing diverse college students' success. *Community College Journal of Research & Practice, 30*(7), 547-564.

Trombley, C. M. (2000). Evaluating students on probation and determining intervention strategies:

A comparison of probation and good standing students. *Journal of College Student Retention, 2*(3), 239-251.

VanZile-Tamsen, C. (2001). The predictive power of expectancy of success and task value for college students' self-regulated strategy use. *Journal of College Student Development, 42*(3), 233-241.

Yeager, M. E. (2008). *Educational Interventions*. Presented at the Kansas Student Affairs Conference, Hays, KS.

Zajacova, A., Lynch, S. M., & Espenshade, T. J. (2005). Self-efficacy, stress and academic success in college. *Research in Higher Education, 46*(6), 677-706

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