LIST OF TABLES

Table		Page
3-1	Observation categories of students' learning behaviors (LB) in ball games	22
	and gymnastics classes	
3-2	Formative class evaluation questionnaire	23
3-3	Diagnostic standard of physical education classes (for all subject matters)	24
3-4	Students' PAL categories and estimated energy cost values	25
3-5	Students' formative class evaluation (FCE) score	26
3-6	Students' PAL and MVPA level	27
3-7	Proportion of learning behavior (LB) in 60 classes	28
3-8	Proportion of students' engagement in learning behavior (LB) categories	29
	during 30 gymnastics classes and 30 ball games classes	
3-9	Correlation between students' formative class evaluation (FCE) scores and	30
	proportion of students' learning behavior (LB) categories	
3-10	Correlations between proportion of students' engagement in moderate and	31
	vigorous physical activity level (MV-PAL) and proportion of students'	
	learning behavior (LB)	
3-11	Correlations between proportion of students' engagement in moderate and	31
	vigorous physical activity level (MV-PAL) and students' formative class	
	evaluation (FCE) scores	
3-12	Correlations between proportion of students engaged in PAL categories	32
	(during total episodes) and students' FCE score (N= 60 classes)	
3-13	Correlations between proportions of students engaged in PAL categories	32
	(during total episodes) and students' FCE score (split to be gymnastics and	
	ball games classes)	

3-14	Correlations between proportion of students engaged in each PAL	33
	categories (limited only during A2 episodes) and students' FCE score (N=	
	60 classes)	
3-15	Correlations between proportions of students engaged in PAL categories	33
	(during A2 episodes) and students' FCE score (split to be gymnastics and	
	ball games classes)	
4-1	The unit plan of the aerobic unit	41
4-2	The unit plan of the non aerobic unit	42
4-3	Pattern of teacher's activity in the 2 fitness units	42
5-1	Average and standard deviation of each variable measured in 4 gymnastics	59
	units of elementary school PE classes for 2 nd and 3 rd graders	
5-2	Correlations among students' formative class evaluation (FCE) scores,	69
	number of students' steps during PE class (steps), intensity of students' PA	
	(IPA), maximum involvement rate (MIR), and proportion of episodes	
	student engaging in MV-PAL	
5-3	Correlations among FCE, number of students' steps, and intensity of	69
	students' PA	
5-4	Correlations between students' FCE and intensity of students' PA inside	69
	motor learning (A2) episode	
5-5	Correlations between students' formative class evaluation (FCE) scores and	7 0
	proportion of A2 episodes used by students for engaging in learning	
	behavior (LB) categories	
5-6	Correlations between students' physical activity level (PAL) and proportion	71
	of episodes used by students for engaging in learning behavior (LB)	
	categories	

LIST OF FIGURES

Figure		Page
3-1	The relationship among students' FCE scores, proportion of students'	35
	engagement in MV-PAL during motor learning (A2) episodes, and	
	proportion of students' engagement in learning behavior (LB) during motor	
	learning (A2) episodes	
4-1	Proportion of lesson contexts in aerobic unit (N=8)	44
4-2	Proportion of lesson contexts in non-aerobic unit (N=17)	44
4-3	Proportion of students' MV-PAL engagement in aerobic unit (N=8)	45
4-4	Proportion of students' MV-PAL engagement in non-aerobic unit (N=17)	45
4-5	Average number of student's step in aerobic (N=8) and non-aerobic units	45
4-6	Average intensity of student's PA in aerobic unit (N=8)	46
4-7	Average intensity of student's PA in non-aerobic unit (N=17)	46
4-8	Proportion of learning and non-learning engagements during motor learning	47
	(A2) episodes in aerobic unit (N=8)	
4-9	Proportion of learning and non-learning engagements during motor learning	47
	(A2) episodes in non-aerobic unit (N=17)	
4-10	Average students' FCE scores in aerobic unit (N=8)	48
4-11	Average students' FCE scores in non-aerobic unit (N=17)	48
5-1	Proportion of lesson contexts in gymnastic unit for grade 2-1	60
5-2	Proportion of lesson contexts in gymnastic unit for grade 2-2	60
5-3	Proportion of lesson contexts in gymnastic unit for grade 2-3	60
5-4	Proportion of lesson contexts in gymnastic unit for grade 3-1	60
5-5	Proportion of maximum involvement rate (MIR) during A2 episodes in	61
	gymnastics unit for grade 2-1	

5-6	Proportion of maximum involvement rate (MIR) during A2 episodes in	61
	gymnastics unit for grade 2-2	
5-7	Proportion of maximum involvement rate (MIR) during A2 episodes in	61
	gymnastics unit for grade 2-3	
5-8	Proportion of maximum involvement rate (MIR) during A2 episodes in	61
	gymnastics unit for grade 3-1	
5-9	Average number of student's step in gymnastics unit for grade 2-1	62
5-10	Average number of student's step in gymnastics unit for grade 2-2	62
5-11	Average number of student's step in gymnastics unit for grade 2-3	62
5-12	Average number of student's step in gymnastics unit for grade 3-1	62
5-13	Average intensity of student's PA in gymnastics unit for grade 2-1	63
5-14	Average intensity of student's PA in gymnastics unit for grade 2-2	63
5-15	Average intensity of student's PA in gymnastics unit for grade 2-3	6 3
5-16	Average intensity of student's PA in gymnastics unit for grade 3-1	63
5-17	Proportion of students' MV-PAL engagement during A2 episode in	64
	gymnastics unit for grade 2-1	
5-18	Proportion of students' MV-PAL engagement during A2 episode in	64
	gymnastics unit for grade 2-2	
5-19	Proportion of students' MV-PAL engagement during A2 episode in	64
	gymnastics unit for grade 2-3	
5-20	Proportion of students' MV-PAL engagement during A2 episode in	64
	gymnastics unit for grade 3-1	
5-21	Average students' FCE scores in gymnastics unit for grade 2-1	65
5-22	Average students' FCE scores in gymnastics unit for grade 2-2	65
5-23	Average students' FCE scores in aumnastics unit for grade 2-3	65

5-24	Average students' FCE scores in gymnastics unit for grade 3-1	6.
5-25	Average 4 students' FCE scores in gymnastics unit for grade 2-1	66
5-26	Average 4 students' FCE scores in gymnastics unit for grade 2-2	66
5-27	Average 4 students' FCE scores in gymnastics unit for grade 2-3	66
5-28	Average 4 students' FCE scores in gymnastics unit for grade 3-1	66
5-29	Proportion of learning and non-learning behavior during A2 episode in	67
	gymnastic unit for grade 2-1	
5-30	Proportion of learning and non-learning behavior during A2 episode in	67
	gymnastic unit for grade 2-2	
5-31	Proportion of learning and non-learning behavior during A2 episode in	67
	gymnastic unit for grade 2-3	
5-32	Proportion of learning and non-learning behavior during A2 episode in	67
	gymnastic unit for grade 3-1	