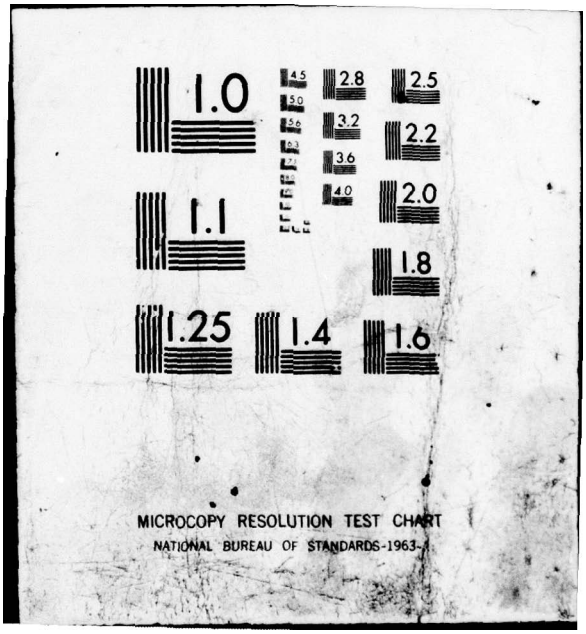
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September 1972

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(6) SOME CONCOMITANTS OF CADETS' USE OF THEIR TIME,

Time Use, Judgments Related to Time Availability and Workload, Relationships to Success

(14) 9B2.01-73-004

Report Prepared By: (10) Claude F. Bridges

(11) Sept[redacted] 1972

(12) 82

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ABSTRACT

In the Spring of 1971, all cadets were asked to report their use of time on weekdays in nine comprehensive categories, the adjustments in time allocated to each that they recommend as improving their overall development in consonance with the mission of USMA, how they would use an extra 60 minutes if it could be made available, their use of time on weekends, the adequacy of time available for them to meet all typical weekday demands (overall) and for academic study, their usual cumulative fatigue status, the year experienced as the hardest in terms of academic work load and of overall load, and the number of different kinds of extracurricular activities in which they participated actively. They also listed any extracurricular activities to which they then were devoting an average of at least five hours a week.

This report presents a summary of the responses to each question and the results of relatively intensive analyses of the interrelationships between the questions, and of relationship between each cadet's responses to relevant questions and his rank in the Corps of Cadets, Corps assignment, time spent studying, academic average for that term, academic potential (CEER), and leadership potential (ASR).

Among the more important questions raised by these data are the following: Why is there such low correlation between the amount of time a cadet spends studying and his academic average,* even when CEER measured academic potential is held constant? Why does the overall inverse correlation between times spent in official business and in study as a whole not differ significantly among the four classes in spite of the large differences in the official business demands on the four.

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*Discussed in Appendix V.

PREFACE

A problem of continuing concern to the officials of USMA is the optimal allocation and utilization of the time and energies of cadets for their progressive development in consonance with USMA's mission. Hence a perennial question concerns cadets use of time.

A committee consisting of Colonels Cutler, Pollin, Tallman, and Olvey, with Major Culp as Secretary, was appointed to study the overall load carried by cadets and to make recommendations to the Academic Board concerning any adjustments that appear to be warranted.

In order to obtain current data on how cadets allocate their time and to obtain a reliable sample of cadet opinions and judgments related to significant aspects of the workload allocation, the Overload Study Committee, chaired by COL Cutler, requested the Office of Institutional Research to conduct a time study under the provisions of USMA Regulations 70-1 and 330-1. Basic findings were included in the report to the Academic Board by the Cutler Committee. This report incorporates these basic findings with more extensive analyses of the Time Study and related data.

The significant role of the Cutler Overload Committee in the development of the questionnaire, in planning the analyses and in the presentation of the basic data incorporated herein must be recognized. In addition, especial appreciation is due to one member, COL L.D. Olvey, for his reading the entire manuscript of this report and for his numerous insightful suggestions.

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1. PURPOSE

The immediate purpose of this time study was fulfilled when the basic results were presented to the Academic Board by the Cutler Overload Committee on 28 July 1971. In addition, somewhat more exhaustive analyses, both of the data from the time study and of related data (the CEER and the ASR and Academic Averages at the end of the term in which the survey was completed) were undertaken in an effort to develop better understanding of the interrelationship between the factors related to a cadet's use of his time, to his workload in different areas, and to their effect on the success of cadets at USMA.

In order to make the basic findings more generally available and to document the procedures and findings of the work done to support the Cutler Overload Committee, these too have been incorporated into this report.

2. PREVIOUS RESEARCH

Detailed analyses of time requirements and utilization have been used by many agencies for many purposes, ranging from the time and motion studies in industry to research in educational institutions. However, the educational research literature contains very little in this area. In fact, the following statement by Henry J. Otto about time allotment research for Elementary Education appears to be still accurate and equally applicable to higher education: "Little effort has been made to translate the findings of such studies as have been made on the time required... ...to learn given knowledges, skills, or habits into time allotments for the various subjects. Experimental evidence as to how much time per day or per week is needed to teach a given subject in accordance with accepted standards is so inadequate that it may be ignored. The scientific determination of time allotments is fraught with many difficulties--disagreements as to objectives and content of courses, variations in methods of teaching, variations in the needs and abilities of pupils, and constantly changing theories of education. Generally speaking, existing time allotments have been established with little or no reference to the findings of researches in educational psychology, curriculum, and method. Most of the changes in time allotments which have been made during the last fifty years have come about as a result of opinion, expert and otherwise, and the new subjects crowding into the curriculum and demanding a portion of the same length of school day. In the absence of experimental data helpful suggestions may be obtained from surveys of practice."*

---

*In Encyclopedia of Educational Research, New York: McMillan Co., 1950, p. 379.

In 1969, C. Robert Pace reported on a practical use of time survey data.* Samples of students from four quite different colleges kept a detailed time log of academic related activities for seven consecutive days. Analyses of the time logs revealed a number of institutional differences. For example, there were marked differences between the institutions in the number of entries, indicating conversations between students and faculty members outside class. The data were used as a basis for a brief scale to identify major differences among the learning styles, i.e., academic efforts, that characterize each institution of higher learning.

The brief summary of the History and Selected Findings of Time Studies at USMA given in Appendix was adapted from a Historical Summary prepared by COL G.W. Medsger. The comparisons with time survey data from USAFA, USNA, and USMA in 1966-1967 given in Appendix VI, were prepared by COL Cutler.

3. PROCEDURE

The Office of Institutional Research cooperated with the Committee in developing the questionnaire and the form on which cadets could record their actual use of time for a 24-hour period (see Appendix I). The survey was conducted during the period 29 March through 3 April. The forms were distributed in selected academic classes to one-fifth of the Corps on each of five consecutive weekdays so that a 100 percent sample of time use for that week was obtained. The questionnaire was distributed in advance so that cadets could log their activities over the course of the 24-hour period, turning in their completed forms at regular class attendance on the following day. After allowing for cadets absent and in the hospital and for those instances in which the forms were not complete, the total number of usable responses for the Corps was 3,474 (although the number may vary slightly for responses on individual questions and special analyses). The responding sample was 92% of the Corps strength as of 31 March 1971. The usable samples for each class and their percent of the respective populations were as follows:

Class	Populations	Sample N	Sample %
1°	733	669	91.3
2°	842	785	93.2
3°	1096	991	90.4
4°	1113	1029	92.5
Corps	3784	3474	91.8

That the distribution of the usable samples among the five weekdays for none of the classes deviated significantly** from the sampling plan is indicated by equal percentages of the totals for each class that were returned each day, as shown below.

---

*C. Robert Pace, "An Evaluation of Higher Education: Plans and Perspectives." Evaluation in Higher Education, University of California, Los Angeles, 1969.

**Even for the class in which the obtained distribution by day deviated most from the expected distribution, Chi square = 4.04, df = 4, $p < .50$.

Sample	Mon. %	Tue. %	Wed. %	Thu.	Fri. %	Total %	N
1°	20.1	20.4	20.0	20.6	18.9	100.0	669
2°	19.2	24.1	19.6	18.2	18.9	100.0	785
3°	20.4	20.1	20.6	19.9	19.0	100.0	991
4°	21.1	22.0	19.5	17.9	19.5	100.0	1029
Corps	20.3	21.6	20.0	19.0	19.1	100.0	3474

The results obtained from the usable questionnaires for each class should not differ significantly from the results had questionnaires been obtained similarly from the entire class.

4. RESULTS

a. Summary of Responses to Questions.

(1) Cadet Use of Time. Part I of the survey asked cadets to record their activities for a 24-hour period in terms of nine time-use categories. The mean values obtained are presented by class in Table 1.

TABLE 1

MEAN USE OF TIME BY CADETS*

Activity	1°	2°	3°	4°	Corps Mean	Corps %
Class	263	242	284	278	267	18.7
Study	254	271	273	224	256	17.9
Organized Physical Activity	57	60	65	96	70	4.9
Extracurricular Activity	13	22	19	20	19	1.3
Official Business	84	72	65	123	86	6.0
Personal Business	121	117	116	100	114	8.0
Optional/Recreational	115	114	70	48	87	6.1
Meal Time	108	109	120	123	115	8.0
Sleep	408	425	423	402	415	29.0
Total	1423	1432	1435	1414	1429	100.0

In addition to considering the differences between the time a given class typically devotes to each of the nine categories of activities and the absolute magnitude of each, the difference between the four classes in the time devoted to a given activity is of concern and may help interpret the responses

*Data are mean values in minutes, averaged for the five weekdays surveyed. Definitions of time use categories are given in Appendix I. Corps values are unweighted averages of class means and % of total minutes.

to other questions. Figure 1 depicts the result of expressing each class mean as a standard z-score (i.e., for each category expressing the deviation of each class mean from the Corps mean in terms of the standard deviation of the means).* This holds constant the Corps mean for each category and expresses all of the class mean as standard scores that are roughly comparable for all activities. The heavy horizontal line on Figure 1 represents the Corps mean (mean of means). For each activity, the heavy vertical line at the top of the fifth column indicates the distance between the ends of two classes' mean activity time bars that is required for statistical significance.**

(2) Overall Adequacy of Time for All Activities. Part II of the survey included a series of questions which asked cadets to evaluate the extent, if any, of overload and to comment on which kinds of activities should be expanded or reduced. The cadet responses, in percentages, to a question as to the overall adequacy of time to fulfill required tasks to their satisfaction are given in Table 2 (Question "D").

TABLE 2

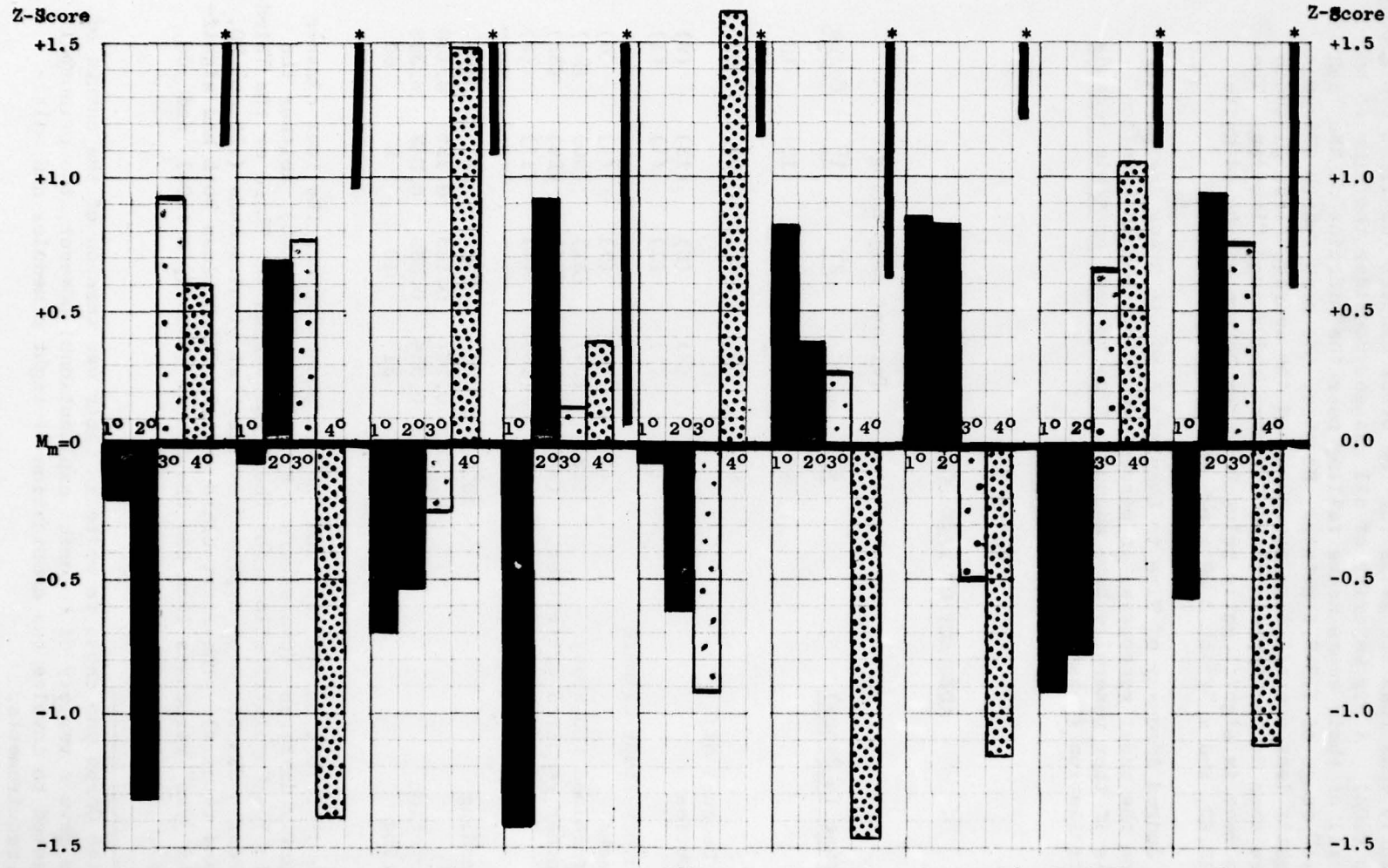
ADEQUACY OF TIME FOR OVERALL DEMANDS

	Percent Responding				
Adequacy Level (& Score)	4°	3°	2°	1°	Corps
Much less than adequate (1)	16	23	24	28	22
Less than adequate (2)	58	55	53	55	56
Usually adequate (3)	24	21	21	16	21
More than adequate (4)	1	1	2	1	1
Much more than adequate (5)	-	1	1	1	-
Number Responding	1019	969	776	664	3428
Mean Score	2.11	2.01	2.02	1.92	2.03
Standard Deviation	0.67	0.72	0.75	0.73	0.72
Number Omitting	10	22	9	5	46

It may be noted that in general the responses are relatively consistent across the upper classes; 78% of the Corps find the amount of time "less than adequate," with 22% of these judging the time "much less than adequate." However, the mean for the Fourth Class is significantly greater than the means for the other classes ($t = 3.33$, $df = 1985$, $p < .001$), and the mean for the First Class

*For each category, $Z_{class} = \frac{M_{class} - M_{class\ means}}{S_{class\ means}}$

**$p < .05$.



Category	Class Time	Study Time	Org. Phy. Activities	X-Curr. Activities	Official Business	Personal Business	Optional/ Recreation	Meal Time	Sleep
M_{m_c}	266.75	255.50	69.50	18.50	86.50	113.50	86.75	115.00	414.50
S_{m_c}	18.71	22.66	17.97	3.87	22.88	9.26	33.28	7.62	11.27

FIGURE 1. STANDARDIZED DEVIATION OF CLASS MEAN (M_{c_1}) FROM TYPICAL CORPS TIME IN EACH CATEGORY (M_{m_c}).

*Required distance for statistically significant difference between ends of class mean activity time bars ($\overline{p}$ = .05).

is significantly less than the means for the other classes (smallest t = 2.50, df = 1630, p <.02). A big majority of all classes consider the time to be inadequate, all of their score means falling near the midpoint of the "less than adequate" range of 1.5-2.5 points. However, the mean Fourth Classman reports slightly less overall time pressure and the average First Classman slightly more than do the typical Third Classman and Second Classman. The Fourth Class mean is significantly below 2.5, the bottom of the adequate range (t = 13.83, and a "t" of 3.29 = p< .001).

(3) Judged Adequacy of Time to Complete Academic Study Assignments. Table 3 gives the cadet responses, in percentages, to a second question asking cadets if they generally have adequate time to meet academic demands to their satisfaction (Question E).

TABLE 3

ADEQUACY OF TIME FOR ACADEMICS

	Percent Responding				
Response (& Score)	4°	3°	2°	1°	Corps
YES (1)	16	15	19	13	16
NO (0)	84	85	81	87	84
Primarily because of:					
Official Duties	(13)	(2)	(6)	(13)	(8)
Athletics	(1)	(1)	(1)	(1)	(1)
Unsatisfactory study climate in barracks	(7)	(6)	(7)	(4)	(6)
Academic workload too heavy	(18)	(34)	(31)	(30)	(28)
Too many other required activities	(38)	(33)	(30)	(28)	(33)
Other*	(6)	(10)	(7)	(11)	(8)
Number Responding	1012	960	772	661	3405
Mean	0.162	0.147	0.185	0.135	0.158
Standard Deviation	0.369	0.354	0.389	0.342	0.365
Number Omitting	17	31	13	8	69

Although the distribution of "Yes" and "No" responses across the four classes is significantly different (Chi square = 8.04, df = 3, p< .05), neither the means nor the Yes-No distributions for the First versus the Third or the Third versus the Fourth Classes even approach statistical significance (.50 > p>.20, Chi square and t-tests). The First Class and the Third Class both had significantly fewer "yes" responses than did the Second Class (p's <.001 and .04 respectively).

*The 8% of the Corps who chose to write in their own version of the nature of the problem gave a variety of colorful explanations; however, the principal problems seemed to involve the combination of tight schedules and multiplicity of requirements.

On the other hand, the distribution of reasons for "No" responses for all pairings of the four classes differ significantly. (The smallest chi square, for the Second Class versus the Third Class distribution of "No" reasons, was 26.248, 5 df, $p < .001$; the largest, of 144.075, was for the Third Class versus the Fourth Class.) Although the proportion of First and Third or the Fourth and Third Classes who report having adequate time to complete their academic assignments to their satisfaction do not approach differing significantly, some of the perceived primary sources of interference do differ markedly for all classes. The differences between the classes in the patterns of interference with academics is indicated roughly by Table 4.

TABLE 4

RANK OF PERCEIVED CONFLICTS WITH ACADEMICS IN EACH CLASS

Primary Cause	4°	3°	2°	1°	Corps
Other Required Activities	1	2	2	2	1
Academic Workload	2	1	1	1	2
Other	5	3	3	4	3
Official Duties	3	5	5	3	4
Study Climate	4	4	4	5	5
Athletics	6	6	6	6	6

(4) Reallocation of Time Recommended by Cadets to Improve Their Overall Development in Consonance With the Mission of USMA. The cadets were asked to indicate the average daily amount of time, in minutes, that they would add to or subtract from the time now available for each of eleven categories of activities (Question "A"). Since several cadets recommended subtracting more than 99 minutes from some categories and modification of the punched card layout was not practical the raw means reported for this question (in Appendix II) indicate a 22 minute shortage in the total to subtract for the Corps and 25, 10, 22 and 29 minutes respectively for the 1°, 2°, 3°, and 4°. Table 5 presents the corrected data for this question in terms of the increase or decrease recommended by a class expressed as a percentage of its total recommended increase, or decrease.

TABLE 5

PERCENT OF REALLOCATED TIME RECOMMENDED FOR ADDITION TO (+), OR SUBTRACTION FROM (-), TIME CURRENTLY AVAILABLE FOR EACH CATEGORY

Activity Category	4°		3°		2°		1°		Corps	
	+	-	+	-	+	-	+	-	+	-
CLASS		-47%		-62%		-65%		-62%		-59%
Academics		(-45)*		(-43)		(-43)		(-50)		(-45)
Tactics		(-2)		(-18)		(-22)		(-12)		(-14)
STUDY	34		27		31		19		29	
ORG. PHYS. ACTY.		-15		-8		-8		-4		-12
PE Class		(-2)	(0)	(0)	(0)	(0)	(31)		0	(0)
Intramurals		(-13)		(-12)		(-9)		(-11)		(-12)
Corps Squad	(0)	(0)	(4)		(1)		(3)		(3)	
EXTRACURR. ACTY.	5		7		1		4		6	
OFFICIAL BUS.		-38		-27		-26		-26		-29
PERSONAL BUS.	6		6		4		8		6	
OPTIONAL/REC.	17		20		19		21		19	
SLEEP	37		37		39		40		38	
Total Min. Shifted	76		82		75		89		80	
N		1029		991		785		669		3474

*The percentages in parentheses are breakouts of the totals for the area.

In order to reallocate the pattern of time use so as to better achieve the mission of USMA, the Corps of Cadets recommends reductions in the following activities: academic class time 58.62% (47 minutes, in terms of total recommended 80 minutes added), official business 29.31% (23 min.), tactics class time 13.79% (11 minutes), and intramurals 12.07% (10 minutes).

The recommended increases were in time devoted to sleep, 38% (30 min.); study 29% (23 min.), and optional/recreational activities 19% (15 min.). Minor increases were recommended for personal business 6% (5 min.), extracurricular activities 6% (5 min.), and Corps Squad 2.5% (2 min.). In general, the recommended reallocation was consistent across the four classes.

The major differences noted were between the First Class and the Fourth Class in their recommended reduction of class time, organized physical activities and official business and their recommended increase in study time.

(5) How Cadets Would Use Any Extra Time Provided Them. The cadets were asked to estimate how they would use an extra hour of time per weekday (e.g., by a reduction in class time), (Question "B"). Their mean allocations are given in Table 6, together with the percentages of the total.

TABLE 6

HOW EXTRA TIME WOULD BE USED,* MEAN MINUTES AND PERCENT OF TOTAL EXTRA TIME, BY CLASS

	4		3		2		1		Corps		
Category	M	%	M	%	M	%	M	%	M	SD	%
Study	22	37	18	30	18	30	15	25	19	17	32
Sleep	14*	23	15*	25	17	28	17	29	16	17	27
Opti/Rec	9	15	12*	20	11	18	13*	22	11	15	19
Pers. Business	7	11	6	10	6	10	6	10	6	10	10
Org. Phys. Actvy.	3*	5	4	7	4	7	3*	5	3	9	5
Extracurr. Actvy.	3	5	4	7	3	5	3	5	3	8	5
Official Business	2	3	1	2	2	3	2	3	1	5	2
Totals	60	100	60	100	61	100	59	100	59		100
Sample N	1006		976		771		651		3404		
No Response	23		15		14		18		70		
Total	1029		991		785		669		3474		

Pairs of means in the same row (category) that do not differ significantly ($p > .02$) are identified by identical symbols (or under-scoring).

The ranking of time allotted to each category of activities by the four classes agree perfectly. The Corps as a whole indicates that about 1/3 of any extra time provided them would be used for study, over 1/4 for sleep, 1/5 for Optional/Recreation, 1/10 for Personal Business, 1/20 each for Organized Physical Activity and Extracurricular Activities and only 1/50 for Official Business.

However, there are several highly significant differences between the classes in the mean time allotted to each category. In general, the Second Class and Third Class again were much alike, with the First Class and Fourth Class deviating from them, and for most categories in opposite directions.

(6) Cumulative Fatigue Status. In response to the question (F), as to their usual level of cummulative fatigue, 9% of all the cadets surveyed said that they are always very tired and frequently almost completely exhausted; 53% indicated that they had been very tired for extended periods of time. The remaining 38% reported being tired occasionally, but no cummulative fatigue for more than one day. This pattern was consistent across all four classes. The differences between neither the distribution of responses nor the means for any pairing of classes are statistically significant according to conservative standards; however, the obtained differences between the distribution of responses by the First Class and the Fourth Class would be expected to occur in only 8% of a series of pairs of random samples drawn from the same population (Chi square 7.92, 4 df, $p \cong .08$).

(7) The Hardest Year in Terms of Required Load. Cadets in the upper three classes indicated which year they had experienced as the hardest in terms of academic workload and again in terms of overall load (questions G and H). In order to complete the picture more clearly, the hardest year in terms of non-academic load was computed from the difference between the Overall Load and the Academic Load percents.* The results are shown in Table 7.

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*If O = overall, A = Academic, NA = Non-Academic, and P = Percent, then:

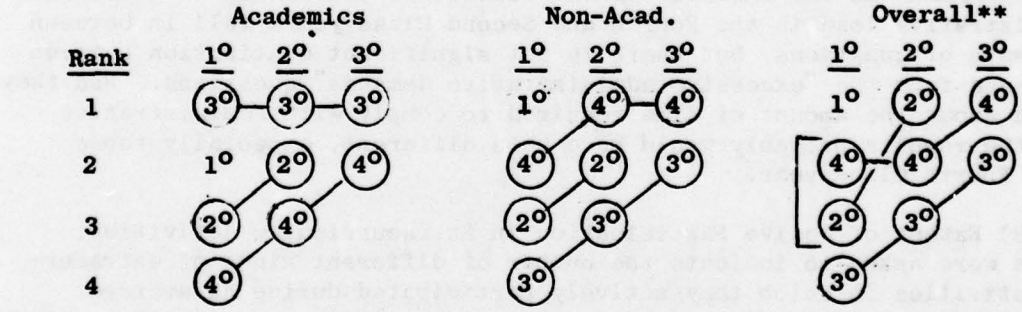
$P_{NA}'' = P_O - P_A$; $P_{NA}' = P_{NA}''$ + Maximum Negative $\hat{P}''$; $P_{NA} = (P_{NA}' / P_{NA}')$.

TABLE 7

THE PERCENT INDICATING EACH CLASS YEAR EXPERIENCED HAD THE HARDEST ACADEMIC LOAD, NON-ACADEMIC LOAD, AND OVERALL LOAD*

Year Rated	Academics Rtd. By 1°	2°	3°	Non-Acad. Rtd. By 1°	2°	3°	Overall Rtd. By 1°	2°	3°
1°	34	-	-	49	-	-	66	-	-
2°	22	34	-	17	44	-	11	48	-
3°	41	60	92	0	0	0	7	19	41
4°	3	5	8	34	56	100	15	33	59
Totals	100%	100%	100%	100%	100%	100%	100%	100%	100%
N	664	772	963	-	-	-	764	767	957

The absolute magnitude of percentages obtained from one class are not directly comparable with those obtained from other classes (class years not yet experienced, hence not rated, increases all the percentages obtained from the lower classes). There also may be some tendency for a cadet to rate the year currently being experienced as harder than he would when further removed from it. The result of ranking the percentages in each column of Table 7 is shown below.**



*All of differences between percentages are highly significant statistically (Z-test, $p < .001$), except for the following:

Ratings of Overall load in 4° vs 2° by the 1°, and Ratings of 4° Academics by 1° and 2°.

**Brackets identify the pairs in the same column which can NOT with confidence be considered different.

For each type of workload there is complete consistency between its rankings by the three classes except for the ranking of overall load by the First Class and the Second Class. The lack of high statistical significance indicates that replication among First Classmen might reverse its current ranking of the overall load in the Second, and Fourth Class years. The indicated general trends of the evaluations by the Corps as a whole are as follows:

The Third Class year consistently is found by cadets to have the hardest academic workload, but the lightest non-academic and overall load. The First Class year has the second highest academic and overall loads. The Second Class year has the third heaviest academic and non-academic loads and perhaps the second heaviest overall load. The Fourth Class year has the lightest academic load, the second highest non-academic load, and possibly the third highest overall load.

Independent substantiation of the method used to estimate the non-academic workload is provided by four questions included in the First Class Questionnaire, completed by a one-third sample of the Class of 1971 in May 1971 (Form C, questions 35-38, N = 221).* They were asked to indicate whether they "strongly agree," "agree," were "undecided," "disagree," or "strongly disagree" with statements that the administrative demands on their time in the successive classes were excessive. The percentages agreeing that the administrative demands in each of the class years were excessive were as follows:

1° year--76%, 4° year--38%, 2° year--38%, and 3° year--14%. There clearly is general agreement between the two sets of data. The First Classmen indicated in the time study that the heaviest non-academic demands on their time occurred in their First Class year and the lightest demands in their Third Class year. Likewise, in May the percentage agreeing with the statement that the administrative demands were excessive as a First Classman was the largest and as Third Classman was the smallest of the four class years. The non-academic and administrative load in the Fourth and Second Class years fall in between for both sets of questions, but there is not significant distinction between the two years from the "excessive administrative demands" questions. Had they been asked about the amount of time required to comply with administrative demands, the results probably would have been different, especially those about the Fourth Class year.

(8) Extent of Active Participation in Extracurricular Activities. The cadets were asked to indicate the number of different kinds of extracurricular activities in which they actively participated during an average week (question I). Since participation in a number of extracurricular activities indicates that time is available when desired, the data from this question may warrant careful analysis. The differences between the distributions of response frequencies for the four classes (shown in Appendix II), is highly significant.** The mean number of extracurricular activities, percent with none, percent with seven or more, and percent with ten or more are as follows:

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*Houston, J.W. "Results of First Class Questionnaire; Class of 1971." Rpt. No. 4E1.01-72-008, Office of Institutional Research, USMA, West Point; Aug 71.

**Chi square = 80.170, df = 18, $p < .0001$.

	1°	2°	3°	4°	Corps
% 10 or more	0.5	1.3	1.3	1.6	1.2
% 7 or more	0.5	1.7	1.9	1.8	1.6
% None	41.7	26.6	29.6	32.6	32.1
N	669	785	991	1029	3474
Mean	1.04	1.93	1.70	1.64	1.61
Std. Dev.	1.64	5.55	3.46	3.96	3.95

Testing the hypothesis that the differences between the classes were due to the difference between the proportions of the classes that participated in no extracurricular activities (versus one or more) indicated that probably about half of the significance was due to complete non-participation.*

The marked differences between the First Class and the others, and the fact that its mean differs significantly from the means for each of the other three classes** while none of the other pairs of means differ significantly both suggest the possibility that all the significant differences resulted from inclusion of the data for the First Class in the matrix. However, even when the differences between the distributions of participation vs non-participation for only the Second, Third and Fourth Classes were tested, they too were found to differ significantly at a relatively high level.***

A sharper picture of the trends is revealed by plotting the cumulative percentages by class on normal probability graph paper. Figure 2 shows that in general the percentages actively engaged in four or less extracurricular activities decreases steadily from the Fourth Class year through the Third Class year and then participation decreases sharply. The number participating in six or more drops off after the Third Class year. For comparison purposes, Figure 2 also shows similarly the percent of each group who engaged intensively (averaged five hours or more a week) in cumulative numbers of activities.

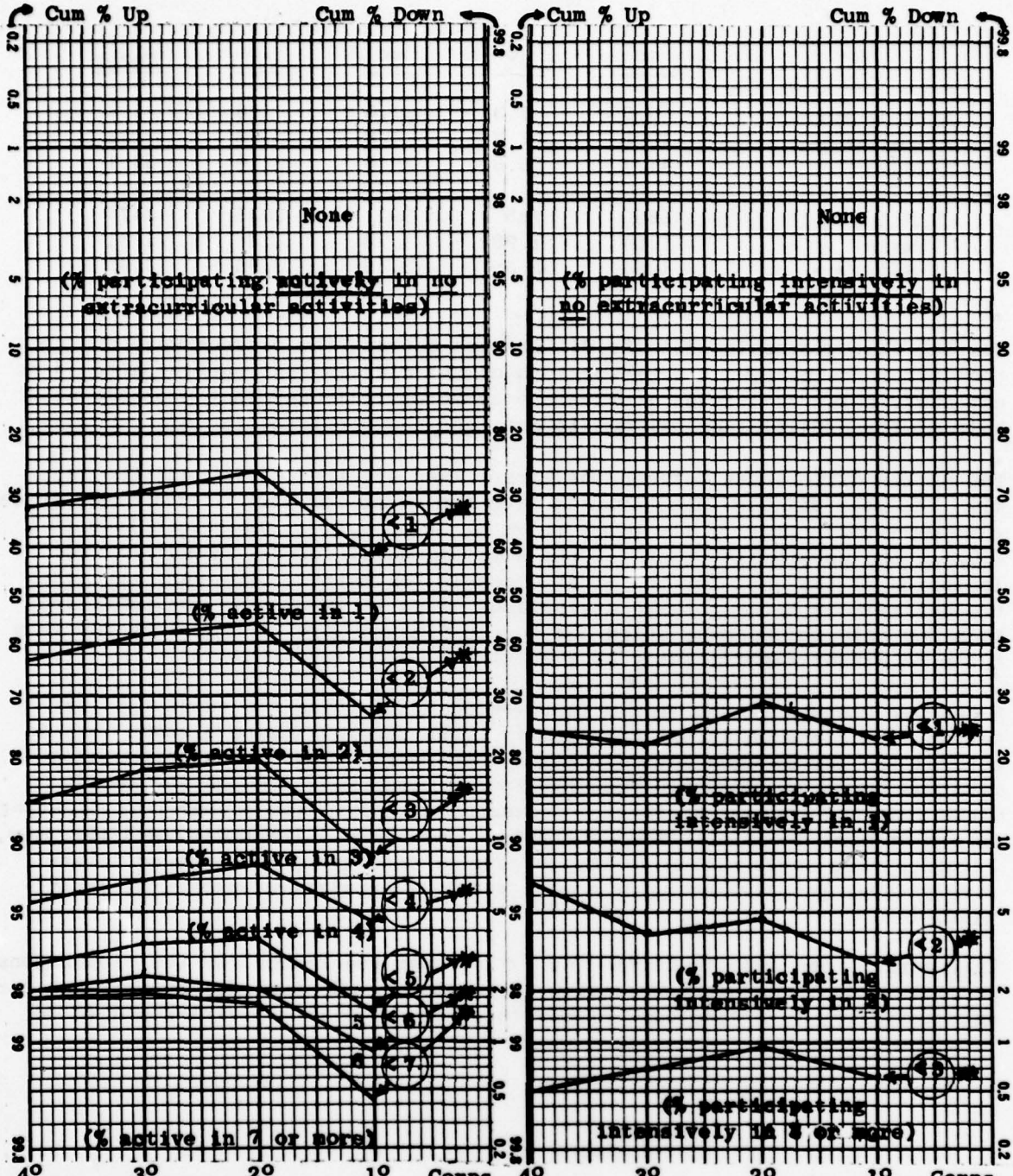
In Figure 1, the line identified as "< 1" shows the trends for the proportions participating in no extracurricular activities, "< 2" includes proportions for no + activity, " 3" includes proportions for no +1 +2 activities and so on.

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*Chi square = 42.110, 3 df, $p < .0001$, c = .11.

**t-test, $p < .000$.

***Chi square = 7.15, 2 df, $p < .03$.



	4°	3°	2°	1°	Corps
N	1029	991	285	669	3474
M	1.64	1.70	1.93	1.04	1.61
SD	3.96	3.46	5.55	1.64	3.95

"Actively"

	4°	3°	2°	1°	Corps
N	1029	991	785	669	3494
M	0.28	0.27	0.34	0.26	0.29
SD	0.54	0.55	0.60	0.52	0.56

"5 or More Hrs. Per Wk."

FIGURE 2. PERCENT OF CADETS PARTICIPATING IN CUMULATIVE NUMBERS OF EXTRACURRICULAR ACTIVITIES

(9) Intensive Participation in Extracurricular Activities. In addition to devoting considerable time to extracurricular activities by participating in a relatively large number, intensive participation would require much time. Hence the cadets were asked to list any extracurricular activities to which they currently were devoting an average of at least five hours a week. A few cadets reported participating thus in more than three activities. The frequency with which each number of such intensive-participation activities were reported for each class is shown in Table 8.

TABLE 8

PERCENT TYPICALLY PARTICIPATING INTENSIVELY
IN EXTRACURRICULAR ACTIVITIES

Number of Activities	1°	2°	3°	4°	Corps
None	77.0	71.1	78.0	76.0	75.6
1	20.3	24.2	18.0	20.3	20.5
2	2.1	3.8	3.3	3.2	3.2
3 or more	0.6	0.9	0.7	0.5	0.7
(One or more)	(23.0)	(28.9)	(22.0)	(24.0)	(20.5)
Cadets	669	785	991	1029	3474
Mean Act. per cadet	0.263	0.345	0.267	0.282	0.288
Std. Dev.	0.522	0.597	0.552	0.544	0.556

The differences between the "none" vs "one or more" distributions for the four classes are statistically significant.* That this is due solely to the Second Class is shown by testing the significance of the differences between the other three classes. The three do not differ significantly. In fact there is considerable confidence that the distributions for the other three classes are similar.**

The specific "high participation" activities reported by four or more cadets are listed for this question (J) in Appendix II, but the results of combining the frequencies of activities in the same official Corps group is of ancillary interest. The USMA codes and groupings, supplemented as shown in Appendix IV, were used except that church related activities (such as Sunday school teachers, and chapel choirs) were combined with the religious participation group

*Chi square = 12.57, 3 df, $p < .01$.

**Chi square = 1.15, 2 df, $p = .90$.

for the purpose of this report. These were not included in the Academic or Corps Support Groups. Table 9 shows the result.

TABLE 9

INTENSIVE PARTICIPATION OF CADETS IN GROUPS OF EXTRACURRICULAR ACTIVITIES

Group*	No. Cadets	% of Corps	Minimum** Man-hours/Wk.
Competitive Athletic	269	7.7	1345
Corps Support	237	6.8	1185
Military Skills	147	4.2	735
Academic Support	92	2.6	460
Academic	91	2.6	455
Religious Participation (& Chapel)	91	2.6	455
Recreation (primarily active sports)	75	2.2	375
Totals	1002	28.7	5010
Cadets Intensively Involved	846	24.4	

(10) Use of Time for Week. The cadets were asked to estimate the number of minutes spent, during the most recent weekend (48 hours), on each of eleven types of activities. (The obtained weekend means are given in Appendix II, question C.) On the average day on the weekend, the cadets use their time as shown in Table 10. Since class time and chapel time occur on only one day, their weekend means were NOT divided by two. To facilitate comparisons, the average weekday times are included in the table. In order to provide data reflecting more accurately the use of time by cadets while at USMA, cadets away as much as 70% of the 48 hour weekend were not included in the figures in the table. The mean total time reported for weekend leave/trips by the total groups were: 1°--1099, 2°--513, 3°--226, 4°--64, and total Corps--411 minutes. The higher the class the larger the understatement by the value given in the table for "Leave/Trips."

*For a list of activities included in each group see Appendix IV.

**Number cadets x 5.

TABLE 10

AVERAGE USE OF TIME (IN MINUTES) ON A TYPICAL DAY OF THE WEEK AND OF THE WEEKEND

Category	1°		2°		3°		4°		Corps	
	Wk. Day	Wk. End Day*	Wk. Day	Wk. End Day*	Wk. Day	Wk. End Day*	Wk. Day	Wk. End Day*	Wk. Day	Wk. End Day*
Class**	263	120	242	129	284	175	278	108	269	135
Study	254	161	271	156	278	172	224	130	254	152
Org. Phy. Act.	57	15	60	21	65	25	96	36	71	27
Extracurr.	13	20	22	22	19	19	20	27	19	28
Off. Bus.	84	61	72	53	65	52	123	59	87	56
Pers. Bus.	121	68	117	77	116	70	100	70	112	71
Opt./Rec.	115	192	114	263	70	264	48	267	97	255
Meal Time	108	72	119	74	120	78	123	86	116	79
Sleep	408	514	425	534	423	546	402	587	414	557
Leave/Trips***	-	174	-	45	-	18	-	13	-	42
Chapel	70	70		83		85		96		86

*Only for cadets at West Point at least 30% of the time.

**Class only on Saturday and Chapel only on the Sabbath day.

***Marked underestimates for the upper classes, since cadets away for as much as 70% of the 48 hours were excluded.

In order to obtain an estimate of the total number of minutes in a week used for each category of activities, its mean time on a weekday was multiplied by five and added to its weekend time. Table 11 shows the result.

TABLE 11

APPROXIMATE NUMBER OF HOURS PER WEEK TYPICALLY SPENT IN EACH CATEGORY OF ACTIVITIES AT USMA

Activity Category	1°		2°		3°		4°		Corps	
	Hrs.	%	Hrs.	%	Hrs.	%	Hrs.	%	Hrs.	%
Class	23.92	14.6	22.32	13.5	26.58	16.2	24.97	15.2	24.67	14.9
Study	26.56	16.2	27.78	16.8	28.43	17.4	23.00	14.0	26.23	15.8
Org.Phy.Act.	5.23	3.2	5.70	3.5	6.25	3.8	9.20	5.6	6.80	4.1
Extracurr.	1.73	1.1	2.57	1.6	2.22	1.4	2.57	1.6	2.33	1.4
Off. Bus.	9.03	5.5	7.77	4.7	5.42	3.3	12.22	7.4	9.12	5.5
Pers. Bus.	12.33	7.5	12.30	7.4	11.98	7.3	10.65	6.5	11.70	7.1
Opt./Rec.	15.97	9.7	18.27	11.1	14.63	8.9	12.88	7.8	16.58	10.0
Meal Time	11.38	6.9	12.37	7.5	12.60	7.7	13.12	8.0	12.30	7.4
Sleep	51.15	31.2	53.23	32.2	53.43	32.7	53.40	32.6	53.05	32.0
Leave/Trips*	5.72	3.5	1.48	0.9	0.48	0.3	0.43	0.3	1.40	0.8
Chapel	1.17	0.7	1.38	0.8	1.42	0.9	1.60	1.0	1.43	0.9
Totals	164.15	100	165.17	100	163.55	100	164.03	100	165.62	100
% 168 hrs. Acctd. for	97.71		98.31		97.35		97.64		98.58	

*Significant underestimates for the upper classes. If all cases were included, the respective Leave/Trip percentages of 168 hours would be 11, 5, 2, 0.6, and 4%; and they would slightly reduce the other percentages for each column.

One of the more important indications in Table 11 is the fact that over the week, the cadets average getting more than 7½ hours of sleep a night. On the weekend, most of them seem to make up for deficiencies in sleep incurred during the weekdays. The Fourth Class spends significantly less time than do the upper classmen in Optional/Recreation activities and more time in Official Business and Organized Physical Activities.

b. Interrelationships Among Some Relevant Groups of Time Study Questions.

(1) Relationship Between the Official Business Workload and Each Combination of Rank and Assignment. Table 12 shows the mean number of minutes a weekday reported as being spent on Official Business by First Classmen reporting themselves as having each cadet rank, by each reported chain of command assignment,* and by each rank/assignment pair. The mean Official Business time for the entire First Class was 84 minutes with a standard deviation of 92 minutes.

The total column for ranks and the total row for assignment show that their relationships with mean time on Official Business are both very substantial, but that both depart significantly from perfect linearity of regression. For example, the highest mean time is for the five-stripe and not the six-stripe cadet captains. However, the Official Business load seems to vary much more consistently with rank than with assignment. Of course the high time reported by First Classmen who hold the rank of Private and hold athletic or no assignments is hardly a result of their rank/assignment duties. These data could be analyzed much further, but the purposes of this report do not seem to warrant more thorough treatment.

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*See Appendix I for definitions.

TABLE 12

1° MEAN DAILY TIME IN MINUTES DEVOTED TO OFFICIAL BUSINESS BY RANK/ASSIGNMENT PAIRS

Numbers in parentheses indicate number of cadets reporting

	Assignment Code*										
Rank	0	1	2	3	4	5	6	7	8	9	Total
PVT	175 (6)	8 (2)	180 (5)		(1)					45 (2)	129 (16)
SGT	34 (10)	65 (22)	58 (31)	60 (26)	70 (27)	55 (30)			30 (1)		59 (147)
PLT SGT	248 (3)	41 (7)		1 (4)	95 (4)	10 (1)	20 (2)		37 (36)	33 (7)	47 (64)
1ST SGT		107 (21)						61 (4)			92 (25)
CMD SGT MAJ		89 (14)									89 (14)
LT		99 (3)	20 (1)	56 (8)	69 (14)	45 (34)	106 (15)	101 (17)	85 (29)	88 (90)	83 (239)
CAPT (4-Stripe)			180 (4)	104 (5)	120 (5)		199 (5)	185 (3)	137 (11)	179 (34)	164 (67)
CAPT (5-Stripe)	60 (1)		700 (1)	285 (1)	90 (1)	315 (1)		415 (1)	200 (4)	150 (10)	208 (20)
CAPT (6-Stripe)							0 (1)		290 (1)	204 (5)	187 (7)
TOTAL	104 (21)	86 (97)	87 (42)	64 (44)	76 (52)	53 (66)	114 (23)	117 (25)	78 (82)	114 (148)	84 (600)

*The Chain of Command assignment codes mean:

Code	Assignment
9	Commander/Leader
8	Deputy/XO
7	Adjutant
6	Operations
5	Training
4	Supply
3	Activities
2	Athletic
1	Administrative
0	Colors or None

(2) Intercorrelations Among Selected Time Study Questions. In general, the correlations between the questions followed the same patterns for the different classes, so the significant results for the Corps are presented in Table 13.

TABLE 13

STATISTICALLY SIGNIFICANT* INTERCORRELATIONS AMONG SELECTED TIME SURVEY QUESTIONS**

	Variable X Question**			
Variable Y Question	E	F	I	J
D. Overall Time Adequacy (M less than adeq. = 1, M more than adeq. = 5)	.35 (.47)	.37 (.37)	n.s. (.08)	.06 (.06)
E. Adequacy for Academics (yes = 1, no = 0)	-	.19(-.25)	n.s. (.09)	n.s.
F. Cumulative Fatigue (seldom tired = 1, exhausted = 5)	-	-	n.s.	n.s.
I. No. Extracurricular Activities	-	-	-	.13 (.17)
J. No. 5 hr.+ Extracur. Activities	-	-	-	-

*F-test, $p < .01$.

**The values within parentheses reflect the curvilinear regression of the "Y" variable on the "X" variable (correlation ratio eta). All are significantly non-linear except D/F and D/J. "n.s." means "not statistically significant."

Cadets in the Corps who find the time available for overall demands to be adequate also tend significantly to consider the time available for academic study to be adequate, and vice versa. Dividing both of these distributions into dichotomies ("Adequate" & "Less than Adequate") sharpens the picture. The result is given below.

	Academics				Overall Total	
	Not Adequate		Adequate			
Overall	f	%	f	%	f	%
Adequate	384	11.3%	375	11.0%	759	22.4%
Not Adequate	2471	72.9	161	4.7	2632	77.6
Academic Totals	2855	84.2	536	15.8	3391	100.0

There is almost no chance the two distributions are two random samples from ratings of the same thing.* The phi, an estimate of the Pearson product moment correlation coefficient, is .49, and the contingency coefficient is .44. Phi/maximum phi is .70.

These data indicate that between 24% and 49%** of the elements contributing to the cadet's judgment as to the adequacy of time for overall requirements and for academic study are in common; thus about two-thirds of the differences between cadets in their perceptions of the adequacy of overall is related to requirements other than those for academic study.

The cadets' reported cumulative fatigue status (question F) has about the same association with perceived overall time adequacy, and a significant but lower association with academic study adequacy; cadets who perceive time as inadequate tend to report having a higher level of cumulative fatigue.

There seems to be a very slight tendency for cadets who feel that there is adequate time overall to be engaged actively in more extracurricular activities but to be engaged intensively in fewer.

Cadets who are actively engaged in a larger number of extracurricular activities also have a slight tendency to be intensively engaged in more such activities.

c. Relationships Between Responses to Time Study Questions and Class Quintiles on Selected Variables (Weekday Study Time Quintiles, Academic Average Quintiles for Term, Academic Potential (CEER) Quintiles, Officer Potential (ASR) Quintiles). Each table in this section (Tables 14-17) shows the mean response made to appropriate time survey questions by cadets in each

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*Chi square = 829.586, df = 1, z = 28.80, p <.001.

** $.49^2 = .24$ and $.70^2 = .49$.

quintile of their class on the specified independent variable (X). The first quintile includes the 20% of the class with highest scores, and so on to the fifth quintile which includes the lowest fifth of the class on the independent variable, i.e., the larger the quintile the lower the actual score on the independent variable.

Since the number omitting or giving an impossible response varied slightly for each question, the actual number for each question will be slightly less than the N given for each class. In no case was the number of omissions more than 1% of the sample, and characteristically it was much less. Those questions which analysis of variance (ANOVA) yielded a statistically significant F ($p < .05$) are identified by an asterisk (*) in the column for the fifth quintile. When quintiles for two or three classes had means for a question that significantly differed at the level of significance used, the other classes usually approached that level of significance. Underscoring calls attention to consistent significant trends on questions for which the correlations were found to be statistically significant.* Trends indicated by two horizontal lines separated by a dot call attention to significant non-linear trends.

Appendix V shows for the Time Survey questions, the mean and standard deviation of the responses for the total class sample used, the linear product-moment correlation coefficient (r), the non-linear regression ($eta_{y/x}$) of the responses (Y) on the quintile (X), and identifies the statistically significant linear and non-linear trends.

The interpretation of the data in these tables is relatively straightforward, and the main points of interest are identified by the asterisks and underscoring. A few main points in Table 14 are summarized because of its importance and as an illustration of the interpretation of these tables. Further verbal emphasis does not seem to be warranted here, as Appendix V summarizes the more clear-cut trends.

The Time Use data in Table 14 shows that the Study Time quintiles for the four classes differ significantly in their use of time for most of the other time use categories. Although the mean study time of the entire First Class is surpassed by the means for the Second and Third Classes, the mean for the top quintile in the First Class is greater than the mean study time for the top quintile in all the other classes. On the other hand, the means for the bottom two quintiles in the First Class are lower than the corresponding means for each of the other classes.

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*F-test, $p < .05$, as shown in Appendix II.

TABLE 14

MEAN TIME STUDY RESPONSES (Y) BY CADETS IN EACH CLASS STUDY TIME QUINTILE (X)

Class Weekday Study Time Quintile (X)

Time Study Question (Y)	1° (N ≃ 669)					2° (N ≃ 785)					3° (N ≃ 991)					4° (N ≃ 1029)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Pt. I Time Use																				
Class	241	265	278	286	242*	226	236	246	255	245*	271	280	286	287	301*	264	276	288	292	267*
Study	493	325	242	164	53*	462	344	266	195	86*	438	333	273	211	108*	364	372	226	178	77*
Org. Phy. Acty.	43	61	70	59	49*	49	60	64	66	61	55	58	78	77	53*	90	113	104	100	69*
Extracur. Acty.	11	18	11	11	18	13	17	21	25	34*	15	16	18	22	25*	15	13	17	16	41*
Off. Bus.	64	88	79	92	106*	57	61	76	73	91*	39	54	54	80	105*	110	111	123	130	154*
Pers. Bus.	104	115	114	126	149*	92	112	130	120	137*	108	106	120	118	130*	87	100	95	111	129*
Optional/Rec.	55	72	98	146	204*	53	80	93	143	202*	46	58	53	68	126*	30	37	44	61	81*
Meal Time	113	107	112	109	104	109	112	110	108	113	122	121	117	121	126	128	127	123	129	125
Sleep	345	384	431	441	425*	374	413	436	450	452*	368	405	425	445	455*	365	398	415	423	386*
Pt. II A. Rec. Chg.																				
Acad. Class	-34	-38	-33	-38	-33	-29	-30	-31	-30	-23	-29	-28	-29	-31	-25	-23	-22	-23	-23	-22
Tactics Class	-14	-12	-15	-11	-9	-15	-16	-11	-14	-13	-13	-17	-20	-15	-11*	-8	-7	-10	-13	-3
Study	3	7	20	19	27*	17	17	20	23	18	15	19	22	26	15*	25	22	24	25	21
P.E. Class	-1	-4	-1	2	0*	-1	-2	-1	-0	2	-1	-2	-4	-4	-2	-6	-3	-5	-4	-1*
Intramurals	-8	-8	-8	-7	-8*	-10	-9	-3	-4	-4*	-8	-7	-10	-6	-7	-8	-7	-4	-4	-6
Corps Squad	1	0	2	3	4	0	1	0	1	-0	-1	0	4	3	1*	-1	-1	-1	1	1
Extracur. Acty.	4	4	5	4	0	6	6	6	2	7	5	5	9	3	6*	4	3	3	5	5
Off. Bus.	-17	-20	-18	-17	-17*	16	16	18	20	14	16	14	16	18	15	-19	-21	-22	-20	-20
Pers. Bus.	11	10	4	6	2*	5	4	3	3	1	5	3	4	5	5	5	6	6	1	5
Optional/Rec.	21	26	17	16	17*	14	13	12	16	12	15	16	14	15	17	10	12	10	13	13
Sleep	38	36	35	31	29*	30	31	26	24	20*	34	27	33	27	25	29	28	26	24	24
B. Extra Hr. Use																				
Study	17	16	16	14	14	20	21	19	15	15*	20	21	19	18	14*	26	24	22	22	19*
Org. Phy. Acty.	4	3	1	4	3	4	3	2	4	4	3	4	4	3	3	3	2	3	2	3
Extracur. Acty.	3	3	3	3	2*	3	2	2	3	4	4	3	5	3	4	2	3	3	3	3
Off. Bus.	2	2	2	2	3	2	1	1	1	2	1	1	1	1	1	2	2	2	2	2
Pers. Bus.	6	7	7	6	7	7	6	5	5	5	5	5	6	6	6	6	7	7	6	7
Optional Rec.	13	12	15	14	12	9	11	11	12	14*	11	11	11	13	15*	7	9	9	10	10*
Sleep	17	17	17	17	17*	15	15	19	19	17	16	15	15	15	16*	14	13	14	14	16
D. Time Overall	1.7	1.8	1.9	2.1	2.1*	1.8	1.9	1.9	2.1	2.4*	1.8	1.9	2.0	2.0	2.3*	2.0	2.0	2.1	2.2	2.2*
F. Cum. Fatigue	2.8	2.8	2.6	2.7	2.6*	2.9	2.8	2.7	2.6	2.5*	2.8	2.8	2.7	2.7	2.5*	2.7	2.7	2.6	2.7	2.7
I. # X-cur.	1.0	0.9	1.0	1.0	1.1	1.7	1.6	1.5	1.6	1.4	1.5	1.4	1.4	1.4	1.7	1.2	1.4	1.4	1.3	1.2
J. # Int. X-cur.	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.2	0.3	0.2

*Statistically significant, ANOVA, $p < .05$.

TABLE 15

MEAN STUDY TIME RESPONSES (Y) BY CADETS IN EACH CLASS ACADEMIC AVERAGE FOR TERM QUINTILE (X)

Class Weekday Academic Average for Term Quintile (X)

Time Study Question (Y)	1° (N ≃ 669)					2° (N ≃ 785)					3° (N ≃ 991)					4° (N ≃ 1029)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Pt. I Time Use																				
Class	264	258	266	258	264	257	239	241	240	236	280	282	288	293	282	269	279	268	287	283*
Study	270	268	247	260	228	285	270	279	245	270	289	285	266	268	258	226	223	222	217	230
Org. Phy. Acty.	48	61	53	55	64	50	50	64	60	80*	59	59	66	66	71	95	89	99	91	105
Extracur. Acty.	7	12	23	16	7*	19	28	25	17	20	21	20	17	18	20	23	24	17	24	16
Off. Bus.	100	97	76	88	72	74	71	68	70	76	67	61	61	69	75	134	132	120	133	109*
Pers. Bus.	103	144	116	120	127*	113	116	107	124	131	103	118	122	121	120	112	103	104	107	92
Optional/Rec.	120	80	124	121	136*	109	128	118	126	88*	74	73	74	63	66	52	50	50	52	51*
Meal Time	109	107	108	104	117	110	110	108	108	114	120	128	117	117	122	129	129	122	127	124
Sleep	396	412	412	403	405	423	412	428	441	423	422	420	421	421	420*	394	404	398	396	397
Pt. II A. Rec. Chg.																				
Acad. Class	-32	-38	-37	-30	-42	-23	-25	-30	-34	-32*	-21	-28	-28	-30	-34*	-24	-20	-24	-20	-24
Tactics Class	-13	-16	-7	-15	-9	-17	-18	-14	-11	-11	-13	-16	-14	-16	-17	-7	-8	-10	-9	-12
Study	11	22	19	13	12	15	16	25	18	23	18	16	20	22	21	24	25	21	22	25
P.E. Class	-0	-1	-1	-3	-0	-1	-1	0	-1	1*	0	-2	-2	-4	-4	-4	-4	-3	-4	-5
Intramurals	-10	-10	-7	-6	-5	-5	-7	-6	-4	-10	-9	-8	-4	-10	-8	-5	-7	-6	-5	-7
Corps Squad	1	1	1	4	3	0	1	-0	2	-1	1	0	1	1	4	-0	1	-1	0	1
Extracur. Acty.	5	3	5	2	2	4	5	3	6	8	3	5	8	6	5	4	4	5	1	5
Off. Bus.	-24	-20	-15	-21	-9*	-15	-17	-15	-15	-19	-17	-16	-16	-17	-13	-22	-22	-20	-20	-18
Pers. Bus.	8	7	7	6	5	2	1	3	6	4	3	3	4	5	8	4	3	3	4	8
Optional/Rec.	26	20	13	18	21*	16	13	14	12	14	16	18	15	14	13	13	11	11	10	12
Sleep	33	36	30	35	36	25	27	22	29	28	24	28	27	36	31*	25	26	24	28	28
B. Extra Hr. Use																				
Study	18	16	13	16	14	17	16	18	19	19	20	20	18	17	18	23	23	22	22	21
Org. Phy. Acty.	3	3	4	4	3	3	4	4	4	3	3	3	4	4	4	2	3	3	3	2
Extracur. Acty.	3	1	4	2	2	3	3	3	2	3	3	4	4	4	4	3	3	3	3	2
Off. Bus.	2	2	2	3	3	1	1	2	1	2	1	1	1	1	-	1	2	1	2	2
Pers. Bus.	5	7	6	7	6	5	5	5	6	7	4	5	6	8	6	6	7	6	6	7
Optional Rec.	14	14	12	12	14	15	10	12	11	9*	13	12	12	12	11	9	9	9	9	9
Sleep	15	16	19	15	18	16	20	16	16	16	16	15	15	15	15	14	13	14	14	16
D. Time Overall	1.9	1.9	1.9	1.9	2.0	2.2	2.1	2.0	2.1	1.8*	2.0	2.0	2.0	2.0	1.9*	2.1	2.2	2.2	2.1	2.1
F. Cum. Fatigue	2.7	2.7	2.6	2.8	2.8	2.6	2.7	2.7	2.7	2.9*	2.6	2.7	2.6	2.8	2.8*	2.7	2.6	2.7	2.6	2.8
I. # X-cur.	0.9	0.9	1.2	1.0	1.0	1.4	2.0	1.6	1.5	1.4*	1.6	1.4	1.6	1.4	1.3	1.6	1.4	1.2	1.2	1.2
J. # Int. X-cur.	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.5	0.3	0.3*	0.2	0.3	0.3	0.3	0.2	0.4	0.3	0.3	0.3	0.2

*Statistically significant, ANOVA, $p < .05$.

TABLE 16

MEAN STUDY TIME RESPONSES (Y) BY CADETS IN EACH CLASS ACADEMIC POTENTIAL (CEER) QUINTILE (X)

Class Weekday Academic Potential (CEER) Quintile (X)

Time Study Question (Y)	1° (N ≃ 669)					2° (N ≃ 785)					3° (N ≃ 991)					4° (N ≃ 1029)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Pt. I Time Use																				
Class	267	261	254	270	257	249	249	239	236	243	280	290	285	287	283	268	275	280	278	283
Study	246	278	257	256	228	267	277	278	253	270	263	283	271	293	277	214	228	215	235	226
Org. Phy. Acty.	49	59	57	52	64	46	50	59	65	78*	66	55	59	65	74	91	97	77	104	109*
Extracur. Acty.	18	12	13	9	14	28	25	22	19	17	22	16	16	20	21	23	16	27	21	18
Off. Bus.	104	82	78	85	84	80	76	70	71	60	60	64	77	62	72	140	131	128	117	112*
Pers. Bus.	124	121	118	123	124*	116	118	108	118	127	116	111	124	116	116	110	100	105	108	95*
Optional/Rec.	108	104	110	129	133	117	112	124	126	98	93	71	61	65	60*	53	58	55	40	50
Meal Time	103	109	110	122	102*	107	109	108	112	113	118	120	123	117	125	122	130	122	126	130
Sleep	405	398	412	406	410	424	416	427	434	427	420	421	425	420	418*	401	398	399	391	400*
Pt. II A. Rec. Chg.																				
Acad. Class	-36	-35	-27	-40	-40*	-23	-29	-29	-26	-36*	-24	-25	-26	-33	-33*	-23	-24	-22	-30	-24
Tactics Class	-10	-14	-12	-9	-15	-17	-16	-14	-10	-15	-15	-12	-13	-18	-17	-8	-6	-9	-13	-9
Study	13	11	9	16	28*	14	19	24	20	20	22	14	21	18	23	24	21	25	22	24*
P.E. Class	-2	-1	-	1	2	0	-1	1	-1	-2	0	-3	-1	-4	-4	3	3	4	4	5
Intramurals	-10	-8	-6	-6	-10	-6	-5	-4	-7	-9	-7	-6	-8	-8	-10	-8	-4	-7	-5	-6
Corps Squad	1	2	1	4	3	1	0	-1	1	-1	2	0	-1	2	3	0	0	-2	0	1
Extracur. Acty.	6	3	2	2	4	4	7	6	4	6	3	6	6	9	4*	3	6	4	2	5
Off. Bus.	-19	-16	-18	-18	-17*	-17	-16	-17	-16	-14	-15	-18	-16	-15	-15	-22	-24	-19	-18	-20
Pers. Bus.	8	5	7	6	9	1	2	2	4	6*	3	4	2	4	10*	2	3	7	3	7*
Optional/Rec.	20	23	21	15	18	14	15	10	15	15	12	19	14	17	14	14	10	10	10	14
Sleep	35	37	35	33	28	27	27	23	24	30	24	29	27	32	34	24	24	27	29	26
B. Extra Hr. Use																				
Study	17	16	16	15	14	15	18	19	18	21	20	17	18	19	18	24	23	21	22	22
Org. Phy. Acty.	2	2	3	5	4*	4	4	4	4	3	3	4	3	4	4	2	3	3	3	2
Extracur. Acty.	3	3	2	3	2	3	2	3	2	3	3	3	3	4	5	3	3	4	2	2
Off. Bus.	2	2	2	2	3	2	1	1	1	2	0	1	1	1	0	1	2	2	2	2
Pers. Bus.	7	7	7	6	6	4	5	5	6	6	4	5	7	5	8*	6	6	7	8	7
Optional Rec.	12	14	14	13	14	14	12	11	10	10	13	13	13	13	9	10	9	8	8	10
Sleep	17	16	17	17	16	17	17	16	18	15	16	16	15	14	16	14	14	14	16	14
D. Time Overall	1.9	1.8	2.0	2.0	1.9*	2.1	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.1
F. Cum. Fatigue	2.8	2.8	2.6	2.6	2.8	2.7	2.8	2.7	2.6	2.8	2.7	2.6	2.7	2.8	2.7	2.7	2.7	2.7	2.6	2.7
I. # X-cur.	0.9	1.0	1.2	0.9	1.0	1.7	1.8	1.6	1.2	1.7	1.5	1.7	1.3	1.3	1.5	1.6	1.3	1.2	1.2	1.2*
J. # Int. X-cur.	0.3	0.3	0.3	0.2	0.2	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.4	0.3	0.2	0.3	0.3	0.3	0.3	0.2

*Statistically significant, ANOVA, $p < .05$.

TABLE 17

MEAN TIME STUDY RESPONSES (Y) BY CADETS IN EACH CLASS OFFICER POTENTIAL (ASR) QUINTILE (X)

Class Weekday Officer Potential (ASR Quintile (X)

Time Study Question (Y)	1° (N ≈ 669)					2° (N ≈ 785)					3° (N ≈ 991)					4° (N ≈ 1029)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Pt. I Time Use																				
Class	262	252	272	266	259	251	244	232	238	248	282	291	282	282	288	279	270	287	272	275
Study	270	267	245	257	227	285	270	280	244	265	289	286	266	268	258*	226	223	221	217	231
Org. Phy. Acty.	54	52	56	62	57	50	67	59	60	63	72	64	63	59	60	98	102	96	94	87
Extracur. Acty.	16	8	9	20	13	20	19	16	17	39*	20	20	18	15	23	24	14	24	19	23
Off. Bus.	142	97	75	60	61*	96	73	70	62	58*	64	65	61	71	73	140	113	125	114	136*
Pers. Bus.	124	105	120	128	133	122	113	107	128	117	115	116	114	120	120*	106	100	101	107	104*
Optional/Rec.	84	127	123	120	129*	113	121	118	111	112*	65	70	65	73	78	39	43	53	58	62*
Meal Time	111	111	108	108	109*	109	114	112	108	108	118	125	119	126	115	122	123	131	136	118*
Sleep	375	418	403	416	418*	400	417	436	435	440*	412	410	430	431	422	400	393	390	407	398
Pt. II A. Rec. Chg.																				
Acad. Class	-35	-33	-38	-35	-35	-35	-29	-31	-29	-21*	-28	-31	-29	-25	-28	-23	-26	-20	-20	-22
Tactics Class	-6	-12	-13	-14	-15*	-9	-16	-11	-18	-16*	-15	-17	-13	-16	-15	-9	-13	-8	-7	-9
Study	18	14	14	17	15*	14	23	20	18	21	20	22	20	18	17	28	20	25	19	25
P.E. Class	-1	0	1	-4	0*	-2	0	0	-1	0	-1	-1	-4	-3	-3	-4	-4	-3	-5	-4*
Intramurals	-6	-8	-6	-8	-11	-6	-6	-5	-7	-8	-6	-8	-6	-9	-10	-6	-6	-4	-7	-7
Corps Squad	0	4	3	1	3	-1	0	0	2	1	2	1	1	1	1*	1	-1	0	0	1
Extracur. Acty.	2	5	0	6	4	5	5	5	4	8	7	2	6	6	6	5	1	3	4	6
Off. Bus.	-22	-24	-14	-15	-14*	-15	-15	-17	-16	-18	-16	-17	-15	-19	-13	-20	-21	-21	-17	-23
Pers. Bus.	7	6	8	8	5	6	4	3	3	0	6	4	5	5	4	4	8	3	4	3
Optional/Rec.	18	20	21	19	19*	15	8	15	20	10*	12	15	16	18	15	9	13	10	13	12
Sleep	33	34	32	32	38	24	25	24	30	26	25	31	27	31	30	22	29	28	24	27
B. Extra Hr. Use																				
Study	14	16	14	17	16	17	19	18	18	19	18	17	20	17	20	24	22	23	20	23*
Org. Phy. Acty.	3	2	4	3	3	4	4	4	3	3	4	3	4	4	2	2	3	3	4	2*
Extracur. Acty.	3	2	3	3	2	3	3	3	2	3	4	4	3	4	5	3	3	2	2	3
Off. Bus.	4	2	2	2	2*	2	1	1	1	1	1	1	1	1	1	2	1	2	2	2*
Pers. Bus.	7	7	5	7	6	6	7	5	6	5	5	5	6	6	6	7	6	7	7	6
Optional Rec.	11	16	15	11	14*	13	11	11	10	12	11	13	12	13	11	8	9	8	10	10
Sleep	18	15	18	16	17	16	15	17	19	16	16	16	15	16	14	14	14	15	15	13*
D. Time Overall	1.9	1.9	2.0	1.9	1.8	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.0	1.9	2.0	2.1	2.1	2.2	2.2	2.1
F. Cum. Fatigue	2.6	2.7	2.7	2.8	2.8	2.6	2.7	2.7	2.7	2.9*	2.7	2.6	2.7	2.7	2.7	2.6	2.7	2.7	2.7	2.8
I. # X-cur.	0.9	1.0	1.1	0.9	1.1	2.1	1.3	1.4	1.5	1.6*	1.7	1.5	1.3	1.3	1.5	1.5	1.5	1.1	1.2	1.2*
J. # Int. X-cur.	0.3	0.3	0.2	0.2	0.3	0.4	0.3	0.3	0.3	0.4	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3

*Statistically significant, ANOVA, $p < .05$.

5. GENERAL DISCUSSION AND CONCLUSION

There does not seem to be any practical way to obtain, without cadets knowing about it, very precise data on how cadets use their time. Knowing that their time use is being recorded introduces at least unconscious complicating influences, which without doubt often bias their responses in one direction or the other, depending on such factors as their values and currently felt needs, the instructions received, who is perceived as conducting the survey, what they consider to be the effective response for their own purposes or the one desired by those conducting the survey, and even where the forms are distributed. Related research on testing as well as logical analysis indicates that regardless of how well the instructions, forms, and procedures were designed, some biasing both for and against activities related to the distributing agency undoubtedly has been evidenced in previous time surveys. For example, surveys made by an academic department probably yield slightly excessive study time for that department, only partly because cadets are likely to study more for a course when they know they are to report their study time for it to their instructors. Fortunately, in a log kept by cadets themselves this biasing normally does not seem to be very great, and some crude allowance for known biasing may be made when interpreting the results.

Considering the administrative uses made of the results, no significant distortion or misinterpretations are likely from well designed forms and procedures. Of course random errors will tend to cancel themselves out in reasonable large samples. The above observations are supported by a general agreement between the results obtained by the several previous time surveys conducted at USMA over the years. As a whole, the changes found are minor and tend to be in consonance with known changes in the program for USMA cadets.* For this reason, frequent time surveys are not likely to yield additional useful information or to warrant the time and effort required from all involved until major changes are known to have occurred in the cadets' program. This does not mean, however, that well designed research seeking explanations of observed relationships (such as those discussed in Appendix V), or of cadets' judgments, experiences, and attitudes pertinent to workload and scheduling could not be fruitful.

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*See Appendix VI.

APPENDIX I

THE TIME SURVEY QUESTIONNAIRE

Members of the Corps of Cadets:

The attached Cadet Time survey will provide essential input to a current study of the intensity of cadet workloads and schedules. This is an important study; its effectiveness will depend critically on the quality of the information you provide.

Please read the instructions very carefully and answer each question thoughtfully and as accurately as you can.

for Edwin H. Marks, Jr. Colo.
WILLIAM A. KNOWLTON
Major General, USA
Superintendent

INSTRUCTIONS

1. This survey consists of two parts. Part I consists of the identification blank and a table for the detailed recording of the allocation of your time during a particular weekday. The day for which you are to complete the table will be assigned by your instructor in order to insure that data from the entire Corps is spread over all days of the week. To improve the accuracy of your estimates you are requested to fill out the table as the 24 hour period progresses rather than wait until the end of the period.

The 24-hour period assigned to you for the completion of part I is:

From 0550_____ to 0550 _____

DISREGARD THE SMALL NUMBERS PRINTED WITHIN PARENTHESES.

2. Part II consists of a number of questions calling for your judgment or recall. This part should be completed as soon as possible after the completion of the time survey table in Part I; in fact all questions except IIA and B can be completed earlier, prior to completion of Part I.

3. The completed questionnaire is to be turned in to your instructor at the first class period following the day on which Part I is completed. This turn-in date is _____.

CODES

Use these code numbers to indicate your rank, chain of command and corps squad activity as requested at the top of page 3.

Cadet Chain of Command Assignment	Code No.
Commander/Leader	9
Deputy/XO	8
Adjutant	7
Operations	6
Training	5
Supply	4
Activities	3
Athletic	2
Administrative	1
Colors	0
None	Leave blank

Cadet Rank	Code No.
CPT (6-Stripe)	9
CPT (5-Stripe)	8
CPT (4-Stripe)	7
LT	6
CMD SGT MAJ	5
1ST SGT	4
PLT SGT	3
SGT	2
CPL	1
PVT	0

Current Corps Squad Activity	Code No.
None	00
Football	19
150-lb Football	18
Cross-Country	17
Soccer	16
Basketball	15
Fencing	14
Gymnastics	13
Hockey	12
Pistol	11
Rifle	10
Skiing	09
Squash	08
Swimming	07
Wrestling	06
Baseball	05
Golf	04
Lacrosse	03
Tennis	02
Track	01
None	00

TIME-USE CATEGORIES

To complete the survey accurately, it is necessary to use the following definitions of time-use categories. Read them carefully and refer back to them as necessary while filling in the Table.

In Class - Include academic and military classes, lectures, and labs; include time spent walking to and from class. Do NOT include PE classes.

Study - Include preparation for class or exams, writing requirements and attendance at additional instruction. Do NOT include study of Fourth Class knowledge.

Organized Physical Activity - Include participating in PE class, intramurals, Corps Squad and those competitive athletic clubs which are authorized in lieu of intramurals, correctional exercise, PT tests. Include travel and dressing time.

Extracurricular Activity - Include participating in or administering any authorized extracurricular activity of a non-athletic nature. Do NOT include unorganized recreational activities.

Official Business - Include chain of command duties, administrative duties, and directed activities to include preparing for and attending inspections in rooms and ranks, drill and ceremonies, official trips to Cadet Tailor, counseling, punishment tours, CQ, Guard Duty, Fourth Class duties, study of Fourth Class knowledge, Special Inspections, etc.

Personal Business - Include non-directed but required activities such as sick call, dental appointments, haircuts, laundry, personal hygiene, etc.

Optional/Recreational - Include individual recreational or leisure activities such as movies, escorting, letter writing, reading, religious activity, rap sessions, and unorganized recreational activities not counted as part of Organized Physical Activity or Extracurricular Activity, e.g., a pickup basketball game, tennis, bridge, etc.

Mealtime - Include time spent in the Mess Hall, the preceding formation, and returning to company area.

Sleep - Sleeping or napping in barracks.

PART I

Name: _____ (1-5) Cadet Alpha No.: [| | | | |]

(6) Circle Class Year: 1 2 3 4 (7-8) Cadet Co.: [|]

(9-12) Date Completed: (Day/Month/Year) [| |] 71

(13) Circle Day Covered:

M	Tu	W	Th	F
1	2	3	4	5

From CODES, on p. 3, copy code for your: (14) Chain of Command Assignment: [ ]

(15) Cadet Rank: [ ] (16-17) Corps Squad in which now active: [|]

The Table below applies to a 24-hour time period from 0550 to 0550. In the spaces provided, indicate the number of minutes expended in each category (to the nearest 5 minutes). Add columns; check all row totals by adding rows.

PERIOD	No. Min.	Class	Study	Org Phys Acty	Extra-Curr. Acty	Off Bus	Pers Bus	Op-tional Rec	Meal-Time	Sleep	Row Total Should Be
0550-0740	110										110
0740-0910	90										90
0910-1035	85										85
1035-1215	100										100
1215-1305	50										50
1305-1415	70										70
1415-1540	85										85
1540-1815	155										155
1815-1920	65										65
1920-2300	220										220
2300-0550	410										410
TOTAL	1440										1440
		(18-20)	(21-23)	(24-26)	(27-29)	(30-32)	(33-35)	(36-38)	(39-41)	(42-44)	

PART II

INSTRUCTIONS:

In the boxes provided at the end of each question or sub-question write the number indicating your answer. Place a "0" or another digit in each box. Ignore numbers in parentheses.

A. What, if any, reallocation of time among the following categories would you recommend as improving your overall development in consonance with the mission of USMA? (Indicate, to the nearest 5 minutes, the average daily amount of time you would add to or subtract from the time now available for each category. Total of "+" and "-" changes should sum to zero.)

	ADD		SUBTRACT
CLASS			
Academics		(45-47) -	
Tactics		(48-50) -	
STUDY		(51-53) -	
ORGANIZED PHYSICAL ACTIVITY			
PE Class		(54-56) -	
Intramurals		(57-59) -	
Corps Squad		(60-62) -	
EXTRACURRICULAR ACTIVITY		(63-65) -	
OFFICIAL BUSINESS		(66-68) -	
PERSONAL BUSINESS		(69-71) -	
OPTIONAL/RECREATIONAL		(72-74) -	
SLEEP		(75-77) -	
(The two totals should check)		(80, Cd No:1)	

B. With your current incentives and interests, if 60 minutes of additional time were made available to you each week day (e.g., by reduction in certain classes) estimate how you would use this time. (Allocate the 60 minutes among the activity areas; write "0" where appropriate.)

Study	(6- 7)	
Organized Physical Activity	(8- 9)	
Extracurricular Activity	(10-11)	
Official Business	(12-13)	
Personal Business	(14-15)	
Optional/Recreational	(16-17)	
Sleep	(18-19)	
	Total	6 0

Min

C. Making use of your best ability at recollection, estimate the minutes you spent on each of the following activities during the most recent week-end, defined as the time from 0550 Saturday to 0550 Monday.

Class	(20-22)	☐☐☐
Study	(23-25)	☐☐☐
Week-end leave and Official trips	(26-29)	☐☐☐☐
Organized Physical Activity	(30-32)	☐☐☐
Extracurricular Activity	(33-35)	☐☐☐
Chapel and related activities	(36-38)	☐☐☐
Official Business	(39-41)	☐☐☐
Personal Business	(42-44)	☐☐☐
Optional/Recreational	(45-47)	☐☐☐
Meal time	(48-50	☐☐☐
Sleep	(51-54)	☐☐☐☐

D. Given the demands now imposed on you during a typical week-day (study, sleep, class, athletics, chain of command duties, routine administration, etc.) how adequate for <u>you</u> is the time available for you to accomplish these tasks to your satisfaction?

(55) ☐

1. Much less than adequate
2. Less than adequate
3. Usually adequate
4. More than adequate
5. Much more than adequate

E. More specifically, do you generally have adequate time to complete your academic study assignments to your satisfaction?

(56) ☐

1. Yes

No, primarily because of: (Choose only one)

2. Official duties
3. Athletics
4. Unsatisfactory study climate in barracks
5. Academic workload too heavy
6. Too many other required activities
7. Other (Specify here)

F. Which of the following best characterizes your usual cumulative fatigue status this term?

(57) ☐

1. I seldom get really tired, I am usually physically energetic.
2. I naturally get tired occassionally, but quickly recover and have no cumulative fatigue for more than one day.
3. I have been very tired for extended periods of time and at times have felt completely exhausted.
4. I am always very tired and frequently am almost completely exhausted.
5. I stay on the verge of complete mental and physical exhaustion.

G. Which year in your experience to date has been the hardest in terms of academic workload.
(NOTE: Compare only those years you have experienced.) (58) ☐

1. 1°
2. 2°
3. 3°
4. 4°

H. Which year in your experience to date has been the hardest in terms of over-all load (academic, military, physical, etc.).
(NOTE: Compare only those years you have experienced.) (59) ☐

1. 1°
2. 2°
3. 3°
4. 4°

I. During an average week, in how many different kinds of extracurricular activities do you actively participate?

(60-61) ☐☐

J. List below any extracurricular activities to which you currently devote an average of at least five hours a week.

_____ (62-63), _____ (64-65), _____ (66-67)

(80, Cd No. 2)

APPENDIX II

SUMMARY OF CADET TIME SURVEY RESPONSES BY CLASS

Part I, Log of Time Use by 24 Hour Periods*

First Class

Activity	Mon. Mean	Mon. SD	Tues. Mean	Tues. SD	Wed. Mean	Wed. SD	Thurs. Mean	Thurs. SD	Fri. Mean	Fri. SD	Avg. Mean	Avg. SD
Class	241	77	283	94	268	93	258	81	267	77	263	86
Study	250	134	248	137	299	174	275	159	194	152	254	155
Org Phys Act	77	71	69	70	61	86	55	81	19	55	57	76
Ex Curr Act	13	45	4	20	16	60	15	48	19	61	13	49
Off Bus	90	100	85	84	79	69	89	107	79	98	84	92
Pers Bus	121	86	116	92	123	95	115	88	129	130	121	99
Optional/Rec	103	114	78	92	83	93	103	103	217	179	115	129
Meal	105	31	105	29	109	49	115	57	104	37	108	42
Sleep	410	99	415	122	394	120	419	109	399	117	408	114
Total	1410		1403		1432		1444		1427		1423	

Second Class

Activity	Mon. Mean	Mon. SD	Tues. Mean	Tues. SD	Wed. Mean	Wed. SD	Thurs. Mean	Thurs. SD	Fri. Mean	Fri. SD	Avg. Mean	Avg. SD
Class	253	66	240	80	218	72	265	81	236	61	242	74
Study	300	123	291	138	285	120	261	130	212	148	271	136
Org Phys Act	67	72	63	77	58	68	76	79	37	69	60	74
Ex Curr Act	21	49	19	53	32	79	16	51	22	61	22	59
Off Bus	71	68	65	60	73	72	72	121	80	92	72	84
Pers Bus	104	66	114	81	128	76	117	74	125	93	117	79
Optional/Rec	101	102	99	110	108	101	81	93	185	165	114	122
Meal	114	42	107	25	111	18	108	22	105	36	109	30
Sleep	416	95	428	107	424	105	434	94	425	104	425	102
Total	1447		1426		1437		1430		1427		1432	

Third Class

Activity	Mon. Mean	Mon. SD	Tues. Mean	Tues. SD	Wed. Mean	Wed. SD	Thurs. Mean	Thurs. SD	Fri. Mean	Fri. SD	Avg. Mean	Avg. SD
Class	280	64	286	69	281	74	294	77	279	77	284	72
Study	304	114	290	115	274	113	270	116	224	109	273	116
Org Phys Act	78	82	72	73	66	72	66	73	40	72	65	76
Ex Curr Act	16	40	21	48	22	45	21	74	14	43	19	51
Off Bus	55	73	56	82	66	97	56	92	91	116	65	94
Pers Bus	110	75	120	86	111	74	115	74	124	91	116	80
Optional/Rec	65	84	58	69	70	87	67	82	89	102	70	85
Meal	116	30	126	83	121	39	118	27	119	24	120	46
Sleep	412	80	410	75	426	97	423	97	444	103	423	91
Total	1436		1439		1437		1430		1424		1435	

*Figures give means and standard deviations in minutes per day.

**For definitions of Activity categories, see Appendix I.

Fourth Class

Activity	Mon. Mean	Mon. SD	Tues. Mean	Tues. SD	Wed. Mean	Wed. SD	Thurs. Mean	Thurs. SD	Fri. Mean	Fri. SD	Avg. Mean	Avg. SD
Class	260	99	285	70	280	87	283	60	283	65	278	73
Study	226	102	240	86	232	86	261	95	164	89	224	97
Org Phys Act	105	83	103	81	111	83	86	81	73	77	96	82
Ex Curr Act	13	35	14	39	18	44	18	44	40	141	20	73
Off Bus	99	71	109	63	128	81	144	87	140	90	123	80
Pers Bus	93	75	105	86	93	64	95	81	113	99	100	82
Optional/Rec	39	61	50	62	39	53	38	60	72	86	48	66
Meal	113	42	126	31	124	37	128	50	124	21	123	38
Sleep	378	119	405	62	411	62	387	66	427	75	402	82
Total	1326		1437		1436		1440		1436		1414	

A. What, if any, reallocation of time among the following categories would you recommend as improving your overall development in consonance with the mission of USMA? (Indicate, to the nearest 5 minutes, the average daily amount of time you would add to or subtract from the time now available for each category. Total of "+" and "-" changes should sum to zero.)

	1°	2°	3°	4°	Corps
CLASS	-40	-42	-37	-22	-29
Academics	(-32)	(-28)	(-26)	(-21)	(-21)
Tactics	(- 8)	(-14)	(-11)	(- 1)	(- 8)
STUDY	+17	+23	+22	+26	+23
ORGANIZED PHYSICAL ACTIVITY	- 1	- 5	- 4	- 7	- 8
PE Class	(+ 3)	(0)	(0)	(- 1)	(0)
Intramurals	(- 7)	(- 6)	(- 7)	(- 6)	(- 7)
Corps Squad	(+ 3)	(+ 1)	(+ 3)	(0)	(+ 2)
EXTRACURRICULAR ACTIVITY	+ 4	+ 5	+ 6	+ 4	+ 5
OFFICIAL BUSINESS	-17	-17	-16	-18	-17
PERSONAL BUSINESS	+ 7	+ 3	+ 5	+ 5	+ 5
OPTIONAL/RECREATIONAL	+19	+14	+16	+13	+15
SLEEP	+36	+29	+30	+28	+30
Total Minutes Added	+89	+75	+82	+76	+80
Total Minutes Subtracted	-64	-65	-60	-47	-58

NOTE: All data represent the mean time in minutes.

B. With your current incentives and interests, if 60 minutes of additional time were made available to you each weekday (e.g., by reduction in certain classes) estimate how you would use this time. (Allocate the 60 minutes among the activity areas; write "0" where appropriate.)

	1°	2°	3°	4°	Corps
Study	15	18	18	22	19
Organized Physical Activity	3	4	4	3	3
Extracurricular Activity	3	3	4	3	3
Official Business	2	2	1	2	1
Personal Business	6	6	6	7	6
Optional/Recreational	13	11	12	9	11
Sleep	17	17	15	14	16

NOTE: All data represent the mean time in minutes.

C. Making use of your best ability at recollection, estimate the minutes you spent on each of the following activities during the most recent weekend, defined as the time from 0550 Saturday to 0550 Monday.

	1°	2°	3°	4°	Corps
Class	120	129	175	108	135
Study	321	312	341	260	304
Weekend leave and Official trips	343	89	35	26	84
Organized Physical Activity	29	42	50	72	53
Extracurricular Activity	39	44	38	54	45
Chapel and related activities	70	83	85	96	86
Official Business	122	106	104	118	112
Personal Business	135	153	139	139	142
Optional/Recreational	383	526	528	533	510
Meal time	143	147	156	172	158
Sleep	1029	1069	1091	1194	1113

NOTE: These mean figures exclude those cadets who were away from USMA as much as 70% of the 48-hour period.

D. Given the demands now imposed on you during a typical weekday (study, sleep, class, athletics, chain of command duties, routine administration, etc.) how adequate for you is the time available for you to accomplish these tasks to your satisfaction?

	1°		2°		3°		4°		Corps	
	f	%	f	%	f	%	f	%	f	%
Much less than adequate (1)	183	28	183	24	221	33	162	16	749	22
Less than adequate (2)	365	55	412	53	534	55	595	58	1906	56
Usually adequate (3)	106	16	163	21	199	21	247	24	715	21
More than adequate (4)	5	1	15	2	10	1	15	1	45	1
Much more than adequate (5)	5	1	3	-	5	1	0	-	13	-
Number Reporting	664		776		969		1019		3428	
Mean Score	1.92		2.02		2.01		2.11		2.03	
Standard Deviation	0.73		0.75		0.72		0.67		0.72	

NOTE: f--number of cadets selecting each response.

E. More specifically, do you generally have adequate time to complete your academic study assignments to your satisfaction?

	1°	2°	3°	4°	Corps
Yes	13	19	15	16	16
No, because of: (choose only one)					
Official duties	13	6	2	13	8
Athletics	1	1	1	1	1
Unsatisfactory study climate in barracks	4	7	6	7	6
Academic workload too heavy	30	31	34	18	28
Too many other required activities	28	30	33	38	33
Other (specify here)	11	7	10	6	8

NOTE: Data indicates % response.

F. Which of the following best characterizes your usual cumulative fatigue status this term?

1. I seldom get really tired; I am usually physically energetic.
2. I naturally get tired occasionally, but quickly recover and have no cumulative fatigue for more than one day.
3. I have been very tired for extended periods of time and at times have felt completely exhausted.
4. I am always very tired and frequently am almost completely exhausted.
5. I stay on the verge of complete mental and physical exhaustion.

	1°		2°		3°		4°		Corps	
Response	f	%	f	%	f	%	f	%	f	%
1.	13	2	21	3	24	2	28	3	86	3
2.	222	33	263	34	338	35	376	37	1199	35
3.	373	56	413	54	520	54	507	50	1813	53
4.	50	8	65	8	74	8	97	10	286	8
5.	6	1	9	1	12	1	6	1	33	1
Number Reporting	664		771		968		1014		3417	
Mean Score	2.72		2.71		2.70		2.68		2.70	
Standard Deviation	0.65		0.71		0.70		0.71		0.70	

G. Which year in your experience to date has been the hardest in terms of academic workload? (NOTE: Compare only those years you have experienced.)

	1°		2°		3°	
	f	%	f	%	f	%
1° Class Year	226	34	-		-	
2° Class Year	146	22	266	34	-	
3° Class Year	274	41	465	60	888	92
4° Class Year	18	3	41	5	75	8

H. Which year in your experience to date has been the hardest in terms of overall load (academic, military, physical, etc.). (NOTE: Compare only those years you have experienced.)

	1°		2°		3°	
	f	%	f	%	f	%
1° Class Year	440	48	-		-	
2° Class Year	75	11	368	66	-	
3° Class Year	47	7	144	19	395	41
4° Class Year	102	15	255	33	562	59

I. During an average week, in how many different kinds of extracurricular activities do you actively participate?

	1°		2°		3°		4°		Corps	
	f	%	f	%	f	%	f	%	f	%
None	279	42	209	27	293	30	335	33	1116	32
1	214	32	232	30	282	28	317	31	1045	30
2	119	18	191	24	235	24	231	22	776	22
3	34	5	90	11	113	11	89	9	326	9
4	13	2	33	4	35	4	29	3	110	3
5+	10	2	30	4	33	3	28	3	101	3
No. Reporting	669		785		991		1029		3474	
Mean	1.04+		1.93+		1.70+		1.64		1.61+	
Std. Dev.	1.64+		5.55+		3.46+		3.96+		3.95+	

J. List below any extracurricular activities to which you currently devote an average of at least five hours a week.

	Activity	Number	%
1.	Rugby Football Club	70	8.3
2.	Cadet Glee Club	62	7.3
3.	Other Corps Support (Primarily Honor Committee)	59	7.0
4.	Karate Club	52	6.1
5.	Other Recreation	39	6.1
6.	Judo Club	38	4.5
7.	Scuba Club	33	3.9
8.	Sailing Club	32	3.8
9.	Triathlon Club	32	3.8
10.	Rifle Club	30	3.5
11.	"Pointer"	28	3.3
12.	Cadet Chapel Choir	25	3.0
13.	Fine Arts Forum	25	3.0
14.	"Howitzer"	22	2.6
15.	"Bugle Notes"	20	2.4
16.	Sport Parachute Club	20	2.4
17.	KDET Radio Staff	19	2.2
18.	Dialectic Society	19	2.2
19.	Cadet Chapel Sunday School Teacher	18	2.1
20.	4th Class Glee Club	17	2.0
21.	Pistol Club	17	2.0
22.	Ring and Crest Committee	16	1.9
23.	"Slum and Gravy"	16	1.9
24.	Skeet and Trap Club	14	1.7
25.	Class Committee	14	1.7
26.	Other Religious	13	1.5
27.	Debate Council	12	1.4

		Number	%
28.	Water Polo	12	1.4
29.	Hop Bands	12	1.4
30.	Ski Club	12	1.4
31.	Catholic Chapel Choir	11	1.3
32.	Sport Parachute Team	11	1.3
33.	Computer Forum	10	1.2
34.	Volleyball Club	10	1.2
35.	Jewish Sunday School Teacher	10	1.2
36.	Riding Club	10	1.2
37.	"Other" Academic	9	1.1
38.	Riding Team	9	1.1
39.	Bridge Club	9	1.1
40.	Military Affairs Club	8	0.9
41.	Handball Club	8	0.9
42.	Other Protestant Religious Groups	7	0.8
43.	Bowling Club	7	0.8
44.	Bowling Team	7	0.8
45.	Scoutmaster's Council	6	0.7
46.	Rabble Rousers	6	0.7
47.	Ski Patrol	6	0.7
48.	Geology Club	5	0.6
49.	Public Relations Council	5	0.6
50.	Behavioral Sciences Club	4	0.5
51.	Hop Committee	4	0.5

NOTE: Activities named by four or more cadets, listed in descending order.

Summary: Number Cadets Listing Successive Numbers of "5+ hours per week" Activities.

Number Listed	1°		2°		3°		4°		5°	
	f	%	f	%	f	%	f	%	f	%
0	515	77	558	71	773	78	782	76	2628	76
1	136	20	190	24	178	18	209	20	713	21
2	14	2	30	4	33	3	33	3	110	3
3 or more	4	1	7	1	7	1	5	*	23	1
No. Reporting	669		785		991		1029		3474	
Mean	0.26		0.35		0.27		0.28		0.29	
Std. Dev.	0.52		0.60		0.55		0.54		0.56	

*Less than 0.5%.

APPENDIX III

FREQUENCY DISTRIBUTIONS OF TIME USE (IN HOURS, BY CLASS)

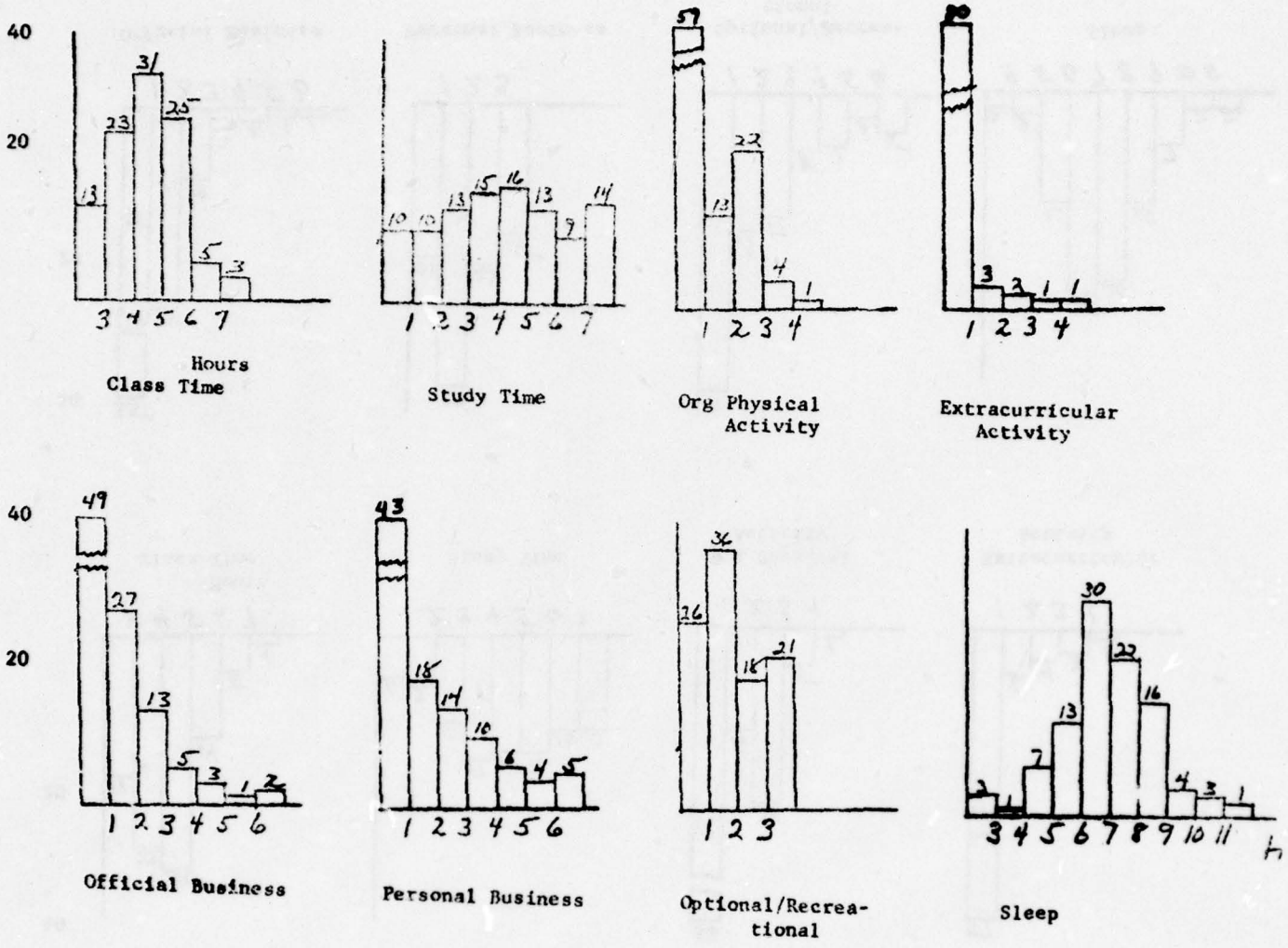


FIGURE 1. FREQUENCY DISTRIBUTION OF TIME USE FOR FIRST CLASS

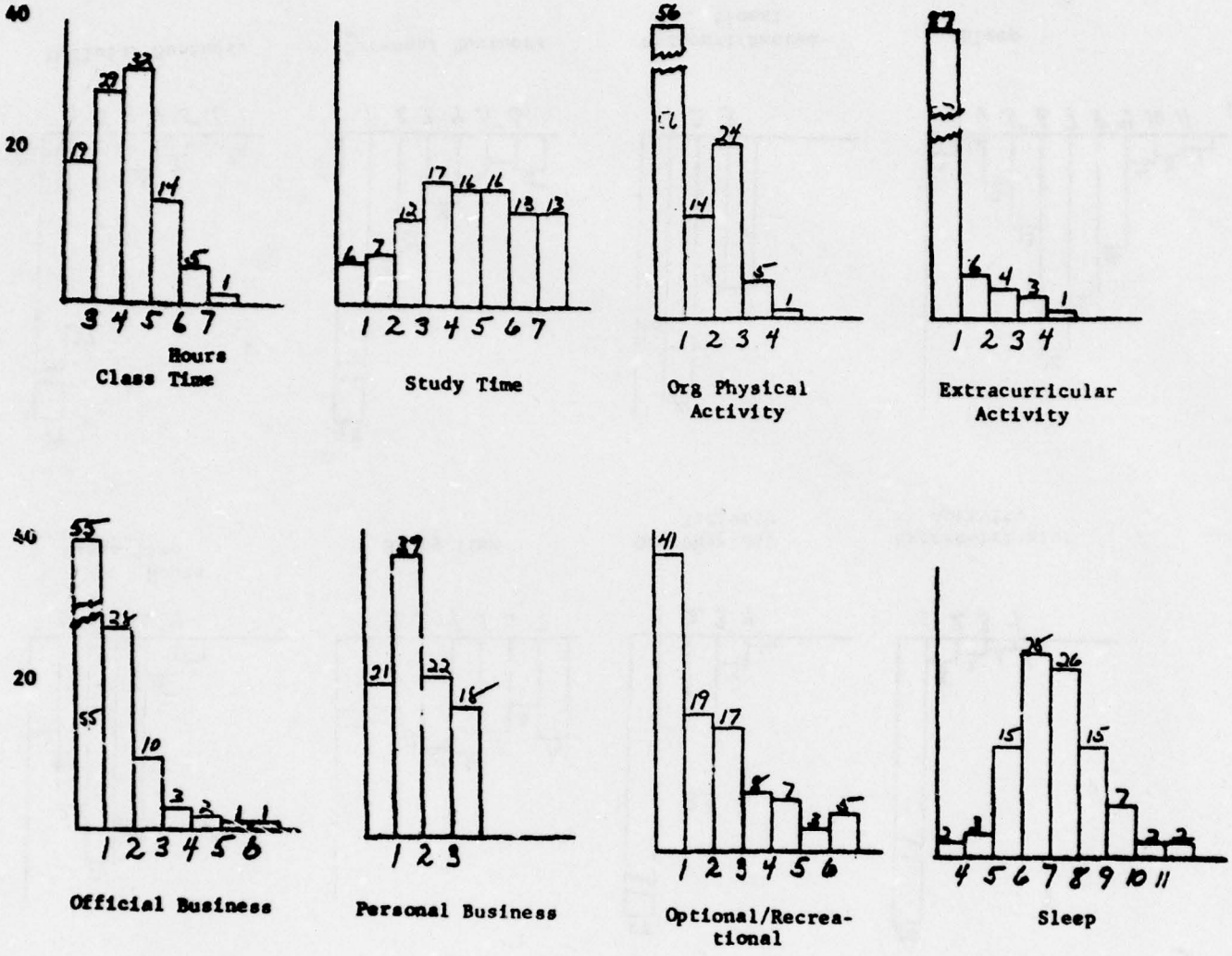


FIGURE 2. FREQUENCY DISTRIBUTION OF TIME USE FOR SECOND CLASS

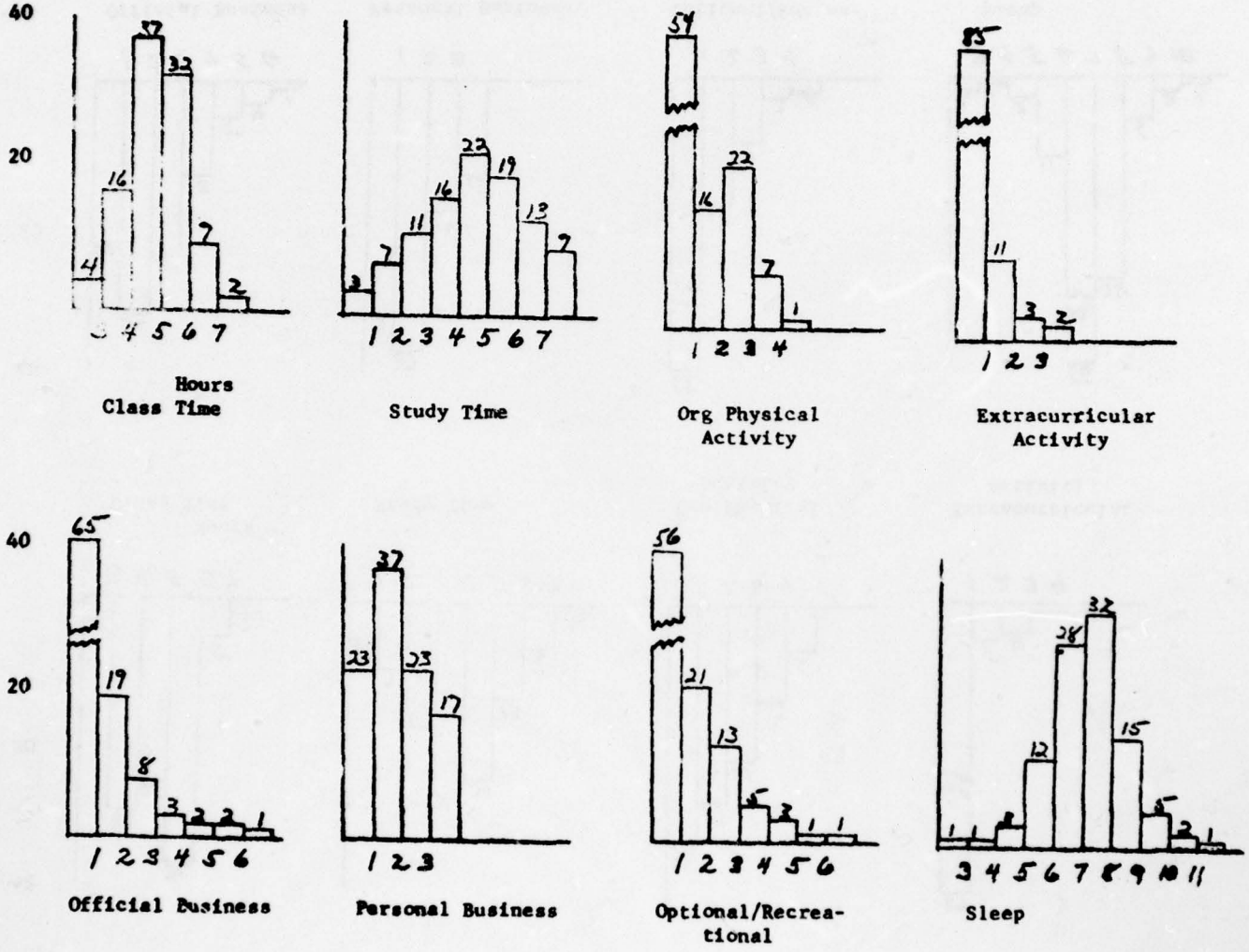


FIGURE 3. FREQUENCY DISTRIBUTION OF TIME USE FOR THIRD CLASS

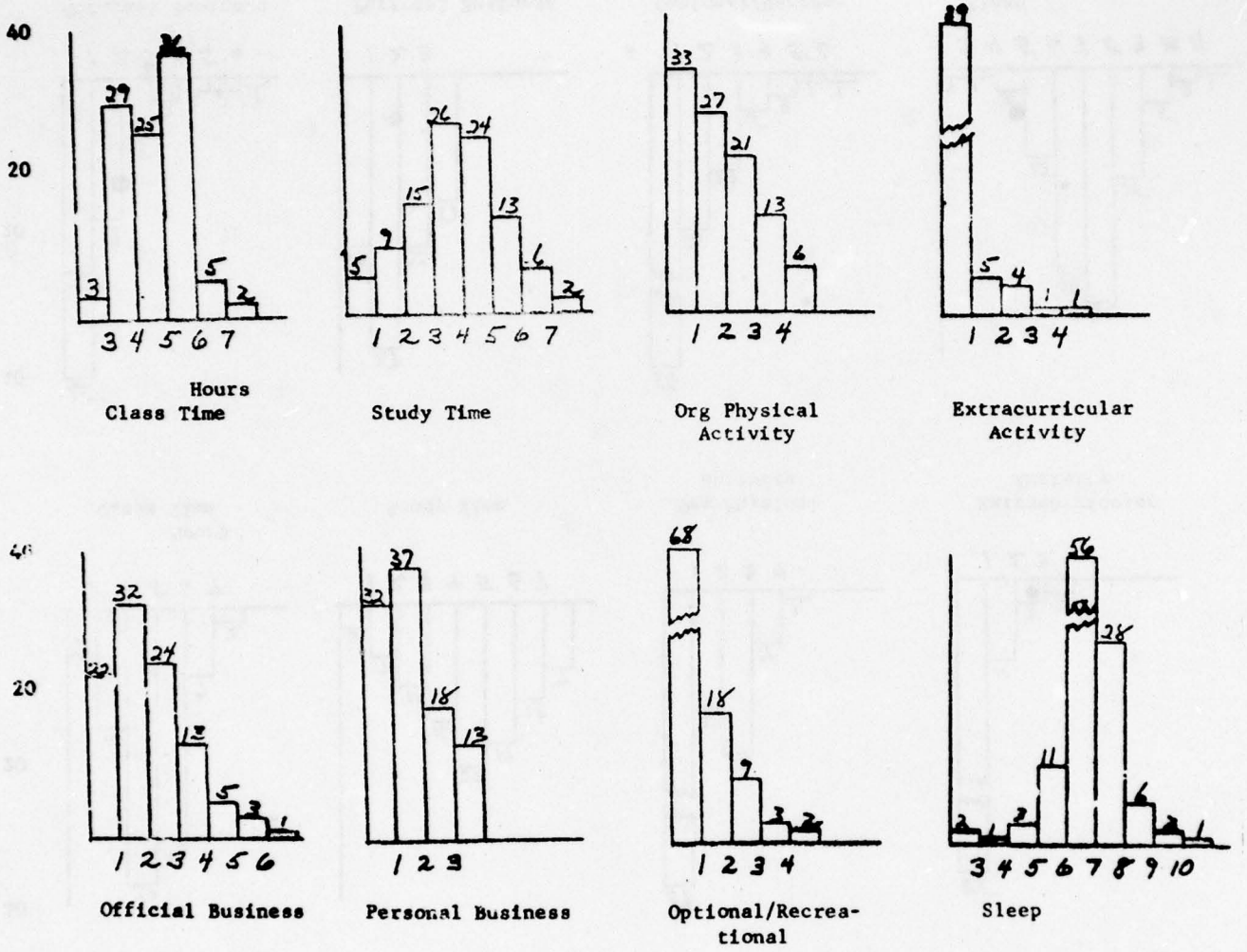


FIGURE 4. FREQUENCY DISTRIBUTION OF TIME USE FOR FOURTH CLASS

APPENDIX IV

USMA EXTRACURRICULAR ACTIVITIES, AND CODES BY GROUP

Group & Activity	ADP Code
ACADEMIC GROUP	
Amateur Radio Club	01
Astronomy Club	02
Audio Club	03
Behavioral Science Club	04
Chinese Language Club	05
Computer Forum	06
Debate Council	07
Extemp. Speaking	08
SCUSA	09
West Point Forum	10
Fine Arts Forum	11
French Language Club	12
Geology Club	13
German Language Club	14
Mathematics Forum	15
Military Affairs Club	16
Portuguese Language Club	17
Rocket Society	18
Russian Language Club	19
Spanish Language Club	20
Other Academic	29
ACADEMIC SUPPORT GROUP	
Cadet Glee Club	31
Fourth Class Glee Club	33
Information Detail	34
Public Relations Council	35
Scoutmasters Council	36
Other Academic Support	39
COMPETITIVE ATHLETIC GROUP	
Bowling Club	40
Bowling Team	41
Handball Club	42
Judo Club	43
Karate Club	44
Rugby Football Club	45
Sailing Club	46
Scuba Diving Club	47
Volleyball Club	48
Water Polo Club	49
CORPS SUPPORT GROUP	
Bugle Notes	50
Cadet Band	51
Class Committees	57
Dialectic Society	58
Hop Committees	59
CORPS SUPPORT GROUP (Cont.)	
Hop Bands	60
Howitzer	61
KDET Radio Staff	64
"Pointer"	65
Rabble Rousers	66
Ring & Crest Committee	67
"Slum and Gravy"	68
Other "Corps Support" (Honor Com. & PIO)	69
MILITARY SKILLS GROUP	
Mountaineering Club	70
Pistol Club	71
Riding Club	72
Riding Team	73
Rifle Club	74
Skeet and Trap Club	75
Sport Parachute Club	76
Sport Parachute Team	77
Triathlon Club	78
Other Military	79
RECREATIONAL GROUP	
Chess Club	81
Outdoor Sportsmen's Club (fishing, hunting, woodsmen)	82
Ski Club	83
Ski Instructor Group (Corps Spt)	84
Ski Patrol	85
Bridge Club	86
Other Recreational	89
RELIGIOUS PARTICIPATION GROUP	
Cardinal Newman Forum	90
Protestant Discussion Group & Chapel Forum	91
Other Protestant Religious Groups	92
Other Religious	99
Cadet Chapel Sunday School Teachers	30
Catholic Chapel Sunday School Teachers	32
Cadet Chapel Choir	52
Chimers	53
Acolytes (Cadet Chapel Choir)	54
Catholic Chapel Choir	55
Acolytes (Catholic Chapel Choir)	56
Jewish Chapel Choir	62
Sunday School Teachers	63

APPENDIX V

RELATIONSHIPS BETWEEN RESPONSES TO TIME STUDY QUESTIONS AND CLASS QUINTILES ON SELECTED VARIABLES

a. Weekday Study Time Quintiles
b. Academic Average Quintiles for Term
c. Academic Potential (CEER) Quintiles
d. Officer Potential (ASR) Quintiles

Tables 14-17, in the body of the report, show the mean response made to appropriate time survey questions by cadets in each quintile of their class on the specified independent variable (X).

Each part of Appendix V shows, for the same Time Survey questions, the mean and standard deviation of the responses for the total class sample used, the linear product-moment correlation coefficient (r) and the non-linear regression (eta $_{y/x}$) of the responses (Y) on the quintile (X). An asterisk (*) following an r indicates that it is statistically significant beyond the 95% confidence level (F-test, $p < .05$). An asterisk (*) following an eta correlation ratio indicates that the regression line is significantly non-linear (F-test, $p < .05$). In most instances, a question whose means differed significantly for a class also had statistically significant correlation. Characteristically those that did not, either barely missed the statistical significance criterion on one test, or the quintile means jumped around, evidencing no trend, for reasons that could not be determined from the data and information available.

Since for each question the correlations are computed with quintiles, a negative sign (-r) indicates a direct (positive) relationship between the magnitude of the characteristic reflected by the quintile; a positive sign (+r) indicates an inverse relationship. Interpretation of the sign for questions "A," "D," and "F" will be facilitated by referring to the alternatives given for these questions (Appendix I). For all questions, inspection of the trends of the means for successive quintiles (Tables 14-17 respectively) will help interpret the two relationship indexes, r and eta. Following each part of this appendix is a summary of its more clear-cut indications.

APPENDIX V a

PREDICTABILITY OF TIME STUDY RESPONSES (Y) FROM CLASS STUDY TIME QUINTILE (X)

Class Weekday Study Time Quintile (X)

Time Study Question (Y)	1° (N ≃ 669)				2° (N ≃ 785)				3° (N ≃ 991)				4° (N ≃ 1029)			
	M	SD	r	$\eta_{y/x}$	M	SD	r	$\eta_{y/x}$	M	SD	r	$\eta_{y/x}$	M	SD	r	$\eta_{y/x}$
Class	262.4	87.4	.04	.21*	241.7	74.4	.11*	.13	285.1	73.9	.13*	.13	277.6	80.1	.04	.14*
Study	255.4	158.0	.93*	.94*	270.9	135.6	-.94*	.95*	272.8	118.5	-.93*	.94*	223.6	102.0	-.93*	.94*
Org. Phy. Acty.	56.5	76.2	.02	.13*	10.2	75.6	.06	.08	64.4	75.5	.03	.15*	95.1	85.5	-.09*	.18*
Extracur. Acty.	13.6	48.9	.02	.07	22.1	59.5	.12*	.12	19.2	51.5	.07*	.07	20.6	73.5	.11*	.14*
Off. Bus.	85.8	96.4	.13*	.14	71.6	83.3	.14*	.14	66.5	97.7	.23*	.24	125.8	89.5	.17*	.18
Pers. Bus.	121.7	100.0	.14*	.15	118.0	79.8	.18*	.20	116.4	82.0	.10*	.11	104.5	93.6	.15*	.16
Optional/Rec.	116.1	133.0	.39*	.40	114.1	121.2	.42*	.43	70.4	87.4	.28*	.33*	50.6	78.3	.23*	.24
Meal Time	109.0	50.4	-.05	.06	110.2	35.2	.01	.05	121.5	51.7	.02	.05	126.4	56.5	-.01	.04
Sleep	405.2	116.2	.26*	.31*	425.0	103.5	.27*	.28	419.9	97.0	.31*	.32	397.3	92.8	.10*	.23*
Pt. II A. Rec. Chg.																
Acad. Class	-36.4	34.2	.01	.07	-28.7	35.0	.05	.08	-28.2	34.2	.02	.06	-22.6	35.2	.00	.01
Tactics Class	-12.2	27.6	.06	.09	-13.8	29.8	.03	.06	-15.3	28.2	.03	.12*	-9.1	25.1	-.03	.08
Study	15.2	47.7	.18*	.18	19.1	43.2	.02	.05	19.3	41.1	.02	.10*	23.6	35.2	-.02	.05
P.E. Class	-0.7	14.6	.08*	.12	-0.6	15.8	.06	.08	-2.5	17.6	-.03	.07	-3.8	13.6	.08*	.11
Intramurals	-7.8	22.9	.00	.01	-6.3	22.5	.10*	.13	-7.8	23.2	.02	.06	-6.0	17.3	.05	.09
Corps Squad	2.0	13.6	.08*	.09	0.4	13.6	.00	.04	1.5	16.0	.06	.11*	-0.2	13.6	.06	.07
Extracur. Acty.	3.4	21.5	-.04	.08	5.4	20.6	-.01	.10	5.6	21.4	-.01	.10*	3.9	17.3	.03	.04
Off. Bus.	-17.7	31.2	.01	.04	-16.5	27.3	-.00	.07	-15.9	25.2	-.00	.05	-20.7	26.8	-.01	.04
Pers. Bus.	6.6	22.2	-.14*	.15	3.3	20.1	-.07	.07	4.5	19.9	.02	.04	4.4	20.2	-.02	.08
Optional/Rec.	19.5	32.0	-.08*	.12	13.5	28.9	.01	.05	15.4	28.6	.02	.04	11.6	22.1	.04	.06
Sleep	33.8	40.2	-.08*	.08	26.1	34.1	-.11*	.11	29.2	38.2	-.07*	.09	26.1	32.8	-.06	.06
B. Extra Hr. Use																
Study	15.4	16.5	-.05	.05	18.0	16.4	-.15*	.16	18.2	17.1	-.13*	.15	22.4	17.1	-.14*	.14
Org. Phy. Acty.	3.2	9.1	-.00	.12*	3.6	9.2	.02	.08	3.6	9.6	-.02	.05	2.8	8.2	.00	.06
Extracur. Acty.	2.7	8.0	-.01	.02	2.8	7.9	.05	.07	3.7	9.9	.03	.07	2.7	7.5	.03	.05
Off. Bus.	2.3	5.9	.03	.05	1.5	4.9	-.02	.08	0.7	3.0	.02	.04	1.7	4.9	.02	.05
Pers. Bus.	6.2	10.6	.01	.04	5.5	9.0	-.09*	.10	5.7	10.4	.02	.03	6.6	10.4	.01	.06
Optional/Rec.	13.3	15.5	.01	.06	11.4	14.0	.12*	.12	12.1	15.3	.10*	.11	9.1	13.2	.09*	.10
Sleep	16.8	17.8	.01	.02	16.7	17.6	.07	.10	15.3	17.5	.01	.03	14.3	16.7	.03	.05
D. Time Overall	1.9	0.7	.20*	.20	2.0	0.7	.27*	.30*	2.0	0.7	.17*	.19	2.1	0.7	.09*	.09
F. Cum. Fatigue	2.7	0.7	-.13*	.15	2.7	0.7	-.17*	.18	2.7	0.7	-.12*	.13	2.7	0.7	-.01	.04
I. # X-cur.	1.0	1.2	.03	.05	1.6	1.9	-.04	.06	1.5	1.7	.04	.08	1.3	1.7	-.01	.04
J. # Int. X-cur.	0.3	0.5	0.4	0.5	0.3	0.6	-.04	.09	0.2	0.6	-.03	.07	0.3	0.5	-.00	.07

*F-test, $p < .05$ for linear correlations (r) or for non-linearity (Eta).

DISCUSSION OF APPENDIX V a

(Weekday Study Time Quintiles vs Responses to Time Study Questions)

1. Predictability of Study Time Quintile From Time Used for Other Categories of Activities. In general, the correlations of study time quintile with each of the other time use categories are quite low. The time that a typical (average) cadet spends studying is not predicted very well by any single other category. This indicates the general overall covariance in the class as a whole and provides a summary statistic for comparing significant general trends across classes and time use categories. It reflects the average tendency in the class for one activity to interfere with (take time away from) academic study. The correlation for a category does not necessarily indicate for any one cadet the actual extent to which that category interferes with his studying. For some cadets in the First Class, Official Business probably is the primary source of interference, for a few, Extracurricular Activities, for others one of the other categories. The frequency distributions, in Appendix III, help indicate the extent to which these data are of practical importance.

As indicated in the general explanation for this appendix, a reported negative (-) correlation coefficient with study time quintiles indicates an average direct (positive) association between the two categories, a positive (+) coefficient indicates an average inverse (negative) relationship or "interference."

In interpreting these data for a category of activities, attention is given first to the statistically significant relationships and their consistency across classes, and second to the relative magnitude (ranking on "interference") for a class of the correlation indices for the seven categories. Meal time could have little import, and of course correlations between actual study time and study time quintile are not included in the category rankings for a class. Incidentally, the correlations between cadets' study time in minutes and study time in quintiles of -.93 probably is about the magnitude that should be found as the multiple correlation between study time quintile and the other weekday uses of time.

For all classes, time spent in the Optional/Recreation activities and sleep had the highest and meal times the lowest relationships with study time. The less the time spent studying the greater the time spent on each one of the Physical Activities and meals for the Fourth Class.

The negative relationship between study time and reported hours of class the same day (positive correlation with quintile) ranks third for the First Class, fourth for the Second Class, and sixth for the Second and Fourth Classes. The class time means for the first and fifth quintiles of the First and Fourth Classes and for the fifth quintile of the Second Class depart the linear trends exhibited by the other quintiles of the respective classes. If a class

time question had been included for the next day, the picture might have been sharper and more interpretable, but they possibly evened out over the week, and the amount of time spent studying probably would be more a function of the length of the assignments than of the hours in class.

Among the seven categories, the rank of the negative relationship between Study Time and Official Business is second for the Fourth Class, third for the Fourth Class, third for the Third Class, fourth for the Second Class, and fifth for the First Class. Although the magnitude of the correlation coefficient is largest for the Third Class as a whole, the frequency distributions for the two, as shown in Appendix III, suggest that this is primarily due to the influence of a relatively small proportion of the Third Classmen. Only the difference between the magnitude of these correlations for the First Class and the Third are statistically significant (P = .05).

2. Study Time vs Recommended Changes in Time Allocated to Eleven Activity Categories. The relationships and differences between the typical responses of cadets in each study time quintile to the group of questions on the changes in time allocation that cadets judge to be in consonance with USMA's mission (Question A) are not as consistent in tendency across all classes as they were for the time use questions. There are no relationships between study time and recommended decrease in time required by academic classes or by Official Business for any of the four classes. The significant positive relationship between current study time and judged time needed for more sleep, together with the negative relationship with needed study time in the upper classes suggests that these cadets may now be using sleep time to study.

3. Study Time vs How Cadets Typically Would Use an Extra Hour per Weekday. The groups of responses to the question as to how they would use an extra sixty minutes (Question B) seem to reflect the cadet's own felt need in terms of his personal goals and situation more directly than did the preceding question. The most consistent patterns of relationships across the classes are a tendency for cadets who now study most (upper quintiles) to use more extra time to study and less extra time in Optional/Recreation activities.

4. Study Time vs Questions D, F, I and J. In all four classes, there is a significant negative (inverse) relationship between current study time and adequacy of time available to meet overall demands (Question D). In the upper three classes, the relationship between study time and cumulative fatigue is significantly positive--i.e., cadets who study most typically have the highest level of cumulative fatigue (Question F). The relationships between the amount of study time and neither active nor intensive participation in extracurricular activities are significant for any of the four classes (Questions I and J).

APPENDIX V b

PREDICTABILITY OF TIME STUDY RESPONSES (Y) FROM TERM'S ACADEMIC AVERAGE QUINTILE (X)

Class Weekday Academic Average Quintile (X)

Time Study Question (Y)	1° (N ≃ 669)				2° (N ≃ 785)				3° (N ≃ 991)				4° (N = 1029)			
	M	SD	r	$\eta_{x/y}$	M	SD	r	$\eta_{x/y}$	M	SD	r	$\eta_{x/y}$	M	SD	r	$\eta_{x/y}$
Class	262.2	87.6	-.00	.04	242.5	74.0	-.08*	.10	285.1	73.7	.03	.06	277.0	79.5	.06*	.10
Study	254.3	157.0	-.08*	.10	269.8	136.4	-.06	.10	273.3	118.5	-.09*	.10	223.8	101.9	-.00	.04
Org. Phy. Acty.	56.2	76.3	.05	.07	60.6	76.0	.13*	.15	64.0	75.6	.06	.06	95.8	85.6	.04	.07
Extracur. Acty.	13.2	48.2	.01	.12	22.0	59.7	-.02	.07	19.2	51.6	-.01	.03	20.9	73.9	-.03	.05
Off. Bus.	86.6	97.0	-.09*	.11	71.6	81.3	.00	.04	66.7	97.5	.04	.06	125.6	88.5	-.08*	.11
Pers. Bus.	122.0	100.3	.04	.14*	118.2	80.0	.08*	.11	117.0	82.4	.06*	.09	103.7	92.9	-.05	.07
Optional/Rec.	116.4	133.0	.08*	.14*	114.0	121.8	-.05	.12*	70.0	87.1	-.04	.05	51.1	78.6	-.00	.01
Meal Time	109.1	50.7	.04	.08	110.0	33.7	.02	.07	120.8	50.3	-.02	.08	126.2	55.1	-.02	.05
Sleep	405.6	115.7	.01	.06	425.3	102.8	.04	.09	420.9	95.7	-.01	.01	398.0	91.8	-.01	.04
Pt. II A. Rec. Chg.																
Acad. Class	-35.7	34.3	-.04	.12*	-29.0	35.1	-.11*	.12	-28.2	34.2	-.12*	.12	-22.6	35.3	.00	.07
Tactics Class	-12.2	-27.8	.04	.12*	-14.0	29.9	.09*	.10	-15.4	28.3	-.05	.06	-9.0	25.1	-.06	.07
Study	15.4	47.9	-.02	.09	19.3	43.2	.06	.09	19.5	40.6	.04	.05	23.4	35.0	-.01	.05
P.E. Class	-0.7	14.8	-.02	.06	-0.5	15.9	.01	.02	-2.3	17.5	-.09*	.10	-3.8	13.5	-.03	.06
Intramurals	-7.9	23.1	.09*	.09	-6.3	22.1	-.05	.10	-7.8	23.1	-.01	.09	-6.0	17.2	.01	.05
Corps Squad	2.0	13.8	.08*	.10	0.4	13.6	-.02	.07	1.4	16.0	.04	.07	-0.2	13.6	.04	.05
Extracur. Acty.	3.4	21.6	-.05	.07	5.3	20.6	.05	.08	5.6	21.5	.02	.07	3.9	19.4	-.00	.08
Off. Bus.	-17.8	31.4	.13*	.17	-16.3	27.1	-.03	.06	-15.8	25.1	.03	.06	-20.6	26.8	.06	.06
Pers. Bus.	6.7	22.4	-.04	.04	3.3	20.2	.06	.08	4.6	20.0	.08*	.09	4.5	20.3	.06	.08
Optional/Rec.	19.5	32.1	-.05	.13*	13.9	28.8	-.02	.05	15.3	28.5	-.05	.06	11.4	22.0	-.02	.05
Sleep	34.0	40.3	.02	.05	26.0	34.2	.03	.08	29.0	38.3	.08*	.11	26.2	32.9	.04	.05
B. Extracur. Acty.																
Study	15.4	16.6	-.08*	.11	18.1	16.4	.06	.07	18.3	17.1	-.06	.07	22.4	17.1	-.04	.04
Org. Phy. Acty.	3.2	9.1	.03	.05	3.7	9.3	.00	.07	3.7	9.7	.04	.04	2.7	8.2	.02	.07
Extracur. Acty.	2.7	8.1	.01	.10	2.8	7.9	-.00	.08	3.8	9.9	.05	.06	2.7	7.6	-.05	.07
Off. Bus.	2.2	6.0	.04	.06	1.5	4.9	.04	.04	0.7	3.0	.00	.09	1.6	4.8	.04	.07
Pers. Bus.	6.3	10.7	.01	.07	5.5	9.0	.09*	.10	5.7	10.3	.09*	.10	6.6	10.3	.00	.04
Optional/Rec.	13.2	15.5	-.01	.05	11.5	14.1	-.12*	.15	12.0	15.2	-.03	.05	9.2	13.2	-.01	.02
Sleep	16.8	18.0	.04	.10	16.7	17.7	-.02	.08	15.4	17.6	-.02	.03	14.3	16.7	.04	.05
D. Time Overall	1.9	0.7	.04	.05	2.0	0.8	-.14*	.17	2.0	0.7	-.02	.02	2.1	0.7	-.02	.07
F. Cum. Fatigue	2.7	0.7	.04	.09	2.7	0.7	.08*	.11	2.7	0.7	.09*	.13	2.7	0.7	.03	.08
I. # X-cur.	1.0	1.2	.03	.10	1.6	1.9	-.03	.12*	1.4	1.7	-.04	.07	1.3	1.7	-.08*	.08
J. # Int. X-cur.	0.3	0.5	-.02	.09	0.3	0.6	.03	.14*	0.3	0.6	.01	.08	0.3	0.5	-.05	.06

*F-test, p <.05 for linear correlations (r) or for non-linearity (Eta).

DISCUSSION OF APPENDIX V b

(Academic Average Quintiles vs Responses to Time Study Questions)

1. Academic Average vs the Nine Time Use Categories. The significant relationships between academic average and time use were consistent across all classes for only one time use category--cadets who spend more time on Personal Business activities tend significantly to receive lower academic grades. There were no significant relationships in any class for the Extracurricular Activities, Meal Time and Sleep activity categories.

Cadets in the Second Class who made higher academic grades tended significantly to report more hours in class; an opposite trend was observed for the Fourth Class.

Cadets in both the First and Fourth Classes who spent more time on Official Business also tended significantly to have higher grades.

In general, cadets who spent more time in Optional/Recreation activities tended to have lower grades (an inverse relationship), but in the First Class the deviation of those with above average but not high grades from the linear trend is so great that the sign of this correlation coefficient is reversed.

The amount of time devoted to Organized Physical Activities was significantly related to academic average only in the Second Class; however, in all four classes the relationship was an inverse one, more time being associated with lower grades.

The relationships between academic average and study time is of special interest. Several studies in the research literature have reported a relatively low inverse relationship between time studying and academic grades. This is at least partly because the group of students who get low marks include those who have to study harder than the average in order to get by. None of the published reports corrected for academic potential. The correlations between study and grades for cadets is lower than was commonly reported, but it was a direct one in all classes, higher grades being associated with higher marks among cadets. In the Third Class this correlation was significant at the .01 level, in the First Class at the .05 level, in the Second Class at the .10 level, but in the Fourth Class the correlation is almost exactly zero (.004). The selection of cadets and/or uniqueness of the West Point system could account for this reversal from the more common findings. CEER measured academic potential is inversely related to study time in all except the First Class. Hence, holding it constant (by usual partial correlation equation) gives the following correlation between academic average and study time for cadets having the same academic potential:

		1°	2°	3°	4°
($r_{01.2}$)	Partial Correlation	.089	.086	.151	.057
(r_{01})	Uncorrected Correlation	.083	.058	.094	.004

The reasons for such low relationships between study time and grades seem to warrant careful investigation. Do cadets seriously need training in more effective study techniques? Do grades accurately reflect the desired outcomes of studying? Is attention in class the most critical factor? These are some of the important areas for which investigation is suggested by these data.

2. Academic Average vs Recommended Changes in Time Allocated to Eleven Activity Categories. For only one category of changes in time allotment that are considered by cadets to be in consonance with USMA's mission were the relationships significant across as many as three classes. In general, the higher the marks earned by cadets, the greater the recommended reduction in academic class time.

In the upper two classes, the higher the marks the less the tendency to recommend reduction in the time allotted to Tactics Classes.

The amounts of increase recommended in time available for study and for Extracurricular Activities were consistent across all four classes in their lack of any significant relationships with academic average.

3. Academic Average vs How Cadets Would Use an Extra Hour a Weekday. For no category were the relationships statistically significant across as many as three classes. No statistically significant relationships were found for any class in four of the seven categories. However, in all four classes, Organized Physical Activities and Official Business were both inversely related with academic average--the higher the average, the less the extra time that would be used for these activities. For Extracurricular and for Sleep, there were neither any statistically significant correlations nor any consistent trends in direction.

The amount of additional time that would be used to study was both significantly and directly related to academic average among cadets in the First Class and also directly related (though at a lower level of significance) among cadets in the Third and Fourth Classes--the higher the average the larger the time.

The use of additional time for Optional/Recreation activities was directly related with academic average in all four classes and significantly so in the Second Class.

Interestingly enough, all four of the relationships for Personal Business were inverse ones, and for the Second and Third Classes this correlation was statistically significant (both at better than the .99 confidence level).

4. Academic Average vs Judged Adequacy of Time Available to Accomplish Overall Work Load. For all except the First Class, the higher the academic average the more adequate the available time was considered to be for their overall load, but this trend was statistically significant (at the .99 confidence level) only for the Second Class.

5. Academic Average vs Cumulative Fatigue. For all classes, the higher the academic average the less the cumulative fatigue.

6. Academic Average vs Participation in Extracurricular Activities. In general, the higher the academic average, the larger the total number of extracurricular activities in which cadets participated actively except in the First Class for which there was an inverse relationship between the two variables. The association between the two was statistically significant for the Second and Fourth Classes.

Academic average and the number of extracurricular activities in which a cadet participates intensively (averages at least five hours a week) are directly associated for the Second and Third Classes and inversely associated for the First and Fourth Classes. For the Second Class, the association between the two is significantly non-linear ($p < .01$), with the middle quintile having the largest intensive participation, and dropping off progressively to minimums at the two extremes.

APPENDIX V c

PREDICTABILITY OF TIME STUDY RESPONSES (Y) FROM CLASS ACADEMIC POTENTIAL (CEER) QUINTILE (X)

Class Weekday Academic Potential (CEER) Quintile (X)

Time Study Question (Y)	1° (N ≃ 669)				2° (N ≃ 785)				3° (N ≃ 991)				4° (N ≃ 1029)			
	M	SD	r	$\eta_{x/y}$	M	SD	r	$\eta_{x/y}$	M	SD	r	$\eta_{x/y}$	M	SD	r	$\eta_{x/y}$
Class	262.0	87.7	-.02	.07	242.9	73.9	-.05	.07	285.1	73.9	.01	.05	277.0	79.6	.06	.07
Study	253.0	156.8	-.05	.10	269.1	136.6	-.01	.07	273.3	118.9	.02	.06	223.6	102.0	.04	.08
Org. Phy. Acty.	56.4	76.4	.04	.07	59.9	75.7	.15*	.15	63.9	75.8	.05	.08	95.5	85.6	.07*	.13*
Extracur. Acty.	13.1	48.0	-.03	.06	22.2	60.1	-.06	.06	19.1	51.6	.00	.05	21.0	74.1	-.01	.05
Off. Bus.	86.9	97.3	-.05	.09	71.8	81.6	-.08*	.08	66.9	97.9	.03	.06	125.6	88.9	-.11*	.11
Pers. Bus.	122.1	100.4	-.00	.02	117.3	79.7	.04	.08	116.6	82.5	.01	.05	103.8	93.0	-.04	.06
Optional/Rec.	116.8	133.1	.08*	.09	115.2	122.1	-.03	.08	70.3	87.4	-.12*	.14	51.2	78.8	-.04	.08
Meal Time	109.9	50.8	.03	.14*	109.9	34.0	.07	.07	120.8	50.6	.03	.06	126.2	55.2	.03	.06
Sleep	406.1	115.7	.02	.04	425.6	103.2	.03	.06	420.8	95.9	-.01	.02	398.0	91.9	-.01	.04
Pt. II A. Rec. Chg.																
Acad. Class	-35.4	34.3	-.06	.15*	-28.9	35.2	-.10*	.13	-27.2	34.2	-.10*	.11	-22.4	35.3	.01	.04
Tactics Class	-12.0	27.7	-.03	.08	-14.1	30.0	.04	.08	-15.1	28.2	-.04	.08	-9.0	25.1	-.04	.09
Study	15.3	48.0	.11*	.15	19.3	43.3	.04	.08	19.4	40.6	.02	.08	23.3	34.9	.00	.04
P.E. Class	-0.8	14.7	.01	.08	-0.5	16.0	-.05	.08	-2.2	17.4	-.06	.07	-3.7	13.4	-.06	.09
Intramurals	-7.9	23.1	.02	.08	-6.2	22.2	-.05	.08	-7.8	23.2	-.04	.05	-6.1	17.2	.03	.07
Corps Squad	2.1	13.6	.06	.08	0.4	13.6	-.03	.06	1.3	15.9	.03	.09	-0.1	13.4	.02	.07
Extracur. Acty.	3.4	21.7	-.02	.07	5.3	20.7	.01	.05	5.5	21.5	.04	.10*	4.0	19.4	-.01	.08
Off. Bus.	17.7	31.4	.01	.02	-16.2	27.1	.04	.05	-15.8	25.1	.01	.04	-20.6	26.8	.06	.09
Pers. Bus.	6.8	22.5	.01	.07	3.3	20.3	.09*	.09	4.6	20.1	.09*	.14*	4.4	20.2	.07*	.10
Optional/Rec.	19.4	31.9	-.05	.08	13.8	28.6	.01	.07	15.2	28.5	.00	.08	11.4	22.0	-.00	.08
Sleep	33.9	40.3	-.06	.07	26.0	34.2	.01	.08	29.1	38.4	.09*	.10	26.2	32.8	.04	.06
B. Extra Hr. Use																
Study	15.4	16.5	-.05	.05	18.2	16.4	.09*	.11	18.3	17.1	-.01	.06	22.5	17.1	-.04	.07
Org. Phy. Acty.	3.2	9.2	.10*	.13	3.6	9.3	-.03	.06	3.6	9.5	.02	.05	2.7	8.2	.00	.05
Extracur. Acty.	2.7	8.1	-.05	.07	3.7	7.8	-.03	.07	3.7	9.9	.04	.05	2.7	7.6	-.04	.09
Off. Bus.	2.3	6.0	.05	.08	1.5	4.9	.02	.05	0.7	3.0	-.01	.10*	1.6	4.8	.02	.05
Pers. Bus.	6.3	10.7	.00	.06	5.4	9.0	.07*	.08	5.7	10.3	.11*	.14	6.6	10.3	.05	.07
Optional/Rec.	13.2	15.5	.03	.05	11.5	14.1	-.08*	.09	12.0	15.2	-.06	.08	9.2	13.2	-.00	.06
Sleep	16.7	17.7	-.01	.04	16.8	17.6	-.02	.06	15.4	17.5	-.03	.06	14.3	16.7	.02	.05
D. Time Overall	1.9	0.7	.07	.13	2.0	0.7	-.09*	.10	2.0	0.7	-.05	.06	2.1	0.7	.03	.05
F. Cum. Fatigue	2.7	0.7	-.03	.10	2.7	0.7	.02	.10	2.7	0.7	.05	.06	2.7	0.7	-.02	.09
I. # X-cur.	1.0	1.2	-.00	.08	1.6	1.9	-.04	.11	1.5	1.6	-.02	.08	1.3	1.7	-.08*	.10
J. # Int. X-cur.	0.3	0.5	-.08	.11	0.3	0.6	-.01	.06	0.3	0.6	-.00	.09	0.3	0.5	-.06	.07

*F-test, $p < .05$ for linear correlations (r) or for non-linearity (Eta).

DISCUSSION OF APPENDIX V c

(Relationships Between Academic Potential (CEER) and Responses to Time Survey Questions)

The CEER score is most precisely characterized as a measure of potential for success in Fourth Class Academics but holds up rather well as a predictor of academic success for all four years at USMA. Its correlations with Spring Term academic average for these populations were: 4^{o}, .731; 3^{o}, .660; 2^{o}, .606; and 1^{o}, .436.

1. CEER Scores vs the Nine Time Use Categories. The cadets' use of time in only three categories were consistent or significant in their relationship to CEER scores. Minutes that are used for organized Physical Activities, and surprisingly enough for Meal Time, are inversely related to CEER. The correlation for the former are statistically significant in both the Second and Fourth Classes, and for the latter in the First Class. The time used for Official Business is directly related to CEER in all except the Third Class, and significantly so in the Second and Fourth Classes.

The only other significant relationship between time use and CEER is for Optional/Recreation Activities in the Third Class. The relationship is direct, the higher the CEER, the greater the time spent in Opt/Rec.

2. CEER vs Recommended Reallocations of Available Time Among Eleven Categories. Two categories stand out in consistency of significance. In the three upper classes, the academically less able students tended significantly to consider that a greater reduction in Academic Class would be in consonance with USMA's mission, than did the academically more able; there consistently was an inverse relationship between CEER and amount of reduction recommended, i.e., the higher the CEER, the greater the amount of time they thought should be devoted to academic classes. The trends for recommended reduction in Tactics class time were similar, but none of the relationships were statistically significant.

The magnitude of the recommended increase in time allotted to Personal Business had a consistently inverse relationship with CEER scores, and this common trend was statistically significant for the Second, Third, and Fourth Classes.

In all except the First Class, the higher the CEER, the smaller the amount Sleep Time would be increased. In general, over the four classes, the larger the average amount of current sleep reported by cadets in a given CEER quintile the smaller the amount of recommended increase. ($r = .24$ with CEER held constant, Mean of Means = 412 min and 29 min, SD of Means = 11.95 and 4.28 respectively.)

In all the classes, cadets having low CEER scores tend to consider a greater increase in Study Time to be appropriate than do those with high CEER scores;

however, within the classes the quintile trends are erratic enough that only for the First Class is the correlation statistically significant.

The correlation between CEER score and amount of increase in time for Extracurricular Activities judged appropriate is statistically significant. In it and in the Second Class the relationship between the time is an inverse one; in general, the higher their CEER scores the less the magnitude of the recommended increase in time for Extracurricular Activities.

In general, except in the Second Class, there is a consistent trend for the magnitude of the small recommended increase in time allotted to Corps Squad activities to be inversely related to CEER scores, but none of the correlations are large enough to be statistically significant.

3. CEER Scores vs Probable Use of an Extra 60 Minutes. The only one of the seven categories for which the trend was completely consistent across all classes is the inverse relationship between CEER and the amount of extra time that would be used for the Personal Business activities, and the correlations in the Second and Third Classes were statistically significant--the brighter cadets would use a smaller proportion of any extra time provided for Personal Business activities.

In all except the Second Class, the higher the CEER score, the larger the magnitude of the time that would be used to study. However, in the Second Class, cadets with relatively low CEER scores seem to feel more need for additional study time than do those with relatively high CEER scores.

In all except the Second Class, there is a general trend for CEER scores to be inversely related to the proportion of any additional time that would be used for Organized Physical Activities, but the correlation coefficient is statistically significant only for the First Class.

The very small amount of additional time that would be used for Official Business is inversely related to CEER scores in all except the Third Class, which however has the only correlation (curvilinear) that is statistically significant.

4. CEER vs Adequacy of Time Overall. CEER scores and judged adequacy of time for overall work load are inversely related in the Second and Third Classes, but only in the former is the correlation large enough to be statistically significant.

5. CEER vs Cumulative Fatigue. There are neither consistent trends nor a statistically significant relationship for any class.

6. CEER vs Extracurricular Activities. In all classes, CEER is directly related to participation in Extracurricular Activities, but only for Fourth Class active participation is the correlation statistically significant.

APPENDIX V d

PREDICTABILITY OF TIME STUDY RESPONSES (Y) FROM CLASS OFFICER POTENTIAL (ASR) QUINTILE (X)

Class Weekday Officer Potential (ASR) Quintile (X)

Time Study Question (Y)	1° (N ≃ 669)				2° (N ≃ 785)				3° (N ≃ 991)				4° (N ≃ 1029)			
	M	SD	r	$\eta_{y/x}$	M	SD	r	$\eta_{y/x}$	M	SD	r	$\eta_{y/x}$	M	SD	r	$\eta_{y/x}$
Class	262.1	87.6	.02	.08	242.9	73.9	-.02	.09	284.9	73.8	.01	.05	276.7	80.1	-.01	.08
Study	253.3	156.9	-.09*	.10	269.1	136.7	-.07	.10	273.4	118.8	-.10*	.10	223.6	102.1	.01	.04
Org. Phy. Acty.	56.4	76.4	.03	.04	59.9	75.8	.03	.08	63.6	75.7	-.05	.06	95.5	85.5	-.05	.06
Extracur. Acty.	13.1	48.0	.02	.09	22.3	60.1	.08*	.14*	19.2	51.7	.01	.05	21.0	74.1	.01	.05
Off. Bus.	86.8	97.2	-.29*	.31	71.9	81.6	-.15*	.16	66.8	97.9	.03	.05	125.5	89.0	-.01	.13*
Pers. Bus.	122.0	100.4	.06	.09	117.4	79.7	.01	.09	116.8	82.5	.02	.03	103.8	93.1	.00	.03
Optional/Rec.	116.7	133.1	.09*	.12	115.1	122.2	-.01	.03	70.2	87.4	.05	.06	50.9	78.6	.11*	.11
Meal Time	109.2	50.8	-.02	.03	110.0	33.9	-.03	.07	120.8	50.5	-.02	.08	126.0	55.3	.01	.11*
Sleep	406.1	115.6	.10*	.14	425.4	103.1	.13*	.14	421.0	95.9	.06	.09	397.6	92.8	.02	.06
Pt. II A. Rec. Chg.																
Acad. Class	-35.5	34.3	-.01	.05	-28.9	35.2	.11*	.12	-28.1	34.2	.02	.06	-22.4	35.3	.03	.06
Tactics Class	-12.0	27.7	-.10*	.12	-14.1	30.0	-.08*	.11	-15.2	28.2	.00	.04	-9.1	25.1	..03	.08
Study	15.4	48.0	-.01	.03	19.4	43.3	.03	.07	19.5	40.7	-.04	.04	23.3	34.9	-.03	.09
P.E. Class	-0.8	14.7	-.01	.13*	0.5	16.0	.01	.05	-2.3	17.5	-.04	.06	-3.8	13.4	.00	.04
Intramurals	-7.9	23.1	-.05	.07	-6.1	22.1	-.03	.04	-7.9	23.2	-.05	.07	-6.1	17.2	-.03	.05
Corps Squad	2.1	13.6	.04	.10	0.4	13.7	.06	.07	1.3	15.9	-.02	.03	-0.1	13.4	.01	.05
Extracur. Acty.	3.4	21.7	.03	.09	5.3	20.7	.04	.07	5.6	21.5	.02	.07	4.0	19.4	.03	.09
Off. Bus.	-17.7	31.4	.11*	.14	-16.3	27.2	-.04	.05	-15.8	25.1	.03	.08	-20.6	26.8	-.01	.08
Pers. Bus.	6.8	22.5	-.02	.06	3.3	20.4	-.09*	.09	4.6	20.1	-.01	.03	4.4	20.2	-.04	.08
Optional/Rec.	19.4	31.9	.00	.03	13.7	28.6	.01	.15*	15.3	28.5	.04	.06	11.4	22.0	.05	.08
Sleep	33.8	40.2	.03	.06	25.9	34.2	.03	.06	29.0	38.4	.03	.06	26.2	32.8	.02	.07
B. Extra Hr. Use																
Study	15.5	16.6	.04	.07	18.1	16.4	.03	.05	18.3	17.1	.03	.08	22.4	17.1	-.05	.10
Org. Phy. Acty.	3.2	9.1	.01	.04	3.7	9.3	-.04	.06	3.6	9.5	-.04	.06	2.7	8.2	.03	.10*
Extracur. Acty.	2.7	8.1	-.01	.05	2.7	7.8	-.01	.06	3.8	9.9	.03	.05	2.7	7.5	.01	.05
Off. Bus.	2.3	6.0	-.09*	.13	1.5	4.9	-.07	.08	0.7	3.0	.05	.06	1.6	4.8	.02	.03
Pers. Bus.	6.3	10.7	-.01	.07	5.4	9.0	-.03	.05	5.6	10.2	.03	.03	6.6	10.3	-.02	.05
Optional/Rec.	13.2	15.5	.01	.12*	11.5	14.1	-.02	.06	12.0	15.2	-.01	.06	9.2	13.3	.06*	.09
Sleep	16.7	17.9	.00	.06	16.8	17.6	.03	.08	15.4	17.5	-.03	.04	14.3	16.7	-.01	.04
D. Time Overall	1.9	0.7	-.01	.10	2.0	0.8	-.04	.05	2.0	0.7	-.06	.08	2.1	0.6	-.00	.08
F. Cum. Fatigue	2.7	0.6	.09*	.09	2.7	0.7	.10*	.12	2.7	0.7	.03	.05	2.7	0.7	.05	.07
I. # X-cur.	1.0	1.2	.05	.08	1.6	1.9	-.05	.14*	1.5	1.6	-.06	.10	1.3	1.7	-.07*	.10
J. # Int. X-cur.	0.3	0.5	-.01	.05	0.3	0.6	.02	.07	0.3	0.6	.02	.06	0.3	0.5	.02	.04

*F-test, $p < .05$ for linear correlations (r) or for non-linearity (Eta).

DISCUSSION OF APPENDIX V d

(Relationships Between Officer Potential (ASR) and Responses to Time Study Questions)

The Aptitude for the Service Ratings (ASR) have been repeatedly demonstrated to have at least as high validity as a predictor of later success in the Army Officer Corps as intelligence tests typically have as predictors of academic success. ASR has a high correlation with Rank in the Cadet Corps.

1. ASR vs Use of Time in Nine Categories. For all time use categories except current time in class and time spent in Organized Physical Activities, there are consistent and significant relationships between ASR scores and the amount of time currently devoted to that category. Most strongly related is time on Official Business in the First and Second Classes. The higher the ASR, the greater the time spent on Official Business, significantly so in the First and Second Classes.

In the upper three classes, Study Time is directly related to ASR. The correlation for the Second Class does not quite meet the adopted level for statistical significance.

Time in Optional/Recreation Activities is inversely related to ASR in all except the Second Class. The correlations for the Second and Third Classes are not statistically significant.

Time both in Sleep and in Extracurricular activities are inversely related to ASR scores in all four classes. The linear correlations in only the Second Class are significant for both categories. The Sleep correlation is also significant statistically for the First Class for which cadets in the first quintile on ASR average less sleep (6.25 hours) than any other quintile of this class or any quintile of the other classes.

Although the inverse relationship between Personal Business time and ASR is consistent across all four classes, none of the correlations are statistically significant.

2. ASR vs Recommended Reallocation of Time. None of the correlations between ASR and recommended reallocation of time for Study, Intramurals, Corps Squad, Extracurricular, or Sleep activities are statistically significant, although the relationships are consistent across classes in the trends for all five of these categories, the first two being directly related, the others being inversely related to the degree of recommended increment.

In the First and Second Classes the lower the ASR the greater the recommended reduction in time allotted to Tactics classes. Both correlations are statistically significant.

In all four classes the magnitude of recommended increase in time for Personal Business is directly related to ASR. The correlation is statistically significant only for the Second Class.

In all four classes the magnitude of the recommended increase in time for Optional/Recreation activities is inversely related to ASR. The relationship in the Second Class is significantly curvilinear.

3. ASR vs Activity Categories in Which an Extra Hour Would be Used. In the First and Fourth Classes, amount of the extra time that would be used for Optional/Recreation Activities have significant inverse relationships with ASR.

In the First Class the small amount of the extra time that would be used for Official Business activities has a direct and significant linear relationship with ASR. This relationship in the Second Class is also a direct one (the high ASR cadets would use more time for Official Business) but the correlation coefficient is not quite large enough to meet the criterion being used for statistical significance.

There is a direct relationship between ASR and time to be used for Organized Physical Activity in the Second and Third Classes. In the First and Fourth Classes, there is an inverse relationship; that for the Fourth Class is significantly non-linear due to the deviant low mean for Fourth Classmen in the fifth quintile on ASR.

Time that would be spent in study is inversely related to ASR in the upper three classes, but none of the correlations are statistically significant.

4. ASR vs Adequacy of Time Overall. The concerns of the judgments among cadets in all four classes as to the adequacy of time to meet overall requirements (Question D), indicates that cadets with high ASR's tend to find the overall time adequate, and vice versa, but only in the Third Class does the correlation approach statistical significance.

5. ASR vs Cumulative Fatigue. There is a consistent tendency in all four classes for cadets with high ASR's to have less cumulative fatigue (Question F) than those with low ASR's. The correlations for the First and Second Classes are statistically significant and that for the Fourth Class approaches significance.

6. ASR vs Extracurricular Activities. In the lower three classes, cadets with higher ASR's tend to participate actively in more Extracurricular Activities. In the First Class, the relationship is reversed, but the differences in this class are not statistically significant.

The number of such activities to which cadets in the lower three classes, cadets with higher ASR's seem to be inversely related to ASR, but none of the correlations even begin to approach statistical significance.

APPENDIX VI

TIME SURVEY COMPARISONS*

The last previous full-scale time survey was carried out during AY 66-67. It was composed of several phases. In the first phase all cadets were requested to give typical times which they spend daily on the several categories. In the second phase a sampling of cadets gave times for a particular day. Half of these cadets actually logged the time they spent as the day progressed, while the other half reported, immediately after the day in question, how they had spent the time during the previous day. The total number of cadets in this second-phase sample was 1287. The second-phase portion, and the figures it produced are therefore the ones used in the comparisons set forth below.

During a period of several years terminating in AY 69-70, the Air Force Academy conducted time surveys twice a year on a sampling basis. During the last two years of this process the sample consisted of 8 squadrons at each administration (in October and March), with 2 squadrons reporting for each of the four weekdays, Monday, Tuesday, Wednesday, and Thursday during the test period. The means of the four samplings over the four weekdays are used in the comparisons below as typical weekday values from USAFA.

The times devoted to sleep in the various surveys are presented in Table 1.

TABLE 1

COMPARISON OF SLEEP TIME

			4°	3°	2°	1°
USMA	71	Mon-Thurs	6:35	6:58	7:06	6:50
USMA	67	Mon-Thurs	6:26	6:44	6:46	6:31
USAFA		Mon-Thurs	7:00	7:05	7:03	7:32
USMA	71	Friday	7:07	7:24	7:05	6:39
USMA	71	Weekend	19:54	18:11	17:49	17:09
USMA	71	Weekly Total	53:21	53:27	53:18	51:28

The figures indicate a slight increase in weekday sleep time since 1967. Both academies show comparable figures except for First Classmen. Fourth Classmen get less sleep on weeknights than upperclassmen, but catch up on weekends. The weekly totals for the lower three classes are amazingly uniform.

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*Extracted from Cutler Committee report.

The times spent on meals, to include meal formations and post-meal return to barracks, are shown in Table 2. In the '67 Survey, these figures were calculated from the official schedule, so little significance can be attached to the comparison.

TABLE 2

COMPARISON OF MEAL TIMES

	4°	3°	2°	1°
USMA 71	2:03	2:00	1:49	1:48
USMA 67	2:35	2:15	2:00	1:45

Table 3 deals with weekday class time. The first row gives the scheduled class time according to present schedules (assuming MSE core curriculum and one-hour electives). The second row gives the comparable times for the 67 survey, which were also calculated from schedules. The third row gives times one would expect if 5 minutes before and after each class are added to account for travel time to and from class. The fourth row gives the actual time reported in the survey, which includes travel time with class time. The figures are average weekday values.

TABLE 3

COMPARISON OF CLASS TIME

	4°	3°	2°	1°
Present Schedule	3:58	4:04	3:51	3:50
67 Schedule	4:18	4:07	4:10	4:07
Class plus nominal travel	4:33	4:39	4:26	4:25
71 Survey result	4:38	4:44	4:02	4:23
USAFA Survey	3:45	3:40	3:35	3:05

All figures accord with expectations except for the Second Class, which had an unusually light load (3:38) on Wednesday of the week the survey was made.

Study time figures are compared in Table 4. Nominal study time is the sum of times reported by departments as what they expect. "Department Estimates" represent the times that departments believe the "average" cadet is devoting to studies. The weekday times reported in the three surveys are for the days, Monday through Thursday.

TABLE 4

COMPARISON OF STUDY TIME

	4º	3º	2º	1º
Nominal Study Time	3:19	4:03	3:46	4:27
Department Estimates	3:05	3:05	2:45	3:48
USMA 71 Weekday	4:00	4:45	4:44	4:28
USMA 67 Weekday	3:37	4:23	3:50	3:59
USAFA Weekday	3:22	4:09	3:48	3:17
USMA 71 Friday	2:44	3:44	3:32	3:14

The figures reveal that, with the exception of First Classmen, cadets are spending substantially more than the nominal expected time on their studies during the week, whereas many departments believe they are spending considerably less. This phenomenon is consistent with the considerable standard deviations reported for study time. What is happening is that the sizable fraction that are devoting minimum time to studies are attracting departmental attention, while the others are not.

It may also be true that nominal study times are not realistic, and would be higher if the requirements for term papers, themes, lab reports, and design problems were more fully represented in the figures.

The figures show that study time has definitely increased since the 67 survey, notably so in the case of Second Classmen, and it is doubtless fair to attribute a significant portion of this change to increased demands in core-curriculum courses. It does not seem likely that electives could account for it all.

The lower study times for Friday are in accord with expectations due to the lighter Saturday load. They are still well above the nominal load.

From the two preceding tables ratios of study time to class time may be calculated, and are given in Table 5. The nominal ratio is based on the nominal study time expected by departments and the scheduled class time. The 71 ratio is based on the reported study time and the scheduled class time, the latter being used instead of the recorded class time because of the indeterminate travel time included in the recorded class time.

TABLE 5

COMPARISON OF STUDY TIME/CLASS TIME RATIOS

	4°	3°	2°	1°
Nominal	.84	1.00	.98	1.16
71 Weekdays	1.01	1.17	1.23	1.17
67 Weekdays	.84	1.06	.92	.97
USAFA Weekdays	.90	1.13	1.06	1.06

The figures indicate the ratios have increased since 1967, and are also larger than the nominal ratios. The increases reflect chiefly the increased study time, as the class time has not decreased that much. The ratios are still substantially less than the 1.50 to 2.00 that would generally be considered optimum.

In the area of athletics the 67 Survey included all athletic activity, including "exercising in the gym, recreational skiing,...(and) other athletic endeavor not covered by the preceding questions," under the heading of Athletics. In the 71 Survey, on the other hand, "...unorganized recreational activities not counted as part of organized Physical Activity...e.g., a pickup basketball game, tennis, ..." are counted as Optional/Recreational. In other respects Organized Physical Activity in the 71 Survey is the same as Athletics in the 67 Survey, and includes PE classes, intramurals, Corps Squads, PT Tests, correctional exercise, and "those competitive athletic clubs which are authorized in lieu of intramurals." Thus the two surveys are not quite comparable in this category. The figures are presented in Table 6 below, and in all cases are averages for Monday-Thursday except for the bottom line.

TABLE 6

COMPARISON OF PHYSICAL ACTIVITY

	4°	3°	2°	1°
USMA 71 - Org. Phys. Act.	1:41	1:11	1:06	1:06
USMA 67 - Athletics	1:24	1:21	1:30	1:39
USAFA - Phys. Exercise	1:19	1:08	1:10	:55
USMA 71 - Friday	1:03	:40	:37	:19

The figures show that the physical activity load for Fourth Classmen has significantly increased, especially when it is recalled that informal athletic activity is not included in the 71 data. The Friday figures are

representative of an off-intramural day, and represent corps squad and athletic club participation; the low First-Class time could reflect the fact that off-season Corps Squad practice in the Spring would not draw many First Classmen. It is also likely that First Classmen avoid sports clubs in the Spring in favor of exercising their wheels. The higher 67 data, especially for Second and First Classmen, can only be accounted for by the fact that these times include individual exercise and informal athletic activity.

The category described as Optional/Recreational in the 71 Survey is similar to that designated Personal Affairs in the Survey, except that it also includes those informal athletic activities counted as Athletics in 1967. In view of the puzzling results revealed in Table 7 the full definitions of the categories are reproduced below.

Optional/Recreational (1971): Include individual recreational or leisure activities such as movies, escorting, letter writing, reading, religious activity, rap sessions, and unorganized recreational activities not counted as part of Organized Physical Activity or Extracurricular Activity, e.g., a pickup basketball game, tennis, bridge, etc.

Personal Affairs (1967): This category includes letter writing, voluntary religious services, activities, trips to PX, watching athletic events, attending movies, and escorting, but excludes such things as extracurricular club activities, visits to the hospital, haircuts, and Fourth Class System requirements.

Note that the sum of Optional/Recreational and Organized Physical Activity for 1971 ought to be comparable to the sum of Personal Affairs and Athletics for 1967. Results are presented in Table 7.

TABLE 7

COMPARISON OF RECREATIONAL ACTIVITY

	4°	3°	2°	1°
Optional/Recreational (71: Mon-Thurs)	:42	1:05	1:37	1:32
Optional/Recreational (71: Friday)	1:12	1:29	3:05	2:37
Personal Affairs (67: Mon-Thurs)	1:53	2:26	2:40	2:23
Sum of O/R and OPA (71)	2:23	2:16	2:43	2:38
Sum of PA and Athletics (67)	3:17	3:47	4:10	4:02

If the figures are to be believed the cadets are spending a great deal less time now on the combination of athletics and recreation than they were four years ago. The only reasonable explanation for the divergent figures is that some additional major element not included in the formal definition; personal hygiene is one possibility in this regard.

In the 67 Survey Official Business was so defined that it was roughly comparable to the sum of three categories of the 71 Survey, Official Business, Personal Business, and Extracurricular Activities. Thus detailed definitions are again important and are set forth below.

Official Business (1971): Include chain-of-command duties, administrative duties, and directed activities to include preparing for and attending inspections in room and ranks, drill and ceremonies, official trips to Cadet Tailor, counseling, punishment tours, CQ, Guard Duty, Fourth Class Duties, study of Fourth Class knowledge, Special Inspections, etc. (It is possible that the blood donor program, which was in full swing during the survey week, was also included as official business.)

Personal Business (1971): Include non-directed but required activities such as sick call, dental appointments, haircuts, laundry, personal hygiene, etc.

Extracurricular Activity (1971): Include participating in or administering any authorized extracurricular activity of a non-athletic nature. Do NOT include unorganized recreational activities.

Official Business (1967): This category includes time devoted to:

Cadet Chain of Command Duties: Time spent writing unit reports, inspections, holding and attending company meetings.

Individual Administration: Time spent on Sick Call, dental appointments, haircuts, laundry, time on the Area, care of rooms and equipment, official trips to Cadet Store, counseling with Tactical Officer.

Extracurricular Activities: Time expended as a participant or official in hobby or club groups not including competitive athletic club activities.

Fourth Class System Requirements: Time spent learning information, calls and mail carrier duties.

The data related to these various categories are presented in Table 8.

TABLE 8

COMPARISON OF OFFICIAL BUSINESS

	4°	3°	2°	1°
Official Business (71)	2:00	:58	1:10	1:26
Personal Business (71)	1:37	1:54	1:56	1:59
Extracurricular (71)	:16	:20	:22	:12
Grand Total (71)	3:53	3:12	3:28	3:37
Official Business (67)	2:10	1:54	1:33	1:59
Official Business (USAFA)	1:48	1:00	1:07	1:11

The comparable figures, lines 4 and 5 in the table above, indicate a large increase in the time devoted to the combination that was described as Official Business in 1967. The Extracurricular Activities are a negligible component in the matter. A close perusal of the definitions indicate that the only elements included in the 71 data that were not specifically mentioned in the 67 survey definitions were Drill and Ceremonies, CQ and Guard, and personal hygiene. There were no scheduled drills during weekdays of the 71 test period and surely CQ and Guard time would have been included under Official Business in 67. Thus the increase in these categories must be a real one, or a great deal of time is being spent on personal hygiene.

APPENDIX VII

SUMMARY OF HISTORY AND SELECTED SIGNIFICANT FINDINGS OF USMA CADET TIME SURVEYS*

Time surveys and discussions of the need for them have occurred periodically at the US Military Academy for many years. These surveys were conducted by various USMA agencies and used several different methods of obtaining the basic data. This summary will present in chronological order a review of previous investigations of this and closely related problems.

In 1954 a comprehensive survey of the Class of 1955 was conducted by COL Stamps of the Department of Military Art and Engineering. Since that time (and probably prior to it as well) time checks were made intermittently by other academic departments.

In November 1958, a cadet time questionnaire was administered by MP&L to two samples of cadets from each class to learn how effectively they utilized their time. One sample from each class was made up of cadets who regularly went to bed prior to the termination of underclass "late lights" (forty-five minutes after taps). The results from this survey showed that those cadets who regularly went to bed early, either through superior ability or planning, were able to perform academically on a higher level and to carry a more extensive load than those cadets who stayed up late. The detailed time breakout reported is no longer applicable due to extensive changes in courses and scheduling.

In October 1962, a cadet time study survey was made of the Classes of 1963, 1964, and 1965 to ascertain how much time the cadets spent in studying in comparison with their other activities. The survey utilized a sample made up of about one-half of the classes involved. A detailed questionnaire was administered covering the activities of the preceding 24 hours up to the class period in which the questionnaire was administered. The cadets were requested to record actual time spent in various activities without regard to regulations or customs as to what they should have or were supposed to have done. They also were asked to indicate whether it was a typical day. They were not required to make the day add up to 24 hours if they could not remember the time spent on all their activities. In January 1963 the Dean reported upon a similar study conducted by Department of ES&GS on Fourth Class Cadets (Cl of '66). (The US Air Force Academy used the results of these surveys for comparison purposes with its studies.) The specific findings of these surveys are no longer directly applicable due to changes in course content, emphasis and scheduling.

On 3 November 1964, USMA Regulation 330-1, STATISTICAL AND ACCOUNTING SYSTEM--Cadet Time Surveys, was published. This regulation called for semi-annual cadet time surveys by the Commandant of Cadets. The provisions of this regulation were not implemented for reasons stated by the Deputy Commandant as follows: "No surveys were conducted under this directive, since the Superintendent, acting on the advice of some members of the Academic Board, verbally

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*Originally prepared by COL G.W. Medsger.

suspended the regulation pending further study." The concern of the objecting members of the Academic Board was apparently the fear that administrators rather than educators would evaluate the time spent by cadets in study of subjects for which they, the objecting members, are responsible. The Dean earlier had stated that "Experience would indicate that for an operation of this nature the control, coordination, and interpretation thereof should be vested in the Superintendent." Other working papers of that same time frame indicate the concern of the Dean and the Commandant over the possible bias and parochialism on the part of any surveying activity having a vested interest in the results.

In December 1965, the US Air Force Academy sent to USMA the results of its time survey of 25-26 October 1965 and comparison data with previous US Air Force Academy surveys, the 1962 US Military Academy survey and a November 1963 US Naval Academy survey. The time data were not comparable among the service academies because of fundamental differences existing between definitions used for blocks of cadet time, periods of time covered or time of administration. The Air Force time survey questionnaire required each cadet to have the time spent for his activities add up to 24 hours. This survey gave useful information as to how the US Air Force cadets use their time.

The issue of time surveys was again raised in January-February 1966 when preparations were being made for the Conference of Academy Superintendents. At that time a decision was made to revise the USMA regulation calling for surveys by assigning responsibility for their conduct to the newly established Office of Research. On 11 July 1966, the revised USMA Regulation 330-1 was published. This revision gave the Director of Research primary staff responsibility for the coordination (of the development of formats, program output and any changes in the system) with the Commandant of Cadets and the Dean to insure that the data produced by the study is responsible to the needs of interested agencies. Also, he would direct and supervise the administration of the survey to each class at least once each academic semester (normally during the second week in December and second week in May). This regulation allowed departments to request additional one-time information type questions to be included in the survey and, under rare conditions, to conduct separate surveys.

In October 1966, a time survey study was performed and a report for AY 66-67 was prepared by the Office of Research. During AY 66-67, the Department of Social Sciences also made many study time checks. It found that cadets averaged 40 to 50 minutes in preparation for regular classes and an additional amount of time preparing special reports and term papers. The total study time was estimated to be 70 to 80 minutes on a per lesson basis for Social Science courses. It was also found that the highest and lowest sections normally studied more than the middle sections.

In September 1966, the Medical Research Project prepared Research Report No. 26, An Assessment of the Effects of Sleep and Study Time Upon Fourth Class Achievements. The report's stated purpose was to present and up-date certain objective information on sleep and other activities of cadets, and to explore

interrelations between factors which may bear on the problem of whether or not USMA cadets were overworked. Time samples were gathered throughout fiscal year 1966 on a random sample of 320 Fourth Classmen of the Class of 1969 and 141 upperclassmen.

In January 1967, the US Air Force Academy sent the results of its cadet time survey of October 1966 and comparison data with previous US Air Force Academy surveys and the October 1966 US Naval Academy survey. Again, time data were not really comparable among the service academies because of fundamental differences existing between definitions used for blocks of cadet time, periods of time covered or times of administration. This survey gives useful information as to how the US Air Force cadets use their time.

In April 1967, a second preliminary cadet time survey report was prepared by the Office of Research. That report explained in some detail the findings of both the 1966 and 1967 studies. No further surveys were conducted under the provisions of USMA Reg 330-1. In fact, the regulation appears to have served to prevent further time surveys except as requested by the Superintendent.

During March and April 1971 a time survey of the entire Corps of Cadets (N = 3474) was conducted jointly by the Office of Institutional Research and an ad hoc committee (Committee to Study the Scheduled Load Carried by Cadets) appointed by the Superintendent and chaired by COL Cutler. The results of that study were made available to the members of the Academic Board on 28 July 1971.

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13. ABSTRACT

In the Spring of 1971, all cadets were asked to report their use of time on weekdays in nine comprehensive categories, the adjustments in time allocated to each that they recommend as improving their overall development in consonance with the mission of USMA, how they would use an extra 60 minutes if it could be made available, their use of time on weekends, the adequacy of time available for them to meet all typical weekday demands (overall) and for academic study, their usual cumulative fatigue status, the year experienced as the hardest in terms of academic work load and of overall load, and the number of different kinds of extracurricular activities in which they participated actively. They also listed any extracurricular activities to which they then were devoting an average of at least five hours a week.

This report presents a summary of the responses to each question and the results of relatively intensive analyses of the interrelationships between the questions, and of relationship between each cadet's responses to relevant questions and his rank in the Corps of Cadets, Corps assignment, time spent studying, academic average for that term, academic potential (CEER), and leadership potential (ASR).

Among the more important questions raised by these data are the following: Why is there such low correlation between the amount of time a cadet spends studying and his academic average, even when CEER measured academic potential is held constant? Why does the overall inverse correlation between times spent in official business and in study as a whole not differ significantly among the four classes in spite of the large differences in the official business demands on the four.

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Work load, academic						
Extracurricular activities						
Time, use of						
Study, academic						
Study, effect of						
Academic success, concomitants						
Student time, adequacy of						
Study, concomitants						
Academic potential vs study						