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**"The Cycles Surveys:  
Longitudinal Indicators of the  
Quality of Student Life and a  
Framework for Evaluation and  
Administrative Experimentation"**

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*A set of quality of student life indicators, the Cycles Survey, is described. It was developed to provide a low cost, quality institutional research program capable of longitudinal research, continuous broad bandwidth monitoring, and data comparisons with other institutions. The development of the 50 questions and the form and format of the survey is presented. Test-retest reliabilities of the questions of the survey were found to be good. The Cycles instrument is multidimensional without dominant evaluative, halo, or response-effect factors. Some uses of Cycles data are presented. It is suggested that Cycles surveys will be useful at other colleges and universities, as well as to business, government, and health institutions.*

## **THE CYCLES SURVEYS**

### **Longitudinal Indicators of the Quality of Student Life and a Framework for Evaluation and Administrative Experimentation**

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**T**he institutional researcher in higher education has lacked a good set of indicators for monitoring the quality of student life. Some psychological handbooks of research instruments now exist and some commercial tests have gained currency; yet these can be especially ill-suited for innovative and experimental colleges, programs, and goals, for continuous longitudinal studies, or for low-budget research at any kind of institution (Bonjean et al., 1967; Buros, 1965; Miller, 1964; Pace, 1975; Robinson and Shaver, 1969; Shaw and Wright, 1967).

In confronting the problems of developing a low cost, quality institutional research program capable of longitudinal research, continuous broad bandwidth monitoring, and data comparisons with other institutions, we have developed an initial set of quality of student life indicators—the Cycles Survey.

The Cycles surveys have been developing over four years, have been used at Hampshire College for fifteen surveys over a seven-semester period, and have been used in multicollge evaluative studies. They have been used to investigate short-term changes in key monitoring variables over the course of a term; they have been used to measure annual changes at the College; they have been used to investigate the quality of life for specific subgroupings; and they have been used to piggy-back other timely research questions.

### **THE LONGITUDINAL RESEARCH FRAMEWORK**

Many research or evaluation questions cannot be adequately answered by one-shot studies. To account for historical changes in the environment, to recognize changes within the college (or university), and to begin to unravel causality, a time-series research design is necessary (Campbell and Stanley, 1963). Colleges are continually making changes and continually having changes made upon them. Some of these changes are planned while others are unplanned. Yet for any change it is often important to know whether to facilitate, impede, or reverse it. An ongoing set of data on key monitoring variables can help evaluate the many administrative experiments occurring in our colleges (Astin, 1971; Campbell, 1967).

The basic idea of the Cycles surveys is very simple. A brief survey is designed to include questions that will monitor key aspects of the quality of student life and the effectiveness of the college. The survey is kept brief enough so that it can be used repeatedly without undue burden to each sample's participating students. The format of most questions is standardized to permit ready addition of new questions for specific topical inquiries and to facilitate cross-survey comparisons. A random sample of students is invited to participate in the survey; in some cases a stratified random sample may be more appropriate. Results of each Cycles survey are fed back to the college community, often via the campus newspaper. After a few administrations of the Cycles surveys,

time-series graphs are prepared for each key monitoring variable. Given these initial data, campus decision-making groups can set goals against which the Cycles data may be compared.

This has summarized the process of the Cycles surveys. While the exact content of a Cycles survey will vary at each college, the Cycles survey developed at Hampshire College and presented here focuses on content areas that will be of interest to most other schools.

## THE QUESTIONS

Variables to be included in Cycles were chosen after a review of the literatures of higher education, organizational behavior and development, and the specific institution to be monitored, Hampshire College. Indicators were desired that were brief, had high face validity, had been previously used, and had reliability and validity data. Rarely were all four criteria met. Often the readily available indicators for variables such as self-esteem or locus of control were multiple item scales, not single questions (see Robinson and Shiver, 1969). When such was the case, a single question with high item-total correlation was selected or used as a model for developing an item more suited to Cycles.

To obtain reasonable response rates, to permit sequential studies, and to enable other investigators to incorporate some of these standard indicators in their own research, single item indicators of key variables were desired. After experimentation with different response categories for each precoded question, standard uniform response categories were chosen. The five-point extent scale and the four-point satisfaction scale were chosen to save space and response time, to provide comparability across questions and surveys, and to reduce potentials for respondent confusion (Taylor and Bowers, 1972).

Several summary questions concern reported student satisfaction: with one's college experience, with one's residence experience, with residence house staff, with one's adviser, and with one's academic progress. More specific evaluations include the security program, courses, and food service.

To obtain self-reports of more behavioral data, several questions focus on how students spend their time: average hours per week spent on course academic effort, on noncourse academic effort, in playing or relaxing, in the dorm lounge, times met with adviser, and days sick. In

educational programs that foster learning outside the classroom, separating course and noncourse academic effort is necessary to better plan for and evaluate both class and noncourse activities. In data analyses we also compute the ratio of noncourse to total academic effort. We included the question of time spent in the residence lounge because of an ongoing concern with residence-hall life.

Of course, the standard demographic questions are included: sex, age, third world, degree of financial aid, transfer student, entering class and term, residence hall, and academic status. At Hampshire academic progress is measured by divisional examinations—student-initiated/faculty approved learning contracts. For colleges that have grades and that do not believe them rendered invalid by grade inflation, the student's grade point average may be requested.

To obtain another perspective on students' education, we ask them what they have learned recently. Hampshire's initial design focused on three areas of education: intellectual, social, and physical; so does our Cycles survey. In addition to the precoded response category describing the extent of learning, participants are requested also to give specific examples of their learnings.

To help understand some of these summary and behavioral answers, we ask a number of process and some personality questions. Much research has focused on the importance of self-esteem and of internal-external locus of control in education; we include an indicator of each variable. Success at nontraditional schools has been tentatively linked with energy and the ability to create fun while completing work; these questions are included. Also, research at a prestigious traditional college found commitment to a working group (such as the newspaper, theater, or swim team) related to academic achievement (Birney et al., 1960). Trust, isolation, loneliness, and liking room or hall mates are all important variables in their own right, and as aids in understanding students' experiences. And, because of its possible influence on morale and to measure differing evaluations of the same stimulus, students' satisfaction with the weather is assessed.

Three open-ended questions are included. They provide a change of pace from the previous precoded questions, and permit the participant to give rich, albeit short data. A rather open, projective question is "About Hampshire, I feel." We ask if there were any critical incidents that happened during the survey period that may have affected the student's answers—both to assess the representativeness of the data and to obtain another view of salient events for the students. And last, we ask

what practical changes in the College the student would like, and what they feel should not be changed.

Finally, to monitor some of the cost of the survey and as another less obtrusive behavioral measure, we ask for an estimate of the time it took the student to complete the survey. Other similar indicators we have used have been whether the student returns the survey anonymously and whether s/he requests a summary of the results.

Most of our Cycles surveys ask the student to focus on their experience during the past two weeks. We wanted to be able to relate our data to specific, common times for all participants. This could increase the likelihood that all participants would be responding to the same "stimuli," and would make evaluation of various campus or program changes easier. We also wanted to determine how critical it was for the annual data comparisons to be based on data collected the same week of the year.

At five times during the spring 1974 term separate random samples of students were requested to complete the Cycles survey. This was approximately every two weeks, allowing for recesses. The reported quality of life of Hampshire students collectively was rather constant during that term. Analyses using two-tailed t-tests found that there were changes in some specific variables, but overall the major effect seemed to be due to the depressing effect of New England's winter weather (Kegan, 1974b). Some of the other changes were to be expected given the related events of the academic calendar.

Annual data comparisons have fewer threats to validity if the surveys are conducted at the same time each year. However, frequent use of the Cycles survey during one term or year can serve to "calibrate" later measurements made during different times. The institutional researcher may wish to change the focal time period from "the past two weeks" to "this term" after initial calibration of high and low periods during the academic year and if Cycles surveys are conducted only once or twice a year. Whatever the focal time period, it is important that it be explicitly stated so that all participants will be responding to the same set of stimuli.

### SOME USES OF CYCLES DATA

Cycles is primarily a framework for institutional research and evaluation. Its uses can be as diverse as the foresight and imagination of the

researcher implementing and using it. Description of the uses initially made of the Hampshire Cycles data illustrate some of the ranges of Cycles applications.

One of the four Schools within Hampshire devised a new system of faculty responsibilities. Each faculty member within the School would have one semester a year primarily devoted to teaching classes and the other semester primarily devoted to tutorial activities, helping students pass our divisional examinations. This was in contrast to the prior system of having all faculty responsible all the time for both classes and tutorial activities. It was hoped that this separation of responsibilities would help reduce the fragmented pace of faculty activities, reduce the sense of faculty overload, and maintain or improve the quality of teaching. Part of the evaluation of this tutorial-teaching plan included using Cycles data to assess student satisfaction with courses and advising in this School. Because of the prior database, pre-post comparisons could readily be made. Also because Cycles surveys were established prior to and independent of this tutorial-teaching experiment, the evaluation would not be contaminated by the introduction of a new testing procedure. Finally, because the Cycles surveys were an ongoing system, use of Cycles data to help evaluate the tutorial-teaching plan had a very small marginal cost. Evaluation of the College-wide advising system for a federal research grant and for our own information used a similar design.

An evaluation of an experimental new student orientation activity used Cycles in a different way. The Outdoors Program (OP), a voluntary, coeducational alternative to compulsory physical education and intercollegiate team sports, offered new students a week of camping and interaction with other new students, with returning students experienced in outdoors activities, and with a few faculty. Part of the objective of this outdoors orientation was to reduce new student isolation and loneliness. Midway through the first semester participants in the OP orientation program were invited to evaluate the orientation program and to report their current college experience. Although this survey was conducted by the OP, they used some of the same questions on the Cycles survey. Thus they were able to compare the scores of their orientation group with the scores of a collegewide sample of new students from a regular Cycles survey. The OP was able to use questions of known reliability and to obtain comparison group data with little cost or effort.

Each of its first seven operating years, Hampshire has conducted a Fall Colloquy. Initially designed as an alternative to the traditional

freshperson orientation, Colloquy has changed so as to now be designed as an intensive learning experience for new students, returning students, faculty, and staff (Patterson and Longworth, 1966). The post-Colloquy Cycles survey has had a few questions appended. These questions assess the number of Colloquy events students participated in, how satisfied they were with the intellectual and with the social aspects of Colloquy, how valuable it was, and the best and worst aspects of Colloquy. By adding a few questions to a regularly scheduled survey, the Colloquy Committee obtains representative data for little cost or effort, data that can supplement their other forms of evaluation.

The residential House system at Hampshire was designed to be an integral part of students' educational experience. The nature of that experience and the success of that design have been continuing concerns. Each of Hampshire's five Houses are architecturally distinct, each has its own staff, its own philosophy, and its own program. The Cycles surveys have been used to investigate the educational role of House programs. Also, regression analyses have consistently shown that not feeling isolated and being satisfied with one's academic progress are major contributors toward being satisfied with one's Hampshire experience. House staffs have used such findings to supplement their own direct experience of students' needs to design appropriate House programs and to support proposals to the administration for new programs.

Finally, the Cycles surveys have been used in a collaborative study at Hampshire College, Amherst College, and the University of Massachusetts at Amherst (Kegan et al., 1975). Two-tailed t-tests were used to investigate differences between the colleges. Reported isolation was greater at Hampshire than at either other college and, as expected because of its focus on independent learning, Hampshire students spent more time on noncourse academic work. Amherst College students reported a greater commitment to a working group, greater satisfaction with their security program, and greater trust of people. Students at the University of Massachusetts College of Arts and Sciences reported lower satisfaction with advising, academic progress, and their college experience. Using a discriminant analysis and the parallel nondemographic Cycles questions, 68% of the usable cases were correctly classified as to home college. Using demographic questions alone correctly classified only 48% of the cases. Thus, although there were some differences in entering-student characteristics, the three-college Cycles survey implied that there were also different program priorities and differing qualities of student life at the three institutions.



## FORM AND FORMAT

To facilitate data analysis, we have structured the survey instrument so that the respondents code their own forms (see Figure 1). To facilitate our cleaning the coded data for computer entry (either keypunching or direct timeshare access), we have placed a single blank by questions that take a single-digit answer and a double blank by questions which take a double-digit answer (for example, questions 29 and 30). We recode responses beyond the expected allowable range: our students average seven-plus hours of sleep a night; if a student reports ten hours we would code it back to a single-digit 9. This somewhat distorts mean values but it does not distort cross-tabulation tables. And if the initial allowable ranges are well set, such recoding is seldom needed.

By keeping the response blanks along the left margin we can key-punch directly from the survey instrument. This saves time, money, and errors.

The basic Cycles instrument can be typed in elite on two sides of the standard 8½ by 11 inch sheet of paper. This has been one design constraint on the number of questions to include. We wanted a brief, brief-looking, easily handled instrument. This does, however, permit the addition of about a dozen questions if Cycles is printed on legal-size paper (8½ by 14 inches). If we have a few topical questions to add to a specific survey we usually use this legal-paper method.

We have also conducted a few "augmented" Cycles surveys, usually at the end of the year. These surveys include additional questions and take an additional sheet of paper. The Cycles surveys were designed to be a core set of questions—useful by themselves but readily augmented by other questions of special interest. They may be seen as "marker variables" to aid in data comparisons at different times at the same institution and to help institutional collaboration, whether on a small informal basis or through more formal consortia (Hurt and Hertz, 1975; Toll and Hoffner, 1974).

## RELIABILITY

However good the intent of a research instrument, it must be reliable if it is to perform well. While most of the core Cycles questions are rather straightforward and have a high face validity, it was desired to evaluate

Hampshire Cycles Survey

Office of Institutional  
Research and Evaluation

HAMPSHIRE COLLEGE

Hello! We're trying to learn more about what living at Hampshire is like: what types of changes occur during the course of a year. *We need your help* in answering these questions which focus on your experience **DURING THE PAST TWO WEEKS**. Please complete this Cycles Survey *today*, and return it to Box J (rust) of the Survey Return Center in the Library Post Office. Feel free to add marginal comments.

1. How many times have you met with your advisor in the past two weeks (write number).
2. In what School is your advisor: (1) staff; (2) HA; (3) LC; (4) NS; (5) SS.
3. How would you rate your contacts with your advisor: (1) poor; (2) fair; (3) good; (4) very good; (5) excellent.
4. How satisfied have you been with your advisor: (1) very dissatisfied; (2) dissatisfied; (3) satisfied; (4) very satisfied.
5. How satisfied are you with your academic progress the past two weeks (use codes from Question 4).
6. During the past two weeks, how satisfied have you been with your Hampshire experience (use the codes from Question 4).
7. How satisfied have you been with your House experience (use codes from Question 4).

For questions 8–26 use this **EXTENT SCALE**: (1) to a very little extent; (2) to a little extent; (3) to some extent; (4) to a great extent; (5) to a very great extent.

8. I have been satisfied with my House staff (use EXTENT Scale).
9. I feel I have influence over the things that happen to me.
10. I have been satisfied with the weather and outside environment the past two weeks.
11. I like myself.
12. During the past two weeks, I have been able to participate in and create fun while completing my necessary work.
13. I have usually been energetic and enthusiastic.
14. I have been trusting of people, I have not been cautious or guarded.
15. I have felt lonely during the past two weeks.
16. I have felt isolated from most of the people at Hampshire.
17. I am satisfied with Hampshire's security program.

Figure 1. Hampshire Cycles Survey, 1977 Version

- 
18. I have liked the people I live with (my mod/suite) the past two weeks.
19. I have a commitment to a working group—e.g., Hampshire Graphics, theater, Climax, peer counseling. What group:
- xx. During the past two weeks, to what extent have you been involved in the following activities:
- =        20. Intellectual                      21. Social                      22. Physical
- During the past two weeks, to what extent have you learned in each of these three areas. Also give specific examples of your learnings:
- =        23. Intellectual                      24. Social                      25. Physical
26. To what extent are you satisfied with your first course of the week.
27. During the past two weeks, have you experienced any changes in your important personal relationships: (1) very bad; (2) bad; (3) no change; (4) good; (5) very good.
28. During the past two weeks, approximately how many days have you been unable to do your usual studying and work because you were sick.
29. On the average, how many hours have you slept per night (write number).
30. In the past two weeks, how much effort have you put into your non-course academic work (independent study, house course, etc.) in hours/week.
31. During the past two weeks, how much effort have you put into your courses in hours per week (include class time).
32. How many hours have you been in your lounge/living room per week.
33. During the past two weeks, how many hours per week have you spent playing, relaxing.
34. Current residence: (1) Merrill; (2) Dakin; (3) Greenwich; (4) Enfield; (5) Prescott; (6) off-campus.
35. Year you arrived at Hampshire: 197\_\_\_\_.
36. Term you first arrived at Hampshire: (1) January; (2) Spring; (3) Fall.
37. Number of semesters in residence at Hampshire (not on leave; include current term).
38. Primarily associated School: (1) none; (2) HA; (3) LC; (4) NS; (5) SS; (6) two or more Schools, list:
39. Number of semesters at another college before coming to Hampshire (transfer students write number; non-transfers write zero).
40. What is your degree of financial aid: (1) none; (2) some; (3) full.
41. How many Divisional exams have you successfully completed.
-

- 
42. Divisional contract filed: (1) in Div I; (2) Div II filed; (3) Div III filed; (4) Div III completed.
43. Your age.
44. Your sex: (1) male; (2) female.
45. Are you a member of the Third World: (1) no; (2) yes.
46. About Hampshire, I feel \_\_\_\_\_
- 
47. Were there any critical incidents that have happened during the past two weeks—things that may have affected your answers to these questions or were otherwise important to you?
- 
48. Considering what seems practical, what changes would you most like to happen at Hampshire? What should not be changed?
- 
49. Approximate number of minutes you took to complete this survey.
- 

Figure 1 (Continued)

more formally the reliability of the Cycles instrument. However, it is not possible to compute a meaningful split-half reliability score for the questionnaire. The Cycles instrument is purposively multidimensional; it does not produce a single index for a unidimensional scale. While there are many well-tested, reliable scales to measure most of the variables in Cycles (e.g., self-esteem, trust, locus of control, satisfaction), their use would result in an unmanageably long questionnaire. This was a key factor in developing Cycles rather than using prior established scales: to obtain reasonable response rates, to permit sequential studies, and to enable other studies to incorporate some of these standard indicators in their own research, single-item indicators of key variables were needed.

Test-retest reliability was a possible method, but it had to be modified. Traditionally such a reliability evaluation presents the identical (or parallel form) questionnaire to the same participants at two separate times. However, Cycles was developed to measure short-term changes within the term as well as to provide general snapshot evaluations: it asks the student to report on their experience *during the past two weeks*. If the test-retest period were too long, actual changes in the students' experience should be reported by them and would look like poor reliability. If too short a period were given, students' memory of their previous responses might artificially inflate the reliability scores. What was

wanted was a measure of how reliably students can report their experience using the Cycles instrument as an indicator. The research design balanced these two factors: a week after receiving the Cycles survey, replying students were requested to complete another version of the Cycles survey modified to request their report of their experience during the past *three weeks*. Thus this included the initial two-week period and allowed time for a test-retest study without undue contamination from "historical" changes. Because of variations when students completed their surveys, the "test-retest" period for some respondents may have extended from one-week to three-weeks.

Because students would be requested to complete two surveys within two weeks and because the surveys were quite similar, the Cycles instrument was further modified to reduce the time needed to complete it. Groups of questions were omitted from the Cycles instrument sent to student group B, different groups of questions were omitted from the Cycles instrument sent to student group C. The union of items from set B and set C included all of the standard Cycles questions, with some overlap between sets. The instructions were also modified to indicate the study was "special," to generally prepare students for the second request. These Cycles surveys were distributed in October 1974.

A minimum of 30 completed retest Cycles questionnaires from each student group was wanted to strengthen statistical analyses. For similitude with the periodic Cycles surveys and for practicality, no followup for nonrespondents of the initial survey was planned or made. Students responding to the initial reliability survey but not responding to the retest survey within ten days were sent a "second request" questionnaire. Based on this design, Survey B and C were each sent to 150 students; 45 first replies and 30 retest replies were expected. The actual pattern of response was quite close to that anticipated. For group B there were 42 initial and 30 retest replies; for group C there were 48 initial and 30 retest replies.

Almost all the Cycles questions proved reliable in this test-retest study. Pearson correlations were significant at  $p < 0.01$  for most items; three questions (No. 4 for group C, No. 41, and No. 45) had  $p < 0.04$ , and three questions had  $p < 0.05$ . Two of the three non-significant times refer to time estimates: it is likely that the number of hours spent on non-course academic work and the number of hours spent playing and relaxing can vary substantially from week to week. The third nonsignificant item assessed the students' commitment to a working group. Of the 30 test-retest replies from group B, 19 did not have identical responses on

**TABLE 1**  
**One Week Test-Retest Reliability Statistics for Cycles Survey**

<i>Items</i>	<i>Item Retest Reliability</i>				<i>Retest Nonrespondent Differences</i>		
	<i>Pearson Correlation</i>		<i>Probability of t</i>		<i>Probability of t</i>		
					<i>(BB,CC)</i>		
	<i>BB</i>	<i>CC</i>	<i>BB</i>	<i>CC</i>	<i>BB/B</i>	<i>CC/C</i>	<i>(B,C)</i>
1. Advisor Meetings	.64		.016		ns	ns	
2. Hours with Advisor	.71		.014		ns	ns	
3. Advisor Contact Evaluation	.71		ns		ns	ns	
4. Advisor Satisfaction	.88	.46a	ns	ns	ns	ns	ns
5. Academic Progress Satisfaction	.49	.54	ns	.037	ns	ns	ns
6. Hampshire Satisfaction	.54	.74	ns	ns	ns	.049	.026
7. House Satisfaction	.56	.80	ns	ns	ns	ns	ns
8. House Staff Help	.71		.031		ns		ns
9. External Locus of Control	.64		ns		ns		ns
10. Weather Satisfaction	.52		ns		.036		.036
11. Enjoyed Hampshire	.68		ns		ns		ns
12. Self-Esteem	.69		ns		ns		ns
13. Fun	.62		ns		ns		ns
14. Energy	.53		ns		ns		ns
15. Trust	.70		ns		ns		ns
16. Lonely	.70		ns		ns		ns
17. Isolated	.71		ns		ns		ns
18. Like Mod/Suite-Mates	.76		ns		ns		ns
19. Commitment to a Working Group	.39b		ns		ns		ns
20. Intellectual Involvement	.72	.72	ns	ns	ns	ns	ns
21. Social Involvement	.52	.53	ns	.050	ns	ns	
22. Physical Involvement	.66	.79	.007	ns	ns	ns	ns
27. Course Satisfaction-First		.77		ns		ns	ns
41. Changes in Personal Relationships		.43c		ns		ns	ns
42. Hours-Noncourse Academic Effort		.11d		ns		ns	ns
43. Hours-Course Academic Effort		.56		.000		ns	ns
X Days Sick							

TABLE 1 (Continued)

Items	Item Retest Reliability				Retest Nonrespondent Differences		
	Pearson Correlation		Probability of <i>t</i>		Probability of <i>t</i>		
	<u>BB</u>	<u>CC</u>	<u>BB</u>	<u>CC</u>	<u>BB/B</u>	<u>CC/C</u>	<u>(BB.CC)<sub>i</sub></u> <u>(B.C)</u>
44. Hours-Sleep		.89		ns		ns	ns
45. Hours-Lounge/Living Room		.49e		ns		ns	ns
46. Hours-Playing/Relaxing		.21f		ns		ns	ns
47. Residence	.93	.87	.000	.000	ns	ns	ns
48. Entering Class	.88	1.00	ns	ns	ns	ns	ns
49. Entering Term	1.00	1.00	ns	ns	ns	ns	ns
50. Semester in Residence	.98	.89	ns	ns	ns	ns	ns
51. School	.87	.95	ns	ns	ns	ns	ns
52. Transfer Student	.99	1.00	ns	ns	ns	ns	ns
53. Financial Aid	1.00	.61	ns	ns	ns	ns	ns
54. Divisional Exams Completed	.94	.98	ns	ns	ns	ns	ns
55. Age	1.00	1.00	ns	ns	ns	ns	ns
56. Sex	1.00	1.00	ns	ns	ns	ns	ns
57. Third World			ns	ns	ns	ns	ns
58. Time to Complete Survey	.26i	.68	ns	.047	ns		
61. Hours-Total Academic Effort		-.07g		ns		ns	ns
62. Ratio Course to Total Academic Effort		-.24h		ns		ns	ns

NOTE: All probabilities two-tailed; significant at  $p < 0.01$  or not significant at  $p > 0.05$ , except as noted. Probabilities greater than one percent: a = 0.013, b = 0.112, c = 0.035, d = 0.577, e = 0.025, f = 0.336, g = 0.729, h = 0.232, i = 0.118. Double letters indicate respondents to both surveys, single letters indicate respondents only to first survey. ns = not significant.

both surveys. Of these 19, however, 8 omitted an answer on only one of the surveys, and 8 had answers differing only by one point. After a detailed examination of all 30 replies to this item, it appears that it is a reliable indicator, but less reliable than the nontime items; supplemental studies should be conducted. Table 1 presents the reliability statistics for the Cycles questions. Because of the ongoing development of the Cycles

surveys, there are slight differences in the questions included in this reliability study and the later factor-analysis study; care should be taken to correctly match variable label, variable number, and date of survey.

In addition to Pearson correlations, two-tailed t-tests were computed to determine if there were linear shifts in responses during the retest period. All items had nonsignificant t's, indicating no such linear shift.

Finally, t-tests were computed comparing the initial responses of those completing the retest survey with those who did not complete the retest survey but did complete the first survey. No significant differences were found except for two questions: nonrespondents to the retest were less satisfied with their Hampshire experience (group C) and were more satisfied with the weather and outside environment (group B). Considering the general characteristics of respondents, disgruntled respondents, and nonrespondents, such differences seem slight and not unexpected (Kegan, 1974a; Sudman and Bradburn, 1974).

Another reliability study was conducted at the University of Massachusetts (Kegan et al., 1975). A telephone survey using Cycles questions was conducted at the same time as the mail Cycles survey. Analysis of the two surveys found most of the differences could be accounted for by the differing sampling designs—for example, the telephone sample omitted those without university listed telephones, often upperclasspersons living off-campus. Thus, Cycles appears fairly robust across methods of administration.

Data from respondents does not, of course, necessarily represent the sample of students choosing not to participate. Based on analyses of early versus late participants, of disgruntled participants, and of parallel data obtained by non-Cycles survey methods, Cycles surveys appear quite representative of the Hampshire College student community. Researchers at other institutions may wish to analyze possible nonrespondent bias and should monitor the survey-return rate.

In summary, the Cycles Survey Instrument was found to have excellent test-retest reliability. A prior study found it to be sensitive to some changes occurring during a term and to explain much of the variance in several of the criterion satisfaction questions. Studies at another college have found it robust across methods of administration. While further methodological studies may be conducted, the Cycles questionnaire may be considered a reliable general purpose survey instrument.



**TABLE 2**  
Eigenvalues and Factor Variance

<i>Factor</i>	<i>Eigenvalue</i>	<i>Percent of Variance</i>	<i>Cumulative Percent</i>
I. Energy and fun	9.77	16.1	16.1
II. Noncourse academic effort	7.84	12.9	29.1
III. Intellectual involvement and learning	7.29	12.0	41.1
IV. Meetings with advisor	5.48	9.0	50.2
V. Physical involvement and learning	5.04	8.3	58.5
VI. House satisfaction	4.47	7.4	65.9
VII. Advisor satisfaction	4.06	6.7	72.6
VIII. Social learning	3.59	5.9	78.5
IX. External locus of control	3.23	5.3	83.9
X. Time playing	3.00	5.0	88.8
XI. College satisfaction	2.41	4.0	92.8
XII. General program satisfaction	2.21	3.6	96.4
XIII. Personal relationship changes	2.15	3.6	100.0

### FACTOR STRUCTURE

Although the Cycles survey instrument was constructed to be multi-dimensional, this assumption was not initially tested formally. By April 1975, the Cycles questions and method of administration had stabilized sufficiently to permit such a test.

The Hampshire Cycles E survey was distributed to 200 randomly selected students on 14 April 1975. After followup requests, 109 usable surveys were returned, for a response rate of 55%. SPSS 6.0 Factor Analysis was performed using Rao's factoring method, varimax rotation, and pairwise deletion of missing data. Demographic questions were omitted from the factor analysis. The ratio of nonclass-to-total academic effort was included in the analysis since this index is directly computed from the Cycles questions and is not a linear transformation of Cycles questions.

Table 2 presents the eigenvalues and percent of variance accounted for by each of the 13 factors, together with their brief names. As the table

shows, the Cycles instrument is definitely multidimensional. There is no dominant evaluative, halo, or response-effect factor. The first factor accounts for only 16% of the total variance; eight factors are necessary to account for three-quarters of the variance (see Note 1).

The postulated multidimensionality of the Cycles survey was found to exist. The correlational matrix and factor structure matrix provide additional information concerning the interrelationships among the various Cycles variables at Hampshire. This study, in combination with prior methodological studies, continued to show that the Cycles Survey can be a useful indicator of the quality of student life at undergraduate colleges.

### DATA ANALYSIS

While the Cycles survey can be hand tallied, most researchers will have access to a computer. It makes the data analysis easier. After resolving the best way to ask for residence and whether one needs several questions on advising, and after the Cycles survey has stabilized at a particular college, one can usefully use the full labeling capability of the Statistical Package for the Social Sciences (Nie et al., 1975).

SPSS performs many sophisticated data analyses, and prepares straight-forward fully labeled tables directly understandable by non-mathematicians. Appendix 1 presents the SPSS file definition structure we have found helpful. Note that we have provided space for ten extra non-Cycles questions. The basic Cycles questions, or 0nn variables, are dichotomized into high and low, the 1nn variables. Figure 2 discusses the data analysis conventions we have found helpful.

While SPSS is a great aid in data analysis, its output can be bulky. To neatly and briefly report the Cycles data, we have written a FORTRAN computer program, MARK1 (MARK1 may be obtained by requesting Appendix 2 as described in note 1). It will present on one page the responses for each item, the means, and the standard deviations. A parallel program, SCORE1, will compare one set of data with prior or normative data, flagging those items for which the new data mean differs from the old by more than half a standard deviation.

Cycles was designed for longitudinal research, and a time-series graph is a strong way to present Cycles data. We have collected some of

## DATA ANALYSIS CONVENTIONS

Several conventions and standard forms of data analysis are often used in IRE reports. Care has been exercised in data analysis and in report writing to explicitly indicate what comparison is being made; parallel care should be taken in reading the reports. Crosstabulation analyses, often using variables dichotomized into "high" and "low," usually report relationships in terms of more of group A indicating a high response than group B did. It needs to be noted that although more A people may score high than B people, both groups A and B may score toward the high end of that variable. An example would be if 60% of the men reported being over 19 years old and 80% of the women reported being over 19, where higher age is defined as 19 or older. If a group has only a few participants in the study, a large percentage difference may result from a difference of only a few people; the base number (n) of any percentage should be noted. t-tests are often used to determine if one group as a whole scores higher than another group on a given variable. For example, the average age of men might be 19.7 years and the average age of women 20.8 years.

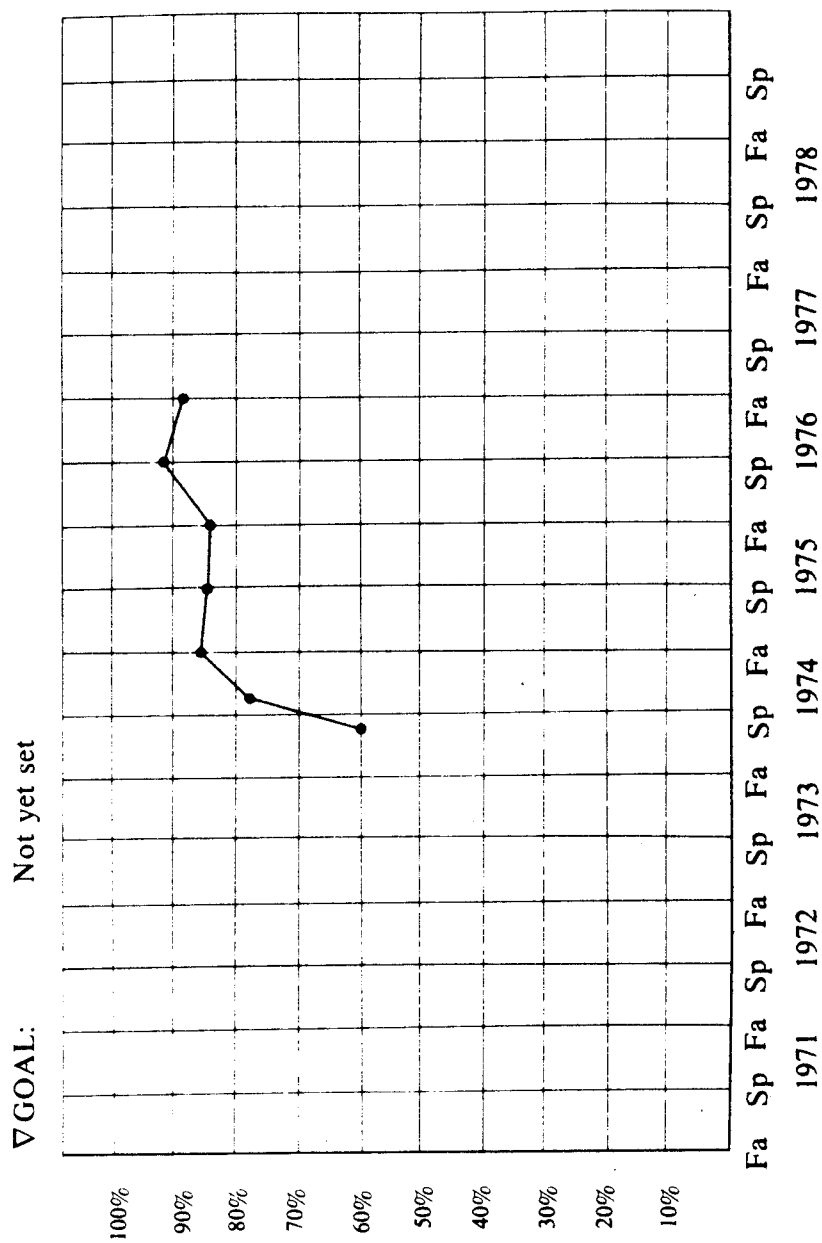
To eliminate the repeated use of percentages in the text, the following terms are often used to denote a corresponding range of percentages:\*

- most = equal to or greater than 75%;
- many = less than 75% and equal to or greater than 50%;
- some = less than 50% and equal to or greater than 25%;
- few = less than 25%.

Some IRE questions use a four-point Satisfaction scale: (1) very dissatisfied; (2) dissatisfied; (3) satisfied; (4) very satisfied. It is dichotomized with 3 and 4 responses scored as "high." Many of the IRE questions ask for responses on a five-point Extent scale: (1) to a very little extent; (2) to a little extent; (3) to some extent; (4) to a great extent; (5) to a very great extent.\*\* The Extent scale is dichotomized for positive-oriented items (such as "I like myself") with 4 and 5 responses scored as "high"; negative-oriented items (such as "I have felt isolated from most of the people at Hampshire") have 3, 4, and 5 responses scored as "high." Since the favoring of middle-range responses is a well-known response effect, 3 extent responses for positive items were not considered high.

\*This schema was borrowed from SUNY-Buffalo Office of Student Testing and Research.

\*\*James C. Taylor and David G. Bowers (*The survey of organizations: a machine-scored standardized questionnaire instrument*. Ann Arbor: Institute for Social Research, 1972) presents the methodological development of this Extent scale.



**Figure 3: Hampshire Soundings: Students Reporting Satisfaction with Their Adviser**

NOTE: Tabular data appears on overside of full Soundings graphs.

the key Cycles variables and graphed them in a series called Soundings (see Figure 3). Besides the Cycles data, Soundings presents other, administratively generated data: admissions applicant/acceptance yield, percent of each graduating class obtaining its desired placement, voting rate for governance elections, per student book usage at the library, dollar value of damage to residences, percent of each entering class that has withdrawn. Packaging student generated and administratively generated data together serves to remind the user of each that there is likely to be another source of data for their questions, a source with different strengths, weaknesses, and assumptions.

## CONCLUSION

For research and management, higher education is finding an increasing need for comprehensive data. Yet at the same time that such needs are increasing, problems have also been increasing. Nontraditional programs may not have a grade point average or credit hour to use as a critical dependent variable, quality of life issues have become more salient, students have become disaffected with the redundant items found in some standardized scales, and nationwide the response rate to surveys has been decreasing (ASA, 1973; Villano et al., 1974).

The Cycles survey was developed under the condition of limited resources in the process of building a quality institutional research program capable of longitudinal research, continuous broad bandwidth monitoring, and data comparisons with other institutions. With each term's growth of its data base, Cycles has been able to answer more questions from a wider variety of decision makers.

Some industrial firms have maintained longitudinal surveys of markets and clients for some time, but only recently have such techniques been applied within the business organization. The Cycles/Soundings approach may be applied not only to educational organizations, but also to business, government, and health institutions. We are finding the Cycles surveys useful at Hampshire; they have been found helpful at a few other colleges with which we have collaborated (Kegan et al., 1975); they may be helpful at your organization. If we can be of help in your deciding to institute a Cycles survey program please let us know.

## NOTE

1. Appendix 3 presents the correlation, the means, standard deviations, and number of cases for each of the 35 variables, and the varimax rotated factor matrix. Appendices 1, 2, and 3 are available from the Office of Institutional Research and Evaluation, Hampshire College, Amherst, MA 01002.

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