Development of a human life science program at a secondary independent school.

DEVELOPMENT OF A HUMAN LIFE SCIENCE PROGRAM

AT

A SECONDARY INDEPENDENT SCHOOL

A Dissertation Presented

By

Parnell P. Hagerman

Submitted to the Graduate School of the
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Education

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To my little girls who were with me in the beginning and in the end of this endeavor. For them and their potential I kept going.

P. Hagerman

ABSTRACT

Development of a Human Life Science Program in

a

Secondary Independent School

September, 1977

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This study contains the development of a curriculum for a program called Human Life Science and a theoretical examination of curriculum theory, particularly in independent schools. Included is the evaluation of the development process, the results of an assessment of the amount of knowledge the participants gained and the recommendations for the particular independent school where it was developed. The program was initially a course in developing curriculum which included groups of students and teachers researching and outlining topics such as human sexuality, nutrition, first aid, drugs and alcohol and sports psychology. It was thought that accurate information in these areas could assist in sound and mature decision making in adolescent lives.

The participants were equals in the decision making process despite the teacher-student hierarchy of other courses at the school that influenced people's behavior. The course began in 1975 and continued through the academic year 1975-76. It ran for two terms with

all five topics being offered from September through March in one course. During the Spring each of the five topics were offered as individual courses.

It was assumed that this program would increase the knowledge of the participants in these subject areas and that the process of developing the course would bring the group together in their relationships. Their level of involvement in the course should have also increased as the course progressed from September until March.

The evaluation of the monthly levels of involvement and satisfaction with relationships increased through October and November but tapered off in January and March. Six weeks after the conclusion of the course a follow-up evaluation of these two levels indicated a significant increase of the perceived level of involvement during the course they had helped develop and design. The six week interval served to compare HLS with the traditional courses the students were currently enrolled in. In comparison to their current courses, they thought they were significantly involved in HLS, a course that offered equality in the decision making concerning all aspects of the course.

In evaluating the increase or decrease of knowledge as a result of the course participants were assessed before the course (pretest) and after the course (posttest). The instrument was designed by the instructors in the HLS subjects. The results indicated twelve participants increased their knowledge while five decreased. Their tests were rated by outside observers who were trained for 90% rater agreement.

The areas that saw more significant increase in knowledge level from pretest to posttest were Sports Psychology and Nutrition with Human Sexuality and Drugs second.

The limitations of the program were few. One was that the program was dependent upon volunteers to take the course. In a sense this aspect enhanced the quality of the instruction and the learning as the participants wanted to be there. If instructors were assigned without a desire to help, they might not have added the enthusiasm and energy necessary to accomplish a difficult task of developing curriculum. If students were required to take the course, they too might have lacked the interest that seemed to be contagious to other participants.

The use of only one group of participants to evaluate effectiveness, involvement and satisfaction with the program was another limitation. Implementation of the program in another school could have given more data and information. Evaluation after a year's time could have also given more comparative data.

The program was developed at a male, independent, boarding secondary school. It may not be applicable to a day school which has certain constrictions in developing programs that parents may feel is their domain.

Education of the physical self is as important to the curriculum as the education of the mind. The HLS program has spread to other boarding secondary schools and will hopefully become an integral part of every school's curriculum.

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CHAPTER I

INTRODUCTION

The curriculum of secondary, residential independent schools is often void of courses that have a direct relevancy to a student's life. Independent schools have long been following a traditional pattern of course offerings with an emphasis on intellectualization. Having patterned itself on the English model, American independent schools have a history of education steeped in the past, lacking a relationship to a student's daily happenings. In The Hotchkiss School A Portrait by Lael Tucker Wertenbaker and Maude Basserman, the adoption by independent schools of the classical curriculum is emphasized. The Hotchkiss School, in Lakeville, Connecticut, certainly patterned its curriculum on that which was offered by the long established academies of New England. Such schools traditionally offered Latin, Greek, Geography, Arithmetic, English Grammar, and Algebra. In the early 1800's, course offerings varied slightly but as the century progressed, languages, social sciences, natural history and mental and moral philosophy were offered on an elective system.[1]

Maintaining relevance seemed to be an essential aspect of continued interest in course content despite traditional curriculum. Peter S. Prescott in A World of Our Own (1970) saw relevance as a key to helping students in independent schools accept responsibility for

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1. Harriet Webster Marr, The Old New England Academies. (New York, Comet Press, (1959).

decisions in their lives but that traditional curriculum lacked this ability to be relevant. He saw the traditional curriculum at The Choate School as dull, irrelevant and boring. "We cannot expect aliveness and involvement when we're busy inculcating docility and compliance through our curriculum."[2]

It would seem that more relevant, interesting and exciting courses are necessary to complement traditional education for continued intellectual and personal growth. In particular, more programs in the general area of health education could be developed to bring relevance to a boarding student's experience. This would encompass sex education and the related areas of emotional well-being of the students as they respond to the realities of the pressures of adolescence and the impact of the drug culture.

As Harriet Marr elaborates in The Old New England Academies, the curriculum of a school reflects the school's identified needs necessary for intellectual and, more recently, for personal growth. In offering a variety of rich and successful experiences, any school seeks to develop the interests and abilities of its students which will hopefully guide them toward well-balanced maturity. Private schools in particular instill a sense of pursuing curiosity for excited learning in an intellectual sense: "Intellectual in an effective and joyful use of one's mind, rather than pompous erudition -- learning by one's own discovery rather than being disciplined to learn."[3]

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2. Peter S. Prescott, A World of Our Own. (New York, Coward McCann, Inc. 1970) p. 12.

3. John C. Esty, Jr., Choosing a Private School. (New York, Dodd, Mead and Company, 1974) p. xiii.

Independent schools are attempting now to offer a curriculum which will guide young people toward a complete intellectual and moral development. In the areas of everyday living students in the past were gaining knowledge and information of sexuality and their bodies through a means that was less than intellectual. Locker rooms and older students were plentiful sources of misinformation and myths. Stereotypes were perpetuated just as they are in outside society. Private schools have long claimed to teach values and need to extend their values teaching beyond mere truthfulness and the strengthening of self-esteem.[4] Values and moral decisions pervade all aspects of young peoples' lives. At Deerfield Academy in Deerfield, Massachusetts, it was felt that there are many temptations put before young people growing up in a "drug culture." Knowledge was needed not only about drugs but about all aspects of our bodies. Emergency medical situations need experienced people who have been taught the correct medical procedures. The food we consume continues to abuse our bodies and sports has become the backbone of American Culture infiltrating all aspects of lives at Deerfield. Intimacy between the sexes is experienced at earlier ages every year. For these reasons and many more, that are detailed in Chapter III, the school examined its curriculum and found it did not offer students learning experiences in these critical areas. It was felt that our youth face many perplexing situations without their education playing a supportive role for the decisions they will have to make. It was apparent that an academic and experiential program would have to be de-

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4. Ibid, p. xiii.

veloped at Deerfield to address these concerns so decisions can be made based on accurate information and knowledge.[5]

The purpose of this study is to design, implement, evaluate and redesign a program of academic and experiential learning in subject matter such as drug alcohol and tobacco education, first aid, sports psychology, nutrition and human sexuality. These topics have been identified by students in the planning group of the program at Deerfield as areas where young people need accurate information.[6] The program is called Human Life Science (HLS) and will be implemented at Deerfield Academy. Because other residential independent schools do not have such programs it is hoped that this program will serve as a model.

It is assumed that this program will increase the knowledge of the participants in these subject areas, and that the process of developing the course will bring the group together in their relationships. Their level of involvement in the course should increase as the course progresses from September until March.

A special aspect of this particular program at Deerfield is the involvement of students as equals in every step of the process of development within the program.

The limitations of the program were few. One was that the program was dependent upon volunteers to take the course. In a sense it en-

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5. New England Association of Schools and Colleges Report to Deerfield Academy, 1972, p. 1.

6. Rationale for Human Life Science Program, Deerfield Academy, April, 1975. p. 2

hanced the quality of the instruction and the learning as the participants wanted to be there. If instructors were assigned without a desire to help, they might not add the enthusiasm and energy necessary to accomplish a difficult task of developing curriculum. If students were required to take the course, they also might lack the interest that seems to be contagious to other participants.

On the other hand, if instructors have the skill and knowledge to teach these parts of the course, the course might benefit from other perspectives interjected into the material. If students were required to take HLS in the Fall and Winter or one separate course in the Spring, it would increase their awareness and knowledge in these areas of utmost importance. If an institution is committed to an innovative program that speaks to important issues, then it must support it with institution legitimacy, that is as a requirement for each student at the school. To require four years of mathematics, four years of English, two years of history, three years of a language, one year of a science and one year of a humanities and offer HLS as an elective indicates for HLS a position of lesser importance for learning. It is hoped that the course will become a requirement for at least a term by each student at the school.

The use of only one group of participants to evaluate the effectiveness, involvement and satisfaction with the program was another limitation. Due to design constraints, it was necessary to use only one group in developing the curriculum. In the future, more than one can be used in evaluating its impact, and to provide suggestions for revisions. Implementation of the program in another school could have

given us more data and information.

Lack of awareness of varied multi-media techniques is also a certain limiting factor. Research into the latest techniques must be continued through the life of the program.

The data concerning the program will take many forms. The cognitive aspect of these topical areas will be evaluated in terms of increase of knowledge the course did or did not facilitate. The process of developing the curriculum and the premise that teachers and students are equals in the endeavor, will also come under scrutiny. The impact of the program in terms of further development of a human development curriculum will also be noted. Additional recommendations will be made, implemented and evaluated.

A limiting aspect of the participant group is the lack of experience with developing inventory items for the evaluative tools. This may have affected the reliability of the items although consultant input was used in an attempt to correct for this possibility. The pre/post test was set up in such a way that the questions were "rigged" to an extent. Having been developed by the teachers and students involved, they could have instilled their desire to have the results reflect the impact of their presentation, that is, the only way anyone could answer the questions correctly on the post test was to go through the course, in effect, having been taught the answers. Again consultant advice and use of an established tool in the Spring course tried to correct for this. In the future, if the participants continue to develop the items for the evaluation tool training in developing reliable items could improve in evaluation construction.

Completing this research after just one year of the program's existence is still another drawback. To achieve maximum accuracy and reliability of the results, ideally it should be evaluated after three or four years of existence. An evaluation of three consecutive years might bear more comparative data.

The program was developed at an independent boarding male secondary school. It may not be applicable to a day school which has certain constrictions in developing programs that parents may feel is their domain in teaching their children. The Deerfield group was a homogenous group of similar interests and perspectives. Perhaps in the future, other experimental groups, less homogenous in nature could be utilized in further studies.

The goals and purposes of the Academy clearly state that the "Deerfield experience is to help and to encourage students in those qualities; intellectual, physical, aesthetic, spiritual, social and moral which can bring them optimum fulfillment as human beings and can encourage them to become significant contributors to the quality of their community" yet the curriculum did not reflect an offering that would round out this total experience, of mind and body. The school says "thoughtful discrimination of facts together with an intelligent application of skills leads to our central goal, the training of the mind." Education of the physical self is as important to the curriculum as the education of the mind. The school believes this neglected aspect of education should "provide the student with an awareness of his body and of the importance of being in sound condition mentally, physically and spiritually. These functions are important for his life

now and for his future."[7] Yet there had not been any attempt to provide this before this program.

The following chapters describe the research completed concerning the Human Life Science Program and its impact; how this particular curriculum was developed, its history and theoretical basis, how it was sectioned and presented, the methods and procedures for evaluation, the results of the various evaluations and discussion with suggestions for the future of the program. It could be years before the real impact of the program can be accurately measured.

7. Goals and Purposes of Deerfield Academy Statement, October 1976.

CHAPTER II

REVIEW OF THE LITERATURE

The program was a one and a half year project of summer meetings, fall and winter term presentations, evaluations, revision, and additional revised presentations on subject matter necessary to the personal growth of young adolescents. It is the planning of curriculum by teachers in conjunction with students as equals in deciding the worth of various aspects of the curriculum. The goals, elaborated upon in Chapter Four, are essentially to create the curriculum, and implement it while maintaining a non-hierarchical status between teachers and students.

The amount of research on projects of this nature is very limited. The reasons for this are many. Independent schools, where the author first looked for similar programs, have always been traditional in the content and process of curriculum offerings. Many innovations do not receive recognition which influences whether or not it will be adopted by schools.

Since the onset of this project, similar programs in human development have surfaced as an indirect result of our program and some programs have appeared that are related to Human Life Science (HLS) in some way.

There is quite a bit of work that has been accomplished in public schools which has some overlap with HLS. The research uncovered which relates to HLS can be categorized in two ways: those programs similar in process and those programs similar in content.

A. Programs similar in process

The two processes that are examined are the use of "outside" consultants or "inside" instructor and the shared decision making of teachers and students.

The process that is particular to this program is a teaching/learning system (shared decision making) where students and faculty act as equals.

This was a goal that was decided upon early in the goal setting sessions of the planning group, as outlined in Chapter III.

The participants are broken teams that research the various topics together and make presentations to the class, utilizing various teaching techniques. Teaching in this cooperative manner with students had not been written up in journals and publications to any great extent. What is written though, points out that the success rate of related programs of this process is rising. The author's review of published work of the last 5-6 years shows many programs with curriculum revision sessions where students take an active role in the planning.

English departments are often the pioneers in such endeavors. In a paper presented to the National Council of Teachers of English on November 28, 1969, in Newton Center, Massachusetts, a curriculum was described in which teachers and students cooperatively plan both curriculum and courses with measured success.

English, in the Utah State Board of Education System, went a step further in June of 1970 by publishing a document describing the purpose and necessity of changing the teacher's role so she/he focuses on the student and teachers as learners rather than on the material to be

learned. This supports the Human Life Science priority goal of focusing on the process of sharing, developing and learning.

There are various studies that have produced evidence supporting the increased sophistication and maturity of today's high school students as witnessed by their request, and in some cases their demands for increased participation in specific areas of decision making, concerning curriculum and their entire education. For example, the Maryland State Department of Education studies this aspect of student concern in 1971. They found "high school students desire some involvement in decision making in the five areas of student curricula, student-faculty relationships, student governance, student discipline and grievance and student records."[8]

Despite the limited amount of published material on shared decision making in a classroom setting, numerous personal communications with other independent schools revealed a similar approach utilized at St. Louis Country Day School in 1969.

According to their subjective analysis of the pilot program, it was highly successful. They did not have any formal evaluation of the program as it was, only an experimental approach thought to have a limited future. Perhaps if there were data to reinforce their claims of success, the program's life would have been extended.

Mr. Louis W. Bixby, coordinator of the course, saw the issue of

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8. Maryland State Department of Education, Baltimore Division of Research, Evaluation and Information Systems, A Study of Desired Student Involvement in Five Selected Areas of Decision Making in High Schools in Maryland School System (Maryland 1971), p. 37.

"The Machine Age" as an interdisciplinary course to be taught to secondary school students after the topic had been researched and developed by teachers and students cooperatively.

> "The Pilot Study on the 'The Machine Age' was run back in 1969; it was well received and successful. We had 12 students and 4 teachers (from different educational disciplines) working together for two hours once per week. It was particularly good from the standpoint that we listened together, discussed, developed the ideas, all contributing readings and other related sources...and in essence 'putting together a course' as co-learners, students acting as teachers and students acting as students half the time."9

Traditional disciplines such as English and the Arts have experimented with this approach to learning but rarely does one find this cooperative learning approach in the field that studies the functions of the human body. The only program that seemingly comes close is a Wilmington, Delaware Public School System document which states that the emphasis of a Family Life Education course for grades 1-12 is on interpersonal relationships rather than biological facts, which does not necessarily mean the course was taught in a collaborative fashion such as Human Life Science or "The Machine Age." Yet it is somewhat similar to the HLS approach as the emphasis is equally weighted between development of the curriculum and the analysis of the interpersonal relationships which affect the development process.[10]

The interpersonal aspect and the development of a curriculum depend on many variables. One of them is the use of outside consultants

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9. Louis W. Bixby, The Machine Age Study Group Papers (St. Louis, Missouri, 1969), p. 1.

10. Wilmington Public Schools, Resource Guide: Family Life Education (Wilmington, Delaware, 1969), p. 6-7.

versus the utilization of existing staff members within the institution. Some projects/programs find that the outside perspective is necessary while others feel that the utilization of people within the institution adds more to the sense of community of the group which is developing the curriculum. A Wethersfield, Connecticut program in health curriculum development felt that the curriculum they developed "should be adapted by a school system or an individual school to meet the particular needs of its students and capitalize on the talents of its staff,"[11] as Deerfield has done in establishing the Human Life Science Program. The Deerfield program actually combines the two approaches with "outside" speakers and resource people supplementing the knowledge of the "inside" people.

B. Programs Similar in Content

There seem to be many programs similar in content to the subject matter taught in HLS. As HLS offers learning in nutrition, first aid, drugs, human sexuality and sports psychology, some of the information in one area overlaps in content with another area, thus giving the course an interdisciplinary approach. A program that incorporates this interdisciplinary approach to subject matter is the Texas Education Agency's "Secondary School Health Education Curriculum Guide." It too, views health as the embodiment of total (wo)man, her/his physical, psychological and social dimensions."[12] In Human Life Science, the various

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11. Metropolitan Effort Toward Regional Opportunity, Wethersfield, Connecticut Family Life Education, A Guide to Curriculum. (Wethersfield, Connecticut, 1967), p. 32.

12. Texas Education Agency, Secondary School Health Education Curriculum Guide. (Austin, Texas, 1970), p. 3.

areas overlap in their treatment of the subject and in the way they approach the material. The different levels of perspective, in terms of psychological, physical and social, are employed when material is researched and presented.

In the Human Life Science statement of goals, the fifth goal (Chapter III), states that the program will broaden the knowledge base in critical areas such as drugs, alcohol and sexuality so that adolescents can make decisions based on responsible reasoning and maturity. This was a goal decided upon by the group in the early sessions of planning.

A similar project in Texas also attempted to produce similar results of responsible decision making. The objective of their endeavors was to promote responsible decisions about alcohol use.[13] The feeling amongst the designers was that information and responsible decisions rose and fellin proportion to each other. In a boarding school, void of daily parental guidance, students need accurate facts and experienced opinions from older people on which to base their own moral and ethical philosophy of life.

An examination of the pressures that precipitate drug or alcohol use had also been in the curriculum of various drug projects. The Ohio State Department of Health developed a curriculum guide which made the information on smoking pressures a relevant part of the student's experience and attempted to help him or her to effectively

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13. Peter Finn and Judith Platt, Alcohol and Alcohol Safety: A Curriculum Manual for Senior High Level,Vol. 1. (Washington,D.C.,1972)p.3.

resist the pressures to begin smoking.[14]

Literature abounds in the individual subject areas of nutrition, first aid, drugs, sports psychology and sexuality. Human Development and Relations is a category that frequently finds programs such as this. At the Belmont Hill School in Belmont, Massachusetts, a course in human development is offered which brings in physical-biological culture and anthropological aspects. Infants, children and the elderly come to class and are a focus for class discussions. Cincinnati Country Day School offers a Montessori class where senior citizens and infants' feelings and development are part of their Human Development and Relations class. "The baby is valuable in the classroom because of his/her sensitivity and tendency to audibly display his/her discontent. As a result, students can tell when they've been inconsiderate or too noisy."[15]

Additional independent schools have courses in our specific disciplines as exemplified by human sexuality and drug education. The Park School of Baltimore offers a human sexuality course for juniors and seniors. Outside speakers are utilized with students writing "thought sheets" of questions to which students want answers. Pomfret School in Pomfret, Connecticut:

"...sets aside a day in early May for sex educa-

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14. Ohio State Department of Health, Smoking and Health, A Guide for School Action Grades 1-12. (Columbus, Ohio, June 1968), p. 1.

15. National Association of Independent Schools, Summary of Human Relations Courses, (November, 1976), p. 124.

> tion. A panel of volunteer students presented a range of topics having to do with sex and sex stereotyping. Students and faculty are then divided into small groups to see films and to discuss such topics as methods of contraception and their opinions on the school's rules concerning sex."16

However, they have yet to have a course established in this area.

Primary level independent schools are very sensitive to the delicacy in which sex education courses must be handled. Parental distrust is ever present concerning this topic but several schools have braved the parental barriers and offered courses to the lower grades. One such institution is the Polytechnic School in Pasadena, California. Their Human Relations course covers areas such as drug abuse, venereal disease, sexuality and decision making.

Other schools chose to emphasize drugs in the health type programs they offered. The Landon School in Bethesda, Maryland offers a semester course covering tobacco, alcohol and drug abuse. A similar course is offered at the Schools of the Sacred Heart in San Francisco, California where alcoholism, smoking, suicide prevention and drug abuse are studied. Whereas part of our course deals directly with how decisions are made, that is, under what ethical systems people make decisions. Each area devotes a portion of time to implications of decisions made in reference to the subject matter. For example, to use or not to use drugs.

Two schools, the Baldwin School in Bryn Mawr, Pennsylvania, and Poly Prep Country Day in Brooklyn, New York, have courses directly involved

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16. Ibid., p. 6276

in studying how decisions are made. Adolescent problems are a focus with students trying to make decisions that increase or decrease the magnitude of the problem.

Each of these programs in the separate topic areas of HLS support the notion that education cannot be void of information and learning about our body and its development. Not only are these new areas worthy of and essential to academic inquiry, but the method in which it is learned has wide spread support. In short, it is important to acknowledge the irrefutable evidence supporting programs that re-direct learning and address the important subject areas of HLS. James Charity, in 1968, felt that the collaborative learning that takes place in a program such as HLS is essential to develop talent and eliminate the dysfunctioning aspects of the current teaching hierarchies in secondary school.[17] To maintain and develop programs similar in nature to HLS is crucial to continued growth of our youth.

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17. James Charity, Young Lives at Stake: The Education of Adolescents. (New York, Agathon Press, Inc., 1968).

CHAPTER III

DEVELOPMENT AND IMPLEMENTATION OF THE CURRICULUM

Background

Deerfield Academy, nestled in the historical foothills of the Berkshire Mountains, was evaluated three years ago by a team of educators from the New England Association of Schools and Colleges (NEASC). This is done periodically in order for member institutions to assess the level of effectiveness, achievement and learning at each school for the purpose of continuing accreditation. The team examines the goals and objectives of the institution to ascertain whether or not the school is accomplishing what it purports to.

The NEASC Committee determined that Deerfield was educationally lacking in the area of general health education. This encompassed sex education and the related areas of the emotional well-being of the students as they respond to the realities of the pressures of adolescence and the impact of the drug culture. The committee made a series of recommendations upon which the school would later respond. One stated that "the visiting committee feels strongly that the school program in such things as sex education, understanding of the drug culture and meeting the emotional needs of the students lack definition, a sense of urgency and priority, and as a result have been sporadic. . . We suggest that it is (a matter of) total school concern needing the attention of all, acceptance of responsibility by all but it must be made a priority item under the direction of someone who has the know-

ledge, time and authority to work with the faculty and staff to resolve an effective approach."[18]

In the fall of 1974, the Physical Awareness Committee of the Academy met to discuss the method by which to respond to the recommendations. It was decided that a program would be developed giving information in the areas of nutrition, first aid, drugs and alcohol education and human sexuality. Interested faculty were solicited by the committee to develop the format by which the subject matter could be researched and presented to the students and/or community. The committee began to meet in December of 1974 and early in 1975.

At first the program was conceived of as a very informal, unstructured type of drop-in lecture series. The committee of 1974-75 explored this format but decided a more formal structure was needed. In the early seventies seminars had been held in human sexuality which did not require attendance and were offered on a voluntary basis. They were heavily attended at first with students asking for a more structured course in the area of sexuality with papers, exams, projects and credit attached to it.

With this history in mind, the committee, in 1975, decided on a format for the program that would incorporate an experimental teaching technique with developing curriculum in these subject areas of mind and body development.

Because Deerfield is one of New England's oldest boarding schools, its curriculum offerings and teaching methods have never varied to any

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18. NEASC Statement to Deerfield Academy, Fall, 1973, p. 2.

great extent. It has experimented somewhat with class schedules and grading alternatives but, on the whole, the faculty and administration have not made sweeping attempts to innovate teaching at Deerfield.

This background influenced the Physical Education Committee to call for this establishment of a pilot program that would develop curriculum around these areas of health education that the visiting committee recommended. The planning group decided that teachers and students work as equals in the decision making process. As mentioned earlier, recent findings in research on various learning situations supports this format as one of the most facilitative for increased and sustained interest and learning (National Council of Teachers of English Paper, 1969, Utah State Board of Education Document, June, 1970).

As the academic year of 1974-75 came to a close, it was decided by the teachers who volunteered to be part of the Human Life Science planning group that further meetings to formulate the program would take place over the summer.

Before any program could be defined and further justified, the summer group felt it a priority to set up goals and objectives of this Human Life Science Program and to further utilize the generated statements when setting policy and evaluating progress. A coordinator was hired to facilitate this process and to serve as a liason between teachers, students and the school community. She was to become the focal point, spokesperson and mediator for the program.

The main thrust, the group felt, was to present information through the curriculum that would not be apart from the students' school experience but integrated into it. It was hoped that increased

awareness and knowledge of our bodies would increase the potential of well-balanced maturity in the decisions that students make concerning such things as the use of drugs, the influence they allow sports to have over them or the frequency and quality of sexual relations. After considerable deliberation the group formulated the following goals:

1. To develop cooperatively with teachers and students a curriculum that covers areas such as human sexuality, sports psychology, first aid, nutrition, and drugs.

2. To develop the curriculum in a non-hierarchial fashion in that teachers and students are equals in the decision making process.

3. To offer the curriculum as a course for 40 people in 1976-77.

4. To provide opportunities for larger segments of the school's population to participate and benefit from the HLS Program.

5. To broaden the knowledge base of the school community in these critical areas so that responsible value judgments are developed for mature decision making.

6. To show the interrelation of the areas.

7. To be sure to incorporate the female perspective in each of the research areas given the male environment of the Academy.

The process that was used to finalize these goals for each participating member to prioritize goals and submit them. They were then agreed upon in a consensus fashion and kept in mind when decisions were made. The progress toward these goals will be evaluated in the next chapter.

The summer meetings further derived a tentative format and schedule for the year, one that was revised and modified as soon as the students returned with their input. The Fall and Winter terms were used to re-

search materials and present it to the class for their evaluation. It was decided that each topic would have a team researching and presenting. The class group reacted, revised, and represented the material until a consensus was reached for final inclusion into the curriculum. This process was followed until a curriculum was developed.

Theoretical Basis for Curriculum Development in Human Life Science

Curriculum, whether it be books, course content, course offerings, program content, etc., is designed for whatever intended purpose educational experts have in mind. For some, the curriculum has been an extension of national progress with the schools acting as instruments of this program. That turn of the century thinking has been replaced by a thought that curriculum provides a forum for debate concerning the fundamental predicaments of society.[19]

It is important to look at various theories of curriculum that exist today in order to ascertain where HLS finds its theoretical basis.

Since 1930, the process of curriculum theory and improvement has received much attention and consideration. Before that time, curriculum was not questioned but accepted in a very traditional mold. Today the differing approaches to curriculum design can be categorized as traditional vs. progressive.[20] A broader umbrella divides curriculum

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19. Hilda Taba, Curriculum Development; Theory and Practice, (New York Harcourt, Brace & World, Inc., 1962), p. 2.

20. Ronald C. Doll, Curriculum Involvement, Decision Making and Process, (Boston, Allyn & Bacon, Inc., 1974), p. 2.

views in relation to agencies of society, elements of learning, chronology or time, school situation, purposes of education and by sources of data.[21] It seems that a combination of these views can be categorized by just three groups.

> "There are only three basic referents or orientations possible to consider in the development of distinctive curriculum patterns and in making many pivotal curriculum decisions. These three referents are 1) man's (or woman's) categorized and persevered knowledge -- THE SUBJECT FIELDS, 2) OUR SOCIETY, its institutions and social processes and 3) THE INDIVIDUAL to be educated, his/her nature, needs and developmental patterns."[22]

The Subject Fields referent is essentially a traditional curriculum theory which encompassed conventional categories of subject matter that have existed for centuries such as Latin, Greek, History, English and Mathematics.[23] Using society as a referent for designing curriculum is a social framework theory which is more concerned with the development of curriculum which encompassed the society in which we live. The student-centered focus uses the individual and his/her needs as a referent for curriculum development. The student-centered approach is exemplified in a program such as HLS where students' needs are the heart of the program. For Human Life Science, it is necessary to consider/include all the various approaches but to be mindful of the priorities which have been identified for this specific curriculum.

In Human Life Science, the social centered and the individual

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21. Gerald R. Firth and Richard D. Kimpston, The Curriculum Continum in Perspective, (Illinois, Peacock Publishers, 1973), p. 12-13.

22. Ibid., p. 13.

23. Harriet Webster Marr, The Old New England Academies, (New York, Comet Press Books, 1959), p. 168-210.

centered foci are primarily at the heart of the developmental process, although the individual centered approach has a bit more of an emphasis when analyzing theoretical influence behind HLS. The success of the student-centered curriculums has been documented and supported by positive evaluations and the emergence of additional student-centered programs.[24] The Knowles study in 1972 supports this premise. In this study, Donald Knowles associated superior grades and positive teacher comments with the school that ascribed to the student-centered curriculum.

The major covenant of a student-centered curriculum theory is that the students' needs for knowledge and awareness are the primary focus for any subject matter. This is shared by Human Life Science in its belief that the students are the best determinants of such needs and therefore are an integral part of the program.

As one of the goals of the program is to provide information for rational decision making, the course would find itself in a theoretical framework that might even be considered a fourth approach which influences curriculum development and the nature of what content is covered in a course. Human Life Science gives information and facts about drugs, sexuality, sports, all aspects of the human body. Students are exposed to various perspectives and various moralities in these topics and encouraged to choose and decide a position for themselves. HLS weaves moral issues throughout a variety of topics and

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24. Donald W. Knowles, "Attitudes of Students in a Student-Centered High School." Canadian Counselor. (January, 1972), p. 1.

problems in the curriculum of the course. "This method has the advantage of suggesting to students that ethical questions are not isolated problems but an integral part of the daily life."[25] Derek C. Bok, President of Harvard University, believes courses with a moral influence "help students become more alert in discovering the moral issues that arise in their own lives."[26]

For many morality has become an inextricable part of education.

> "It begins and ends with value decisions. Educational decisions, whether regarding aims or curricular sections always involve judgments. For this reason education always will involve an element of prescription. Although scientific inquiry will determine what is, it will not prescribe what should be. Education is a moral enterprise also in that it selects which parts of the culture, what wisdom, which values, what ideals to transmit. No school in any society can be completely neutral; the difference lies in whether the basis for selection is made clear and whether the selection is made with some degree of rational method and scientific inquiry."[27]

Human Life Science seeks to make clear the rationality of decisions and values young people make. It does so in a rigorous and academic manner.

The old argument as to the intellectual nature of such courses can be addressed with another Bok statement. "A well-taught course can demonstrate that this (the question of rigor in HLS type courses) is simply not true, and that moral issues can be discussed as rigorously as many other problems considered in the classroom."[28]

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25. Derek C. Bok, "Can Ethics Be Taught," Change Magazine, (October, 1976), p. 1.

26. Ibid., p. 27.

27. Hilda Taba, p. 26.

28. Derek C. Bok, p. 28.

One last theoretical issue for the HLS curriculum is the question of curriculum as social change. Many see education and curriculum as social change. Many see education and curriculum as "management and control of social change and as social engineering."[29] In many of the subject areas such as sexuality and sex roles, the political forces that shape our conditioning processes are examined in the curriculum. Another curriculum that has a similar aim in this respect is one developed by Carlene Riccelli of Amherst, Massachusetts. Her work in developing curriculum to change social attitudes concerning sex roles is one of the first attempts to utilize the social change theory of education and curriculum to a specific political situation. She had developed a handbook which clearly outlines steps that school systems can take to examine and rectify the harmful and limiting sex role stereotyping that occurs in education. Her workshops with the Orange, Massachusetts School System has assisted them in their examinations of their teaching techniques, textbooks, and attitudes toward men and women in all levels of education.

In a sense, education must be careful in this sensitive role of making policy for society. Where stereotyping and prejudice is concerned, such as in the topics that HLS examines, the curriculum will aid students in understanding the pervasive political and psychological influences which have conditioned us for decades and help them to combat and reconstruct our attitudes.

Sectioning and Presentation of the Curriculum

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29. Hilda Taba, p. 26.

This section will discuss the methods and procedures used to develop and implement the curriculum in Human Life Science. The basic question this section addressed is:

> What are the steps that a group of students and teachers take in developing a curriculum around the subject areas of human sexuality, first aid, nutrition, sports psychology and drug education?

There were a number of detailed steps taken to respond to this question.

With regard to these overall procedural steps in curriculum development, the Human Life Science Program adopted much the same format as Hughes outlines in The Teacher's Role in Curriculum Development with some slight modifications. The table on page 30 gives an overview of the Hughes model and how this model was applied at Deerfield. The succeeding section breaks down the overview and gives the details of each.

Steps in Making Curriculum

Deerfield Step A: An agreement on aims and objectives.

People Involved: Widest possible participation, eight teachers in July, 1975, with the addition of 12 students in Fall, 1975.

This step was taken in July of 1975 during the summer workshop which set up a tentative schedule of presentations and a unanimous agreement on the goals and objectives of the project. Eight faculty members, from the History, Art, Science and English Departments participated in this process. Those goals and objectives are outlined on page 71 of this chapter.

During the workshop each teacher (at the time they were the only ones involved) was asked to prioritize what he or she considered to be the most important outcome in setting up such a program. Each goal was

given points, 1-5, depending on the position on one's priority list. One being the highest value assigned to a number one priority goal and so on. The results were collated, assembled into similar statements and agreed upon as goals by the group in a priority order. At that particular time in the summer, without the presence of students, the widest possible participation included the teachers but in September the widest possible participation included the students.

Deerfield Step B: A selection of content and learning experiences.

People Involved: Teachers, subject specialists, psychologists, sociologists, and students.

(See outlines on pages 63 to 66.)

During the summer workshop, which did not include students, each of the eight teachers discussed their ideas to be researched for inclusion. They each agreed that when students arrived in the Fall, they would be included in every aspect of deciding on material for the course. They would be equals in selecting curriculum. An analysis of this process follows in Chapter IV.

The group then decided to divide into research teams, depending on a student's interest, with each teacher being the coordinator for one area. The students were given an option of participating in one area or a number of areas. This was part of their contract for learning. They "contracted" for a particular grade depending upon the effort they were willing to devote to the program. This contract procedure will be analyzed in Chapter IV (see appendix C).

The teams of 4-5 members met during the first few weeks of the course, outside of class, to discuss possible topics and research techniques. The enclosed outlines (appendix A) are the outcomes of their endeavors. These outlines were developed by the teams whose members had the responsibility of prioritizing the topics to be discussed. The prioritized topics were divided among the group with each member having three or so topics of research responsibility.

The topics included such subjects as Drug Education which broke down further to include drug use and abuse, nutritional aspects of drug use, amphetamines, hallucinogens, sedatives, barbituates, narcotics, marijuana tobacco and alternative methods for highs. Each of these topics included factual information, statistical data and personal opinion. The teaching strategies that were employed were films, speakers, field trips, and other techniques which would sustain interest and creativity.

The people involved in this step were the eight teachers and twelve students along with specialists from "Room to Move," the drug drop-in center at the University of Massachusetts, Dr. Haskel Coplin from Amherst College, Ruth Yanka from the Beacon Clinic in Greenfield, Massachusetts, Dr. Philip Sorel from Yale University and counselors from Western Massachusetts Family Planning Council.

Hughes

Steps in Making Curriculum	People Involved
A. Agreement of Aims and Objectives	Widest Possible Participation
B. Selection of Content	Teachers, Subject Specialists
C. A Selection of Learning Experiences	Teachers, Psychologists, Sociologists
D. The Organization of Content	Teachers
E. Choice (and Development) of Evaluation Strategy and Processes	Teachers, Measurement Specialists
F. Development of Curriculum Materials	Teachers, Media and Communication Specialists
G. Curriculum Trial with Sample Groups	Teachers, Measurement Specialists
H. Evaluation	Same as above & Subject Specialists
I. Revision	Same as above
J. Evaluation	Same as above
K. Evaluation	Teachers, Measurement Specialists
L. (Re) Development	Involves continued use of above processes

Deerfield Modifications Steps in Making Curriculum	People Involved
A. An Agreement of Aims and Objectives	Widest Possible Participation
B. A Selection of Content and Learning Experiences	Teachers, Psychologists, Subject Specialists, Sociologists, Students
C. The Organization of Content and Development of Curriculum Materials	Teachers, Students, Media and Communications Specialists
D. Choice (and Development) of Evaluation Strategy and Processes	Teachers, Measurement Specialists, Students
E. Curriculum Trial with Sample Group	Teachers and Students
F. Evaluation	Same as above
G. Revision	Same as above
H. Implementation	Same as above
I. Evaluation	Teachers, Students
J. (Re) Development	This invloves a continued use of the above styles & processes

Deerfield Step C: The organization of content and development of curriculum material.

People Involved: Teachers, students, media and communications specialists

A. Order of Topics. The order of topics was influenced by the goals and objectives of the program which strove to point out the relationship between mind and body. It was thought that physiological concerns should be addressed first. First Aid, and the techniques needed in emergency medical situations, were presented first with Drugs and Alcohol and its psychological effects following as the second presentation. With Drugs and Alcohol following, all participants felt it would bring the learning to a more relevant level. For the students, this topic was a pre-course favorite.

The Drug Unit partially dealt with the physiological effects of drugs on the body. The unit also dealt with psychological aspects of drug use but went into the physiological affects first.

Each topic would present a few days of material that had been developed in research groups. The groups had poured over literature findings, our "health" related courses and films that had information pertinent to the age group. Collectively each section decided on the salient points for presentation, stated the number of days they needed for an initial presentation and developed a tentative outline of material. Each group realized that the initial presentation would be evaluated, revised and refined for another presentation during the last three weeks of the pilot (see Appendix A), which shows how the outlines were revised.

After these first two parts (Nutrition and Drugs), an evaluation took place which measured the level of involvement, satisfaction with relationships of equality and suggestions for revisions or inclusions. The results of the first two parts of that periodic evaluation will be discussed in Chapter IV. The suggestions for these two areas reminded the group to insure discussion periods of valuable input, to remind each other that a course was being planned not taken, to utilize the small group idea, to utilize more media (blackboards, diagrams, films) to give students more research and presentation skills and to give the course more structure, which would come, it was felt, as time progressed. Each had its validity and was incorporated when possible into the next area of presentation.

Sports Medicine was the third topic presented. It was thought that Sports, a major influence on boys' lives at the school, needed examination as to what it was, how it did or did not develop their bodies and minds and how sports is viewed in society. The pilot course saw the title as Sports Medicine which connoted more of a medical aspect to it. The focus was more toward the psychology of sports, so for Fall 1976 it was renamed Sports Psychology. (In the Fall of 1977, it will combine the two, as evaluations have indicated that both views are necessary, with the title being Sports Studies.)

Drugs then needed three more days to finish their initial presentation as is indicated on the schedule. The instructor for Sports Medicine had a conflict with another course so scheduling had to take this approach.

Nutrition then took center stage. The thinking behind this position-

ing was not to sandwich the topic between Drugs and Sexuality, two topics of greater interest to students as indicated by their input into the scheduling process.

Nutrition examined psychological influences on food choice and taste preference, the importance of a balanced diet, physiological effects of nutrients, alternative food habits, the Dining Hall at Deerfield and how it plans for the nutritional needs of men and women. After pouring over articles, texts, films and charts on the topic, selected works were utilized in the presentation. Sports Psychology, Nutrition and Drugs were then evaluated. The results of group feeling aspect of the evaluation are discussed in Chapter IV.

Sexuality wound up the presentations because it overlapped all aspects under examination concerning the human body. The research group for this area thought they should capitalize on the adolescent preoccupation with sexuality by offering it last, therefore sustaining interest to the completion of the course. Sexuality examined ethical, psychological and physiological aspects of the developmental stages of human growth. Prenatal, puberty, middle and old age, all carry with them aspects that require examination. How a human body changes in its lifetime carries with it critical questions for young people. The group chose anatomy, reproductive systems, language taboos, theories of love, sex roles, choices for parenthood and alternative sexualities as issues of priority importance. Slides, filmstrips, textbooks, lectures, debates, models, birth control devices, and love making films were utilized in the presentation. In the evaluation that followed this section, it was interesting to note how many felt that co-education was a more

natural setting for the school and society. The all-male nature of the school came under serious criticism especially in discussing feelings and emotions when young people establish relationships. Without young women in the class an important perspective was lost. The suggestion for the following year was to include young women in these important discussions if at all possible.

Following the Christmas break in 1975, six weeks were left of the Winter Term to incorporate into the curriculum the suggestions and revisions the group collectively decided should be included. The evaluation of January found many satisfied with the progress which had taken place in the course while others sought to place more emphasis on the practical uses in each of the areas. This evaluation was accomplished with an instrument described in Chapter IV. Many called for increased involvement by the whole school in the areas that were being addressed. Time and time again, participants began to feel strongly about the impact the course should have on the school. The in-class oral evaluations emphasized this. The feelings of cohesiveness and equality are further explored in Chapter IV.

These were the essential steps in the organization of the content and the development of the curriculum material. The group making these decisions were again the eight teachers, twelve students, and the individual specialists utilized in each of the topical areas. The development remained an ongoing process commencing with the summer workshop and continuing each month thereafter. It is currently maintained in the 1977 version of the course.

Deerfield Step D: Choice (and development) of evaluation strategy and process.

People Involved: Teachers, measurement specialists, students.

This step involves how the evaluation process was developed. The results of the evaluation is Step F but will be included in Chapter IV. There were four levels of evaluation: 1) the involvement of the participants as the developmental course progressed, 2) the feeling of equality in the decision making process, 3) the effect on perceptions of the school that participants felt as the course progressed, and 4) the increase or decrease of knowledge concerning each of the areas under study which is Chapter IV.

When planning to evaluate a developmental program, the participants in the course wanted to assess the level of involvement and the satisfaction level with the relationships that the course claimed were equal. After experimenting with open ended responses and multiple choice possibilities, it was decided that a Likert Scale would more accurately measure feelings of involvement and satisfaction of equality. After several revisions with consultation from Dr. Emma Cappelluzzo, Dr. Sher Riechmann and Dr. Hack Coplin of the Five College System in Western Massachusetts, the final draft was completed (see Appendix D). This was administered to the group every month or after the presentation of two research areas. The same process was adhered to in forming the evaluation of the satisfaction level of relationships. A Likert Scale was most appropriate in this case also.

The third level was the change (or lack of) perception at Deerfield. If the course had any impact on this issue, it would be important to

document that. For example, students might see teachers in another light if they were considered equal in decision making. The course could also alter general impressions of Deerfield especially considering the traditional nature of other courses. Students could have seen HLS as radical or extreme compared to other courses at Deerfield.

The fourth level of evaluation was the pre and post test of the amount of knowledge of each of the areas. The form itself saw many drafts with the assistance of the aforementioned evaluation specialists. Each of the teachers responsible for the coordination of research in a particular area submitted a list of objectives for that particular area. The statements were turned into questions and revised by the teacher group until all agreed upon their intent.

As the evaluation strategy and tools were developed they were administered to the group, the results of which are elaborated upon in Chapter IV.

Deerfield Step E: Curriculum trial with sample group.

Step F: Evaluation.

Step G: Revision.

People Involved: Teachers and students.

The last six weeks of the developmental course in February and March of 1976 was the trial process for this curriculum. Each group presented their curriculum utilizing the techniques the entire group had collectively decided upon. Minor revisions were suggested via an evaluation of each area (Step F & G in the Deerfield Design). A shortened evaluation tool was utilized which eliminated the levels of

satisfaction and involvement but included suggestions for revision and inclusion. No major changes were suggested. Had other major suggestions been made, the group would have responded to them. At that point, in the developmental process, all opinions had been heard. The group was comfortable with the material (see outlines of Appendix A) and was ready for implementation.

Deerfield Step H: Implementation.

Commencing with the school year 1976-77, the curriculum was introduced in course form to two sections of seventeen and fourteen students respectively. The same format of collective research was utilized. Each area had a research team responsible for presenting the established outline and any additional material that current participants had researched. The research team had to collectively agree on the inclusion of new material or the exclusion of old material. In this way, continual student input was assured. Chapter V will comment upon this process.

A similar schedule to the original 1976 model was created. Each area had 3-4 weeks to present their outlines. Again, various techniques were utilized such as seminars, debates, guest speakers, workshops in dormitories, and entire school presentations.

Special additions to the course were made in the Sexuality unit. During the four weeks of Human Sexuality, twelve female students, on an exchange from Miss Porter's School in Farmington, Connecticut, participated in both sections, thus bringing realism to the female perspective in this topic. The exchange was one of the out-growths of the HLS program and will be mentioned more in detail in Chapter V.

During the First Aid Unit, each student had to put in thirty additional hours during evenings to obtain a CPR Certification Card (Cardio-pulmonary Resuscitation). This added to the practical life saving information that was so abundant in that unit.

Appendix E indicated the major text books, films, filmloops and other techniques that were of major significance during this implementation. The Katchadourian and Lunde Fundamentals of Human Sexuality, Consumer Reports Licit and Illicit Drugs, Boocock's Nutrition, the Red Cross' Advanced First Aid & Emergency Care were the major texts of each of the areas.

Instead of all eight faculty members being involved in each area, they were present only for their area of presentation. This reduced their involvement level but their time commitments elsewhere necessitated this change.

Deerfield Step I: Evaluation of implementation.

People Involved: Teachers and students.

After each area was presented in the 1976-77 version, a day was set aside for evaluation of that particular area by the eight teachers and thirty students of two sections. The areas for evaluation were interest, amount of learning, preference of topics and suggestions for inclusion or revision. A final all-inclusive evaluation was completed in March.

The individual area evaluations indicated that First Aid, Human Sexuality and Drugs were of most interest to the students which corresponded with the findings of the previous year. Sports Psychology

was the least interesting which was significantly different than last year. Nutrition gained support, placing just ahead of Sports Psychology. The reason for this was perhaps the lack of varying learning techniques in Sports Psychology. This year the instructors chose a straight lecture format which reduced discussion and involvement on the part of the students. This year students were not a select group of relatively high performance students as the developmental group had been. Chapter V further elaborates upon the different aspects of the first two years.

Students felt that the amount of learning was greatest in the areas of First Aid, Human Sexuality and Nutrition. Although Nutrition was an area which lacked a great deal of interest for them, they did realize they learned much from this past neglected area of instruction.

Mental Health was the experimental new area which received mixed reviews. It appears low on the interest and amount of learning scales but with many observations that it needed more time for presentation to increase the interest and amount of learning.

Certainly the content of the topics in the course as well as the style of presentation influenced a student's interest, involvement and level of satisfaction.

Such ongoing evaluations were absolutely necessary to the redevelopment process of the next step.

Deerfield Step J: Re(Development)

People Involved: Teachers and students.

This involves an ongoing process that is inherent in the Human Life

Science Program. Each time every section will be evaluated as in the past. Only in this manner can the program maintain a sense of relevancy and interest to the students.

CHAPTER IV

EVALUATION OF HUMAN LIFE SCIENCE

This chapter will address the methods and procedures that were used in the evaluation of the Human Life Science Program at Deerfield Academy.

The results of the evaluation will first assess the level of involvement within the course by the participants. It will then indicate the level of satisfaction with relationships and the equality that was proported to exist in the program.

Secondly, the evaluation will address whether or not the pilot group of teachers and students increased their awareness and knowledge of human sexuality, first aid, nutrition, sports psychology and drug education.

A number of different procedures were used. They ranged from subjective to objective in nature. A brief overview of these procedures follows.

Methods of Evaluating Level of Involvement and Satisfaction

Every four to six weeks, the participants responded to a periodic evaluation which asked them to identify their level of involvement and satisfaction with the espoused equality in relationships amongst the whole group involved with the curriculum. This was gauged along a scale from one to five (five being high) for each inquiry. A very basic Likert Scale was used in the instrument given to the participants. Because the instrument did not have previous use to verify reliability

and validity, it is important not to assume statistical significance of any great degree from the response. Appendix B is an example of the monthly instrument. Diagrams in Appendix G-1 (Figure I and II) indicate the ratings for every participant for each evaluation period. Following the cessation of the two-term HLS course (in 1975-76), the students enrolled in their usual traditional courses and at the close of four weeks into their Spring Term, they were asked the identical evaluation questions they had been asked each month during the course. They were asked to respond, keeping in mind their comparison of HLS to other courses. The results of that evaluation is reported in Figure III.

This spot check evaluation includes a statement concerning perceptions of Deerfield as a school being affected as a direct result of the program. Possible responses could involve changes in attitude toward teachers, fellow students and the institution.

The first twelve respondents on the charts are students, with numbers 13-20 being instructors. Number twelve dropped out of school in December due to personal concerns at home. Number thirteen, seventeen and twenty rarely responded due to their limited involvement. They felt, despite the author's objections, that their responses were invalid due to their lack of presence in many classes. Their data would have been useful in pointing out that physical presence could significantly influence level of involvement.

It should be noted that the respondees to each evaluative tool were participants who had pre-selected themselves for involvement in the

course. They were chosen on a "first come, first served" basis in May of 1975. The eight teachers were also somewhat self-selected because of their interest in the subject matter.

The results of such an evaluation indicated many things.

Results of Level of Involvement

Concerning level of involvement, the chart (Figure I-A) clearly shows us that involvement for the majority was extremely high at the onset of the course. All responded at the fourth level or higher. Number thirteen indicated his low level of involvement as he was unable to attend classes due to a schedule conflict. This conflict would influence his involvement throughout the course.

The October level of involvement (Figure I-A) was very high. During that time, initial enthusiasm for the novelty of the task generated involvement. The first two areas of First Aid and Drugs and Alcohol were preceeded by four class sessions involving team building, exercises designed to bring the group together in a cooperative spirit. The carry over into the first month of presentations could have influenced the high level of involvement.

In November (Figure I-B), although the level of involvement did not decrease significantly and is perhaps not worth mentioning, participants number four, five and six dropped from ½ to 1 level point. Number sixteen, an instructor who maintained a high level of involvement throughout the entire development of the course, had some misgivings concerning his involvement at this point in November. His relationship with another instructor deteriorated and affected his

perceptions as he mentioned to the author. The rules and regulations of the institution became a focus, that is, the minor ones like dress code and the wearing of socks to class. This caused a minor philosophic difference of these two instructors of educational commitment to the institution. One instructor felt it was important to uphold all regulations of the institution. Sixteen felt that with our goals and objectives, concern over shoes and socks was pretty immature compared to our larger issues. This issue created somewhat of a barrier with a few students and became the only problem area throughout the development process.

In January (Figure I-C), the Sexuality Unit involvement increased for sixteen, for he was a coordinator of the psychology of sexuality. Numbers ten and eleven also became more involved than their November level. Sexuality was an active and participating area of discussion. Class sessions were lively and extremely interesting. The students had many ideas and opinions concerning the complexities of the issues discussed.

Personality problems and the fine distinctions of educational philosophies became barriers only when the group did not face them as difficulties in communication. Perhaps even more attention to human relations was necessary to totally eliminate communication problems. However, despite the attention to this concern, human nature and basic personality problems could never be totally eliminated. The suggestion was made to incorporate a topic area which would direct itself to these issues and others. It was suggested to call it Psychology, Mental Health or Human Relations. Chapter V will elaborate upon this.

The February-March (Figure I-D) evaluation found more participants hovering around the third level of involvement. It was at this point in the process when developing the curriculum was paramount. Time was short and relations were strained. Facilitating human relations unconsciously slipped to a secondary concern. This was a time when actual involvement as opposed to perceived involvement surfaced. Five young people chose to put in extra time and effort while the remaining six felt involved but not to the extent the others did. Number one, four, five and nine asked to be part of the HLS presentation to the National Independent School Association Conference in Boston during February 22-24, 1976. Their involvement remained high throughout the entire two terms.

The final evaluation of involvement came six weeks after the completion of the initial development course (see Figure III-A). The time interval gave them a chance to reflect upon their experience, especially in relation to the courses in which they were currently participating. Each participant felt their involvement was of a significant level, more so than other courses (see perceptions of May in Appendix). In verbal and written explanations, it was clear that the sharing of power with students increased their feeling of involvement. As in many situations involving human relations and personalities, there were difficult periods but addressing these issues and examining the dynamics of group process was instrumental in maintaining involvement. If the unconscious behavior had not been addressed as it was, it could have been destructive in our attempt to build a feeling of trust and cooperation.

Results of Levels of Satisfaction with Relationships

The satisfaction question was phrased in a way that it set forth one of the goals of the course. "How satisfied are you with the quality in our relationships that we are striving to achieve in this class?" In this way, if the participants forgot that this was a goal, they were reminded every four weeks.

In October (Figure II-A), it was apparent that ambivalence toward "equality in relationships" was surfacing to many of the participants, teachers and students; this concept of a non-hierarchial relationship between teachers and students was indeed unfamiliar. The majority of responses in evaluating this unfamiliar concept hovered around the third level mark. Those who were familiar through other experiences with the concept were perhaps unsatisfied with the relationships at this time as their indications were also quite modest (number 14, 15, 16 and 19).

In November (Figure II-B), eleven participants increased their satisfaction (2, 3, 5, 7, 8, 9, 12, 14, 15, 16, 18). The increased level of satisfaction in November (Figure II-B) could be due to many things. The issue of shoes and socks had been dealt with in an egalitarian way. Students' opinions were highly regarded and were an integrated part of the outcome. Regard for the process of equality in decision making was certainly increased.

In January, twelve participants felt even more satisfied than they were in November. Seven of the twelve were repeat increasers from October. This was their second month of increasing their level of

satisfaction. Figure II-C indicates an increase in January, the month which contained more focus on the process of sharing in decisions than in other months.

In the February-March (Figure II-D) evaluation, only four people increased their satisfaction from the previous month, and only one of those had been a repetitive increaser each month. Twelve people decreased from the previous evaluation. As it was becoming later in the term, the importance shifted to finishing the curriculum, which could have affected the satisfaction level.

In May of that same year, the final assessment of satisfaction with the equality within the course was high for everyone involved (Figure III-B). The six week intervening time proved to reinforce, in everyone's mind, the actual equality that was experienced within the group.

The correlation between level of involvement and level of satisfaction is indeed strong. Satisfaction was highest for those who reported being more deeply involved. Satisfaction with relationships started lower but ended higher. The months of February and March were lowest for both assessment procedures. Perhaps personality difficulties and the reduced novelty of a new course influenced these low levels.

When given a chance to reflect on their involvement and satisfaction in HLS, which was six weeks into the Spring Term, both levels of assessment were significantly higher for all participants.

Another factor which could have influenced levels of satisfaction was the fourth question in each evaluation. It asked for suggestions for revisions or inclusions into the curriculum based on what had been

presented to that date. Participants were seeing their suggestions for revision being realized as the program responded to their suggestions. They were incorporated if possible and not asked only for information purposes with no intention of inclusion.

Some of the suggestions are worthwhile in noting in Appendix G-II.

Many of the suggestions were mentioned only once in the four evaluations but some presented a general theme of more discussion for the topics, a reminder of the goals, and structure for next year's course. The January suggestions were short and more complimentary as the previous suggestions were becoming a reality negating the purpose of further suggestions. Many of the suggestions were incorporated into the program such as more structure for the following year, increased discussion time and constant reminders of the course goals.

The responses to question three indicated whether or not the Human Life Science experience had affected the way the participants regard the institution. Because the nature of the course varied in philosophy from other courses and attitudes towards education at the institution it was thought that some awareness on the part of students and teachers alike would surface.

The responses to this inquiry of "Does being involved in the program affect your perceptions of being at Deerfield? If so, how," follow in Appendix H.

Briefly, though, the program had an overwhelming influence on the way participants saw the school and his/her activities. The perceptions did not change significantly from month to month as each evaluation period duplicated positive statements from the previous month. Some com-

mon themes were a reciprocal understanding of each other be it student or teacher, an awareness of what Deerfield "lacks," a perceived increase in knowledge in the topic areas, a call for more courses similar to HLS in philosophy and content, a call for trust and cooperation between participants and a desire to apply learned knowledge to the present situations.

October's perceptions were more voluminous than others. The positive acceptance of the program was clearly evidenced. November's statements tied the program to implications for the whole school. There was a deeper awareness of how the course was actually affecting their behavior and thoughts. In January the full impact of the program was being felt. Statements vary from "increased awareness of each other" to "beginning to realize our task was too great." A rejection of some of Deerfield's ideals surfaced, also surfaced in January. One participant expressed a desire to return to a more natural setting, probably reacting to the information presented on the superficiality of our culture, its conditioning process and the lack of nutritional value of processed foods.

By February/March the statements became shorter and more final. The participants tried to summarize their reactions to their involvement while maintaining a unanimous approval of the project. It seemed that the involvement level was highest at the onset of the course and lowest in March but returned to high involvement after the six week interval which followed the conclusion of the developmental course. The comparison with other courses influenced their perceptions at that time in May as can be seen in Appendix H.

In considering each participant's reactions, there are equally interesting themes. Each participant had preconceptions about the course and his involvement. Some were very perceptive in their remarks and some were not. Many statements remained positive in tone throughout the months and some changed with the months. Again, numbers 1-12 were student responses with 13-20 as the instructors'.

The comments from the participants concerning revision were both of a positive and negative nature. The perceptions of the school by the participants revealed a majority of positive statements.

Although the equality the participants experienced in HLS was greater than in other courses, the program will continue to work on increased involvement, satisfaction with relationships and continual evaluation for revisions.

Methods of Assessing Increase/Decrease in Awareness and Knowledge

The question of "Did this pilot group of students and teachers increase their awareness and knowledge of human sexuality, first aid, nutrition, sports psychology and drug education?" was answered by a pre-post evaluation tool which was developed by having each of the teachers responsible for the coordination of research in a particular area submit a list of objectives for that particular area. The statements were turned into questions and revised by the teacher group until all agreed upon their intent. The instrument reflects questions that are indicative of the material covered in each presentation. It was drafted and revised several times with outside consultants providing technical advice.

The difference between the two sets of responses was evaluated by raters according to a scale based on maturity, breadth of knowledge, understanding of the question, and clarity of answer.

The raters were all in fields of education as teachers or counselors. Two had a relation to Deerfield and one did not. One rater was a faculty member who was experienced in the maturity level of students at Deerfield. Another lived in Deerfield and had occasional interaction with students. The third did not have any interaction with Deerfield students whatsoever but was a counselor in a public high school. Their varying degrees of awareness of the Deerfield student was helpful in checking for differing levels of evaluation.

The raters evaluated each of the responses without knowledge of its "pre" or "post" nature. They had extensive training on the scale that was utilized to insure consistency of rating. Together they trained until a 90% rater agreement was reached. Model answers were created to serve as a guideline for what the raters were looking for in terms of maturity, knowledge and clarity of the responses of the participants. This was done by giving the raters five "dummy" responses in sets of three. After each set of five, they discussed their ratings to reach agreement on consistency of rating and what constituted a valid response. The ratings were compared until they consistently came within one point of each other. Because some questions on the pre/post test were too vague for a clear concise rating, the raters discounted the responses to questions 11, 14 and 15 and did not consider them in their deliberations.

Results of Assessment of Increase/Decrease of Awareness and Knowledge

The overall results of the pre/post test of each participant are shown in table form (Appendix I-A). The table indicates the pretest rating and the posttest rating. The third column indicates the difference between the ratings. The fourth column has three figures indicating the overall movement from pre to posttest and how many responses went up or down from the pretest.

Appendix I-B, Table 1, indicates the overall range of increases or decreases from the pretest to the posttest. Table 2 of Appendix I-B reflects the computation of the standard deviation of increases. Table 3 shows what sections of the pre/posttest increased the most from one administration to the next.

When regarding the table of overall participants' response, one must look at the overall increase pattern of individuals. Twelve people (70.5%) improved on the posttest over their pretest ratings while only five decreased (2.9%). Number 4, 8, 9 and 18 increased significant amounts as their posttests improved from their pretests. Number 4 was 1.85 standard deviations above the mean which means he surpassed 88% of the participants on the posttest. Number 8 and 18 were 1.93 S. D. above the mean or the top scorers of the 17 participants. Number 9 also increased significantly falling 1.29 S. D. above the mean, thus surpassing 82% of the participants.

Numbers 10 and 11 were above the mean and 76% and 71% above other participants respectively but only .39 S. D. above it. Numbers 14 and 15 were also above the mean but only .20 S. D. and .04 S. D. respec-

tively, placing them above 65% and 59% of the participants.

The overall 70% increase from pretest to posttest certainly leads us to the conclusion that the course intervened between the two tests influenced the increase on the posttest.

A more detailed analysis of each participant response pattern follows:

Participant #1 (Appendix I-A) had seven responses increase while five decreased. Overall his rating dropped -2 points according to the rating scale. Participant #2 increased +1.6 overall and split his increase and decrease on individual questions at five. Number 3 did not show significant increase as his overall increase was only +.8 with seven responses increasing and six decreasing. Number 4 certainly made strides throughout the course by increasing +7.8 overall with nine responses on the posttest increasing over the pretest and only three decreasing. Participant #5 had a greater number of responses increase (8) than decrease (3) but the overall increase was only +1.3. Participant #6 decreased overall by -1.4 with five responses increasing in the posttest but eight decreasing. Number 7 did not improve from one testing to the next. In fact, he decreased -1.7 overall with six responses increasing and six decreasing. Number 8 made meaningful improvement by increasing +8.0 overall from the first test administration. He went up on 8 responses but down on 5. Number 9 showed a more ideal pattern for supporting the hypothesis in Chapter One. He went up +6.3 overall and increased ratings on ten responses and decreased on only one. Number 10 increased on nine responses on the posttest and decreased on three with an overall increase of +3.9. Number 11 increased with a similar overall

of +3.9 but only five individual responses increased on the posttest with 4 decreasing. Number 12 took the pretest but had dropped out of school before the posttest was administered. Number 13 did not participate in this evaluation process. Fourteen increased +3.4 overall with seven responses increasing on the posttest and four decreasing. Number 15 increased a smaller amount with a +2.9 increase overall but nine individual responses increased from his pretest score while only two decreased. Number 16 seems disappointing on the surface because he appears to have decreased overall by -.2 with only six individual responses increasing, while five decreased. A closer look reveals an extremely high rating on the pretest responses, one which would be difficult to improve upon significantly.

Number 17 did not participate for the same reasons as number 13. They did not feel they were actively involved to score well which misses the point for evaluation but was beyond the author's control. Number 18 was another firm supporter of the hypothesis with an overall increase of +8.0 which included nine increases on responses on the posttest and only one decrease. Number 19 decreased -.4 with only three increases on individual responses and six decreases. Number twenty finished the list with a positive support of the hypothesis with a +4.9 overall.

It appears that the responses on the topic of Sports Psychology increased the greatest from the pretest to the posttest responses. When averaging the positive and negative ratings, Sports Psychology received a positive total score from all participants' ratings of +18.6. With only two questions on the topic, the average of both questions'increased ratings was +9.95. First Aid, having only one question on the

prepost test decreased -.2 on the participants' responses for the pre-test to the posttest. As all the topics but First Aid increased their response ratings on the posttest, it is safe to say the intervening course influenced the awareness and knowledge levels of the participants in a positive manner.

The procedure for grading in this developmental course was also a portion of the response to whether or not participants increased in knowledge and awareness. A student contracted for a grade according to a stated list of guidelines (see Appendix C). He would state in writing the amount of commitment he was willing to devote to the course. At the conclusion of the term, he was evaluated by the co-ordinator according to the level of success at meeting his stated level of commitment. If he accomplished what he contracted for, then he received that grade. All of the participants contracted for grades between 80-90. Each successfully completed his contract except for number 3, 6, and 10 who received 10 points lower for failure to meet the contract agreement by not completing the work stipulated in the contract.

With the results of the HLS evaluation indicating success in the level of involvement, satisfaction with relationships and increase of knowledge, the course has proven its effectiveness in these measured areas. Chapter V will discuss the conclusions, implications and suggestions for further research regarding Human Life Science.

CHAPTER V

CONCLUSIONS, IMPLICATIONS AND SUGGESTIONS FOR HUMAN LIFE SCIENCE

Conclusions

The purpose of the study was to design, implement, evaluate and redesign a program of academic and experiential learning in subject matter such as drug, alcohol and tobacco education, first aid, sports psychology, nutrition and human sexuality.

The evaluation data pointed out that involvement and satisfaction levels were highest in November when the program was new and concerned most with human relations. It decreased after November as the development of the curriculum became paramount before concern with relationships. The charts of the monthly levels show somewhat insignificant change from one assessment to the next.

After a six week interval, students were asked again to measure satisfaction and involvements, comparing HLS to the courses in which they were then enrolled. The levels were extremely high in both measurements at that time, indicating a remarkable success of the aims of the course. As twelve participants increased in their knowledge in the posttest over the pretest, it can be said that the course facilitates learning in the areas that it addresses. Five participants decreased from pretest to posttest. One factor that could not be controlled was the faculty involvement, especially with two instructors who saw their time with HLS as limited. To increase involvement, HLS might lobby for more release time for its participating faculty from

their conflicting responsibilities. Letters of commendation could be written and placed within folders encouraging their further involvement. Resistance of faculty is commonplace throughout education and must be addressed in each individual case.

The perceptions of the participants were influenced by the course, as Appendix H indicates. Students and teachers began to understand each other's perspectives. They responded with more understanding toward each other as the course progressed.

The course was designed and implemented over the course of two academic years, 1975-76, 1976-77. The first year was evaluated by various aforementioned methods. It is suggested that the following years also be similarly evaluated for more significant comparative data.

The course has been offered during the academic year 1976-77 but expanded into two sections with all topics during the Fall and Winter Terms. The Spring Term contained individual courses offered in each of the subject areas of HLS. An exchange with a girls' school was a branch of the program that enhanced the total environment of the school. In an evaluation administered to 100 male students following the girls' departure, the results indicated 81% of the boys who had the girls in class enjoyed their presence and 77% felt the presence of the girls "rendered the environment more realistic by having girls around." Sixty percent were in favor of the exchange with another 8% desiring to go to the participating girls' school for the exchange next year.

Implications

The program had implications for Deerfield Academy and independent schools in general. For Deerfield, the implications in the area of grading and teacher-student hierarchies could be momentous or miniscule. The contract system and emphasis on relationships in the classroom might carry over to other courses that the HLS instructors teac and then spread to colleagues. As of this writing, that has not happened but remains centered in each of the eight Human Life Science courses that exist.

The program's implication for other independent schools could also be far-reaching. The presentation of the HLS program to the National Independent School Association Conference in February of 1977 spread news of the course to institutions from Florida to California. Other independent schools are viewing the success of the program as a signal for their schools to begin similar courses. HLS has assisted in a consulting fashion to several schools up and down the East Coast. Twenty-eight schools indicated an interest in establishing a similar program in their schools. To date similar programs have been created in a school in Florida, one in Delaware (Tower Hill School), one in Massachusetts (Andover Academy) and one in New Hampshire (Holderness School). Their origin can be directly traced to the Deerfield Academy program as a result of consulting work or simple inquiries. Perhaps HLS has served as a model as had been hoped.

Suggestions for the Future of Human Life Science

Human Life Science and similar programs could be a very integral part of the practical and ethical education of young people. It addresses some important questions that face adolescents growing up in the late seventies. It is hoped that the increase in knowledge in these vital areas of learning will assist students in making mature decisions concerning the direction of their lives, particularly where these areas are concerned.

One suggestion for the school where HLS originated is to continue its exchange program with girls' schools to assure interaction of the sexes on these and other important issues.

Another suggestion would be to canvas a significant random sampling of the schools' population to determine the amount of knowledge students have of sexuality and to what extent drugs are used on campus. This information will aid in assessing the level of sexual awareness and drug use to determine the relevancy of the program.

A suggestion for continued evaluation would be to have a control group on which to compare evaluation data extracted from the experimental group that undergoes the course each year. It is hoped that a department of Human Development will form with HLS courses as its core. Each student will be required to take a term course from the list of HLS offerings. Students will bring HLS to the community through workshops and small group sessions. Internships in community agencies related to our areas of studies will be required of all students. Parents, administrators, students and teachers are enthusiastic

concerning the program and its importance to the education of young people. A special committee of the Board of Trustees composed of parents and trustees, have indicated a special emphasis be placed by the Academy on the moral and ethical education of Deerfield students. HLS has been cited as a program that focuses its direction in this important area. The committee has shown its support by encouraging the growth of HLS at Deerfield with additional funding. It is hoped that this support will continue and be the impetus for future growth.

When considering the adaption of HLS for other schools, one must look at the necessity to institutionize the program. In order for this to occur without dependence on individuals' energy, community involvement in various internships would force the program to continue to provide personnel to various agencies in an ongoing manner. Students could work with alcohol education agencies or possibly develop a relationship with juvenile courts in cases involving alcohol abuse among adolescents. County hospitals' kitchens or school kitchens might be appropriate intern sites for students interested in nutrition. Schools that have peer counselors could integrate that system with HLS interns. Peer counseling programs could offer an excellent opportunity to utilize the skills and knowledge the course provides. Other agencies or offices could be considered in an effort to further insure the future of an HLS program.

The curriculum of Human Life Sciences was designed from the beginning to incorporate students in the planning, evaluating and revision. Their modifications have been instrumental in maintaining relevancy and the cyclical process of curriculum development that requires this con-

stant replanning, redevelopment and reappraisal. It will continue to maintain this philosophy throughout its life at Deerfield. The success of the program cannot be measured by the 18 participants in the first year of the program but by the Deerfield Academy community that either accepts or rejects what could very well give new meaning to learning at Deerfield and other independent residential schools.

Appendix A

Condensed Outlines

Part A -- OLD OUTLINE -- Condensed

I. First Aid

As the older person responsible for this area was away during the June workshop, this area had only the barest of outlines. The student who assumed responsibility for the area in the fall formulated the only outline the program had on First Aid.

II. Drugs, Alcohol, Tobacco

A. Objective information on drugs - barbituates, amphetamines, hallucinogen, etc.

B. Physiological Effects - brain bloodstream, muscles, etc.

C. Psychological Effects

D. Speaker - Room to Move - U MASS DRUG DROP IN CENTER - alternative highs, psychedelics.

E. Legal Aspects of Drugs - National and International Laws - court cases - DEERFIELD DRUG POLICIES

Part B -- NEW OUTLINE -- Condensed

I. First Aid

A. Bleeding
   1. Emergency care
   2. Everyday use

B. Breathing
   1. Cardio-Pulmonary
   2. Heart Massage
   3. Mouth-to-Mouth

C. Poisoning - Antidotes - Symptoms

D. Shock
   1. Assurance
   2. Comfortability
   3. Internal injuries

E. Bandaging

F. Splinting

G. Limitations of First Aid

H. Films

I. Evaluation

J. Alternative teaching styles

II. Drugs, Alcohol, Tobacco

A. Alcohol
   1. Use and Abuse
   2. Denial - Alcoholism - Disease
   3. Nutritional Aspects

B. Amphetamines

C. Hallucinogens - Delusions, Illusions Bad Trips, Examples

D. Sedatives - Barbituates - use and abuse

E. Narcotics
   1. Heroin - Methadone Maintenance
   2. Slang terminology

Part A -- OLD OUTLINE	Part B -- NEW OUTLINE
F. Vietnam Drug Situation Heroin treatment, etc.	F. Marijusna - use and abuse
G. Student Critiques of Books	G. Tobacco - Plus and Minus?
	H. Alternative Relaxation -- T.M.
	I. Films; Speakers; Field Trips, Vietnam example
	J. Review and evsluation
III. Sports Medicine	III. Sports Psychology/Sports Studies
A. Historical nature of play - motives - values	A. Exploitation of athletes at all levels
B. Competitive Sport 1. Emotional pressure 2. Exploration 3. Psychology of competition	B. History and purpose of plsy 1. Definition of play 2. Types of play
C. Strengths and Weaknesses of intercollegiate Athletics	C. Effects of Sports on Individuals in Society
D. Aggression in Human Beings	D. Aggression in Sport -- Dr. Walter Kroll - University of Massachusetts 1. Motivation 2. Stress
E. Expectations of athletes	E. Life planning in physical activity
F. Leisure Life patterns	F. Psychology of Coaching
G. Physical fitness 1. Weight Training 2. Endurance 3. Isometrics vs isotonics 4. Drinking & smoking in sports	G. Drugs in Athletics
IV. Nutrition	IV. Nutrition
A. Awareness of our own eating patterns. 1. psychological conditioning and its role 2. Taste preference 3. Food aversions 4. How can we change?	A. Definition
	B. Importance to life
	C. Necessary nutrients and importance
B. Kitchen at Deerfield	D. Nutritional Needs for Men and Women
C. World Food Problem	E. Nutrition for Athletes
D. Foods for the Future	F. Alternative Food Styles 1. Vegetarianism 2. Protein Supplement diets, etc.
E. Field Trips	G. Food Processing - Dining Hall example
F. Films - Filmstrip previews	H. Psychology of Super Markets/Advertising

Part A -- OLD OUTLINE	Part B -- NEW OUTLINE
F. Vietnam Drug Situation Heroin treatment, etc.	F. Marijuana - use and abuse
G. Student Critiques of Books	G. Tobacco - Plus and Minus?
	H. Alternative Relaxation -- T.M.
	I. Films; Speakers; Field Trips, Vietnam example
	J. Review and evaluation
III. Sports Medicine	III. Sports Psychology/Sports Studies
A. Historical nature of play - motives - values	A. Exploitation of athletes at all levels
B. Competitive Sport 1. Emotional pressure 2. Exploration 3. Psychology of competition	B. History and purpose of play 1. Definition of play 2. Types of play
C. Strengths and Weaknesses of intercollegiate Athletics	C. Effects of Sports on Individuals in Society
D. Aggression in Human Beings	D. Aggression in Sport -- Dr. Walter Kroll - University of Massachusetts 1. Motivation 2. Stress
E. Expectations of athletes	E. Life planning in physical activity
F. Leisure Life patterns	F. Psychology of Coaching
G. Physical fitness 1. Weight Training 2. Endurance 3. Isometrics vs isotonics 4. Drinking & smoking in sports	G. Drugs in Athletics
IV. Nutrition	IV. Nutrition
A. Awareness of our own eating patterns. 1. psychological conditioning and its role 2. Taste preference 3. Food aversions 4. How can we change?	A. Definition
	B. Importance to life
	C. Necessary nutrients and importance
	D. Nutritional Needs for Men and Women
B. Kitchen at Deerfield	E. Nutrition for Athletes
C. World Food Problem	F. Alternative Food Styles 1. Vegetarianism 2. Protein Supplement diets, etc.
D. Foods for the Future	G. Food Processing - Dining Hall example
E. Field Trips	H. Psychology of Super Markets/Advertising
F. Films - Filmstrip previews	

Part A -- OLD OUTLINE

V. Human Sexuality

A. Ethical aspects
1. Development of ethical systems
2. Decision making
3. Historical background
4. Human standards
5. Family patterns
6. Pre/post marital sexuality
7. Case Studies

B. Physiological Aspects
1. Sex knowledge
2. Reproductive systems of both sexes
3. Developmental stages of sexual growth
4. Language taboos
5. Physical similarities & differences of males and females

C. Psychological Aspects

1. Love in Western World
2. Theories of Love
3. Sex Roles
4. Parenthood -- Choices
5. Different Sexualities

Part B -- NEW OUTLINE

I. Book Reviews

J. Films - Filmstrips preview

V. Human Sexuality

The following sub-sections will be considered vis-a-vis the ethical, physiological and psychological development inherent in each stage.

A. Pre Natal
1. Birth
2. Infancy
3. Childhood (0-10 yrs)

B. Puberty
1. Adolescence
2. Young Adulthood (11-35 yrs)

C. Middle age -- later years (35 yrs and up)

Oct. - Nov.
Nov. - Dec.
Dec. - Jan.
Jan. - Feb.
March

Appendix B

Periodic Examination of
Participation and Development
of
Human Life Science Program

Place an X on the scale where you feel it most accurately reflects your feelings.

1. How involved do you feel with the sessions we have had in Human Life Science to date?

5/_____ 4/_____ 3/_____ 2/ _____1/
very involved not at all involved

2. How satisfied are you with the equality in our relationships that we are striving to achieve in this class?

5/_____ 4/_____3/ _____ 2/_____1/
very satisfied not at all satisfied

3. Does being involved in the program affect your perceptions of being at Deerfield? If so, how?

4. Do you have any suggestions for revisions or inclusions into our curriculum based on what has been presented so far? If so, please list.

Appendix C
HLS Program for 1975-76

Guidelines for Grade Contract

Please take these guidelines and develop them according to your own commitment to the program. Keep in mind some of our stated goals such as:

-- development of a curriculum

-- cohesion of the group

-- equality in relationships

Add to that general thoughts or concepts of measurement which all of us use when thinking about grades.

(with course material) -- depth of knowledge in area

-- ability to inter-relate areas

-- ability to communicate effectively with the group

(with people) -- willingness to accept responsibility for various parts of the course

-- willingness to help others in course

Now, thinking about those two areas of goals and levels of measurement, consider the following scale and adapt it to your idea of a grade for this program.

65
- attends class
- minimal effort exerted
- limited oral contributions
- spends about 1-2 hours a week on topics

65-75
- average effort
- attends class
- surface treatment of material
- 3-4 hours a week spent on material

75-85
- above average effort
- numerous contributions in class or equivalent in own way
- participation in depth in area
- makes frequent inter-relations of areas
- spends 5-6 hours a week on material
- shows deep commitment to program in own fashion - contract will indicate what that is

85-95-100
- constant contribution in class or personal equivalent
- multiple participation in areas with evidence of understanding and inter-relations or in-depth participation in one area with evidence of understanding of others
- six plus hours a week or personal equivalent
- initiates contacts with outside sources for benefit of course
- overall, outstanding effort

Take these degrees of measurement, amend them, and we can negotiate your level of commitment and participation for our mutual benefit and learning.

Mrs. Hagerman

Appendix D September, 1975

KNOWLEDGE SURVEY
Human Life Science Program
Deerfield Academy

This survey is not to be graded and will be no means a part of the evaluation of your participation in the course. It is only to give us an idea of the extent of your knowledge in these areas before we start the research on topics. It is just one means of evaluation we can use to gauge the impact of the program. Please be as frank as you can. Don't worry if you get something right or wrong, we are just looking for honesty.

Nutrition

1. What is meant by nutrition and the study of nutrition?

2. How do you see the study of nutrition helping to prepare you for your life?

3. Do aggressive sports tend to increase or decrease aggression in society and, if so, how?

4. Of what use could information/knowledge of sports and its medicine be to you and your life?

(OVER)

5. What is First Aid and why should we learn about it?

6. What is drug dependence and how does it differ from habituation and addiction?

7. How can information about hallucinogens, stimulants, narcotics, sedatives, depressants and their use and abuse be helpful to you?

8. What determines whether one's attitude toward sexuality is "good" or "healthy"?

9. How does pornography play a role in developing sexual identity?

10. What factors influence attitude formation regarding sexuality?

11. See Enclosed Sheet

12. What have been the 3 basic approaches to ethical decision making?

13. Is there a relationship between cultural standards and moral standards, and if so, what is it?

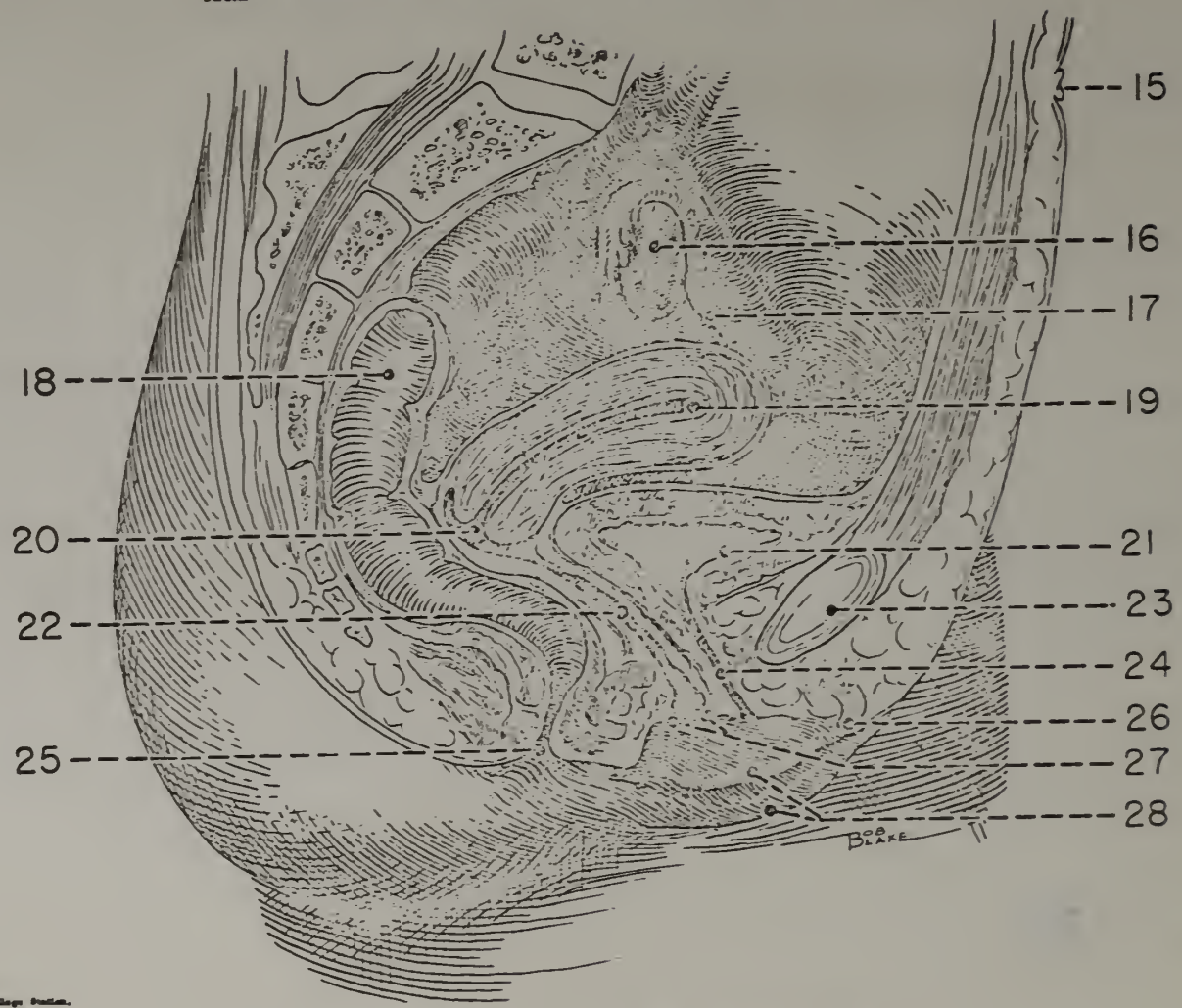
14. What are some basic sexual questions facing you?

15. Describe how you see yourself as a male in this society.

16. What similarities and/or differences, other than physical, do you see between the sexes?

DIRECTIONS. How well do you know the correct names of female sex parts? The names are supplied in the box to the left of the drawing. In the blank space by each name write the correct number from the drawing. The term sex part is used here to mean either sex organ or sex structure. The drawing shows one half of the female body which has been divided through the center from front to back.

	cervix
	clitoris
	Fallopian tube
	hymen
	labia
	ovary
	urethra
	uterus or womb
	vagina

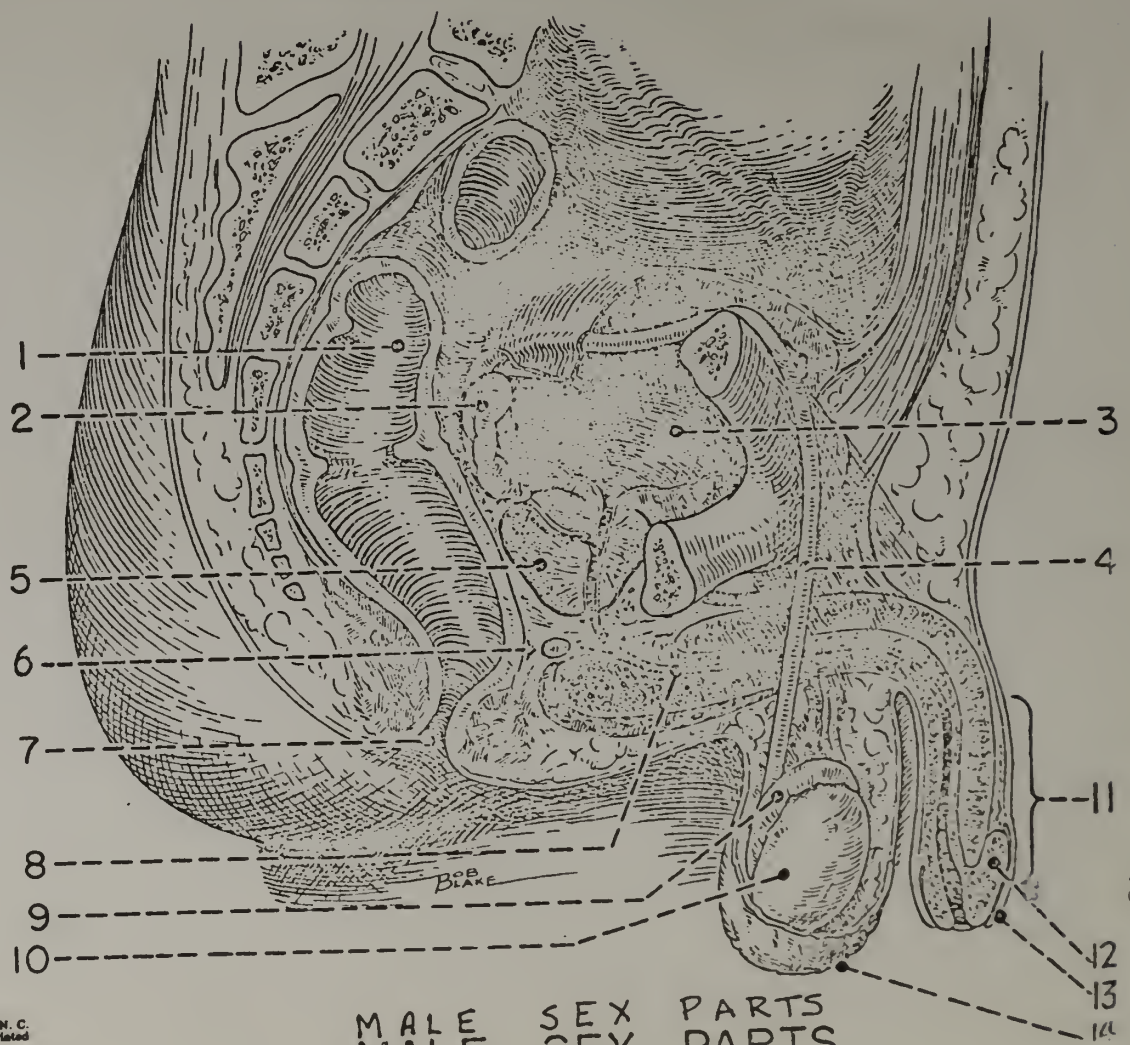


FEMALE SEX PARTS

Published by FAMILY LIFE PUBLICATIONS, INC., 6729 College Station, Durham, N. C.

DIRECTIONS. How well do you know the correct names of male sex parts? The names are supplied in the box to the left of the drawing. In the blank space by each name write the correct number from the drawing. The term sex part is used here to mean either sex organ or sex structure. The drawing shows one half of the male body which has been divided through the center from front to back.

	Cowper's gland
	epididymis
	foreskin
	glans penis
	penis
	prostate gland
	scrotum
	seminal vesicles
	testicle
	urethra
	vas deferens



MALE SEX PARTS

Published by FAMILY LIFE PUBLICATIONS, INC., Box 427, Saluda, N. C.

Appendix E

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Diet for a Small Planet, Frances M. Lappe (12) copies

Nutrition and Physical Fitness

Recipes for a Small Planet (3) copies

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Emergency Care & Transportation of the Sick & Injured (6)

American Red Cross Advanced First Aid Text (6)

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ATTACHMENT

Bibliography for Human Life Science

Bibliography and Resources - abridged edition - various purchases and review items for purchase (longer book purchase addition also available)

Drugs, Tobacco and Alcohol

Beacon Clinic - Greenfield, Massachusetts - Alcohol Education internship program for 3 juniors this Spring, 1976

Guidance Associates - Pleasantville, New York, series of filmstrips and cassettes on drugs: psychedelics, alcohol, sedatives, stimulants and narcotics

16 mm films - series of 20 or so previewed - concerned with alcohol use and effects. Available through local AA offices or hospital rehabilitation programs

Pamphlets from Hazelden & Johnson Institute in Minnesota and HEW in Washington

Examples of Articles

- Weil, Andrew, Intellectual Digest, August 1972 "Man's Innate Need: Getting High"

- Weil, Andrew, Drugs in American Life (Book) "The Student and His (or Her) Culture," p. 16-23

- Boston Globe, Thursday, Jan. 15, 1976, "Teenage Alcoholism: The Nation's Tragedy"

Speakers

- E. T. Mellor, University of Massachusetts Alcohol Education Unit

- Ruth Yanka, Coordinator of Training and Education, Beacon Clinic, Greenfield, Massachusetts

- Dr. Hardin B. Jones, Associate Director of Donner Laboratories, University of California at Berkeley

First Aid

- Red Cross Chapter, Greenfield, Massachusetts, and their materials

- Educational Audio Visual, Inc., Pleasantville, New York. 10570
  Tape and filmstrip unit on Emergency First Aid - Previewed

Sports Psychology

Speaker - Dr. Walter Kroll, University of Massachusetts, Associate Professor of Exercise Science - "Place of Aggression and Competition in Sports" plus bibliography and articles

Nutrition

- Series of films available from Springfield Office of New England Dairy and Food Council

- Series of posters and cardboard materials for class use

Speakers

Dr. Carrie Johnson, Food Science and Nutrition Department, University of Massachusetts, "Personal Nutrition"

Dr. Peter Pellet, Food Science and Nutrition Department, University of Massachusetts, "World Food Problem"

Appendix F

#1 Old Schedule
Fall Term

Week	Mon. 60 Min.	Tues. 40 Min.	Wed. 60 Min.	Fri. 40 Min.
1			10 Intro	Dinner Class 12
2	15 Team Building	Team Building 18	17 Team Building	Nutrition 19
3	22 Nutrition	Nutrition 23	24 Nutrition	Sports Med. 26
4	29 Nutrition	First Aid 30	1 Sports Med.	Drug Alcohol 3 Oct.
5	4 Drugs	Drugs 5	6 First Aid	Sports Med. 10
6	13	O P E N F O R 14	15 R E A S S E S S M E N T	17
7	20 Physiology Sex	Physiology Sex 21	22 Physiology Sex	First Aid 24
8	27 Physiology Sex	Physiology Sex 28	29 Sports Med.	First Aid 31
Nov. 9	3 Physiology Sex	Physiology Sex 4	5 Physiology Sex	First Aid 7
10	10 Physiology Sex	Physiology Sex 11	12 Physiology Sex	Sports Med. 14
11	17 Ethical of Sex	Ethical of Sex 18	19 Ethical of Sex	Ethical of Sex 21
12	24	25 O P E N F O R R E A	26 S S E S S M E N T	28

Appendix F

#2 Revised

2 weeks per line

HLS Schedule for Fall & Winter Term

	Mon.	Tues.	Wed.	Thurs.	Fri.	Mon.	Tues.	Wed.	Thurs.	Fri.
OCTO	6 Group meetings class and other 60	7 40 Research	8 during times 60	9 NO CLASS	10 40	13 1st Aid	14 1st Aid	1st Aid		Drugs
BER	20 Drugs 1	21 Drugs	22 Drugs	23	24 Drugs	Sports Med. Evaluation 1st two parts 27	28 Sports Med.	Sports Med. 29	30	Sports Med. 31
NO	3 Drugs	4 Drugs	5 Drugs	6	7 Drugs 2	10 Nutrition	11 Nutrition	12 nutrition	13	14 Nutrition
VEMBER	17 Nutrition	18 Nutrition	19 Nutrition	20 NO CLASS	21 Nutrition	24 Evaluation 2 parts Drugs Nutrition	25 No Class	26 THANKSGIVING VACATION	27	28
DEC	1 No Class Returning	2 Sexuality	3 Sexuality	4	5 Sexuality	8 Sexuality	9 Sexuality Last class End Fall Term 3	10 Reading Day	11	12 Finals Start
				VACATION						
JAN			7 Sexuality	8	9 Sexuality	12 Sexuality	13	14	15	16
	19 Possibly	20 Sexuality	21	22	23	26 6 remaining weeks to refine, evaluate and research	27	28	29	30
FEB	2	3	4	5	6 long weekend	9 No class	10	11	12	13
	16	17	18	19	20	23	24	25	26	27
MARCH	1	2	3	4 End Winter Term	5	Spring term more possibilities				

LEVELS OF INVOLVEMENT

APPENDIX G-I

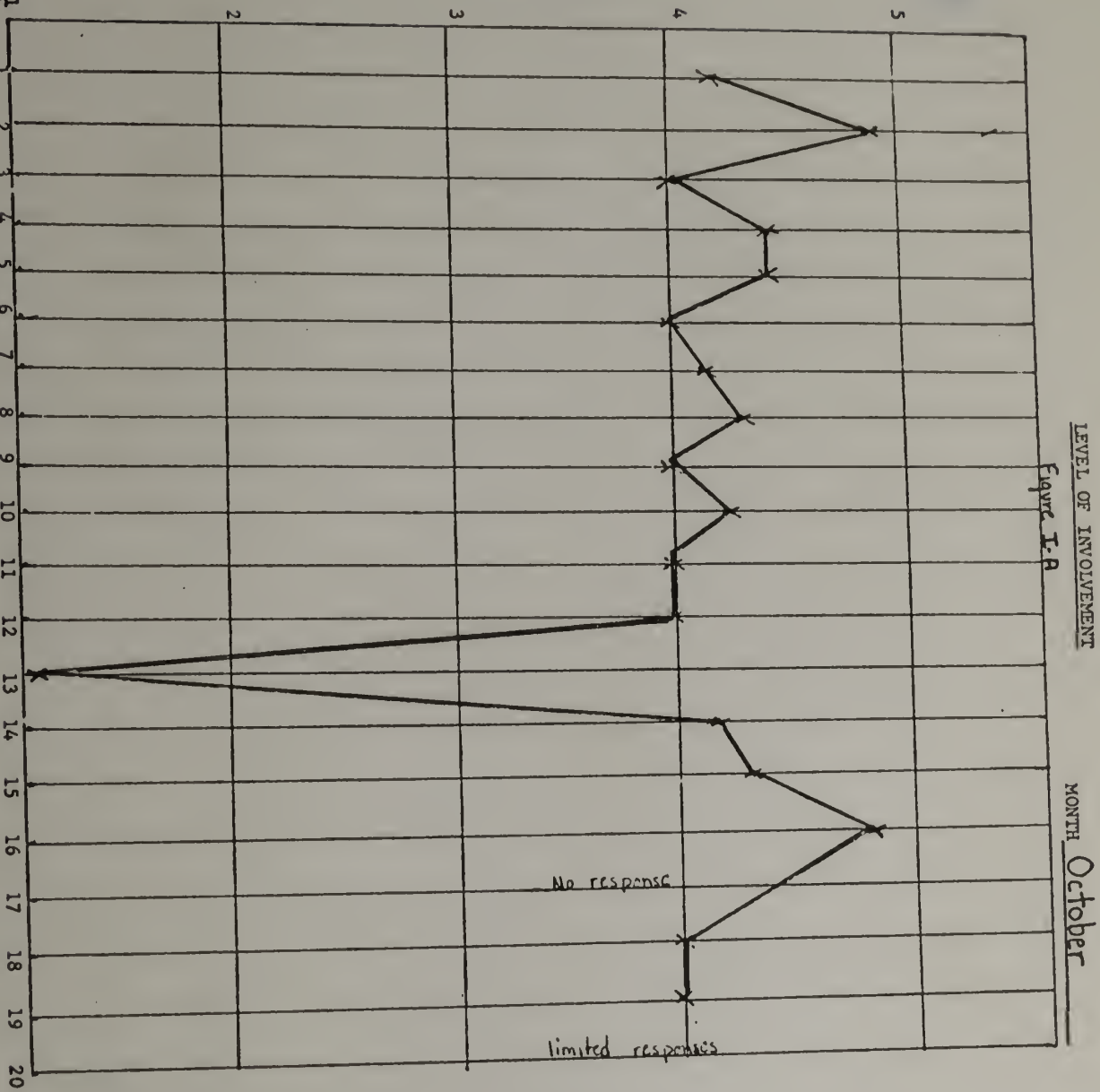

Figure I-A

LEVELS OF INVOLVEMENT

APPENDIX G-I

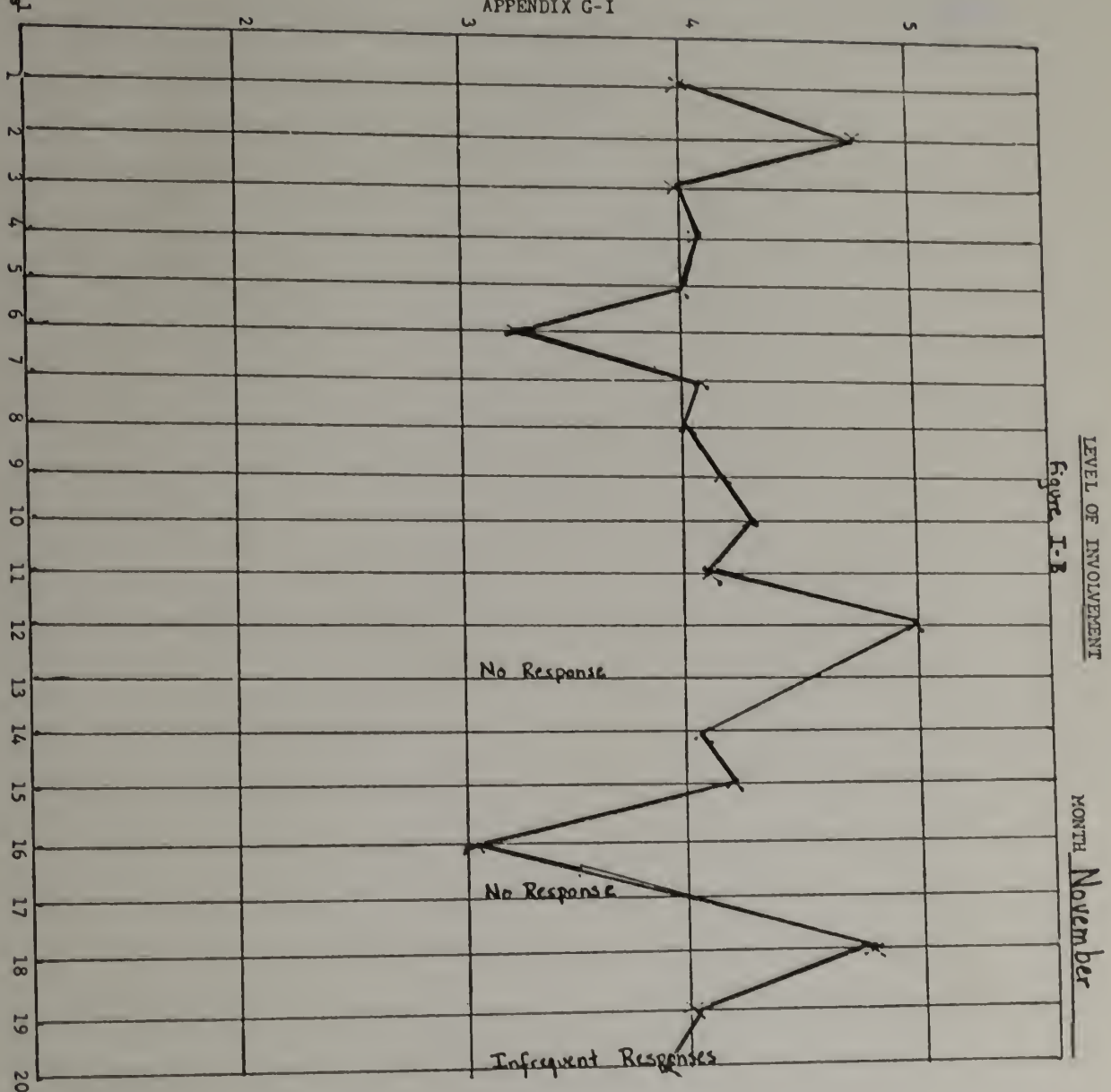

Figure I-1

LEVELS OF INVOLVEMENT

APPENDIX G-I

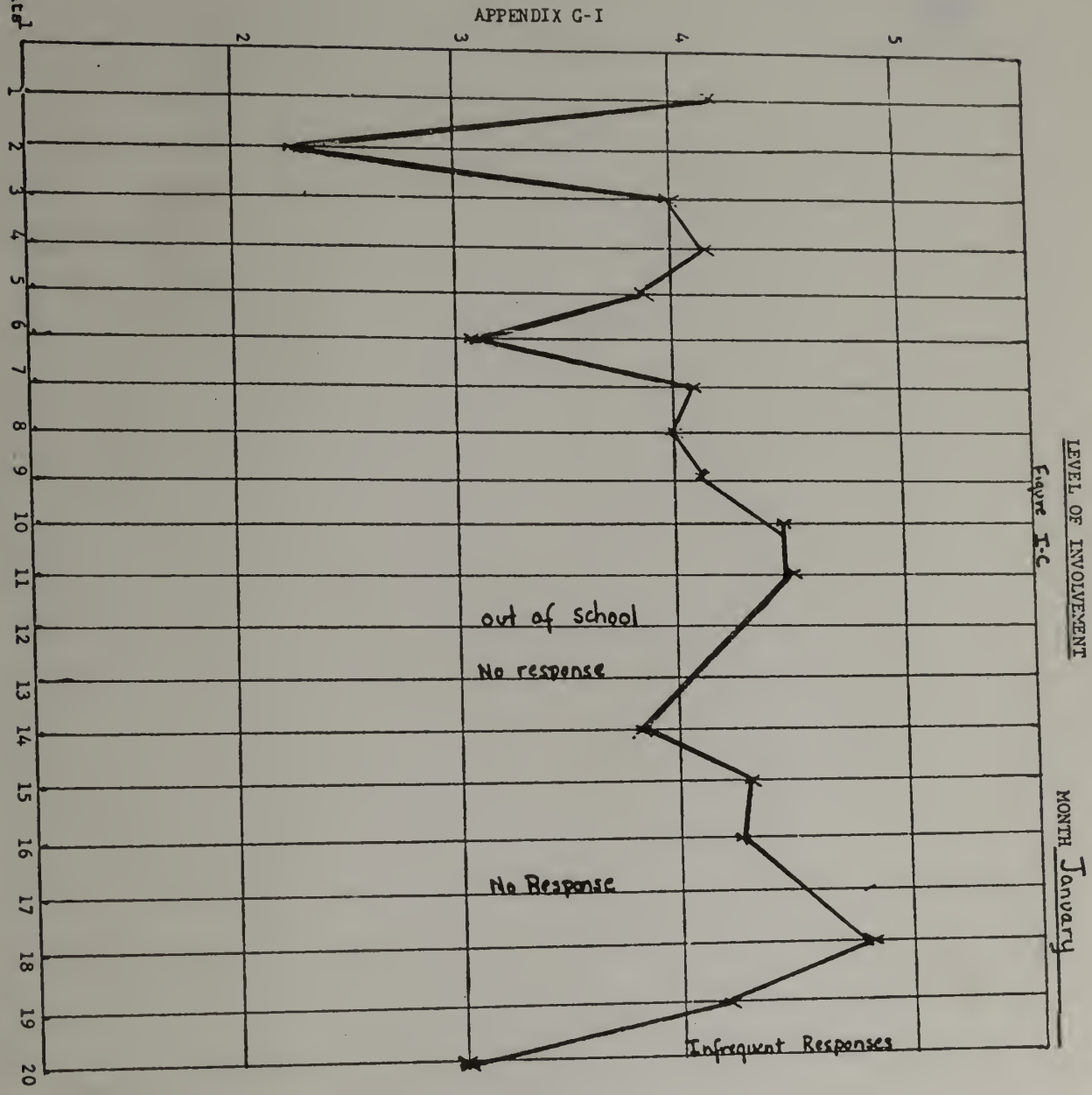

Figure I-C

LEVELS OF INVOLVEMENT

APPENDIX G-I

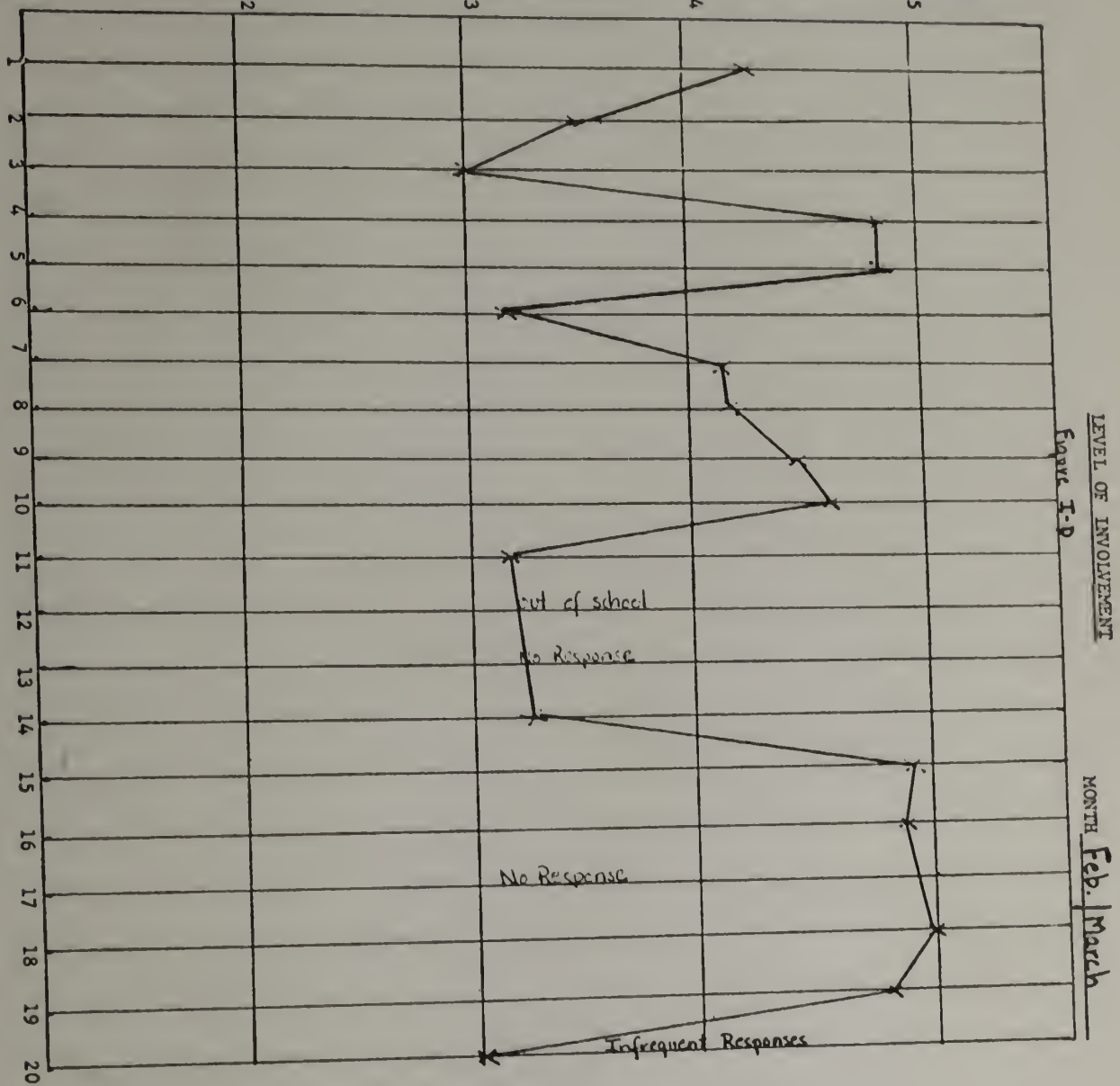

Figure F-D

LEVELS OF INVOLVEMENT

APPENDIX G-I

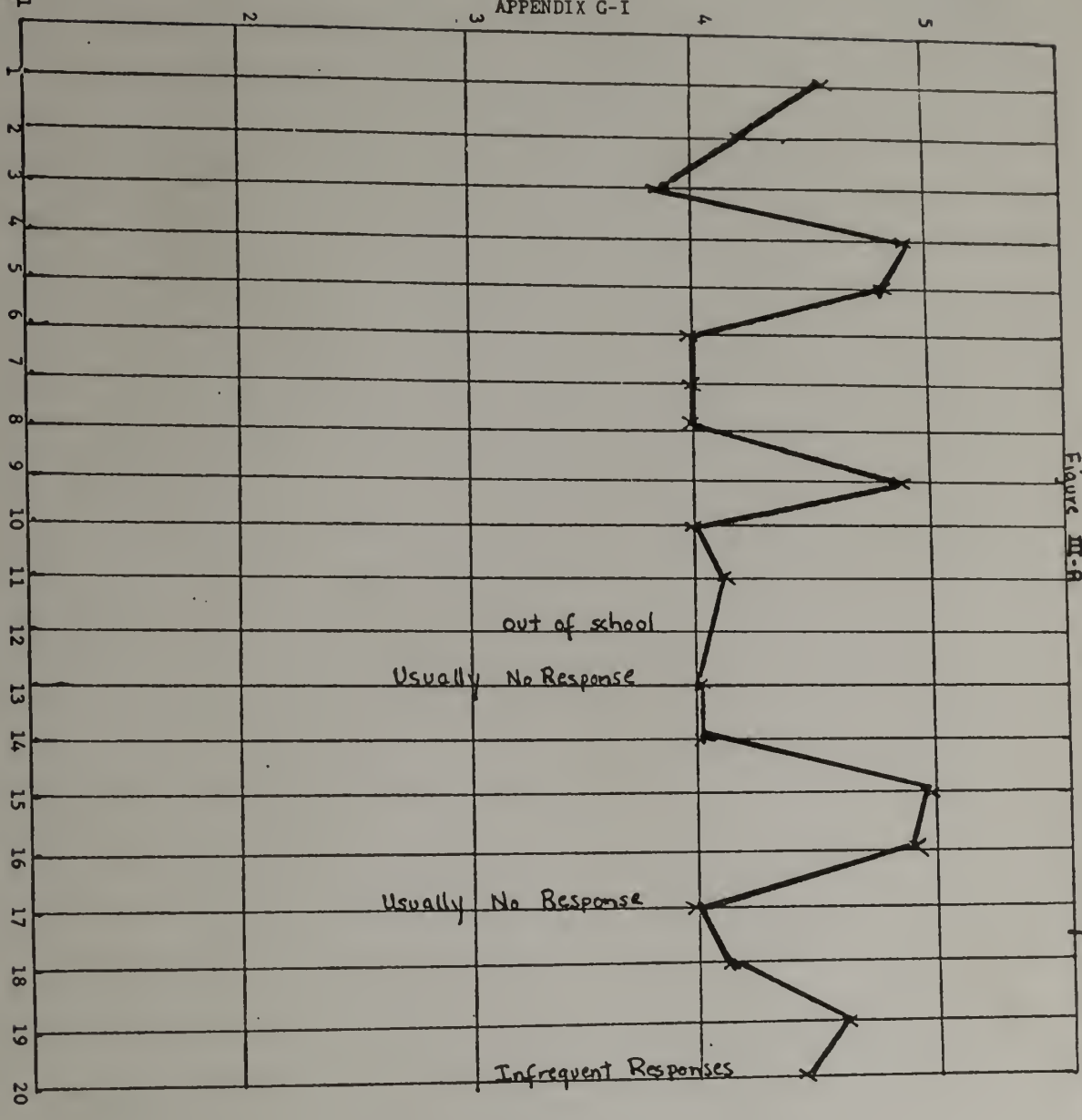

Figure III-8

LEVEL OF INVOLVEMENT

MONTH May - 6 wks. later

LEVELS OF SATISFACTION

APPENDIX G-I

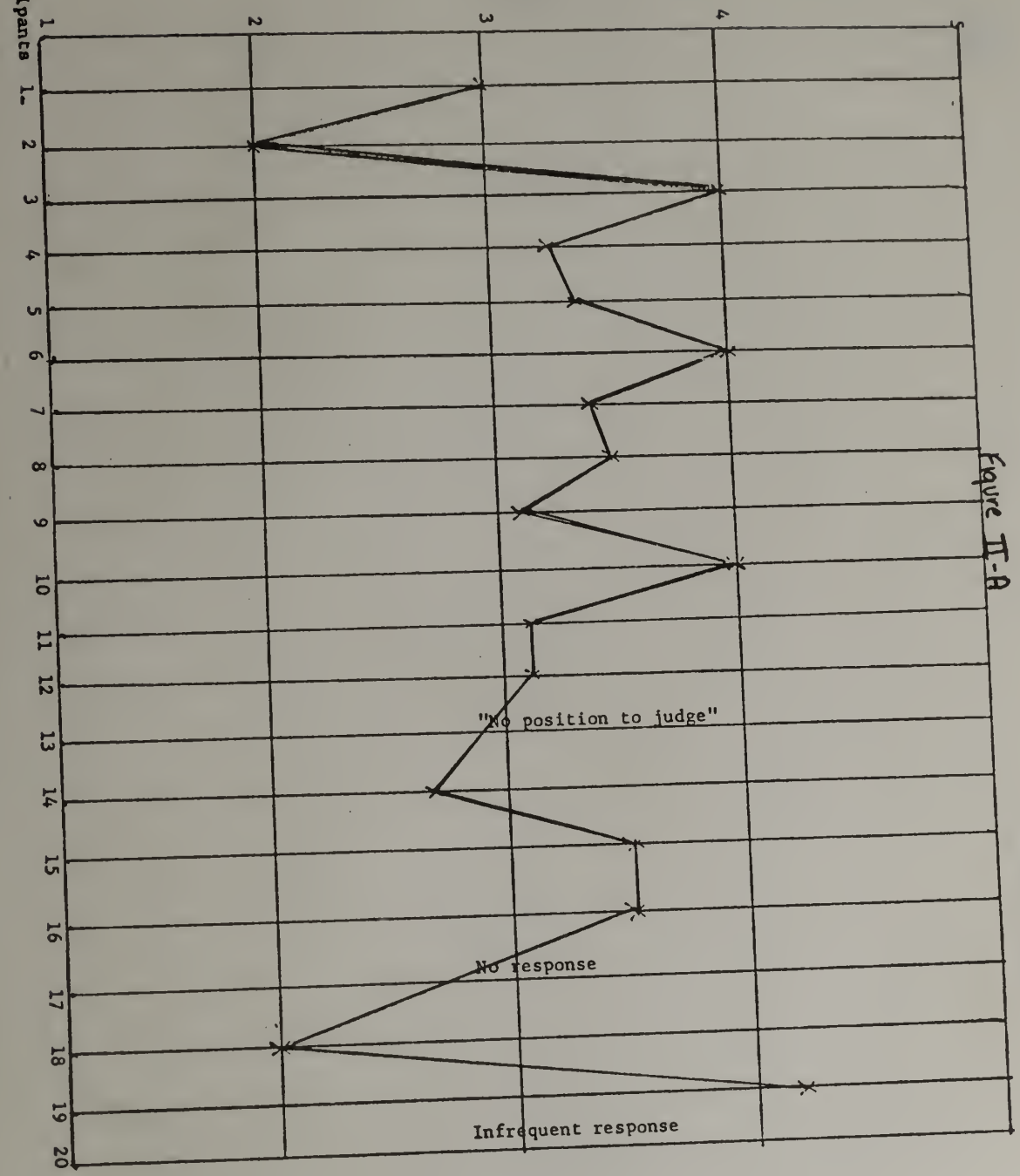

Figure II-A

LEVEL OF SATISFACTION WITH RELATIONSHIPS

MONTH October

LEVELS OF SATISFACTION

APPENDIX G-I

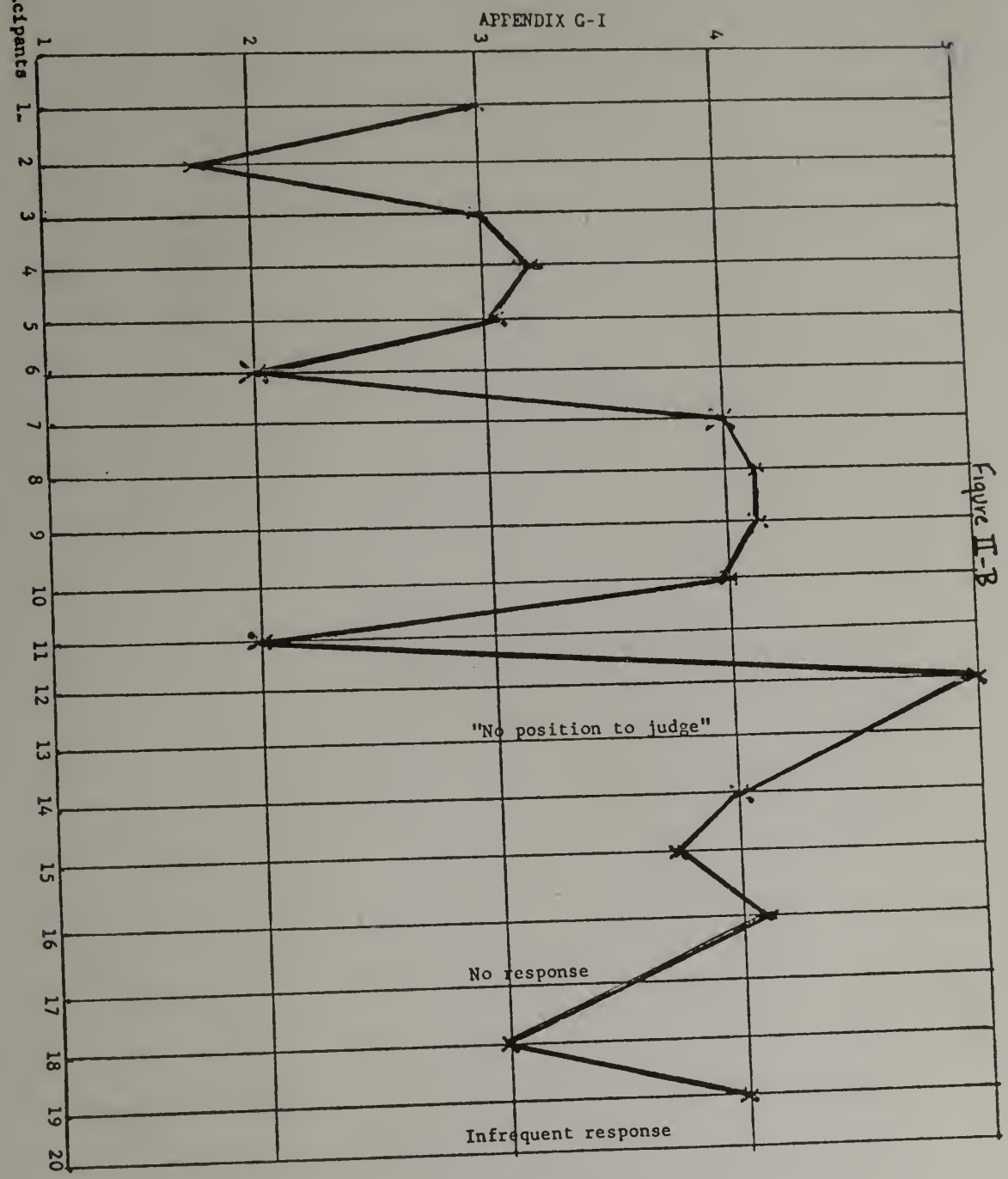

Figure II-B

LEVEL OF SATISFACTION WITH RELATIONSHIPS

MONTH November

LEVELS OF SATISFACTION

APPENDIX G-I

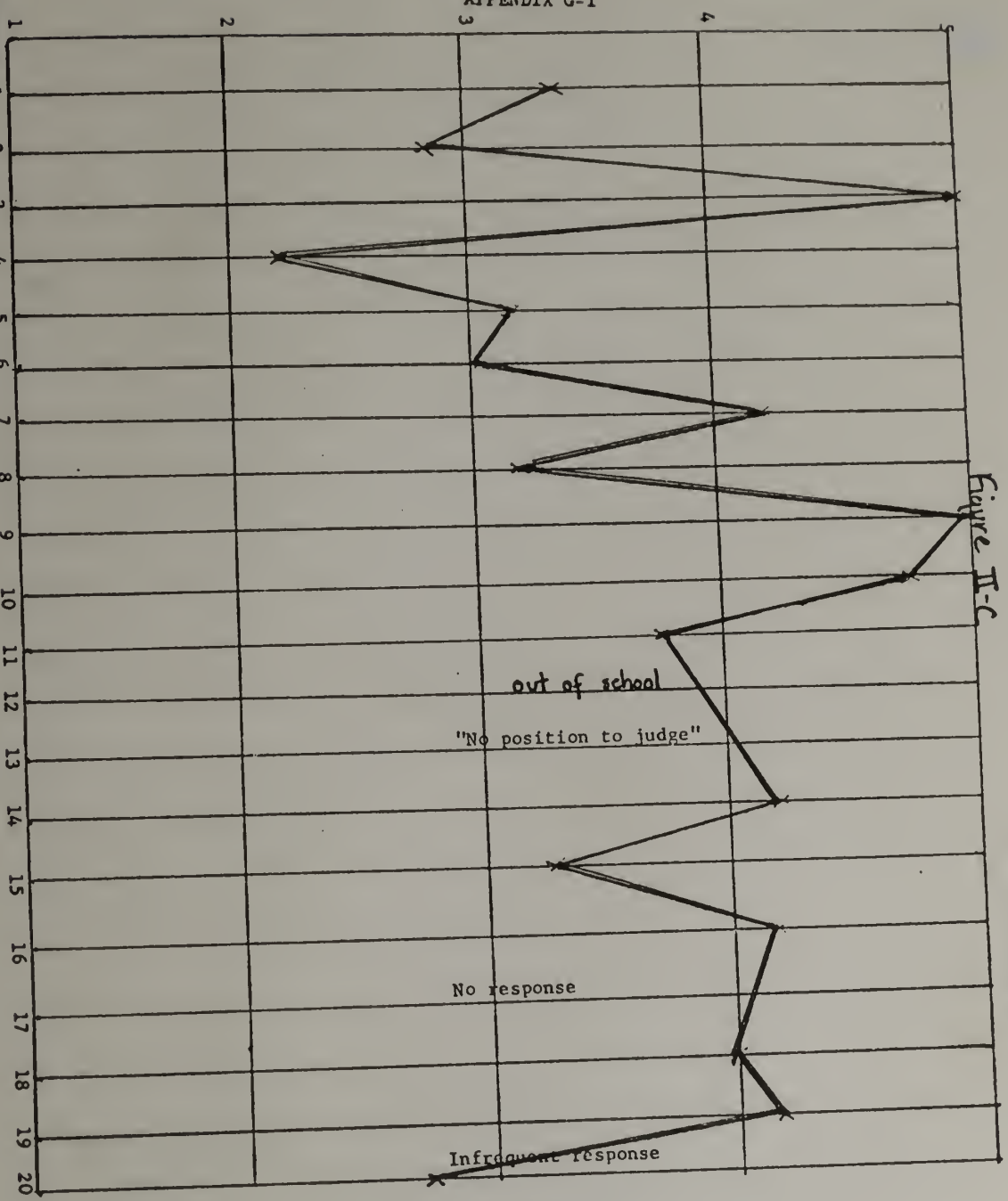

Figure II-C

LEVEL OF SATISFACTION WITH RELATIONSHIPS

MONTH January

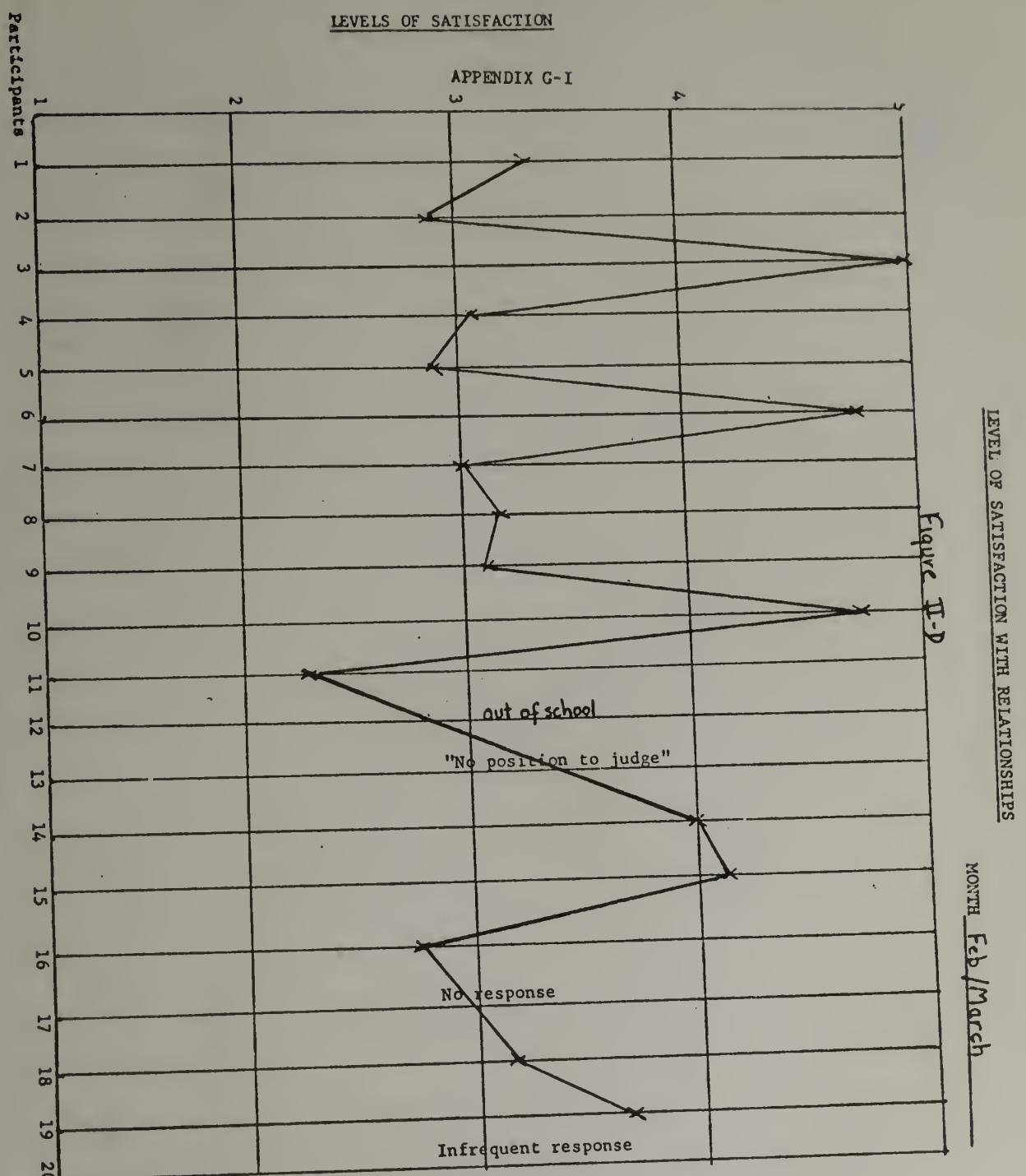
LEVELS OF SATISFACTION
APPENDIX G-I
Participants
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
out of school
"No position to judge"
No response
Infrequent response
LEVEL OF SATISFACTION WITH RELATIONSHIPS
MONTH Feb./March

Figure II-D

LEVELS OF SATISFACTION

APPENDIX G-I

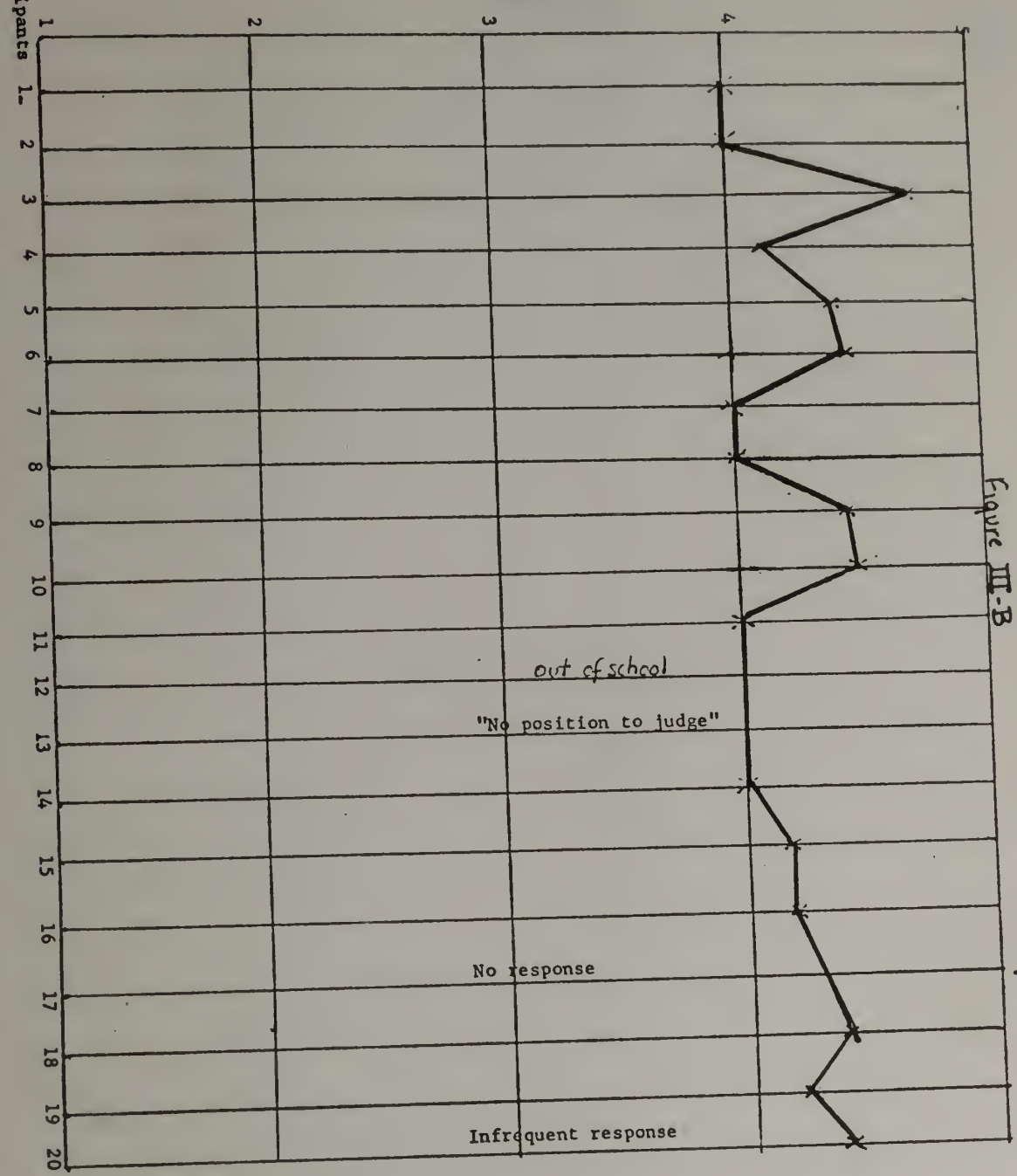

Figure III-B

LEVEL OF SATISFACTION WITH RELATIONSHIPS

MONTH May - 6 wks. later

APPENDIX G-II

Suggestions for October

- more discussion (4 people indicated this)
- more trust in each other (2 people)
- more structure (2 people)
- let's keep reminding ourselves of our goals (2 people)
- topics must continue to be relevant and their significance must be stated (1)
- small groups for discussion (1)
- include section of Privacy (1)
- we need more opposing views in the drugs section (1)
- more time for each topic (1)

November suggestions

- more analysis of the food we eat here (2)
- we need a psychology unit to help us analyze our own group behavior (1)
- can our grading system be school-wide (1)
- more emphasis on our feelings (1)
- more evaluations (1)
- keep in mind we're setting up a course (1)
- increase homework assignments (1)
- we need to utilize more teaching techniques (1)
- we need more information on tobacco and other drugs we assume are harmful (1)
- we need more structure for next year (1)
- no suggestions, just keep up the good work (1)
- more evaluation time (1)
- a unit on Death and Dying would be informative (1)

January suggestions

- everything sems to be going along fine (10)
- additional guest speakers would increase interest (1)
- agenda is quite adequate and complete (1)
- we need more time for each area (1)

February/March suggestions

- I can't think, my brain is too fogged (1)
- more time on the structure of next year (1)
- we incorporated the suggestions quite well (1)
- perhaps we can try to involve all in each area to increase our interest in each area (1)
- more student presentations, it has really helped our learning (1)
- more tobacco information (1)

APPENDIX G-II
(continued)

- I have no more suggestions; they have been listed in previous evaluations (1)
- we need to work on more of a tie between each group (1)
- more structure for next year (1)
- we must always maintain the flexibility that is inherent in this year's version (1)
- more work on societal norms in sexuality (1)

APPENDIX H

Responses to Perception Change as a Result of HLS

I. October's Perceptions -

Participants

#1. Yes, because most of the topics we discuss in class pertain to some part of life at Deerfield. Some of the topics already discussed have helped me to evaluate my life at Deerfield. In many classes, the discussions have been eye openers.

#2. HLS so far has done quite a lot of good for me. I feel involved. I understand how a teacher thinks and I am learning how to present material. The Drug section literally opened my perception of the school, this section should always be presented in discussion form.

#3. I like this course because I'm learning a tremendous amount and that is why I am here at Deerfield.

#4. Yes, my awareness of the positions of many of the faculty has increased greatly as a result of HLS. Good intentions towards openness.

#5. It makes us realize what Deerfield lacks, but those perceptions were always there, now they're just out in the open. It has so much to offer the students next year.

#6. The feelings of everyone are still pent up with teacher/student differences. No matter how hard we try as a group to be a group with no teacher, the feelings are always there.

#7. No, I was already aware of most of the material before the course.

#8. It helps me see that teachers are seeking answers that students are. It unifies teacher/student relationships.

#9. By having our discussions, I can perceive aspects of Deerfield I never thought of before. This exposes me to problems that I have not necessarily dealt with before. Most importantly I receive both sides of the story due to the great diversification of the personnel in the class.

#10. No.

#11. Yes, I see some apathy that I didn't see before.

#12. Yes, this course helps me understand why certain things are done here at Deerfield. Even now I don't know the exact pressures but I realize they are there.

#13. I have had scant involvement due to my scheduling conflict.

#14. That, all over campus, the teacher/student barriers must be broken down, I as faculty have grown to accept and like so many students I previously knew very little about.

#15. Yes, seeing that attitudes of males at Deerfield are so entrenched and oppressive and that it will take much energy to change it.

#16. I have learned that students are capable of some remarkable insight regarding material and situations here at Deerfield. We need almost to offer this course at Fresh/Soph levels and for all students in some way.

#17. No response.

#18. I'm much more aware of the way students report that they are dealing with some aspects of subjects discussed here in their lives at present (smoking, drinking) and their feelings about athletics.

#19. I don't think it does.

#20. No response.

II. November's Perceptions -

#1. Yes, nutrition has helped me quite a bit. It has made me again think how bad the food is in the dining hall and how I should eat at Deerfield to get my requirements.

#2. Yes, I see people who feel the same way about the school as I do.

#3. I find the program very beneficial in terms of gathering and learning material. I have indeed learned a bit and hope to continue to do so. But it does not affect my perceptions of being at Deerfield.

#4. Realizing more fully the validity of other's views. Thinking about what I eat while I eat it instead of thinking about it later.

#5. It makes me aware of some of the things that are going on at Deerfield, things I knew were going on but never discussed. I'm happy with the relations that are building.

#6. Yes, by being involved in this course my perceptions of being at Deerfield have been questioned. When we discuss items such as drugs, alcohol and when we present sex, my feelings of fear about the openness of discussions are dispelled. I can discuss these topics with the older members of our class. The class had helped me learn about the different items in depth. I'm afraid I can't retain all the information, though.

#7. No.

#8. Shows me some of the problems that teachers have, and that students are not the only ones with "peer pressures."

#9. Nutritionally I have questions about my diet at Deerfield.

#10. No, only that it makes or lets me talk to some faculty members that I wouldn't know. Everybody's interested.

#11. Yes, I'm more aware of the people around me. I feel I know them better.

#12. Human Life Science has changed some of my negative feelings and opinions to positive ones.

#13. No response.

#14. Yes, I think I have a better appreciation for the feelings of students toward some school policies. There seems to be a better understanding of the overall picture of the school than I anticipated.

#15. About the same as 1 month ago--only I realize more how relationships are tenuous and fragile and need to be worked on by all.

#16. Yes, I feel a certain importance to this activity and therefore feel a part of the future of the academic program. I believe strongly in the need for this course and for its support by the institution. The people in this class represent unique individuality yet we are all putting it together and I like that.

#17. No response.

#18. I am trying to work through confusion caused in me by what

we say we are supposed to do and what we actually do do on a group basis, i.e., what does the group say vs. what does the group do, the inconsistency I observe has perplexed me and I am endeavoring to understand and accept the reality.

#19. Yes, much more aware of athletics and how we could do more in the area of coaching and physical fitness. Also much more aware of nutrition, both on the personal level and with other people at the table.

#20. Yes, I see my students from a broader based point of view.

III. January Perceptions -

#1. The Human Sexuality section doesn't apply as much as it might while I'm at Deerfield. However, I'm sure it will help me in the future.

#2. Better concept of teacher-student administration relationship. Good idea of student motivation in relationship to personality.

#3. No.

#4. Further awareness of student-faculty roles and relationships.

#5. I feel more involved in the school activities, i.e., getting speakers for the school. Also I feel involved in designing a course for the school.

#6. No, not really. It does in one sense. It shows me how much I want to get back to a natural environment and regulations I have found to be a little dated and difficult on my life style and mental state of health.

#7. The deeper we go into the different areas the more I learn about people, especially myself. Deerfield hasn't changed, however.

#8. Helps me see the teacher's side of affairs.

#9. No response.

#10. It keeps some good relations with some faculty. It really doesn't change anything after 4 years.

#11. I feel as though I am becoming more aware of the people and things around me. I feel as though I have matured in my thoughts in most aspects of this course.

#12. Dropped out of school.

#13. No response.

#14. The ice has been broken. I think there is a feeling that we are much more compatible as a group.

#15. I'm beginning to realize our task was too great overcoming all the previous years of a hierarchy in education but at least we're opening up alternatives.

#16. No response.

#17. No response.

#18. Yes, increased awareness of not usually displayed or broadcast thoughts and/or feelings of some students and some faculty.

#19. No response.

#20. Gives me a better picture of people at the perceptual and emotional level, although "relationships" still showed this.

IV. February-March Perceptions -

#1. How could sexuality apply to Deerfield?

#2. Not recently.

#3. I haven't been offering much lately - senior slump but I have so enjoyed this course.

#4. Most markedly, my involvement in HLS has increased my awareness of the many possibilities for the progressive development of the Deerfield community and a frustration at the continued bureaucratic self-destructive, conservatism that prevents these innovations.

#5. I still feel that involvement in this course is very important and makes me feel as though I am adding to the curriculum. It is important that HLS becomes part of Deerfield because of what it has to offer in the way of education of the areas it explores.

#6. Not in any manner.

#7. No.

#8. Same as before.

#9. Looking back on the whole year, it seems that every subject has been tied to Deerfield either by the group presenting or myself.

#10. It helps connect the relationships of many of the students in the class to the faculty.

#11. Not any longer - some things surprised me earlier like drug use, etc. Too many people do them on weekends and do not try to find other things to do.

#12. Dropped out of school.

#13. No response.

#14. I seem to be continually gaining more of an insight into student perceptions of what Deerfield life is like.

#15. Indicates to me the need for a similar process in other classes.

#16. I sometimes feel that Deerfield is pressing our course into another "academic offering." We need more imagination in how we structure the course or "activity" and all of us do not participate outside in any way except in our own units. We need to explore our behavior regarding all this.

#17. No response.

#18. It intensifies my feeling that the students have not reached the stage where students are willing to accept faculty members as individuals with all the rights and privileges the students are demanding for themselves. They want but won't give. Want faculty to meet their demands--I take issue without philosophy believing that with freedom goes responsibility.

#19. Not at this particular time.

#20. Contact with people I otherwise wouldn't know is a great asset.

V. May Perceptions -

#1. It still sticks with me as an eye opener. I just wish other courses adapted some of HLS.

#2. I cannot believe it's over, if only it could go on.

#3. I miss it.

#4. The way we went into so many dynamics of teaching and learning will always be with me.

#5. Wasn't Boston and the Conference fun?

#6. Perhaps we've all learned something we can take with us.

#7. No response.

#8. I think of this course when I'm fishing.

#9. Maybe I can start something like this in my next year at Andover.

#10. No response.

#11. No response.

#12. Left school.

#13. No response.

#14. I wish I could carry this over into other courses I teach.

#15. Everyone assisted in some way, like no other effort at the school I've seen.

#16. It increases the frustrations I have in other structured courses.

#17. No response.

#18. No response.

#19. Next year we can certainly learn and go further.

#20. No response.

APPENDIX I-A

Pre/Post Test Results

Participant #1	Pretest	Posttest	Difference	
Question 1	3	3.6	+6	-.2 overall
2	4	3.3	-.7	
3	2.3	4.7	+2.4	
4	1.3	3.3	+2	
5	4.7	4.7	-	
6	4.7	3	-1.7	
7	3	3.7	+ .7	
8	4.7	2.0	-2.7	
9	1.0	3.0	+2.0	+7 up
10	4.0	5.0	+1	-5 down
12	2.0	1.0	-1	
13	4.7	2.7	- .2	
16	1.3	2.0	+ .7	
Participant #2				
1	3.3	4	+ .7	
2	2.7	2.3	- .4	
3	4	4	-	
4	3.7	2.7	-1.0	+1.6 overall
5	4.0	3.7	- .3	
6	3.7	3.0	- .7	
7	1.7	3.0	+1.3	
8	2.7	3.0	+ .3	
9	2.0	2.7	+ .7	+5 up
10	5.0	5.0	-	-5 down
12	1.7	1.0	- .7	
13	5.0	5.0	-	3 no change
16	1.0	2.7	+1.7	
Participant #3				
1	3.3	3.7	+ .4	
2	1.7	1.3	- .4	
3	3.7	4.0	+3	+.8 overall
4	2	2.7	+ .7	
5	3.7	3.3	- .4	
6	3.3	3.0	- .3	
7	3.3	3.0	- .3	+ 7 up
8	3	3.7	+ .7	- 6 down
9	2	1.7	- .3	
10	2.7	2.0	- .7	
12	1.0	2.0	+1.0	
13	2.7	3.3	+ .6	
16	1.7	2.0	+ .3	

Participant #4	Pretest	Posttest	Difference	
Question 1	2.7	3.0	+ .3	
2	3.7	4.0	+ .3	
3	4.7	4.3	- .4	+7.8 overall
4	1.7	3.0	+1.3	
5	4.7	4.0	- .7	
6	3.7	3.3	- .4	+ 9 up
7	4.0	4.7	+ .7	- 3 down
8	1.0	2.7	+ .3	
9	1.7	3.0	+1.3	
10	5.0	5.0	-	
12	4.7	5.0	+ .3	
13	4.0	2.0	+1.0	
16	1.7	2.7	+1.0	
Participant #5				
1	5.0	5.0	-	
2	3.7	4.3	+ .6	
3	3.7	4.0	+ .3	
4	2.7	3.0	+ .3	+1.3 overall
5	2.7	3.0	+ .3	
6	3.7	4.0	+ .3	
7	1.0	2.0	+1.0	+8 up
8	1.7	1.0	- .7	-3 down
9	3.7	3.0	- .7	
10	2.7	3.0	+ .3	
12	1.7	1.0	- .7	
13	5.0	5.0	-	
16	1.7	2.0	+ .3	
Participant #6				
1	4.7	4.3	- .3	
2	4.7	4.0	- .7	
3	3.0	3.7	+ .7	
4	4.0	3.7	- .3	
5	5.0	4.7	- .3	-1.4 overall
6	4.0	3.3	- .7	
7	2.7	2.0	- .7	+5 up
8	3.0	3.7	+ .7	-8 down
9	1.7	2.0	+ .3	
10	2.7	2.3	- .4	
12	2.0	2.7	+ .7	
13	3.7	3.0	- .7	
16	1.7	2.0	+ .3	

Participant #7	Pretest	Posttest	Difference	
Question 1	3.7	4.0	+ .3	
2	4.0	3.3	- .7	
3	3.7	3.3	- .4	
4	2.7	3.0	+ .3	
5	2.7	3.0	+ .3	
6	3.7	2.0	-1.7	-1.7 overall
7	2.0	3.3	+1.3	
8	1.7	2.0	+ .3	
9	2.0	2.3	+ .3	-6 up
10	5.0	4.0	-1.0	+6 down
12	2.0	2.0	-	one even
13	1.7	1.3	- .4	
16	2.3	2.0	- .3	
Participant #8				
1	3.3	4.0	+ .7	
2	3.7	3.0	- .7	
3	2.0	4.7	+2.7	+8.0 overall
4	3.0	4.0	+1.0	
5	2.7	4.7	+2.0	
6	4.0	2.7	-1.3	+8 up
7	3.7	2.3	-1.4	-5 down
8	1.7	2.7	+1.0	
9	1.0	2.3	+1.3	
10	2.3	5.0	+2.7	
12	1.7	1.0	- .7	
13	1.3	5.0	+3.7	
16	2.0	1.0	-1.0	
Participant #9				
1	2.7	3.0	+ .3	
2	4.7	5.0	+ .3	
3	4.3	4.7	+ .4	
4	2.7	2.7	-	
5	2.0	2.0	-	+6.3 overall
6	2.0	3.0	+1.0	
7	2.0	2.7	+ .7	
8	2.7	3.0	+ .3	+10 up
9	3.0	2.3	- .7	-1 down
10	3.7	4.0	+ .3	one even
12	1.0	3.0	+2.0	
13	2.0	5.0	+3.0	
16	1.3	2.0	+ .7	

Participant #10	Pretest	Posttest	Difference	
Question 1	4.7	5.0	+ .3	
2	5.0	5.0	-	
3	3.7	3.3	- .4	+3.9 overall
4	3.3	3.0	- .3	
5	4.0	4.3	+ .3	+9 up
6	2.7	3.0	+ .3	-3 down
7	2.7	2.0	+1.0	
8	1.0	2.0	+1.0	
9	1.3	1.0	- .3	
10	1.0	1.7	+ .7	
12	2.7	3.0	+ .3	
13	3.3	4.0	+ .7	
16	1.3	2.3	+1.0	
Participant #11				
1	3.7	3.7	-	
2	2.0	3.7	+1.7	
3	3.0	1.7	+1.3	
4	2.0	2.0	-	
5	3.0	3.0	-	+3.9 overall
6	1.0	2.7	+1.7	
7	2.7	2.7	-	+5 up
8	2.0	1.7	- .3	-4 down
9	3.3	2.7	- .6	
10	1.3	2.7	+1.4	
12	1.0	1.7	+ .7	
13	1.0	2.0	+1.0	
16	1.7	1.3	- .4	
Participant #12				
1	3.3			
2	3.3			
3	2.3			
4	2.0			
5	3.7			
6	2.3	withdrew from school		
7	2.7			
8	2.0			
9	2.0			
10	1.3			
12	1.0			
13	1.0			
16	2.7			

Participant #13	Pretest	Posttest	Difference	
Did not participate				
Participant #14				
Question 1	4.7	4.3	- .4	
2	4.3	4.0	- .3	
3	4.7	4.7	-	
4	4	4.0	-	+3.4 overall
5	4.7	3.7	-1.0	
6	2.3	4.7	+2.4	+7 up
7	3.0	3.7	+ .7	-4 down
8	2.7	3.0	+ .3	
9	4.0	4.7	+ .7	
10	3.7	4.0	+ .3	
12	2.7	3.0	+ .3	
13	4.3	4.0	- .3	
16	4.0	4.7	+ .7	
Participant #15				
1	4.7	4.7	-	
2	3.7	3.0	+ .7	
3	3.7	4.0	+ .3	
4	3.7	4.3	+ .6	+2.9 overall
5	4.7	4.0	- .7	+9 up
6	3.0	3.3	+ .3	-2 down
7	2.7	3.0	+ .3	
8	3.0	3.3	+ .3	2 even
9	4.3	4.7	+ .4	
10	4.0	4.3	+ .3	
12	3.3	4.0	+ .7	
13	4.3	4.0	- .3	
16	5.0	5.0	-	
Participant #16				
1	4.7	5.0	+ .3	
2	4.7	5.0	+ .3	
3	4.0	2.0	-2.0	
4	5.0	4.0	-1.0	-.2 overall
5	4.7	3.7	-1.0	
6	3.0	4.3	+1.3	
7	4.0	4.0	-	+6 up
8	3.7	3.3	- .4	-5 down
9	4.7	5.0	+ .3	2 even
10	5.0	5.0	-	
12	2.7	5.0	+2.3	
13	2.7	3.0	+ .3	
16	4.3	3.7	- .6	

Participant #17	Pretest	Posttest	Difference	
Did not participate				
Participant #18				
Question 1	4	5	+1	
2	5	5	-	
3	4.7	5	+ .3	+8.0 overall
4	4	5	+1.0	
5	5	5	-	
6	3.3	3.7	+ .4	+9 up
7	4.0	4.7	+ .7	-1 down
8	4.0	4.3	+ .3	3 even
9	1.0	4.7	+3.7	
10	5.0	5	-	
12	3.0	2.0	-1	
13	2.7	3.0	+ .3	
16	3.0	4.3	+1.3	
Participant #19				
1	4.7	4.3	- .4	
2	4.0	3.7	- .3	
3	1.7	2.0	+ .3	
4	3.0	3.0	-	- .4 overall
5	3.0	2.7	- .3	
6	3.7	3.3	- .4	+3 up
7	4.0	3.0	-1.0	-6 down
8	2.7	3.7	+1.0	4 even
9	3.0	2.7	- .3	
10	5.0	5.0	-	
12	5.0	5.0	-	
13	5.0	5.0	-	
16	3.0	4.0	+1.0	
Participant #20				
1	4.0	2.7	+1.3	
2	4.0	3.0	-1.0	
3	3.7	4.7	+1.0	
4	3.3	2.0	-1.3	+4.9 overall
5	4.3	3.7	- .6	
6	3.0	3.7	+ .7	+8 up
7	2.7	3.0	+ .3	-4 down
8	4.7	3.3	- .9	1 even
9	2.3	2.7	+ .4	
10	3.0	4.7	+1.7	
12	2.7	4.7	+2.0	
13	5.0	5.0	-	
16	3.7	5.0	+1.3	

APPENDIX I-B

Overall Range of Increases

Table I

Participant	Increase or Decrease	Pre/Post S.D.
1	- .2	-1.06
2	+1.6	- .47
3	+ .8	- .77
4	+7.8	+1.85
5	+1.3	- .58
6	-1.6	-1.67
7	-1.7	-1.71
8	+8.0	+1.93
9	+6.3	+1.29
10	+3.9	+ .39
11	+3.9	+ .39
14	+3.4	+ .20
15	+2.9	± .01
16	- .2	-1.06
18	+8.0	+1.93
19	- .4	-1.22
20	+4.9	

Overall Increase of 48.7
Mean Increase of 2.86
Median 2.9
S.D. = 2.67

Table 2

Computation of Standard Deviation

Score (Increase or Decrease from Pre to Post Test)		Difference	Difference Squared
+8		+5.14	26.4
+8		+5.14	26.4
+7.8		+4.94	24.4
+6.3		+3.44	11.8
+4.9		+2.04	4.2
+3.9		+1.04	1.1
+3.9		+1.04	1.1
+3.4	mean 2.86	- .54	.29
+2.9	median 2.9	- .04	0
+1.6		-1.26	1.6
+1.3		-1.56	2.4
+ .8		-2.06	4.2
- .2		-3.06	9.4
- .2		-3.06	9.4
- .4		-3.26	10.6
-1.6		-4.46	19.9
-1.7		-4.56	20.8
$\Sigma X =$ 48.7		$\Sigma \lvert X \rvert = 46.68$	$\Sigma X^2 = 120.93$

$$\frac{48.7}{17} = 2.86$$

$$AD = \frac{(X)}{N} = \frac{46.68}{17} = 2.75$$

$$\text{Varience} = \sigma^2 = \frac{\Sigma x^2}{N} = \frac{120.93}{17} = 7.11$$

$$\text{SD or } \sigma^2 = \sqrt{\frac{\Sigma x^2}{N}} = \sqrt{7.11} = 2.67$$

Table 3

Sections of Greatest Increase

Question	Increase	Average Decrease/Increase Per Question
1 Nutrition 2 Nutrition	+13.1	+6.55
3 Sports Psychology 4 Sports Psychology	+18.6	+9.95
5 First Aid	- .2	- .2
6 Drugs 7 Drugs	+18.8	+5.9
8,9,10,11,12,13,16	Sexuality +39.2	+6.53

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