San Fernando Valley State College

APPLICATION OF INDIVIDUAL TRY-OUT TO HEALTH

QUESTIONNAIRE REVISION

A Thesis Submitted in Partial Satisfaction
of the Requirements for the Degree of
Master of Science in Health Science

by

Nagabhushan Rao Machiraju

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The Thesis of Nagabhushan Rao Machiraju is approved:

(Committee Chairman)

San Fernando Valley State College
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ABSTRACT

APPLICATION OF INDIVIDUAL TRY-OUT TO HEALTH QUESTIONNAIRE REVISION

by

Nagabhushan Rao Machiraju

Master of Science in Health Science

June, 1971

This study used the Individual Try-out technique of Instructional programming in revising venereal disease knowledge questionnaires.

Two venereal disease questionnaires were tried out on one person at a time, and were revised on the basis of the subject's reactions. This process was repeated until a point was reached when three consecutive Try-out subjects did not seek further clarifications.

Further, the methodology for conducting Individual Try-out of knowledge questionnaires was delineated.

Based on the results of this study, it was concluded that Individual Try-out can be applied to health knowledge questionnaires as a way of clarifying the language of the questionnaire and bringing about subject matter specificity.

In view of the results obtained, it is recommended
that health personnel use the Individual Try-out technique in developing a variety of health educational materials.
CHAPTER I

INTRODUCTION

It is a common practice to ascertain health knowledge of a defined population by devising and administering a questionnaire. The data gathered is analyzed and the results are examined to help formulate hypotheses about the level of health knowledge in this population. Considering the process involved and the way in which the data will be utilized, it is extremely important that the knowledge measuring instrument be devised with utmost care. In recent years, some thought has been given to the idea of utilizing the principles of programmed instruction in the formulation of questionnaires.

Programmed instruction is a process that is applied to instructional development. Development of instructional materials using this process involves the following distinct steps:

1. Statement of behavioral objectives in terms of what the student shall be able to do after completion of instruction.

2. Analysis of the subject matter in terms of concepts and discriminations.

3. Preparation of an initial draft in accordance with the initial behavior of the target population.
4. Individual Try-out of the draft on one person at a time, and revising the same on the basis of the student's reactions.

5. Group validation of the final draft by administering it on groups and gathering data. (This is the final stage in the program development) (7:61-81)

Stage 4, i.e. Individual Try-out is carried out with the express purpose of obtaining feed-back. On the basis of the feed-back received, the instructional material is revised. The revised material is administered to another individual for obtaining further feed-back. This cycle can be represented as follows:

1. Individual Try-out of the instructional material
2. Receiving feed-back
3. Revision on the basis of the feed-back

During this cycle, the instructional material is under constant revision. The cycle concludes when revision is no longer warranted, i.e., when the instructional material communicates to the representative of the target group at an acceptable level of understanding and comprehension. This method of conducting a program revision is known as Individual Try-out. (10:153)

It would seem that applying the technique of Individual Try-out to the formulation of a questionnaire to be used to assess knowledge would be most advantageous.
Purpose of the Study

This study was designed for revising two health knowledge questionnaires in accordance with the Individual Try-out technique. Both the questionnaires selected, had been formulated to assess knowledge about venereal disease.

Statement of the Problem

The objective of this study was to develop a more effective way of devising a health knowledge questionnaire.

Limitations of the Study

The study was limited to the application of Individual Try-out technique to two health knowledge questionnaires only. Furthermore the questionnaires were of true and false type and dealt with the knowledge realm only. Hence, observations drawn from the study should be limited to two questionnaires used.

The revised questionnaires that were developed in accordance with the Individual Try-out technique were not validated by administration to groups. In practice, group validation is carried out after the development of the instrument in order to determine the instrument's reliability and validity prior to using it on a particular target group.

Formerly the Individual Try-out technique was used in the context of instructional development only. This
study was concerned with the application of this technique to questionnaire revision, an approach that had not been utilized previously.

Definition of Terms Used

Program: A sequence of carefully constructed frames of information leading the student to mastery of subject with minimal error.

Cue: A stimulus added to the terminal stimulus to make the correct response highly probable. (Cues vary in strength)

Covert response: An internalized response which the student presumably makes. A student who is producing an oral or written response (respond covertly) before producing it.

Overt response: A student's oral, written or manipulative act which is, or can be recorded by the observer.
CHAPTER II

REVIEW OF LITERATURE

Programmed instruction is often viewed as a new development. This can be attributed to its popularity in the field of education in recent years.

The Programmed instruction movement as we know it today started in 1954, shortly after the publication of a paper by Skinner entitled "The Science of Learning and the Art of Teaching." (21:99)

Actually, Lysaught traced the beginnings of Programmed instruction to Socrates, and credited him with developing a program in geometry. (13:3) However, most authorities agree that Skinner's work provided the basis for the Programmed instruction movement. (15:105)

According to Skinner, reinforcement is the essential ingredient of Programmed instruction. He observed that "Once we have arranged the particular type of consequence called a reinforcement, our techniques permit us to shape the behavior of an organism almost at will." (21:100) Skinner felt that being "right" among human students is adequate to act as a reinforcer. (21:100)

Lysaught summarized reinforcement in the context of Programmed instruction as follows:

Reinforcement theory provides a rationale for believing that a complex body of learning can be
separated into small components. Through it, the student can be taught to master all the subject matter by reinforcing or not reinforcing his responses at successive steps, according to the accuracy or inaccuracy of his replies. (13:8)

During the development of the Programmed instruction movement, Individual Try-out of instructional material has been adopted as a way to optimize the communication between the learner and the material to be learned.

As this study was concerned with the use of Individual Try-out as a technique to revise health knowledge questionnaires, a literature review was carried out according to the following categories:

1. Individual Try-out in Programmed instruction.
3. Applications of Individual Try-out.

**Individual Try-out in Programmed Instruction.**

Lumsdaine, while commenting on the ways of assessing the effectiveness of Instructional programs, classified the Try-out of program as one of the main criteria for assessing the suitability of a program. (12:286)

Lumsdaine credited Susan Markle for including Try-out as a critical characteristic in the process of Programmed instruction. (12:236) Lumsdaine based his comments on the following definition given by Markle:

A program is a sequence of carefully constructed items leading the student to mastery of a subject.
with minimal error. The distinguishing characteristic of programmed materials is the testing procedure to which they are subjected. Empirical evidence of the effectiveness is obtainable from the performance records of students. (15:121)

Although Markle mentioned the testing procedure of programmed materials as a distinguishing characteristic, she did not delineate what the testing process is, thus leaving it open to ambiguities. More precise statements about using one learner at a time is attributable to Cartier. (2:7)

Fry stated that, the validity, interest, or worth of a program should be judged by the student. He observed that the preparatory draft should be given to a small number of students and proposed that the Programmer may talk to each of the students to identify discrepancies. He termed this process as that of Trial and Revision. (3:44) Another observation by Fry was that such a Trial and Revision also contributed in forcing the Programmer to consider the purpose of the program. (3:45)

While analyzing the different types of Programmed instruction techniques, Klaus observed that in "Mathetics" style the Try-out of the material is conducted after the total preparation of material, while in "Linear" style, the material may be tried-out in segments as it is developed. (9:155) Cartier enlisted the following two principles of Try-out in the set of principles that are to be complied in Programmed instruction:
Sentence-by-sentence trial, face to face with typical student. How, exactly does a typical learner react to every aspect of our text-book, film, slide, etc.?

Revision of the draft at every point of difficulty, boredom, confusion, etc. (2:7)

Krishnamurty et al represented the Individual Try-out process diagramatically as follows:

Start here

Try the draft on one learner at a time

Revise the part that does not communicate

Revise frames that do not communicate

Does each frame communicate with the learner?

NO

YES

Does the total program communicate with two learners consecutively?

NO

YES

Procede for group validation

They emphasized: 1. The need to conduct Try-out on one person at a time. 2. That the program must communicate with two learners in succession before the Individual Try-out can be concluded. (10:153)

Jacobs et al, in their observations differentiated between Individual Try-out and validation or testing.
Try-out, according to Jacobs et al, is the heart of the program development and is used for the revision of the preliminary drafts. Testing is done to determine how much the students are learning from the program. The student reactions and the learning scores are reported as validation data. (8:10) It is very essential to note this difference between Try-out and validation. Gilbert emphatically stated that the first draft of a program has to be tried out on one student at a time and be revised accordingly. He observed that through this Individual Try-out process after fewer than 10 tries, a program that will teach 98% of the students will emerge. (4:480)

Taber et al identified Individual Try-out as a stage that is crucial to program development. According to them comments such as "I know exactly what you want to get across here, only I think I could do it much better this way" are very useful in program revision and can be obtained through Individual Try-out. (20:13 and 140)

The process of development of programmed material according to Lysaught and Williams is; (see following page)

The diagram draws attention to the relationship between the steps in the process, with each step modifying the preceding step and leading to the next. After construction of items, the process calls for "Initial testing" (Lysaught and Williams suggested use of a student representative of the target group for which the program
is being designed.). (13:26)

Over the times, Individual Tryout has come to be an integral part of instructional program development and is used to increase the level of communication between the learner and the program.

Methodology of Individual Try-out.

Meacheam laid down certain guidelines for facilitating the Try-out of programs. However, Meacheam did not state that Try-out had to be carried out on one person
at a time. (16:106)

Although Fry, Markle, Cartier, Jacobs, Lumsdaine, Klaus and Taber et al mentioned the Try-out as being part of Programmed instruction process, they did not elaborate on the methodology of Try-out. (3:44, 15:120, 2:7, 8:10, 12:286, 9:155, and 20:140) Meacheam was the first one who attempted formulation of certain guidelines for methodology of Try-out of program drafts.

Markle while commenting on literature on developmental testing used the term "scarce" to describe the present status of literature on this subject. According to Markle, the major problem areas that were uncovered by Individual Try-out were: a. communication or design problems, b. motivational problems, and c. learning variable problems. (17:120) Markle observed that "group testing undoubtedly produced un-wanted suppressions of individual candid reactions of the sort that occur when a friendly observer accepts any and all statements of the student as data worth consideration." (15:120)

In regards to how many individuals need to be used to mark the completion of Individual Try-out, Markle stated that "the process is over when the revised materials reach no further interference from the Try-out editor." (15:124) Here Markle referred to the person conducting the Individual Try-out as the Try-out editor.
According to Millar three types of faults could be detected through Individual Try-out of program drafts. They were:

1. subject matter errors
2. programming
3. editorial (17:283)

The recent manual on Programmed Programming by Thigaranjan used the term "Developmental testing" for Individual Try-out, and emphasized it as a very important state in program development. (21:4) However, he did not elaborate upon the methodology of Individual Try-out.

An extensive delineation on methodology of Individual Try-out was presented by Krishnamurty et al in a Programmed Learning manual. According to Krishnamurty et al: the programmer devises a program on certain assumptions about the initial behavior of the learners. The learner can use the program in a self-instructional situation only if the assumptions are valid and the program communicates. As such, the Individual Try-out can be used to determine the validity of assumptions and revise the program so that it can communicate in a self-instructional situation. (10:151)

The level of communication that can be achieved by a program has been classified further as:

A. communication of instructions only.
B. communicating the overt processes the learner
needs to go through before he responds overtly
C. communicating the fact that the learner should not be processing information by using invalid procedures and still arriving at the incorrect answers, and
D. communicating with regard to the "prompting system" (10:152).
According to Krishnamurty et al, possessing the assumed initial behavior and amenability to probing are the two major criteria for selection of subjects for Individual Try-out. (10:152) Further, the authors have provided rules for preparing learner for Individual Try-out, the methods of observation during Try-out, and how to draw inferences from the learner behavior. The methods of observation have been classified as follows: (10:160)

Method of Observation

<table>
<thead>
<tr>
<th>Inferences from overt behavior</th>
<th>Probing the learner to locate the area of non-communication by making him retrace the meditational process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responses delays expressions and given reactions of the learner</td>
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</tbody>
</table>

This method of observation can be directly applied during the Individual Try-out of the knowledge questionnaires.

In concluding the review of literature in this area, it is the investigator's reaction that literature
in the methodology of Individual Try-out continues to be scant as it was in 1967 when Markle reviewed it.

(15:120)

Applications of Individual Try-out.

Although individual Try-out is recognized as one of the stages of program development, many a program is devised and marketed without Individual Try-out. In this context the following paragraph from a research article describing the "development and testing" of a programmed course in Diabetic Acidosis is very revealing.

The physicians involved in the project organized a "course" of instruction. This meant that they decided what should or should not be included in the material to be learned. The material was then passed on to an educator familiar with the technique of programming. When he had familiarized himself with the material, he constructed the preliminary program which was then studied by the physicians involved in the project. After some revision, the programmed text was sent to an authority on metabolic diseases who made some suggestions which were also incorporated into the program. At this point, an experiment was designed to test the efficacy of the programmed text and to determine whether it provides a more effective teaching instrument than the conventional text.

(1:83)

In this instance, the developers of the program have skipped the Try-out program.

In this regard Markle observed,

No reputable programming concern and no programmer who comprehends the empirical basis of instructional improvement by-passes developmental testing. Rather, for the programmer the variability exists in the time at which the student is drawn into the design process.

(15:123)
Individual Try-out accords great facility during program development and enhances quality control demanded from such programs, as a result it is fast becoming common practice to use Individual Try-out during program development.

Markle suggested the process of empirical development with test items while discussing the issues of empirical testing of programs. (15:123-24) According to Markle, it is better to go through the process of empirical development with test items. Sulzen et al have applied Try-out to criterion test items and they call this the application of Markle strategy. (19:3) Sulzen et al carried out Try-out with groups of five students and the students were individually interviewed for obtaining suggestions for revision as against conducting Try-out with each individual and recording their comments. (19:3) It appears as though the Markle strategy was not either clearly understood or inadequately followed.

Krishnamurty et al incorporated the principle of testing the inventory "on one person at a time and revising the items until all ambiguities are eliminated." In their research paper on devising health inventories on the basis of pragmatic behavioral objectives. (11:1) Empirical data had not been reported by the authors on this process. From the reviewed literature, there seems to be no application of Individual Try-out process to
areas other than instructional program development. The theorization of application of Individual Try-out to health inventories presents a new development. The investigator in collaboration with Krishnamurty explored broader implications of "Application of programming process to response oriented research in health." (14)
CHAPTER III

METHODS

In this chapter, the selection of the sample, the Individual Try-out procedure utilized, and the questionnaires used for Individual Try-out are elaborated upon.

Selection of Sample

A selected sample of Health Science 120 students, Spring 1971, at San Fernando Valley State College, were drawn upon to serve as subjects for the study. The subjects were freshmen. The subjects were selected on a voluntary basis. Those who volunteered first were used first during the Individual Try-out of the questionnaires.

Ten subjects were used for Questionnaire I, while eight subjects were used for Questionnaire II.

Procedure

The questionnaires were tried out on one subject at a time. Appointments taking one half hour each were made with the subjects participating in the study. Each student was given instructions orally during the Individual Try-out.

The following information was presented to each of the subjects before giving them the questionnaires.
The purpose of Individual Try-outs as:

1. that is being carried out for revising the questionnaires I and II.
2. a process used for reducing the problems in communication between the subjects and the questionnaire.

Hence, the subject was instructed that he or she should react freely to the items of the questionnaires in terms of:

A. language ambiguities.
B. relevancy of items to venereal disease knowledge.
C. length of the questionnaires.
D. any feelings they have toward the items of the questionnaires.

After explaining the nature of the Individual Try-out and the subject's role in this, the subject was given Questionnaire I and was asked to answer the item by placing True(T) or False(F) on the basis of his/her knowledge about the statement. (item)

Questionnaire II was given after the completion of the Questionnaire I, by the subject.

As the subject was responding to the questionnaires, the investigator played the role of observer and recorder. The role of investigator can be categorized as:
1. Observing the overt processes.
   a. making notes of the overt responses and verbal comments of the subject.

2. Probing to identify the covert process.
   a. this takes the form of asking the subject as to what made him choose the answer he did.
   b. helping the subject to retrace the path of processing information that led to the subject's response.
   c. making notes of the subject's mode of information processing.

This is the general strategy that is used during the Individual Try-out of Programmed material. (10:160)

For the purpose of this study, the mode of observation described here was used on the first three subjects for Individual Try-out. At this point, the investigator categorized the most common reactions of these subjects to the questionnaires as follows:

1. Reactions calling for clarity of language.
2. Reactions calling for delimiting the item to bring in subject matter specificity.
3. Pointing out words that are providing cues in coming up with the answer.
4. Suggestions for change of sequence of items.

Soon after the evolution of this categorization,
the investigator noted the subject's reactions under the appropriate category during the Individual Try-out. The investigator did not make any comments while the subject was responding to the questionnaires. The first subject asked the investigator to provide confirmation of answers to the items of the questionnaires. As a result, the investigator told each of the subjects that an answer key would be provided after completion of both the questionnaires. The key was duly provided at the end of each session. After the completion of Try-out on one subject, the questionnaires were revised on the basis of the subject's reactions. Each time the subject's reactions called for revision of only a few items of the questionnaires. In view of this the investigator prepared revised version of these items on 5" x 7½" index cards and presented to the next subject in lieu of the original item. This evolved new versions of the questionnaires and the investigator proceeded to conduct the Individual Try-out of the new instruments. This cycle of administering the questionnaires - revision was repeated until a point was reached when reactions of three consecutive subjects did not call for further revision. Ten subjects for Questionnaire I, and eight subjects for Questionnaire II were used during Individual Try-out.

The results yielded from the application of the method described here, are presented in Chapter IV.
The Questionnaires Used for Individual Try-out.

The first questionnaire selected, Questionnaire I, was a 20 item questionnaire for assessing the knowledge of venereal disease. This questionnaire had undergone use in a variety of situations for approximately eight years. (5:136 and 6) The items of the Questionnaire I are given below.

HOW MUCH DO YOU KNOW ABOUT VENEREAL DISEASES?

1. Since syphilis germs can live a long time outside the body, it is possible to acquire the disease in a variety of ways. T F

2. Sores and rashes can always be found on people who have syphilis, therefore, people usually know when they are infected. T F

3. The symptoms of syphilis will go away even if a person does not have proper medical treatment for the disease. T F

4. If a pregnant woman has syphilis, she can transmit the disease to her unborn child if she does not receive treatment soon-enough. T F

5. Syphilis can be genetically passed on for generations. T F

6. Once a person has syphilis and the disease is cured in the early stage he can never get the disease again. T F

7. Some people have syphilis yet may never have any outward signs of the disease. T F

8. If syphilis is not found and treated, it may cause blindness, insanity; cripple or even cause death. T F

9. Gonorrhea is often caused by lifting a heavy object. (strain) T F
10. If gonorrhea in the female is not found and treated, it may cause sterility (prevent the woman from ever having a baby). T F

11. The symptoms of gonorrhea will often go away even though the person is not cured of the disease. T F

12. If a person has gonorrhea once and is cured, he will never get it again because he has become immune. T F

13. It is possible for a female to have gonorrhea and not know it. T F

14. If gonorrhea is not treated, it will turn into syphilis. T F

15. Syphilis and gonorrhea are almost always acquired by sexual contact with an infected person. T F

16. It is possible for a person to have both syphilis and gonorrhea at the same time. T F

17. A blood test can be used to diagnose both gonorrhea and syphilis. T F

18. Both syphilis and gonorrhea are frequently acquired by contact with any object an infected person has used such as toilet seats, lipsticks, and towels. T F

19. People with syphilis or gonorrhea have a distinctive appearance so that it is possible to tell an infected person just by looking at them. T F

20. Both syphilis and gonorrhea can be cured by proper medical treatment. T F

The second questionnaire utilized, Questionnaire II, also utilized a True or False response and was developed by the investigator after drawing information from several venereal disease questionnaires that were used by the Los Angeles County Health Department.
The main reasons for developing a new questionnaire was that there was no existing questionnaire requiring true and false responses in the area of venereal disease knowledge (other than Questionnaire I) for using in this study.

Although there was certain amount of duplication between Questionnaire I and II, Questionnaire II was used in this study because duplication of information between the questionnaires did not come in conflict with the main purpose of the study.

The items of the Questionnaire II are given below:

**VENereal Disease Questionnaire**

1. If a person catches syphilis, the person does not need treatment because syphilis will eventually go away.  
   T  F

2. If a person gets syphilis the outward signs may resemble other diseases.  
   T  F

3. If a person suspects that he may have syphilis the thing to do is to ignore it if no outward signs appear.  
   T  F

4. Syphilis and gonorrhea are two names given to the same disease.  
   T  F

5. Signs of gonorrhea are least noticeable among women.  
   T  F

6. If a person gets syphilis or gonorrhea, treatment should be obtained, so that the person will never get it again.  
   T  F

7. Wearing a condom during sex reduces the risk of catching syphilis and gonorrhea.  
   T  F
8. Any person when infected with syphilis will get rashes on the body.  

9. Syphilis and gonorrhea are two stages of the same disease.  

10. If a person has gonorrhea, there is no point in seeing a doctor as gonorrhea is not any more dangerous than catching a cold.  

11. There is a state law that prevents anyone from giving out information about you when you have been examined and treated for venereal disease because these records are held confidential.  

12. The early signs of syphilis will come and go away even though the person did not obtain treatment.  

13. Taking oral contraceptives provides protection against syphilis and gonorrhea.  

14. If you suspect a person has syphilis or gonorrhea, you can avoid catching it by not having sex with that person.
CHAPTER IV

RESULTS AND DISCUSSION

Classification of Subjects Reactions to Questionnaires

Questionnaires I and II were administered to one person at a time in accordance with the principles of the Individual Try-out technique. At the beginning of the Individual Try-out, the investigator noted and recorded all the comments made by the subject. After conducting Individual Try-out on three subjects, the investigator classified the reactions of the first three subjects into categories calling for:

1. clarity of language
2. delimiting the item to bring in subject matter specificity
3. elimination of words that provided cues for the answer
4. change of sequence
5. other reactions

During the rest of the Individual Try-out cycles, the subject's reactions were recorded under these categories. This facilitated the revision of the questionnaires at the end of each of the cycles.

Results of Individual Try-out of Questionnaire I

The Individual Try-out of Questionnaire I was
carried out on 10 subjects. The reactions of each of the subjects were used for revising the questionnaire before administering the test to the next subject.

The following table shows the reactions of the subjects during the entire process.

TABLE I

SUBJECTS REACTIONS DURING THE INDIVIDUAL TRY-OUT OF QUESTIONNAIRE I

<table>
<thead>
<tr>
<th>Subject</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Reactions</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

As can be seen from the above table, Subject 1 provided the maximum number of reactions. The reactions of Subject 1 were classified as follows:

<table>
<thead>
<tr>
<th>Reactions</th>
<th>Number of Reactions</th>
<th>Number(s) of items that evoked reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requiring clarity of language</td>
<td>5</td>
<td>4, 5, 10, 12, &amp; 18</td>
</tr>
<tr>
<td>Delimiting the item for subject matter specificity</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Words that provided cues</td>
<td>3</td>
<td>2, 6, &amp; 15</td>
</tr>
</tbody>
</table>

The subject did not react to items 1, 7, 8, 11, 13, 17, and 19 of the questionnaire. According to the subject, these items were clear. In addition, the subject felt that item 9 and 14 were not relevant.
On the basis of the reactions of the Subject I to the items 2, 3, 4, 5, 6, 10, 12, 15, and 18 a revision took place. The process of revision was as follows:

While responding to item 2 (Sores and rashes can always be found on people who have syphilis, therefore, people usually know when they are infected) the subject felt that the word "usually" suggested that the answer was false. Therefore, the word "usually" was eliminated from the item 2, and the statement was revised as follows: Sores and rashes can always be found on people who have syphilis, therefore, people know when they are infected. It is interesting that the subject did not point out the word "always" as a cue that required elimination.

In item 3 (The symptoms of syphilis will go away even if a person does not have proper medical treatment for the disease) the subject asked the investigator if the words "go away" meant permanent cure. Upon probing, it was revealed that further delimitation of the item was warranted to bring about subject matter specificity. Hence, the item was revised as follows: The symptoms of syphilis will disappear temporarily even though the person does not have proper medical treatment for the disease.

In item 4 (If a pregnant woman has syphilis, she can transmit the disease to her unborn child if she does not receive treatment soon enough) the subject reacted to the words "soon enough". He felt that this phrase did
not bring in any specificity, if that is what it was meant to do, but on the contrary it introduced another ambiguous element into the item. The investigator eliminated this phrase from the item and rephrased the statement in the following manner: If a pregnant woman has syphilis, she can transmit the disease to her unborn child if she does not receive treatment.

The subject himself suggested the revision for the item 5. (Syphilis can be genetically passed on for generations) Accordingly the words "passed on" were replaced by the word "inherited". This item was further revised on the basis of the comments of Subject 4.

While responding to the item 6 (Once a person has syphilis and the disease is cured in the early stage, he can never get the disease again) the subject felt that the word "never" provided a strong cue for him while responding. The word "never" was eliminated, and the statement then read as follows: Once a person has syphilis and the disease is cured in the early stage, the person cannot get the disease again.

This was the second time that the subject identified a cue and pointed it out during the Try-out process.

While reacting to item 10 [If gonorrhea in the female is not found and treated, it may cause sterility. (Prevent the woman from ever having a baby)] the subject expressed the opinion that the clarification provided in the
parenthesis conflicted with the meaning of sterility. On the basis of the comment, the investigator revised the item as follows: If gonorrhea in the female is not treated, she may never be able to have a baby. (Damage the woman's reproductive system)

In item 12 (If a person has gonorrhea once and is cured, he will never get it again because he has become immune) the subject sought clarification of the word "immune". Upon clarification, the subject felt that the word could be deleted from the item to avoid confusion with a technical word. Therefore, item 12 was revised as follows: If a person has gonorrhea once and is cured, he will never get it again.

While commenting upon item 18, (Both syphilis and gonorrhea are frequently acquired by contact with any object an infected person has used such as toilet seats, lipsticks, and towels) the subject raised doubt as to what was meant by the term "infected". The term was clarified and the item was revised as follows: Both syphilis and gonorrhea are frequently acquired by contact with any object an infected person (a person who has the disease) has used such as toilet seats, lipsticks, and towels.

It is of value to note the two comments made by Subject 1 in item 2 and 6. After reading both of these items the subject asked for the elimination of the words that provided cues. (usually and never) The subject did
not react to the presence of these words in other items.

The second version of Questionnaire I was prepared on the basis of the reactions of Subject 1, and was presented to the next subject during the Individual Try-out process.

The Second Subject reacted to item 19 only. (Item 19: People with syphilis and gonorrhea have a distinctive appearance so that it is possible to tell an infected person just by looking at them). The subject sought clarification of the words "distinctive appearance". The subject felt that the words did not precisely convey what was meant. These words were further clarified by giving examples within the item. The item was then revised as follows: People with syphilis or gonorrhea have a distinctive appearance (ex: sores, rashes) so that it is possible to tell an infected person just by looking at them.

After this revision, the questionnaire was tried out on the third subject. The reactions of the third subject can be classified as:

<table>
<thead>
<tr>
<th>Reactions</th>
<th>Number of Reactions</th>
<th>Number(s) of items that evoked reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delimiting the item for subject matter specificity</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>Change of sequence</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Subject three suggested change of sequence with
items 4 and 5, because he felt that item 4 influenced his answer to item 5. These items were stated in the following way:

Item 4: If a pregnant woman has syphilis, she can give the disease to her unborn child if she does not receive treatment.

Item 5: Syphilis can be genetically inherited for generations.

The covert reasoning of the Subject was that syphilis can be transmitted to the unborn child of a pregnant woman, and item 5 suggested the idea of passing on the disease, in spite of the emphasis on "genetically inherited for generations". Hence, item 5 was likely to be considered true.

This reasoning lead the investigator to change the sequence, and item 5 was placed between item 7 and item 8.

In respect to item 20 (both syphilis and gonorrhea can be cured by proper medical treatment) a revision took place because the subject felt that the item did not limit the stages at which syphilis and gonorrhea could be cured. The item was revised as follows: Both syphilis and gonorrhea can be cured by proper medical treatment, when obtained soon enough. In addition, the Subject commented upon item 9 as being very simple. Gonorrhea is often caused by lifting a heavy object (strain). However,
Incorporation of these revisions led to the Individual Try-out of Subject 4. The reactions of Subject 4 are:

<table>
<thead>
<tr>
<th>Reactions</th>
<th>Number of Reactions</th>
<th>Number of items that evoked reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requiring clarity of language</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Delimiting item for specificity</td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>

The subject sought clarification of the word "go away" in item 11. (The symptoms of gonorrhea will often go away even though the person is not cured of the disease.) He felt that the word "go away" suggested permanent cure. Therefore this item was reworded as follows: The symptoms of gonorrhea will often disappear even though the person is not cured of the disease.

For item 8 (Syphilis can be genetically inherited for generations) the Subject felt that the word "inherited" was not appropriate for use in the context of disease. This word was not originally present in item 8, but was used during the revision on the basis of a previous Subject's reactions. At this point, the word "inherited" was eliminated and the item was revised as follows:
Syphilis can be passed through genes for generations. This item was then retained in this form during the rest of the Individual Try-out cycles.

Subject 5 did not have any reactions to the questionnaire.

Subject 6 felt that the word "infected" in item 2 (Sores and rashes can always be found on people who have syphilis, therefore, people know when they are infected) was not communicating to him. The investigator revised item 2 as follows: Sores and rashes can always be found on people who have syphilis, therefore, people know when they get syphilis.

Presence of two bits of information in a single item and need for its separation was not commented upon by any of the subjects. Subjects 6-to-10 did not have any reactions to the questionnaire that warranted revision.

Five of the subjects felt that item 9 Gonorrhea is often caused by lifting a heavy object (strain) was too simple. They felt that the item was not consistent with the rest.

The ultimate revised version of the questionnaire is presented here:

HOW MUCH DO YOU KNOW ABOUT VENEREAL DISEASES?

1. Since syphilis germs can live a long time outside the body, it is possible to acquire the disease in a variety of ways. T F

2. Sores and rashes can always be found on people who have syphilis, therefore, people
know when they get syphilis.  

3. The symptoms of syphilis will disappear temporarily even though the person does not have proper medical treatment for the disease.  

4. If a pregnant woman has syphilis, she can give the disease to her unborn child if she does not receive treatment.  

5. Once a person has syphilis and the disease is cured in the early stage, the person cannot get the disease again.  

6. Some people have syphilis yet may never have any outward signs of the disease.  

7. If syphilis is not treated, it may cause blindness, insanity; cripple, or even cause death.  

8. Syphilis can be passed through genes for generations.  

9. Gonorrhea is often caused by lifting a heavy object. (strain)  

10. If gonorrhea in the female is not treated, she may never be able to have a baby. (damage the woman's reproductive system)  

11. The symptoms of gonorrhea will often disappear even though the person is not cured of the disease.  

12. If a person has gonorrhea once and is cured, he will never get it again.  

13. It is possible for a female to have gonorrhea and not know it.  

14. If gonorrhea is not treated, it will turn into syphilis.  

15. Syphilis and gonorrhea are almost always acquired by sexual contact with an infected person.  

16. It is possible for a person to have both syphilis and gonorrhea at the same time.
17. A blood test can be used to diagnose both syphilis and gonorrhea.  
18. Both syphilis and gonorrhea are frequently acquired by contact with any object an infected person (a person who has the disease) has used such as toilet seats, lipsticks, and towels.  
19. People with syphilis or gonorrhea have a distinctive appearance (ex: sores, rashes) so that it is possible to tell an infected person just by looking at them.  
20. Both syphilis and gonorrhea can be cured by proper medical treatment when obtained soon enough.

Results of Individual Try-out of Questionnaire II

The Individual Try-out of Questionnaire II was carried out on eight subjects. The reactions of each of the subjects were used for revising the questionnaire before administering the test to the next subject.

The following table shows the reactions of the subjects during the entire process.

**TABLE II**

<table>
<thead>
<tr>
<th>Subject</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of reactions of subject</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Subject 1 had only one reaction while Subject 2 had none. The number of reactions gradually increased starting with Subject 2 and a peak was reached when Subject 4 provided the maximum number of reactions. The reactions decreased and further revision was not needed after Subject 5.

The reactions of each of the subjects was classified and are presented as follows:

<table>
<thead>
<tr>
<th>Reactions</th>
<th>Number of Reactions</th>
<th>Number(s) of items that evoked reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delimiting the item for subject matter specificity</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Subject 1 asked for the clarification of the words "go away" in item 1. (If a person catches syphilis, the person does not need treatment because syphilis will eventually go away.) He felt that the words "go away" suggested permanent cure. This subject sought clarification of these words in Questionnaire I also. The item 1 was rewritten as follows: If a person catches syphilis, the person does not need treatment because syphilis will eventually disappear.

After this revision, Individual Try-out was carried out on Subject 2. The subject did not have any reactions that called for revision, but did feel that the questionnaire was not comprehensive.
The Individual Try-out on Subject 3 evoked two reactions. They are as follows:

<table>
<thead>
<tr>
<th>Reactions</th>
<th>Number of Reactions</th>
<th>Number(s) of items that evoked reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delimiting item for subject matter specificity</td>
<td>2</td>
<td>8 and 11</td>
</tr>
</tbody>
</table>

In item 8, (Any person when infected with syphilis will get rashes on the body) the subject felt that he considered "get rashes" as incomplete and that "sores" should also be included to be more specific. Hence, the item was revised as follows: Any person when infected with syphilis will get sores and rashes on the body.

In addition, the Subject called for a specific meaning of the word "venereal disease" as used in item 11. (There is a state law that prevents anyone from giving out information about you when you have been examined and treated for venereal disease because these records are held confidential.) The word venereal disease was then replaced with "syphilis and gonorrhea" and used as follows: There is a state law that prevents anyone from giving out information about you when you have been examined and treated for syphilis and gonorrhea because these records are held confidential.
After this revision, the investigator conducted Individual Try-out on Subject 4. The reactions of Subject 4 are:

<table>
<thead>
<tr>
<th>Reactions</th>
<th>Number of Reactions</th>
<th>Number(s) of items that evoked reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requiring clarity of language</td>
<td>4</td>
<td>1, 6, 7, and 14</td>
</tr>
</tbody>
</table>

The Subject 4 felt that the word "catching" used in items 1, 7, and 14 was not appropriate. He reasoned that it suggested other modes of acquiring the disease and conflicted with common day usage of the term. (Ex: catching cold) The investigator replaced the word "catches" with "get" or "getting" in these items. Item 6, according to Subject 4 was not clear. It was felt that this item was aimed at testing knowledge about lack of immunity to syphilis and gonorrhea, but was not stated directly. On the basis of this comment the investigator revised this item as follows: Item 6: If a person gets syphilis or gonorrhea and gets cured that person will not get syphilis or gonorrhea in spite of having sex with an infected person.
The revised version of the questionnaire was used on Subject 5. The Subject 5 felt that the word "signs" in items 2, 5, and 12 was not clear in terms of subject matter it referred to. The word "signs" as used in items 2, 5, and 12 was replaced by the word "symptoms".

This was the last revision that was made in the questionnaire. Subjects 6, 7, and 8 did not have any problems in answering the questionnaire.

Requests for clarification of language came first during the Individual Try-out of Questionnaire I as well as Questionnaire II.

Subject 6 felt that items 4 and 9 were not very relevant. However, the reaction was only recorded and not used for revision of these items.

After completion of the Questionnaire I and II, the investigator asked each of the eight subjects who took both the questionnaire which one they preferred. Six out of the eight subjects preferred Questionnaire I, while two of the subjects preferred Questionnaire II.

The ultimate revised version of the questionnaire is presented here:
VENEREAL DISEASE QUESTIONNAIRE

1. If a person gets syphilis, the person does not need treatment because syphilis will eventually disappear.  T  F

2. If a person gets syphilis the outward symptoms may resemble other diseases.  T  F

3. If a person suspects that he may have syphilis the thing to do is to ignore it if no outward symptoms appear.  T  F

4. Syphilis and gonorrhea are two names given to the same disease.  T  F

5. Symptoms of gonorrhea are least noticeable among women.  T  F

6. If a person gets syphilis or gonorrhea and gets cured, that person will not get syphilis or gonorrhea in spite of having sex with an infected person.  T  F

7. Wearing a condom during sex reduces the risk of getting syphilis and gonorrhea.  T  F

8. Any person when infected with syphilis will get sores and rashes on the body.  T  F

9. Syphilis and gonorrhea are two stages of the
same disease. T F

10. If a person has gonorrhea, there is no point in seeing a doctor as gonorrhea is not any more dangerous than catching a cold. T F

11. There is a state law that prevents anyone from giving out information about you when you have been examined and treated for syphilis and gonorrhea because these records are held confidential. T F

12. The early symptoms of syphilis will come and go away even though the person did not obtain treatment. T F

13. Taking oral contraceptives provides protection against syphilis and gonorrhea. T F

14. If you suspect a person has syphilis or gonorrhea, you can avoid getting it by not having sex with that person. T F
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The Individual Try-out is one of the essential steps in the development of instructional programs. In brief, the process involves administration of instructional material on one person at a time and revising the material on the basis of the student reaction.

The methodology for conducting Individual Try-out of knowledge questionnaires has been elaborated in this study. Using the suggested methodology, the Individual Try-out technique has been applied to two venereal disease knowledge questionnaires.

Questionnaire I was given to ten subjects, while Questionnaire II was given to eight subjects. The subjects were selected from Health Science 120 classes at San Fernando Valley State College during Spring, 1971.

The application of Individual Try-out technique serves as an effective feed-back for revising health knowledge questionnaires. Classification of subject reactions suggested in this study can be used when conducting Individual Try-out of health knowledge questionnaires. Similar methods used in this study could be used for evolving classification of subject reactions, if the Individual Try-out technique is attempted in developing health education materials.
The revised questionnaires that were developed in accordance with the Individual Try-out technique were not validated by administration to groups. In practice, group validation is carried out after development of the instrument in order to determine the instrument's reliability and validity prior to using it on a particular target group. Therefore, it is suggested that group validation be carried out prior to using these or any questionnaires.

On the basis of this study, it is recommended that the use of Individual Try-out technique be expanded. Health personnel are urged to use this technique in the development of knowledge questionnaires and in the revision of the existing questionnaires. Similarly, the technique can be tested in developing materials such as health attitude surveys, pamphlets, radio and television spot announcements and other educational material. Editing for clarity of language and for bringing about subject matter specificity in the items is likely to reduce the Individual Try-out cycles.
BIBLIOGRAPHY


