

AN ANALYSIS OF QUESTIONS AND RESPONSES
OF SELECTED STUDENT TEACHERS AND THEIR PUPILS
IN HOME ECONOMICS CLASSES

by

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INTRODUCTION

The art of questioning has long been recognized as an important technique of successful teaching and one that must be well developed by those who would rise above mediocrity in the teaching profession. Throughout the years, books treating with methods of teaching have given significant amounts of space to questioning and teacher education departments and leaders have emphasized the necessity of mastering this particular technique. Colvin (1917) wrote of the importance of questioning in teaching:

The efficiency of instruction is measured in a large degree by the nature of the questions that are asked and the care with which they are framed. No teacher of elementary or secondary subjects can succeed in his instruction who has not a fair mastery of the art of questioning.

Questioning as used in teaching includes the asking of questions and the making of responses by teacher and pupils. Generally the teacher takes the initiative in the questioning. Questions and responses are so closely related that one may not be considered without the other and neither may be judged superior, good, fair or poor without due regard of the other. Questions and responses are among the most important of the devices used in teaching and are easily the most used ones. In practically every type of teaching method, with the exception of lecture, questions, and responses take a large share of the time of a lesson. This is readily noted even by the inexperienced or casual observer. Questions and responses are powerful and useful devices at the

disposal of teachers and pupils, many of whom do not realize the possibilities offered by their skillful use or the limitations set by their ineffective use.

The use of questions and responses in teaching goes far back in the history of education. Socrates used them almost entirely as his sole teaching devices and even today the Socratic method refers to a particular one in which the teacher asks questions and the pupil gives the response. Likewise, the catechismal method, developed in middle ages, still designates a special type of question-and-response teaching. However, regardless of the changes in concepts and objectives of education and of the development of new methods and devices of teaching, questions and responses have remained permanent devices of teaching even though the function of questions and responses and the types used have greatly changed. Methods involving problem solving, project teaching, discussion groups, and pupil-teacher planning call for a different type of questioning than do lecture, recitation, and text book methods. Questions that require thinking rather than mere recall of facts for responses are essentials of the new methods of teaching.

Fortunately, the art of questioning involves skills that can be learned and developed but study, thinking, and practice in questioning are necessary if mastery is to be accomplished. Though knowledge of subject matter is an essential in effective use of questions and responses, it alone is not sufficient. The ability to formulate and word questions so that the right kind of responses result is necessary as is also the knowledge of when and how to ask the questions.

Directors and supervisors of teacher education in home economics have from its beginning been aware of the importance of helping student teachers in developing satisfactory techniques of questioning and in providing them a foundation for further development of this art. They recognize the fact that the methods and devices used now in the teaching of home economics require more skillful use of questions and responses than many of those employed in the past. It is most important that student teachers in home economics have a good start along this line when they complete their college preparation for teaching.

This study was made to ascertain the nature of questions asked and responses given by a group of student teachers and their pupils during group instruction at given times and to determine if there was evidence of improvement in student-teacher questioning during the period of teaching participation. Such data should be of value to teachers and supervisors of home economics education in helping student teachers develop desirable techniques of questioning.

REVIEW OF LITERATURE

A review of literature indicated that questioning continued to hold a significant place in teaching and was regarded as essential in all satisfactory concepts of learning. The idea generally held was that questions and responses were important means by which learning was stimulated and directed, and interest aroused and maintained. Through these also the teacher passed his ideas on to the pupils and through these same devices the

pupils indicated to the teacher what they had learned. Wrinkle and Armentrout (1932) discussing the place of the question in teaching said:

It would be impossible to consider adequately methods of teaching without recognizing the question as an essential element in all teaching procedures. The question is the key to all educative activity above the habit-skill level.

Bossing (1935) presented much the same idea in his consideration of questioning and said on this same subject:

Few teachers have appreciated fully the true significance of the question. It is fundamental to any adequate conception of learning. The question silently or vocally expressed is among the first stimuli to the mental life of the child; and it remains through life the major mainspring to mental activity.

Questioning presents many difficulties to the teacher who would make effective use of questions and responses. Ten, 20, 30 or more pupils must be kept thinking and responding to the questions asked, their responses must be evaluated, and further questions asked as a result, and adequate responses must be given to any questions asked by pupils. The thought must be kept upon the subject or problem at hand and deviation permitted only when it adds to the learning situation. Frequently rewording of questions is necessary with only a very brief time in which to do it. Burton (1929) expressed much this same point of view when he said:

Thoroughly good questioning is a most difficult problem and it remains a problem, at least in part, for many good teachers. It requires the ability, native or acquired, to think quickly and easily while facing a class, to shift and change as thought progresses, and to phrase questions clearly and unambiguously.

This means then that certain abilities are necessary for the

teacher to develop if skillful use of questions and responses is to be made. Among these are the ability to think clearly and rapidly, to sense relative values, to word questions, and to direct questioning with confidence.

Questions as used in teaching have many functions. This fact is often surprising to those who are accustomed to thinking of the question as a device for determining what pupils know or do not know. Wrinkle and Armentrout (1932) stated in part that the functions of the questions were to measure the achievement of knowledge and skills, to provide repetition, to stimulate interest and provide motives, to set up problems, and to direct problem-solving. The latter may be achieved through analysis, evaluation, emphasis, and synthesis.

Bossing (1935) had even more functions in his list. They were to:

- Test student achievement
- Aid the student to relate pertinent experiences to the lesson
- Stimulate interest
- Provide drill
- Stimulate thought
- Develop the power and habit of evaluation
- Insure proper organization and interpretation of materials and experience
- Direct attention to significant elements in the lesson
- Obtain individual or class attention
- Discover interests and establish rapport with students
- Develop appreciation
- Provide direct incentive for study

Another function that should be added to both lists is, to keep the thought going forward.

Responses, too, have functions which are no less important than those of questions. They are a means of disclosing the pupils' thoughts, ideas, and feelings about a particular point,

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situation, behavior, or unit of subject matter. They indicate to a certain extent pupil mastery and are a significant means of carrying the thought forward. On the other hand, a response may be the evidence of the adequacy of a question. What the teacher does with the response is a strong indication of his or her teaching ability. Many maintain that the response holds a place equal with that of the initial question. Spafford (1935) ventured the opinion that strength or weakness of a lesson may more often be not in the questions asked but in the use of the answer made by the teacher. She further said:

Some teachers take the position of a judge so that pupils recite to them. Others accept an answer if correct, passing on to the next question without finding out the basis of the answer. "Yes" or "no" even though correct, may be a guess or the result of thinking.

Unless the teacher capitalizes on the response, the questioning will fall far short of its many possibilities and the lesson will be mediocre at best.

Good questioning requires that standards be established to serve as guides for those who would reach some degree of skill in their use. Several educationists have made contribution to this subject. According to Foster (1921), good questioning should be thought provoking, clear, brief, and adapted to the student. Bossing (1935) enlarged upon these standards by adding that questions should require extended response, should not suggest the answer, should avoid "yes" or "no" responses, involve single ideas, reflect a definite purpose, and avoid phraseology of the text book.

Responses, unlike questions, may be statements, questions or both. They should always be given in good English. Responses that reflect thought and are of some length are to be encouraged. Those which do not represent the best thinking should be discouraged and probably not accepted. Foster (1921) writing on this subject said:

As the purpose of the question was shown to be stimulation of thought, the primary purpose of the answer is the expression of that thought, with its critique and suggested ideas. It has also a secondary aim, the disclosure to the teacher of the student's thought, and the offering of the opportunity for the improvement of that thought and its expression.

The response to a questions should be adequate, matured, and well-expressed.

The number of questions asked and responses received in a given period are highly significant of the quality. Superior questions require time for answering and superior responses require time for formulating. In an early study of typical class room procedures in several grades and different types of schools, Stevens (1912) found that the number of questions asked ranged from 40 to 200 during 45 minute class periods. She estimated that basing the calculations upon the time used in questioning, the teacher used two-thirds of the class period with questions, expositions, and other activities, and the pupils used but one-third of the time. At this rate, Stevens calculated that the teacher asked and the pupils answered one question every 30 seconds. In concluding as to the number of questions used and the quality of teaching done by teachers, Stevens said that although number was not the full measure, it was a very large factor in

estimating efficiency, larger probably than any other. She further stated that a larger number of questions was an indisputable index of bad teaching. However, a small number of questions did not necessarily indicate good teaching. The observations of many individual teachers, both formal and informal, are not greatly unlike these of Stevens.

Questions are classified as recall or memory and thought. A question that requires for the response the simple recall of a word, words, phrases, facts, and ideas, is a recall or memory question. Many of this group of questions are answered by a mere "yes" or "no". Examples of the recall or memory questions are:

Who invented the sewing machine?
How many tablespoons in a cup?

Thought questions require reflection in thinking before the answer can be given and bring about responses that show reasoning, judgment, analysis, recognition of relations to other situations, or making of new applications. Examples of thought questions are:

What buying practices often prevent homemakers from making good purchases?
What does the term "cutting in the fat" mean?
Why do we finish the neckline of the dress before setting in the sleeves?

There are some questions that are thought questions when first presented to pupils but later through drill or use become recall questions to them. Many questions, though, have from their beginning been of the recall type. They have never at any time stimulated thinking nor will they ever do so. In general, thought questions are superior to recall ones and the former

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should be used more extensively than the latter in teaching.

A better quality of questioning results when questions are planned and presented in a related series. When this is done the thought goes forward in a much better way than it does in the use of single and unrelated questions. Such a series usually includes questions of both types but instead of judging each question individually all of the questions in the series are judged together as a whole. An example of a related series of questions is:

- Should a 16 year old girl ask her parents' permission every time she goes anywhere? Why?
- Should she tell her parents where she is going and when she expects to return? Why?
- Does she owe them such consideration? Why?
- Isn't she old enough to be her own boss?
- What should be her attitude toward her parents in regard to her "coming and going"?
- What should be the parents' attitude toward her in this regard?

Certain procedures should be followed if good techniques of questioning are to be developed. Bossing (1935) formulated these into a list of rules that many teachers have found helpful in improving their use of questions and responses. These are:

- Address questions to class before designating one to respond.
- Distribute questions as far as possible to members of class evenly.
- Allow sufficient time for the formulation of answers.
- Ask questions in such manner as not to suggest the answer.
- Assume student to be correct when he indicates inability to answer questions.
- Organize questions around pivotal ideas.
- As a rule, do not repeat questions.
- As a rule, do not repeat answers.
- Occasionally ask questions of the inattentive.
- Ask questions in an easy, confident manner.
- Show adaptability in questioning.
- Encourage student questions.
- Insist that student questions be significant.

- Require courtesy in questioning by students.
- Recognize the timeliness of student's questions.
- Grant earnest student the right to question your position.
- When you cannot answer a question, frankly say so.
- Show appreciative attitude toward student response.
- Interpret sincere response to advantage of student.
- Get class evaluation of partially correct response when desirable.
- As a rule, do not assist student in response.
- Insist that responses be couched in complete thought units and be correct grammatically.

Avoiding the use of the double question is another rule that should be added to this list.

Apparently little research had been done in regard to the development of questioning by student teachers in home economics. As far as was ascertained no study of the questions and responses of home economics student teachers and their pupils had been reported. However, a number of studies had been made in which the questions and responses of student teachers were included in in some way and appeared to have some bearing upon this study.

Ennis (1930) in a study dealing with the major difficulties in supervising student teachers in home economics at Iowa State College found that questioning ranked third in frequency in the list of difficulties and leading class discussion ranked first. Since the question is the main springboard for class discussion, these two recognized difficulties bear close relationship. Ennis thought that the overcoming of these difficulties should not only be considered the responsibility of the supervising teacher, but also of the teachers of the methods courses completed previous to the student teaching period. She said that many supervising teachers thought that student teachers needed more experience than they were able to obtain during the short student teaching

period in order to develop the ability to formulate and use thought questions and the ability to lead class discussion successfully. She further stated that there was indication that these abilities need to be developed further when the student teacher is a regular teacher in her own job.

The teaching practices and difficulties of 20 home economics teachers trained at Iowa State College were studied by Wright (1931). Observations were made of the teachers in relation to certain teaching skills in which was included the skill, designated as formulating and putting questions to the class. Though her data were insufficient to warrant any conclusions regarding this skill, she did find a lack of evidence of the use of thought questions.

Some indication of the use of questions and responses by certain home economics teachers was found by Day (1932) at Kansas State College in a study of how a selected group of home economics teachers begin their classes. She observed 130 college, high school, and student teachers of home economics to find out how they spent the beginning period of the class hour. Approximately three times more information or recall questions than thought questions were used by all of the teachers with 30.2 per cent used by the student teachers as compared to 47 per cent of the others.

The difficulties of 100 persons who had recently completed student teaching experience in six colleges and universities were studied at Cornell University by Grant (1933). She compiled a list of difficulties from observations of student teachers,

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remarks made by student teachers and lists contributed by supervising teachers. Through the use of questionnaires sent to these former student teachers she attempted to find out which of the difficulties were considered very disturbing, which might have been mastered before beginning student teaching, which were overcome promptly, which were overcome after some time and effort, which were somewhat disturbing, and which were no problem at all. From one-third to two-thirds of this group reported leading discussions as very disturbing. However, this difficulty was overcome promptly by one-third to two thirds of the group. Two-thirds or less of the group reported leading discussions, which involves extensive use of questions and responses, as being very difficult and two-thirds of this group overcame this difficulty only after some time and effort had been spent. Concerning this difficulty she said:

Leading discussion, perhaps more than any of the others, demands a broad background of subject matter and the ability to bring the knowledge into play at the psychological moment. A teacher must be ever ready to capitalize on pupil leads and the opportunity to do so, presents itself more in discussion lessons than in any other type.

Johnson (1941) at the University of Tennessee made a case study of 12 home economics student teachers in regard to the difficulties encountered in student teaching. In only three of the cases were questions and responses referred to directly or indirectly. One student teacher showed her insecurity or lack of self-confidence by usually referring a pupil's question back to the pupil. Her usual way of doing it was by asking, "Now, what do you think", and then failed to give further guidance as

if she were not sure of the method or procedure to follow. The second student teacher seemed always to evade the pupils' questions in the class room. The third student teacher considered her greatest difficulty the inability to express herself so that students could understand her.

METHOD OF PROCEDURE

The data for this study were obtained in 1941-1942 from 18 student teachers in the Division of Home Economics at Kansas State College and their pupils. These student teachers were selected at random and were observed during three entire class periods in which they were responsible for the teaching. The first observation was made as early as possible in the six weeks teaching period of the student teacher, the second near the middle of the period, and the third near the end of the period. The selection of the classes in which the observations were made, was done entirely on the basis of occurrence in the teaching period of the student teacher. During each observation, records were made of the questions and responses of the student teacher and her pupils during group instruction. This was interpreted as that instruction in which at least one-fourth of the class was participating in some way. Methods and procedure to be followed in observing the student teachers and pupils and in making the records were developed. These were all given preliminary trials until sufficient skill had been acquired to begin the study proper. Each record was checked soon after the class closed and any needed corrections, additions, comments,

or interpretations were indicated. The data were tabulated, analyzed, and evaluated.

FINDINGS

Eighteen college seniors enrolled as student teachers in Teaching Participation in Home Economics were the source of the data in this study. In this course each student received experience in teaching for six weeks in the Manhattan Schools. The activities involved in this experience, commonly referred to as student teaching, were carried on under the direction of a supervising teacher who was also the regular teacher of the class. These activities included observing the supervising teacher and the pupils, teaching the lesson, and assisting in various ways in the class. Lessons taught by the student teachers were planned with their supervising teacher and checked by her before being presented to the pupils. Fifteen of the student teachers had no previous teaching experience while the other three had each taught for three years in rural schools of Kansas. In respect to scholarship, they were a fairly representative group, average and above. Four received the grade of A at the end of the course, four received B, and ten received C.

Observations and records were made of the questions and responses of the student teachers and their pupils in lessons taught by the student teachers in home economics classes in the schools of Manhattan, Kansas. The 54 classes in which observations were made and records taken, included pupils from grades seven to 12. Eight of the classes were in junior high school,

five were in the senior high school, and five were in the Sacred Heart Academy. In the lessons taught in these classes all four areas of home economics--foods and nutrition, clothing and textiles, related art, and home living--were represented. A class in this study referred to the entire period arranged by the school administration for the meeting of a particular group of pupils to study a given subject. A lesson comprised that part of the class in which the teacher carried on group instruction that included questions and responses. Group instruction was that in which at least 25 per cent of the pupils in the class were participating.

A grouping of the lessons was made according to the type of lesson taught in the classes observed. The types were designated as discussion, laboratory, demonstration, lecture, and tests, and various combinations of these. The discussion lesson was defined as one in which the subject matter was developed through questions and responses carried on by teacher and pupils. The laboratory lesson was one in which the time was given entirely to pupil activities involving bodily skills. In the demonstration lesson the teaching was done by teacher and/or pupils who showed by practice how various processes were done. The lecture lesson was delivered by the teacher, and the test lesson consisted of some form of examination given to the pupils.

The discussion lesson or a combination of discussion and one of these other types predominated in the classes. Twenty-six were discussion lessons, 13 were discussion and laboratory, seven were discussion and demonstration, three were discussion

and test, three were laboratory, one was demonstration and laboratory, and one was discussion and lecture. Four student teachers in the three classes observed used only the discussion lesson and one used only the discussion and laboratory type. The other 13 made use of more than one type of lesson but discussion was usually one of these. It was evident that questions and responses had a most significant part in the lessons of the classes observed in this study.

The questioning was carried on largely by the student teachers as they asked approximately four times as many questions as did the pupils. The questions of these teachers were classified according to memory, thought, and incidental. In making the classification of the questions, consideration was given to the wording of a question and to the apparent type of thinking on the part of the pupils that resulted from the question asked. Thus, a question might be classed as a memory or thought question even though the wording was not especially good. Incidental questions nearly always were poor in both respects.

Memory questions were those that required for response the simple recall of a word, words, phrases, facts, and ideas. Examples of memory questions asked by the student teachers were:

- What are customs?
- Where does the sugar spoon go?
- When do we add the sugar to stewed fruits?
- What are some events that happen in February?
- When was silk discovered?
- What did you find in your reading about table manners?
- How many parts does this kernel of wheat have?
- What are the foodstuffs?
- What are the kinds of buttonholes?

Thought questions were those that required reflective thinking to formulate a response. They showed reasoning, judgment, analysis, recognition of relations to other situations, or making of new applications. Examples of thought questions asked by the student teachers were:

Why do you rinse your face in cold water?
What does the term "artistic" mean?
Why do we study our pattern?
Who in our class would be a typical brunette?
Should we be paid for doing little tasks at home?
How do the white corpuscles function in the body?
Why do we put pockets on a dress?
How does the fuel value of sugar compare with that of lettuce?
Why should we plan menus?

Incidental questions were those that appeared to occur by chance and often had only slight relationship to the subject matter. They were neither recall nor thought questions. Occasionally they might connect two questions but usually did little more than take up time. Examples of these incidental questions were:

How can we do that?
Would you like to?
Why don't you tell me one?
How many are acquainted with the Reader's Digest?
How many like to go to teas?
Anything else?
Any other question about soap?

During the 54 classes observed 1196 questions were asked by the student teachers. A total of 395 memory questions, 404 thought questions, and 397 incidental questions were asked by the group. Though the number of thought questions was slightly more than of the other two, the difference would hardly be called significant. A grouping of the total questions according

to the three lessons taught showed a marked decline in the number of memory and incidental questions which might be considered evidence of some improvement in the use of questions by the teachers as a whole. However, there was a decline in the number of thought questions, too (Table 1).

Table 1. Types of questions asked by student teachers

	Memory questions Number	Thought questions Number	Incidental questions Number
First lesson	154	145	150
Second lesson	146	135	140
Third lesson	115	123	107
Total	395	404	397

The largest number of questions asked by any one student teacher during all three observations was 131 and the least was 15. The median for the group was 68.5 questions for each teacher for all three days and 22.8 questions for each day. In two of the lessons, no questions were asked during the entire class period. This was in striking contrast to the lesson in which 59 questions were asked. The number of questions asked in a lesson was no indication of the number which would be thought questions. However, in the ten lessons in which the largest number of questions was asked, the thought questions ranged from 15 to 39 per cent of the total. Also in those lessons in which eight or less questions were asked the number of thought questions was very low, ranging from none to four.

The time covered by the student teachers' questioning ranged from ten minutes to 80 minutes, the median being 32.5 minutes. In 18 of the lessons, questions were asked at the rate of one or more per minute. In one instance, the rate was three per minute. However, in this lesson the questioning extended for only eight minutes. Questions at the rate of more than one per minute were asked in one lesson for 55 minutes, in another for 48 minutes, and in another for 37 minutes. In one lesson questions were asked for 35 minutes at the rate of 1.5 per minute. In those lessons in which the rate of questioning was less than one per minute, the mean time for each question ranged from ten minutes to 1.1 minutes, the median being 2.5 minutes. The teachers of this group who asked the smallest number of questions per minute, generally asked fewer thought questions than did the other teachers. This was evident for the questioning of those teachers for whom the mean rate was one question per 2.9 minutes or more. The proportion of thought questions asked by this group ranged from none to 68 per cent, the median being 33.5 per cent. Those teachers as a group who had the slowest rate of questioning, also as a group, had the lowest percentage of thought questions. It appeared as if neither very rapid questioning nor the extension of questioning over a relatively long time were particularly conducive to the use of thought questions.

The student teachers, on the whole, were not consistent in the number of questions asked in a given period of time. In one lesson they might use many questions and in another few. Only three teachers for all three lessons asked questions at the rate

of more than one per minute. Only two teachers had their questioning for all three lessons classed in the list of low rates; they were those who ranged from one question every 2.9 minutes to one question every ten minutes.

Thought questions, judged on the basis of the number asked in one lesson, were not extensively used by the student teachers (Table 2). Though in a few instances some increase was evident in the number of thought questions asked, in general the entire group showed little progress in this regard.

Table 2. Number of thought questions asked by student teachers.

Student teachers	Lesson 1		Lesson 2		Lesson 3	
	No. of ques- tions	Time of : in min- utes	No. of ques- tions	Time of : in min- utes	No. of ques- tions	Time of : in min- utes
1.	1	15	0	60	4	80
2.	14	80	4	80	14	80
3.	6	45	5	60	5	15
4.	15	35	19	37	4	30
5.	8	45	3	60	2	47
6.	7	20	4	15	10	15
7.	12	25	2	20	6	22
8.	5	27	11	55	1	45
9.	7	25	15	45	6	8
10.	15	30	11	35	8	15
11.	13	48	6	20	7	32
12.	1	17	12	80	6	60
13.	2	10	5	20	4	6
14.	7	40	14	40	15	49
15.	0	0	0	0	8	8
16.	8	27	14	25	9	60
17.	8	50	11	55	7	75
18.	17	30	9	25	7	25

Thought questions, judged upon the basis of their relations to the total questions asked, made but little better showing than they did when number was considered (Table 3). The highest

percentage of thought questions in any one lesson was 68 per cent. In only five lessons were over 50 per cent of the questions thought ones. Slight progressive improvement in the percentage of thought questions asked was shown by eight student teachers, while three teachers increased their percentage of thought questions in the second lesson, but in the third dropped below the percentage in the first lesson.

Table 3. Percentage of thought questions asked by student teachers.

Student teachers	Lesson 1	Lesson 2	Lesson 3
1.	33	0	25
2.	23	23	37
3.	33	31	39
4.	29	25	13
5.	23	15	13
6.	30	18	45
7.	54	50	50
8.	12	19	17
9.	23	32	25
10.	68	23	53
11.	57	38	39
12.	33	43	46
13.	40	56	67
14.	41	50	45
15.	0	0	53
16.	40	51	39
17.	29	33	53
18.	32	50	22

The proportion of memory questions asked in the various lessons ranged higher than did that of the thought questions. In one lesson 78 per cent of the questions were memory ones and in two others 73 per cent were. In general, there was not much reduction in the proportion of memory questions in consecutive lessons. Only three student teachers showed improvement in this

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respect. There was no apparent relationship between the number of memory questions and the time covered by the lesson. In one 55 minute lesson 39 memory questions were asked; in another of the same length 11 memory questions were asked. In one 30 minute lesson 25 memory questions were asked; in another of the same length 17 were asked and in a third, three were asked. Only four teachers showed a decrease in the number of memory questions asked in the lessons. In but one case was the decrease worthy of consideration.

The proportion of incidental questions asked in the various lessons ranged higher than did that of thought questions but a little higher than that of memory questions. Incidental questions in one lesson were as high as 76 per cent and in another 75 per cent. The lowest percentage of these questions in any one lesson was eight. The progressive decrease in total incidental questions noted in Table 1 was evident in those asked by each student teacher. Though not all decreased in the number of incidental questions asked, seven did. Three of these teachers made a marked improvement through a reduction of incidental questions asked.

Concerning the use of incidental questions, it is generally conceded that they add little to the value of the lesson and usually serve merely to consume time uselessly. It is highly important that these questions be reduced to a minimum. Far too large a proportion of this type of question was asked by these student teachers. This is not exactly the case in regard to memory questions. Though they should not by any means take

a major portion of the lesson, memory questions do have a place in teaching. There are times when recall of facts or ideas are necessary and well worded memory questions are the means of accomplishing this. It is when they are used to the extent that few or no thought questions are asked that they are undesirable.

The plan of organizing questions into related series was scarcely used. Practically all of the questioning was done in single and often unrelated questions. In all of the 54 lessons observed only 17 related series of questions were asked. Two of these series consisted of as many as five questions but the others included no more than three. Only one-half of the student teachers made any use of questions in related series and no teacher used this type of questioning in all three lessons. This lack of asking questions in related series showed a decided weakness in the questioning of these teachers. Skillful use of questions in related series is one of the essentials in developing the art of questioning. There appeared to be practically no indications of development in this technique of questioning.

How questions are asked is also an important consideration in questioning and is concerned largely with the stating and presenting of questions. The mistake of calling the pupil's name before asking the question was made 32 times by ten of the student teachers. One teacher did this eight times in one lesson and another six times in a lesson. Fourteen teachers asked double questions, which also is poor practice. The total of these double questions was 49 with two teachers each asking eight. These 49 questions were asked in 25 lessons.

When considered in regard to quality of statement, 180 of the questions were judged to be poorly stated, which was 15 per cent of the total questions asked by the student teachers.

Examples of such questions were:

All right, then what are we going to do first?
 Then you are ready to do what?
 What do flowers do?
 Before we put linen on the table we must be sure it is
 what?
 Do you think we try harder to get along now or not?
 I wonder what you would like to learn or accomplish so
 that after it's made you'll be proud to wear it?
 How do synthetic fibers feel?

The asking of questions that required merely the answering of "yes" or "no" was not a prevailing practice. Only 31 of this type were asked. The repeating of their own questions was not commonly done by the student teachers. This occurred but 21 times and was limited to 11 teachers in 14 lessons. In a number of instances the repetition was necessary because the teacher spoke in a low voice.

Mannerisms in asking questions are generally regarded as faults that reduce the effectiveness of teachers' questioning. Sixteen of the student teachers had some mannerism in asking questions. These consisted of words or phrases used at frequent intervals by the teacher to the extent that they detracted from the lesson and were sometimes annoying. With most of the teachers the mannerism did not hold through the third lesson. Evidently, the supervising teacher had called attention to the practice and the student teacher had taken steps to eliminate it. In a few instances the mannerism was first observed in the third lesson. The mannerisms noted are shown in Table 4.

Table 4. Mannerisms in asking questions.

Mannerisms	:Number of times :occurring	:Number of teachers :using
1. What about or How about	56	10
2. Does any one know or Do you know	23	4
3. How do we or Why do we	21	3
4. What do you think	10	6
5. Do you think	9	1
6. Now you do what	8	2
7. Would you show me or Would you tell me	7	2
8. By the way	7	1
9. Where would you put	4	1

Teachers' questions should be considered in relation to the pupils' responses for each actually is part of the other. The total number of pupil responses recorded for all of the student teachers was 1786. Though this number represents most of the pupils' responses in the lessons observed, it does not include all. Sometimes a pupil spoke so low or indistinctly that the response was inaudible. Occasionally two or more pupils talked at one time which made recording difficult. However, the number recorded was sufficient to give a representative picture of the type of responses made. A comparison of the total number of pupils' responses with that of teachers' questions disclosed 1.5 responses per question. This would indicate a very limited pupil response to questions. Some few teachers asked questions of the quality that stimulated responses from five to six pupils for each question but this was not the general practice. In 54 instances, 15 teachers repeated the question before a response was made. Usually this was done at the request of pupils but sometimes the question was repeated either identically or with

slight variation by the teacher before pupils had time to respond. Also there were 34 questions asked by 13 of the teacher to which no response whatever was given by pupils. Some of these questions were answered by the teacher and others were left unanswered as she proceeded to another question.

The questions, on the whole, were not well worded. Most of them would be rated on this item as fair or less and no student teacher was especially good in wording questions. A readily observed weakness was poor sentence structure and another was limited vocabulary. Suggesting the answer in the question was also frequently noted. Failure to word the question so as to obtain the desired response was another shortcoming of a number of the teachers. Evidence of this was shown in the 34 questions of teachers that produced no response of any kind from the pupils and also in the 54 questions that were repeated by the teacher before they were answered by the pupils. Though there were some instances in which improvement by the teacher in the wording of questions was noted, in general, no great progress was made by the teachers in this direction. Examples of some of the more poorly stated questions were:

- Then, how about the prices of these soaps, girls?
- Will your sitting and standing posture differ in anyway to help you remember?
- How can you be sure you have it straight and in the right place?
- Should you talk about your operations or the war?
- What kind of a vegetable is cauliflower, strong or mild?
- Don't they express something or what?
- What should you do when talking after the doctor has been in the room and goes out?
- How is it made, is it sort of firm?
- When you get custard cooked, how can you test it?

A grouping of the responses showed that those expressed in terms of one word, words, and phrases were the most common as shown in Table 5.

Table 5. Pupils' responses to teachers' questions.

Type	Number	Per cent
Phrases or words other than "yes" or "no"	716	40
Statements	662	37
Questions	332	19
"Yes" and "No"	76	4
Total	1786	100

The pupils' responses, in general, did not represent their best thinking. This was shown in the large percentage of responses that consisted of one word, words, and phrases and in the poor wording of those which were made in the form of statements and questions. Poor use of English in making responses was also a common failing of the pupils. Seldom, if ever, did a student teacher correct the grammatical structure of the response or ask for a restatement so that the English would be acceptable. Evidently these teachers were not stressing the importance of the statement of the response. The practice of accepting poorly stated responses and those of one word, several words, or phrases does not aid pupils in developing ability to express their thoughts intelligibly to others. The fact that 44 per cent of the pupils' responses were of this type was an indication of a weakness in the questioning of these teachers. Though a slight improvement in pupil responses was noted for

some of the teachers, on the whole, little was shown for the group. Examples of typical responses of pupils to questions were:

Well, a home is a feeling more than anything else.

House is what you live in.

Well, I don't think they should butt in or interfere with us in what we do.

Yeah.

Uh-huh.

This here is like we studied.

Ask'em to pass it.

Something like eggs, meat, and fruit.

Grapefruit.

Hostess.

To have a change.

Food value.

Yes, isn't it because mass production is on a large scale over there and I didn't think they were so modern as we are.

The poor quality of pupils' responses may have been due in part to the type of questions asked by the student teachers. Questions of narrow scope tend to encourage responses of the same type. Poorly worded questions usually result in similar responses. Questions that are stated so that only one word is necessary for the response will of course be answered in that way.

The student teachers' responses to those of the pupils include repeating or rewording pupils' responses, comments that strengthened the pupils' responses, new question by the teachers that carried the thought forward, and recognition of pupils' responses by such terms as alright, that's right, "yes", and "no". The most common of these were comments and new questions by the teacher. In a number of instances a word or words, as "alright" or "that's right" were used as a part of the response to such an extent that the practice could easily have been called a

mannerism. Pupils' questions were given consideration by the teachers and in most cases were answered. This was usually done by the teachers but occasionally pupils gave the answers. Eighty per cent of the pupils' questions were answered, either by the teachers or the pupils.

All of the student teachers appeared to have a satisfactory knowledge of their subject matter during these observations. None could be said to be outstandingly weak in this respect. There were some instances in which the need for more information on a particular topic or subject was indicated and some in which more confidence and freedom in presenting the subject was needed. However, as far as these lessons were concerned a majority of these teachers would have been rated as above average in their mastery of subject matter.

The strengths and weaknesses in questioning appeared to be fairly well scattered among all of the student teachers. Those who received high marks at the end of the course in Teaching Participation had difficulties and shortcomings in questioning as well as did the others. Apparently, the grade received would not necessarily be an indication of the quality of the teachers' questioning in the lessons observed. No differences were observed in the questioning of the three teachers who had previous teaching experience when compared with the questioning of the others.

DISCUSSION AND SUMMARY

The questioning of this group of 18 student teachers as shown by the records failed to meet accepted standards of good questioning. Approximately, twice as many memory and incidental questions were asked as were thought questions. The tendency seemed to be the asking of many questions that were small in scope and to require the same kind of response. Organizing questions into related series that carried the thought forward was seldom done. The questions were strikingly weak in their statement which was due mainly to lack of clarity, incorrect use of terms, poor sentence structure, and failure to meet standards for questions. The large number of questions asked by many teachers and the brief time allowed between questions were other evidences of the type of questions commonly used. However, a smaller number of questions and a longer lapse of time between questions did not necessarily insure good questioning.

The response of the pupils were of no better quality than were the questions of the student teachers. Seldom did the responses, by any means, represent the pupils' best thinking. The responses were far more often one word, words, or phrases than they were well constructed, and meaningful statements resulting from reflective thinking. Giving the response in the form of a question was another poor practice observed. Throughout most of the questioning the thought ended with the response.

The questions of the student teachers elicited only limited questioning by the pupils. The pupils asked one-fourth as many

questions as did the teachers. Most of these were too limited in scope and were not the result of any deep thinking by the pupils. Some few questions were even trivial and irrelevant to the subject. Few of the pupils' questions were left unanswered but the answering was done chiefly by the teachers. On the whole, the questioning of the pupils contributed but little to the stimulation of thinking in the lesson.

A slight improvement in the questioning of the student teachers was generally indicated. Some of the teachers made more progress in this regard than did others but none showed any marked gains. The improvement was shown in various ways and might include all of the techniques of questioning or it might include only one or several. Most of the improvement was in relation to the teachers' questions rather than to the pupils' responses. Taking into account the brevity of the student teaching period and the inexperience of the student teachers, it is possible that only slight improvement in the technique of questioning should be expected of these teachers during the course in Teaching Participation in Home Economics. However, if student teachers are later to become proficient in the art of questioning, certain results should be attained by those completing the course. They should know what good questioning is and how important it is in successful teaching. They should have formulated a pattern for good quality of questioning and should have made a beginning in the practice of the basic techniques of questioning.

The student teachers, apparently, were not fully aware of the importance of questioning in teaching and there was little evidence that they were working directly on improving their techniques of questioning. On the other hand, there were no indications that this matter had been brought to their attention nor that it was being especially emphasized with them as a special problem on which they needed to work. All of the teachers were decidedly lacking in their standards for questioning and none had appeared to have formulated any clear-cut, satisfactory pattern of questioning. Possible reasons for this situation might have been insufficient emphasis of the subject of questioning in courses in general education and home economics education, failure of the supervising teachers to stress the importance of questioning and to give helpful guidance in developing its techniques, and to probable limited experience in participating in and observing superior teaching.

The weaknesses in questioning on the part of the student teachers could not be attributed, by and large, to poor mastery of subject matter for most of them had this quite well in hand. Often the teacher's knowledge of subject matter was the outstanding feature of the lesson. The difficulty seemed to be mainly in carrying on the questioning so that the subject matter was put over successfully.

Although this study is too limited in scope to warrant conclusions, the results point to a need for giving more consideration to the art of questioning in the teacher education program in Home Economics at Kansas State College. Not only should this

be done in the pre-service program but continued in the in-service program when the teacher is teaching on her own responsibility.

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