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I

AN EXPERIMENT IN CO-OPERATIVE SCALE-MAKING

This study is the report of a project undertaken in a course in Education Statistics at the Harrisonburg State Normal School in the fall quarter, 1919-20. The general aim of the course was to furnish the mature students of the third and fourth year classes first-hand knowledge of the more important scientific measures, or scales, and standard tests that are available for the teacher and supervisor.

After the ground-work was laid and a certain general point of view attained and a degree of familiarity with the whole field was gotten, the class was divided into small groups for the concrete application of the use of these tests in the local schools. The groups were based on the natural interests of the students, who chose their own subjects for study out of a wide range of possible topics.

THE PROBLEM

A group of five Home Economics students, comprised of Misses Anna Allen, Mary Brown, Pauline Layman, Loudelle Potts, and Ruth Rodes, finding no tests available in that field, decided to work out jointly with the instructor and with the members of the Home Economics Department some standard in that field. The precedent of a then unpublished study made of darning at Teachers' College inspired them to make the trial although the time and experience of the group were alike limited.

After considerable preliminary study, it was decided to work in the field of sewing; and the running hand stitch was selected for study, first because it lent itself to ease of judgment and because it is so universally used.

The first step was the selection of materials and the collection of samples, the effort being made to duplicate the activities of real life. Samples of longcloth were prepared, 4 inches by 5 inches. These were folded lengthwise through the middle, thus making a double sample, 2 inches by 5 inches. Single white thread, number 60, and number 8 needles were provided each pupil taking the test; and the stitch was run lengthwise through the middle of the sample, starting one-half inch from the one end and stopping one-half inch from the other.

In order to have as wide a range of quality and merit as possible, samples were distributed among pupils of the second grade, the sixth grade (a sewing class), the high school, and two classes of Normal School students, the sophomore, or preparatory students, and a class of juniors, or first year students.

No time limit was set upon those taking the test.

One hundred and eighty-six samples were thus collected and numbers were placed upon them by means of stickers about three-fourths of an inch in diameter, by a member of the student committee. The samples were then thoroughly mixed and turned over to three members of the Home Economics Faculty for judging.

CO-OPERATIVE JUDGMENT OF SAMPLES AND THE ARRANGEMENT OF A SCALE

It would have been highly desirable, had time permitted during the term, to have had a large number of experts judge the samples independently, as is typically done in scale-making. Lacking time, the members of the Home Economics Faculty devised a plan of co-operative judging which it is believed has a certain merit when for example it seems desirable to work out for practical use a tentative scale.

Preliminary to any work in judging, the following points were determined upon as affecting the merit of a given sample: method of fastening thread at beginning and end; regularity of stitches; evenness of line of stitches; length of stitches; space between stitches; effect of stitches (some being too small to pass through the under piece of ma-

terial, others too poor to hold the material together).

Each judge then took a number of samples and arranged them by agreement in ten groups. After the first judgment, the samples in each group were studied carefully, each judge re-arranging her original grouping twice. In the second stage of the work two teachers worked together studying critically their similar groupings to see if any sample might have been placed above or below its proper place. The third teacher then added her samples to the similar groups of the other two, now combined in one, and all three studied each group critically as before, placing once more some samples in different groups. At this stage it was discovered that the samples in group 4 did not show distinctive differences; and the group was broken up, the better samples being placed in group 3 and the poorer in group 5, which now became group 4. Similarly samples in group 9 were distributed and the whole number of groups, or steps on the scale, was reduced to eight, ranging from poor or near zero merit in group 8 to excellent or very nearly perfect in group 1.

When the arrangement was finally fixed upon, it was interesting to note that certain characteristics were predominant in some of the groups. In group 8 were placed all samples which barely held the material together when subjected to any strain. Group 7 showed regularity but the stitches were long and the spaces similarly were long. In group 6 the line of stitches was frequently curved. In group 1 there was almost a machine-like accuracy and uniformity of stitch.

After arriving at a satisfactory grouping, one sample was chosen more or less at random, yet showing the predominant characteristics of the group if there were any. The selected samples were then mounted upon a cardboard with sample 1, or the highest ranking sample, at the top.

The students' committee then made a similar grouping for the sake of the experience involved and, after it was made, each selected a set of samples representing the 8-step scale for use in her future teaching in sewing.

CONCLUSIONS

While the authors do not wish to present any claims as to a large degree of scientific accuracy in this scale, it seemed wise to them to set forth its method of derivation and apparent usability because of the lack of similar work in the field of Home Economics. Criticisms of the scale that are especially patent are, first, the small number of judges, and, second, the method of co-operative judgment rather than of weighted independent judgment which requires extensive manipulations of mathematics and which seemed not to be warranted in this case. Even at that, it can certainly be claimed that the Home Economics teacher would have in a rough scale such as this a better measure of the relative merit of the work of her pupils than when she relies simply and solely on her own independent opinion and judgment. It is unfortunate that, like scales in arithmetic, reading, and other academic subjects, such a scale is practically impossible of reproduction. In this particular case, photographing the samples would not clearly bring out the stitches. Had dark thread been used, this would have been more feasible, but this would have vitiated the scale in so far as it represented a real life situation.

The following table shows how the 186 samples were distributed in the final grouping by the three judges, an independent distribution (after the scale was made) by the student committee showing a rather less skewed distribution and placing the median sample in group 5 instead of group 6:

DISTRIBUTION OF SAMPLES ACCORDING TO STEPS OF SCALE

Stp.	Gde 2.	Gde. 6.	H.S.	Nor.I.	Nor. II.	To.
8	5					5
7	5	18	18	1	1	43
6		17	24	11	8	60
6		0	7	1	10	18
4		2	2	3	17	24
3		1	1	3	12	17
2		2		4	5	11
1				3	5	8
Totals	10	40	52	26	58	186

It is interesting to note that the medians of pupils of the five groups differ as follows: that for the 2nd grade is betweeen steps 7 and 8; that for grade 6 and the high school class lies in group 6; that for the two Normal classes lies in group 4. This indicates about the difference that common sense would suggest. These medians, however, must in no sense be confused with standard scores such as are available in our standar-

ized tests. Such scores could only be derived by applying the scale widely to samples obtained in the same manner in various grades of the public school. Of little less interest are the differences in the range of scores of each group.

In conclusion it may be said that it is the hope of those who were engaged in this experiment that it may prove an incentive to others to form scales in this field. The hemming stitch or buttonhole-making would prove desirable and relatively simple projects. Such an objective standard, even though only semi-scientific, will prove to be of very definite help to any teacher in judging the achievements of her pupils, and will, like the standardized tests derived in other school arts, form a splendid concrete motive for her pupils for self-criticism and improvement. The co-operative plan used in its derivation has very real advantages in bringing together the interests of the various departments of any institution.

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II

MAKING THE MOST OF THE SCHOOL ENTERTAINMENT

In the good old days the Friday afternoon "speaking" was the "high-spot" in the week's events. The children, even the tiniest tots in the "A B C" class, had studied their pieces arduously and had been put through agonizing rehearsals by hopeful relatives. Now, at last, the supreme hour was here, and dressed in their stiffest, most uncomfortable "Sunday-best," they sat waiting their turn. It was a dramatic moment, tense with possibilities. What if one FORGOT!

The public entertainments were similar to these weekly programs, the only variations being the giving of ready-made dialogues, the formal reading of carefully prepared essays, or the presenting of plays written by some one else and memorized down to the last gesture.

These exercises afforded practically no opportunity for the functioning of the play instinct; neither did they give any constructive expression to satisfy the child's dramatic hunger. Yet, because they gave some training in facing an audience, and because they came at a time when the child's life was very barren, they were well worth while.

In far too many schools today the exercises are of this type. They are something apart from the regular procedure, put on either to raise money or to show the children off to the community. The children are trained in a set, stilted task, by a weary teacher. Each has his particular bit, unrelated to the whole; the chief motive is personal success; attention is upon self or upon the audience; the thrill that comes through losing one's self in a piece of creative work is entirely absent. In fact, a brief survey of the situation brings one to the question: does the school entertainment merit a place in our school procedure? Let us attempt an enumeration of the values of such work, if it is properly managed. First, it affords a powerful motive for the regular school activities. Children love to *do* things, to write plays, to dramatize customs of other lands, etc. Here they meet problems vital to them and are willing and eager to do extra reading, even extra writing, because they see the need. In fact, the teacher whose fifth grade stages "John Smith" without her getting considerable investigation of colonial Virginia from them is letting a golden opportunity slip. This is only another way of saying that when the school program is a direct outgrowth of every-day lessons it lightens the burden for the teacher, and spurs the children on to greater effort in related lines.

Second, this type of program furnishes a place for constructive expression upon the part of the children; it gives them a chance to realize themselves with their bodies, with words, with materials. Our school practise is still too far behind the maxim, "learning by doing." We have allowed the formal side of school work to usurp the center of the stage. Even our now-rejected aim of education, acquisition of knowledge, did not warrant this. Modern psychology has emphasized the fact that, besides sensory and as-

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This is an introduction to a series of articles dealing with school programs. Each will be an actual description of an entertainment worked out by a group of children in our training school.—Editor.