
The Science Talent Search in Oklahoma

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The Science Talent Search for highly talented young people has been administered on a national scale for fourteen years by Science Clubs of America (SCA). The fundamental financing comes from grants from Westinghouse and probably now approaches a cumulative total of half million of dollars. Students from Oklahoma high schools have been entering at the average number of fifteen per year, with two to three included among the top 300 Winners and Honorable Mentions. This is in proportion to population but much less than the number believed eligible for top recognition.

The Oklahoma Science Service (OSS) established a contractual relationship with SCA in January 1955 to inaugurate the First Oklahoma Science Talent Search (OSTS). This standard contract has operated in a number of other states. Under this arrangement, these are the major features of the combined national-state Talent Search:

1. The agreement applies exclusively to the Talent Search. The state agency is free to engage in any other youth motivation program.
2. All entrants in the OSTs must first file in the National Search under the conditions set by SCA.
3. The state agency is obligated to maintain a follow-up file of all entrants.
4. A scholarship program for incentive purposes is implied but not stipulated.
5. The OSTs is free to establish its own judging criteria, by addition to or omission of any factors used in the National. SCA furnishes scores and reference norms of all entrants loaning the files for a period of approximately three months.
6. All entrants who are judged Winners or Honorable Mentions in the National must be included among the Winners Honorable Mentions in the State.

The essential mechanism follows this pattern. In-state publicity is geared into the schedule set by the National (Westinghouse) Search. All entrants must enter the National. Only students in their final year before graduation from high school are eligible. Entries are closed, with all examination, personal data, and project description papers delivered in Washington the day following Christmas. Scoring and evaluation proceeds for the next three to six weeks under the direction of SCA. The top 300 are

announced in the latter part of February with the top 40 Winners invited to Washington for personal interviews.

Toward the end of February, all in-state papers are sent to the state agencies. The task of the state group is facilitated by using the scores on the examination and personal data. Separate norms are established for girls and boys in order to encourage more entries of girls. The major task for the State agency then becomes evaluation of each project. This is handled by a special ad hoc committee, representative of all of the sciences. These judges are at liberty to consult specialists on individual project descriptions. A balance of broadly experienced scientists will colleagues well established in specialists is used to good advantage. Except for judging, the papers are classified as confidential. When financing in Oklahoma can be obtained, interviews with the higher ranking entrants will be inaugurated as the final stage in the State judging.

General policy and practice of the State follows that of the National. These points have been adopted by the sub-committee of the Oklahoma Science Service Advisory Committee.¹

1. Judging of entries in the Oklahoma Science Talent Search should be handled by an ad hoc committee, representative of the several fields of science.²
2. Criteria of judging should result in the selection of those students who show best evidence of successful careers in one of the scientific, or approved science-related, fields. Current status of achievement should be considered as a factor secondary to potential development.
3. Growth of the Talent Search can prosper only if an incentive scholarship program is also developed. Therefore, efforts should be directed toward the development of scholarship funds.
4. In the conduct of the judging, this must always be considered a search for talent, with awards based primarily upon that factor. Judges need not be influenced by any representation of need for financial assistance submitted on behalf of any entry.
5. In order to de-emphasize the less desirable aspects of competition, only one size of scholarship award should be made. This size should be sufficient to assist the student materially in meeting his total costs of education. One thousand dollars (\$1000) distributed over four years as a desirable amount has been set as the unit. The number of scholarships is determined by the total funds available.
6. In the awarding of scholarships, there shall be no restriction upon geographical distribution of residence of the awardees as long as those residences are in the state of Oklahoma.
7. Changes of a major field of study during the under-graduate years without loss of later installments shall be permissible subject to (1) the new field being on the approved list and approval by the administering sub-committee.

ANALYSIS OF THE FIRST OSTs ENTRIES

Since no advanced promotion was undertaken in the last Search, the response can be taken as a reference base for comparison of effectiveness of efforts in future years. A total of 150 examination papers were requested. Thirteen entries were completed.

Four contestants finished with raw scores in the examination of over 82, the cutline used for the first elimination in the national scoring. Top examination score of 110 compared favorably with maximum of 130.

¹ The personnel of this sub-committee is: J. T. Self, I. M. Rohrbaugh, William Schriever, Joan Brown, and H. H. Bhas.

² The Judging Committee for the first OSTs was composed of Glean Couch, W. Schriever, B. O. Heston, C. D. Riggs, and William Pitt.

Following the examination score as a screening device, the scholastic standing and other information are evaluated in the so called "T" score. This includes credit for extra-curricular activities. Low standing (scholastically) students are rated low, as well as those who fail to impress their teachers with their personal traits of industry, imaginativeness or integrity.

It is interesting to note that two entrants ranked higher on the Aptitude Examination and two higher on the "T" score than the final two students who received National Honorable Mention.

In summary, the process consists of selecting a large number first on the basis of their intelligence and knowledge, followed by further selection on the basis of high standing within their own schools, and finally on the quality of the project. Details on this latter scoring are not released to the State agency, leaving the State judges free to establish their own criteria.

Two students, James Petty of Guthrie and John Mann of Okmulgee, finished with Honorable Mentions in the National and as Winners in the First Oklahoma Search.⁴

One entrant chose a project in parapsychology; one in mathematics. The others were distributed in the physical sciences and engineering. The omission of biological and geological projects is rather striking for the prominence of the first in science offerings in Oklahoma High Schools and the latter for the interest in industrial exploitation in the state. Vocational preferences followed the subject of their projects.

Not particularly flattering to the Oklahoma institutions of high learning were only two who listed an in-state institution as either the college (a) desired or (b) expected to attend. One student stated a preference for the University of Oklahoma; the other for the Oklahoma A. & M. College. At least four actually enrolled in Oklahoma institutions, emphasizing how the reality of financing a college education influences the choice of a college.

Of the 150 examinations requested by 24 teacher-sponsors, some can be assumed to be acquired for the teacher's files. However, the majority may be assumed to have been drawn in full intention of completing the requirements of the Search. In late August a questionnaire was addressed to all teachers who had requested examination papers last year in an effort to determine the causes for dropping out of the Search.

TEACHERS' OPINIONS ON DROPOUTS

Ten teacher-sponsors in the 1955 Search furnished useable replies to the questionnaire. Their opinions follow.

Only two teachers felt that the defaulting student was fully prepared, interesting in that one of them sponsored another student that was rated a Winner in the First Oklahoma Search. Two other teachers felt that their students were not accustomed to taking this type of examination while three considered the academic records not really strong enough to justify entry in the Search. But the largest number of responses reflecting deficiencies in preparation came from the four teachers who felt their students had not taken enough science and mathematics to justify continuation.

On the question of personal interest of the contestants, five teachers considered the students deeply interested in science or engineering. One teacher reported interest changing from science. Whatever the effect of the

³ Science teaching has been included among the approved fields.

⁴ Other winners in the First Oklahoma Search were: William Travis Brown of Cushing, Jon G. Ables of Miami, Norman Chaffee of Tulsa, and John B. Larkin of Lawton.

The Honorable Mention contestants were: John N. Huff of Oklahoma City, Ronnie Cummings of Nowata, Donald Edward Caverly of Tulsa, Dallas James Franson, Jr. of Tulsa, Joseph Henry Diehl of Tulsa, John Charles Rich of Tulsa, John Oscar Eichling of Fort Gibson.

examination upon morale, it apparently did not weaken student interest in science.

Personal characteristics inevitably affect the performance of individuals. Six teachers felt their students were susceptible to wishful thinking and unaware of the reality of the preparation involved. Three of these six felt a strong sense of responsibility was also lacking. Three of the original six plus three others noted a lack of drive to complete tasks. Apparently a lack of the competitive spirit also operated, at least in the opinion of five teachers, although only two teachers indicated students were discouraged by the Aptitude Examination to the point of dropping out of the Search. Yet a total of four teachers said students dropped out of the Search before the Examination.

Experience in undoubtedly a factor. Six teachers felt their students had insufficient experience. Two regarded their students as unaccustomed to taking this kind of examination.

Experience in planning work, especially in creative selection of a project, is a major factor. Seven teachers reported that dropouts occurred when students found they didn't have enough time to complete a project. This emphasizes the need for intensive effort to encourage much earlier starting in promotional work.

The wherewithal to complete a project was apparently not a major factor. Only two teachers reported that equipment and/or materials wanted for projects were not available.

But one of the two most frequently checked answers (seven teachers) indicated that the entrants didn't have sufficient encouragement from friends and family.

Overall, only two teachers were surprised that their proteges dropped out. The others were divided evenly between "not surprised" and "uncertain."

The undirected comment in answer to the question: "What do you think we at the college level might do to help increase the number of entries and reduce the number of drop-outs from Oklahoma?" produced these suggestions:

"I know nothing on the college level that you might do. We in small high schools have very inadequate equipment."

"The problem is at the high school level and not at the college level. The colleges could help high school teachers with letters, pamphlets, etc. I believe the coming event on Science Fair⁵ will help a lot."

"Make known possible sources of materials and technical assistance. Create more interest in science by newspaper publicity. Educate the public as to the handicap of teachers of science so that assistance of experts in industry could help."⁶

"College personnel might consider making more informal invitations to high school students, through their science teachers, to visit the colleges in order that they might get a look beyond the high school situation."

"Would it be possible for University professors interested in this thing to encourage H. S. administrators to build stronger science and math departments?"

"Supply an interesting personality to visit the schools, explain the program and make it a real goal to be achieved in the students' minds. Organize industry to add their prestige by offerings: summer employment

⁵ This refers to the Science Fair Work Conference, October 14-15, 1955.

⁶ Preliminary planning in the "30 Hour Club" permits this.

to contestants, support locally and financially, sponsor a spring tour of industry for contestants.

"Show them that you are personally interested in them."

"The one Senior boy who appeared to be most capable and interested last fall finally changed his mind and made application for and secured a Navy R O. T. C. Scholarship. . . ."

PROMOTIONAL EFFORTS FOR THE SECOND OSTs

Promotional efforts for the current Search have been:

1. Dates, text, and addresses were cued into the NEWSLETTER CALENDAR: "SCIENCE EVENTS FOR OKLAHOMA SCHOOLS," distributed to science teachers, school administrators, newspapers, PTA groups, collegiate scientists, and others; text was submitted to Margaret Patterson, Science Clubs of America for editorial revision;
2. An informational article, including tips for this year's Search, was published in Vapor Pressure, Oklahoma Professional Engineer, and the Hopper, in an effort to acquaint professional scientists and engineers with the essential nature of the Search;
3. The OSS Newsletter to Science Teachers in September carried essential information to teachers; another advisory letter was distributed to teachers at the Oklahoma Education Association meeting in late October.

Seventeen files of former examinations were assembled and distributed to persons in eleven cities who had previously agreed to keep these copies available for teachers and students who requested access. This service of cooperators will be publicized periodically in the future.

An informational letter is now being mailed to teacher-sponsors in the current Search as fast as their names are received from SCA.

The need and feasibility for developing an achievement examination based upon Oklahoma text adoptions has been discussed with teachers. One of the several functions of such a test (or tests) would be a preparation for the Search test in the Senior year.

These several steps have been undertaken to increase the number of entrants while decreasing the number of dropouts. Informational publicity has been incorporated in other widespread releases, leaving the one-shot brochure mailing to schools to be covered by SCA. By making former examinations available and suggesting that junior students start looking them over, this effort will help make the type of test more familiar to students.

Greatest emphasis has been laid on:

1. Closer examination of former examinations to understand scope and type;
2. Selection of project by end of previous spring or earlier with recommendation that near completion should be reached by the September preceding the examination.
3. Course study of at least two of the three "separate" sciences (biology, chemistry, and physics) is practically a "must." Again enough knowledge to pass the screening examination.

The biggest impetus to stir interest, however, lies in scholarship offers that can be made to Winners in the Search. University scholarships are not awarded without a strong evidence of need, a factor that is believed to be not relevant to the purpose of discovering talent. Funds then depend upon finding donors capable of comprehending the importance of providing

this kind of incentive on behalf of youth who show convincing evidence of promise and worth.

The Science Talent Search really offers a well developed pattern for finding this combination of traits in boys and girls: high intelligence, reasoning ability, record of strong and sustained interest in science, ingenuity, initiative, and imagination. Included in the Personal Data evaluation is the factor leadership and participation in non-science activities which are so often claimed to show evidence of "well-rounded" personality. The type of person successful in the Search is the type we have been asking for a future recruit to our professions.

Coordination of a state Search with the National is possible. The mechanism is developed. The responsibility for administration is undertaken. The job to be handled is fairly well understood. But if Oklahoma talented youth are to be retained in Oklahoma, offers of scholarships reasonably competitive with those made by out-of-state colleges must be matched. The next task is to find those funds for investing in Oklahoma youth and Oklahoma science.
