The primary purpose of this study was to explore the relationship of the educational level of occupational therapists to their professional productivity in the areas of practice, education, research, publication, professional activities, and health care policy planning. These areas of professional productivity were also studied in relationship to selected educational curricula through their alumni. In this article, the first of two, the literature and methodology are reviewed, the independent and dependent variables are defined, and the hypotheses are presented. The results will be presented and discussed in Part 2.

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The Mental Health Task Force established by the Delegate Assembly of the American Occupational Therapy Association (AOTA) indicated that the most critical problem facing occupational therapy is the lack of a tested body of knowledge to guide practice (1). This lack was attributed to the fact that occupational therapy is primarily an undergraduate-level profession. Since undergraduate professional education concentrates on entry-level skills for practice, it fails to provide the intellectual breadth and depth required for leadership roles in practice, education, or research. The Ad Hoc Committee on Education authorized by the AOTA Executive Board also noted the dearth of occupational therapists with advanced degrees to expand, organize, and transmit the knowledge base (2).

As early as 1958, Jantzen (3) and Reilly (4) suggested that basic professional education be offered only at the master's level. This recommendation was reiterated in the Proceedings of the Workshop on Graduate Education in Occupational Therapy, published in 1963 (5), by the Mental Health Task Force in 1976 (1), the Ad Hoc Committee on Education in 1977 (2), and again by Jantzen in 1977 (6). Occupational therapy educators, however, have resisted moving basic professional education to the master's level and have instead sought evidence on whether or not this would promote knowledge development and improve practice. This study sought to remedy the knowledge gap by assessing the relationship between the level of professional education and contributions in practice, education, research, publication, professional activities, and health care policy formation.

Background of the Problem
First, the different kinds of colleges and universities for basic occupational therapy education and for graduate education will be described. These programs will form the basis for the educational categories used in this study. Then the need for the study will be established through a review of the research literature on the human resources in occupational therapy.

Educational Programs in Occupational Therapy. Basic professional education provides the entry-level knowledge and skills for professional practice. Currently, there are three formal educational mechanisms for obtaining basic professional education: the baccalaureate program, the post-baccalaureate certificate program, and the basic master's program. Educational programs providing basic professional education are accredited by the American Medical Association in collaboration with the AOTA.

Advanced professional education is available at the master's level. It provides education beyond that required for entry-level practice. In occupational therapy, the master's level has traditionally served the function of educating clinical specialists, beginning scholars, teachers, and administrators (7). Advanced professional coursework is subject to institutional but not specialized accreditation.

Baccalaureate Programs (B.A., B.S.) Baccalaureate programs consist of study in a four-year collegiate curriculum that focuses on the liberal arts as well as on basic professional knowledge. Baccalaureate curricula were first introduced in the 1930s (8), and the bachelor's degree was specified as the entry-level degree in 1965 (9).

In 1977, there were 49 accredited occupational therapy programs at the bachelor's level, an increase of 12 curricula since 1970 (10). The greatest number of occupational therapists since 1947 have been educated in baccalaureate programs (8), and, currently, about 90 percent of entry-level therapists come from these programs (10).

Post-Baccalaureate Certificate Programs. In the 1940s and 1950s, a number of curricula conducting basic professional education at the baccalaureate level also offered an accelerated nondegree course of study for persons who had previously earned at least a bachelor's degree in another field. A post-baccalaureate certificate was awarded upon completion of basic professional requirements. Certificate curricula increased until 1955 and began to decline steadily ten years later (8). In 1977, six certificate programs were still operational. This reflects a new decrease of one since 1970 (10). Over the past eight years, graduates of certificate programs have accounted for a high of about 6 percent of entry-level therapists in 1973 to a low of about 5 percent in 1977 (10, 11).

Basic Master's Programs (M.A., M.S., M.O.T.). Basic professional education at the master's level was made available in 1964. These programs are referred to as basic or
entry-level master's programs. In contrast to students in certificate programs, basic master's applicants must meet the academic qualifications for admission as graduate students. In 1977, there were 11 basic master's programs in operation (11). This is an overall increase of one since 1970 (11). By 1977, about 675 therapists had graduated from these programs (11). The percentage of entry-level therapists graduating with the master's degree has grown from a low of about 3 percent in 1970 to a high of about 9 percent in 1977 (11).

Advanced Master's Programs (M.A., M.S., M.O.T.). Advanced professional education at the master's level was initiated in 1947. In 1977, 16 colleges and universities offered this option (11). The number of programs remained fairly stable during the 1970s (11). By 1977, 525 therapists had graduated from advanced master's programs (11).

Master's and Doctor's Degrees in Related Fields. Historically, many occupational therapists have sought master's degrees in fields other than occupational therapy. By 1977, 900 therapists held such master's degrees (11). To date, only two universities offer an occupational therapy program at the doctoral level. Traditionally, doctoral study by occupational therapists has been completed in cognate disciplines. By 1978, 70 therapists had earned the doctoral degree (10).

**Review of Research.** Studies of human resources in occupational therapy have been largely confined to geographic, demographic, educational, and employment characteristics (8, 9, 12-20), to student selection criteria (21-24), to success in initial clinical performance (25-30), and to personality variables (30-31). Although Jantzen (17-19) studied educational level in relation to career, her focus was on occupational stability. The only other study dealing with educational preparation and career variables was that conducted by Bell and Bell (32), which revealed differences in professional attitudes as a result of educational level.

**Summary.** A review of the literature yielded no studies specifically focused on career contributions emanating from the nature and length of formal education. This knowledge gap presents a problem for educational planners. Baccalaureate and post-baccalaureate programs have been available since the 1940s, advanced master's programs since 1947, and basic master's programs since 1964, yet no systematic attempt has been made to assess the relative merits of these educational options. Curricular trends during the 1970s indicated expansion of the baccalaureate schools, decrease in the post-baccalaureate certificate programs, and relative stability of the basic master's and advanced master's programs.

**Method**
A multiple group survey approach was used to investigate the relationship of level of professional education to professional achievement. The levels of professional education in ascending order were bachelor's degree, post-baccalaureate certificate, master's degree, and doctoral degree. Professional productivity was defined as quantitative achievements in practice, education, research, publication, professional activities, and health care policy formation. The study also examined the relative productivity of graduates of selected curricula.

**Definition of Educational Subsamples.** Seven educational subsamples were formed. These were defined as follows:

1. **Bachelor's Group**—This subsample comprised registered occupational therapists (OTRs) who had a bachelor's degree in occupational therapy (OT) and no higher degree.
2. **Certificate Group**—This subsample comprised OTRs who had a bachelor's degree in a field other than OT, a certificate in OT, and no degree higher than the bachelor's degree.
3. **Basic Master's Group**—This subsample comprised OTRs who majored in occupational therapy at the bachelor's and master's levels.
4. **Advanced Master's Group**—This subsample comprised OTs who majored in occupational therapy at the bachelor's and master's levels.
5. **Other Master's Group**—This subsample comprised OTRs who had a bachelor's degree in a field other than OT and a major in OT at the master's level.
6. **Doctoral Group**—This subsample comprised OTs who had a doctorate in a field other than OT, and a major in OT and a doctorate degree.

**Table 1**

<table>
<thead>
<tr>
<th>Subsample</th>
<th>No. Surveyed</th>
<th>No. Responding</th>
<th>Response Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor's</td>
<td>400</td>
<td>108</td>
<td>27</td>
</tr>
<tr>
<td>Certificate</td>
<td>363</td>
<td>45</td>
<td>12</td>
</tr>
<tr>
<td>Basic Master's</td>
<td>238</td>
<td>21</td>
<td>9</td>
</tr>
<tr>
<td>Advanced Master's</td>
<td>400</td>
<td>94</td>
<td>24</td>
</tr>
<tr>
<td>Other Master's</td>
<td>400</td>
<td>141</td>
<td>35</td>
</tr>
<tr>
<td>Doctoral</td>
<td>70</td>
<td>28*</td>
<td>40</td>
</tr>
</tbody>
</table>

* 14 completed their degrees between 1966-1975.
Hypothesis II was separated to first test bachelor’s, certificate, and master’s-level OTRs in relation to productivity, and then to test bachelor’s, certificate, master’s, and doctoral-level OTRs in relation to productivity. This was done to take into account that: 1. there are no OTRs with a doctorate in occupational therapy; and 2. the most pressing educational question is whether or not the entry level for practice should be raised from the bachelor’s to the master’s level.

By leaving out the doctoral-level OTRs in one part of this analysis, there is a comparison only of bachelor’s, certificate, and master’s-level the contributions in the areas of practice, education, research, publication, professional activities, and health care policy formation.

The Sample. The bachelor’s, certificate, basic master’s, and advanced master’s groups were generated by the AOTA Operations Research Division, using a rotational sampling procedure. All OTRs with doctoral degrees were identified and surveyed. Table 1 lists the subsamples, the number of persons receiving questionnaires, the number of persons returning questionnaires, and the percentage responding in each category.

For each of the first five subsamples in Table 1, only therapists completing the degree or certificate between 1966 and 1975 were included. Although all doctoral-level OTRs were surveyed, only the 14 respondents who completed their degrees between 1966 and 1975 were used in the analyses.

Hypotheses. The general hypotheses tested in this study were:

I. On the average, there is no difference in the contributions in the areas of practice, education, research, publication, professional activities, and health care policy formation among occupational therapists completing basic master’s programs, advanced master’s programs, and master’s programs in other fields.

II. On the average, the higher the level of education of an occupational therapist (bachelor’s, certificate, master’s, doctorate), the greater...
OTRs in relationship to productivity. Grouping all master’s program graduates into one group can only be done conditionally until Hypothesis I is proved valid.

III. On the average, therapists grouped according to the school of occupational therapy from which they graduated differ in contributions in the areas of practice, education, research, publication, professional activities, and health care policy formation.

The Questionnaire. The four-page questionnaire was specifically devised for this study by the researchers. It provided an introductory statement of the purpose of the project. Questions seeking descriptive data were limited to the focus of the study. Information was requested on the type of degree, the school awarding the degree, the year graduated, and the number of years of occupational therapy practice.

The major portion of the questionnaire was directed toward information on professional productivity in the areas of practice, education, research, publications, professional activities, and health care policy formation. The questions in these sections are listed in Table 2.

A final section asked respondents how adequately the questionnaire permitted expression of professional leadership qualities.

Measurement of Professional Productivity. The areas of practice, education, research, publications, professional activities, and health care policy formation were regarded as separate measures of professional productivity. Table 2 lists each of the questions from the questionnaire, gives the code for each question, and presents the equations used to calculate each subject’s scores. An example of one respondent’s score for “Research” will be used to illustrate the scoring procedure. According to the equation for research productivity given in Table 2, the research score equals the sum of R1 + R2 + R3 + R4 + R5. Thus, a therapist who completed two research studies involving education and one involving administration, and who supervised the research of four other persons, would have a score of five for research productivity: Research = [0 + 2 + 1 + 1 + (½ x 4)] = 5. The calculation of individual scores for each of the other areas was done in a similar fashion.

Summary
This article is the first of a two-part report of a study concerning the professional productivity of occupational therapists. Impetus for the study emerged from the paucity of
data regarding the influence of the educational level on career contributions and the inertia surrounding the long-standing proposal to upgrade the minimum educational standards for clinical practice to the master's level. The literature review indicated no systematic attempt to relate career accomplishments to educational level. Seven educational categories were identified as the independent variables: bachelor's, post-baccalaureate certificate, basic master's, advanced master's, master's in another field, master's and doctoral. Subjects completing their programs between 1966 and 1975 were selected by a rotational sampling procedure, except for the doctoral category in which all subjects completing their degrees between 1966 and 1975 were selected. Professional productivity was defined as contributions in the areas of practice, education, research, publication, professional activities, and health care policy formation. A questionnaire designed to measure these variables was constructed by the researchers and mailed to all subjects. The study was of a causal-comparative nature. Three general hypotheses were tested: I. There is no difference in professional productivity among therapists completing various types of master’s programs. II. The higher the level of education, the greater the professional contributions. III. Graduates of various occupational therapy schools differ in their professional productivity.

The second article will present and discuss the results of the study, draw conclusions, and issue recommendations for education and research.

Acknowledgment

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REFERENCES