A Comparison of Impact of Undergraduate and Graduate Occupational Therapy Education on Professional Productivity

This article presents an account of the evolutionary changes in occupational therapy graduate education at the University of Southern California (USC) in response to the increasing professional demands and the expanding knowledge base of the field. The contention that undergraduate and graduate education represented by these changes would result in different student products was tested. A questionnaire survey was used to assess the responses of 189 former undergraduate and graduate occupational therapy students of USC on issues relating to professionalism, leadership, attitudes, and scholarly contributions. Results of this study support the theory that graduate education of a specific kind and quality enhances the professionalization of occupational therapists more so than does undergraduate education.

The impact of educational levels on the productivities of occupational therapists has been assessed in two studies (1-3). Gilkeson and Haften (1) did a nationwide study of occupational therapists to compare professional productivity between master's level and bachelor's level therapists; their study concluded that no statistically significant differences between the two groups existed. However, their conclusions differed from those of Rogers and Mann (2, 3).

In the nationwide Rogers and Mann (2, 3) study, three major

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findings emerged. First, occupational therapists who graduated from basic master’s, advanced master’s, and master’s degree programs in other disciplines were found to be essentially equivalent in their professional productivities. Second, professional productivity in the areas of research, practice, education, publication, and healthcare policy formation was found to be related to educational level. On the average, therapists having higher levels of education made greater contributions. Third, graduates grouped according to the master’s program from which they graduated differed in their levels of productivity in the areas of education, research, and publication. In contrast, graduates of the undergraduate curricula were found to be relatively homogeneous in their contributions to the profession.

The fact that the students of the master’s degree programs studied by Rogers and Mann (2, 3) differed when grouped according to the curriculum from which they graduated (a strategy not utilized by Gilkeson and Hanten) provided a rationale for the study presented in this report. Rogers’ and Mann’s findings clearly point out that individual differences in the professional productivity of graduate students exist and are associated with the unique attributes of the curriculum from which the students graduated. Where individual differences in phenomena to be studied exist, certain research designs may obscure these differences. Although the Rogers and Mann (2, 3) study had the advantage of being highly generalizable, differences between master’s and undergraduate students associated with the unique characteristics of a particular curriculum may have been obscured because the samples were drawn from many curricula with individual differences. Therefore the purpose of this study was to investigate the differences in professional productivities between former basic master’s and seniors who studied at the University of Southern California (USC).

A study of this kind allows generation of hypotheses regarding the unique attributes of or special situations associated with the USC program; this may account for the following findings.

**Historical Perspective on the Evolution of the USC Basic Master’s Program**

The establishment of the basic master’s program at USC was largely an outgrowth of Reilly’s (4) recognition of the evolutionary forces that necessitated changes in occupational therapy curriculum design and philosophy. These forces, originally identified by Baughman (5) as the demands of practice, general education, and scientific knowledge, were adopted by Reilly for evaluating the status of occupational therapy curricula. Reilly claimed that the demands of practice had become so broad in scope that the factual information a student needed to learn had amassed beyond reasonable expectation. With so many procedures being used clinically, it seemed impossible to represent them all in a straight-line fashion within a curriculum. As an alternative, Reilly recommended reorganization based on a “constellation of conceptual understandings that support practice” (p 294). In this revamped curriculum, emerging students would be educated to develop the skills of practice rather than be trained to adjust to the modus operandi of practice. Because of this critical difference, Reilly maintained that the new curriculum would be professional instead of technical.

The second evolutionary force that Reilly (4) addressed was general education; and as she defined it, this force had to do with “the academic level upon which the professional program rested” (p 294). Believing that the then-existing postbaccalaureate certificate programs constituted degree monstrosities in academic settings, Reilly argued that such programs should be expanded and modified to meet the requirements for the conferring of the master’s degree. Even at this early date, this transition seemed natural to Reilly, who regarded the student products of the then-existing certificate and undergraduate programs as substantially different. Moreover, in Reilly’s view, the level of comprehension needed to master the scientific knowledge base of occupational therapy would be better approximated through the elevation of postbaccalaureate certificate programs to the master’s level.

Finally, the third evolutionary force addressed by Reilly (4), scientific knowledge, suggested that the revised curriculum must be built on a scientific core. The central purpose of the curriculum would be to discipline the student’s mind in the powers of observation and critical judgment. Thus, thought Reilly, these evolutionary forces taken together meant that occupational therapy curricula should be revamped so that factual material was reorganized into conceptual systems, the postbaccalaureate certificate program elevated to the master’s level, and scientific knowledge deemed the core of curricular content. She felt that the
synergistic effect of these changes would promote precision and discipline in a student's thought processes and elevate occupational therapy education from a technical to a professional level.

Although Reilly (4) articulated this set of ideas in 1958, it was not until 1963 that a two-year basic master's curriculum for nonoccupational therapy graduates of accredited colleges and universities was established at USC. Possibly spawned by this accomplishment in 1969, Reilly (6) published a paper on the educational process in which she described the curriculum revisions that had been implemented in the basic occupational therapy professional preparation at USC. In this paper, the basic occupational therapy preparation was described as that provided to both undergraduates and basic master's students in their first year of occupational therapy education. In their second year of study, the basic master's students, unlike the undergraduates who in this year completed Level 2 fieldwork, were enrolled in course work exclusively at the graduate level that emphasized scholarship. Reilly referred to the latter as the advanced master's program. In summary, students in the basic master's program received basic (or professional) preparation in their first year and advanced (or scholarly) preparation in their second year. In contrast, undergraduates received only the basic program followed by Level 2 fieldwork.

The curriculum revisions in the basic preparation Reilly (4) described were in concert with the ideas she proposed in 1958, but these also evidenced a shift toward more specificity. In 1958, Reilly had suggested that occupational therapy curricula focus on work and activity because they contribute to restoring life satisfaction following disability. The curriculum in 1969 extended this perspective incorporating a social psychology model of the human and detailing how disease impacts on existence. Moreover, this curriculum was built on what Reilly called occupational behavior, a generic theoretical framework specific to occupational therapy that proposed the work-play continuum as a framework for practice.

The differences in the basic preparation and advanced curricula were described by Reilly (6) as having been dictated by the adoption of the occupational behavior perspective. The advanced master's program emphasized the behavioral sciences as a foundation for the explanation of human achievement and the research domain for building competence in knowledge development. These two areas of study supplemented course work covered in the basic preparation. Together, this combination of course work was proposed to be a catalyst for theory development. In contrast, basic preparation, taken by students in the first year of study, concentrated on the presentation of a biopsychosocial view of the human, with substantial course work in the medical sciences. At this level, instead of course work relating to research competence, case method relating to the treatment process was dealt with in depth. The critical point to be emphasized, and one which is not readily apparent from a reading of Reilly's article, is that in their first year of study, the basic master's students took basic preparation course work with undergraduates but in their second year of study joined experienced occupational therapists who were pursuing a master's degree in the advanced curriculum. Thus, they were dovetailed with seniors in their first year of study and with advanced master's students in their second year. Dovetailing has continued to be a critical, but not widely adopted, characteristic of the USC basic master's program. Theoretically it implies that undergraduate students and graduate basic master's students will differ because the latter take substantial units at the master's level beyond basic professional course work. This curriculum design prevented the basic master's program from becoming no more than a "glorified undergraduate program."

In 1976, the advanced curriculum underwent further modifications under the direction of Dr. Joan C. Rogers, then Director of Graduate Education. Course work retained its initial emphasis on occupational behavior and research, but the concept of adaptation along with general systems theory was addressed with greater depth. Since 1976, tracts for emphasis in such areas as sensory integration or gerontology are offered, however, such emphases are secondary to and subsumed under the general occupational behavior orientation set forth by Reilly, which are still retained.

In summary, the evolution of the USC basic master's curriculum was largely a product of Dr. Reilly's (4, 6) thoughts regarding the directions that she felt occupational therapy education should take. While the curriculum has undergone modifications over the past 20 years, it still retains its occupational behavior theoretic core and its emphasis on the preservation of differences in undergraduate and graduate education. The curriculum concentrates on research,
theory development, and critical thinking; therefore, therapists who were matriculated in the basic master's program should differ in scholarly contributions and research from those who were matriculated in the undergraduate program.

Therefore, we hypothesized that occupational therapists who were matriculated in the undergraduate program would differ in scholarly contributions and research from those who were enrolled in the basic master's program. In addition, we decided to explore if the two groups differed in attitudes toward the professional issues and professional contributions.

Subjects and Data Collection

The subjects consisted of 346 now-practicing therapists who had been students in either the bachelor's or basic master's programs from 1970 to 1979. Most of the names were obtained from a computer-generated list provided by the American Occupational Therapy Association; but 38 of the former students were found through the Occupational Therapy Association of California directory. Pre-stamped, self-addressed envelopes were enclosed with the questionnaires, which were mailed or hand-delivered to expedite returns.

Of all the questionnaires, 207 were returned; however, 18 of the respondents had been practicing therapists before entering the advanced master's degree program and therefore were not included in the data analysis. The remaining sample consisted of 141 former undergraduate students (seniors) and 48 former basic master's students, all of whom had been certified between 1970 and 1979. This represents a return rate of 60%. The sample will be identified by subgroups: the seniors ($N = 141$) and the basic master's group ($N = 48$).

The use of this time period (1970–1979) is advantageous for the investigation of the impact of curriculum design on the student product. During that time period, the program had two different chairpersons, both of whom maintained the basic curriculum design created by Reilly. By studying student products of both directorships, we achieved a more valid analysis of curriculum design common to both directorships, rather than a student product idiosyncratic to a particular chairperson.

Methods

Questionnaire

A questionnaire was developed to assess attitudes toward professional issues, professional organizational involvement, and scholarly contributions. The questionnaire included three sections of concern to this paper: demographics, attitudes toward professional issues, and scholarly contributions. The attitudes section contained 12 Likert-type items (see Table 1) rated either strongly disagree (1 point), mildly disagree (2 points), mildly agree (3 points), or strongly agree (4 points). Validity of these items was established through a group process in which seven current students consensually agreed on the meaning of the respective items. The questionnaire was critiqued by occupational therapy educators and practicing clinicians before being used in this study.

Demographic Characteristics

The mean age of the seniors and the basic master's group was 28.3 and 32.2 years, respectively. Results of a two-sample $t$ test revealed these mean ages were significantly different. However, groups did not differ significantly in the average number of years of experience or in the average number of years since certification.

The seniors consisted entirely of females, whereas the basic master's group contained a small percentage (4.4%) of males. In addition, while 99.3% of the seniors had obtained bachelor's degrees, only 41.7% of the basic master's group were conferred master's degrees. The remainder of the former basic master's students had completed

<table>
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<td>Likert-Type Items Composing the Questionnaire For Measuring Attitudes</td>
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<tr>
<td>1. I feel that the outlook for occupational therapy in the future is a positive one.</td>
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<td>2. I feel that occupational therapy is more of an art than a science.</td>
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<td>3. I feel that most occupational therapists are competent in the practice of occupational therapy.</td>
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<td>4. In my experience as an occupational therapist, in general, I have been satisfied with my contribution to health care delivery.</td>
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<td>5. I think occupational therapists should develop treatment plans based on an established frame of reference.</td>
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<td>6. I am a professional leader in the field of occupational therapy.</td>
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<td>7. I feel that graduate education provides a foundation for scholarly contributions in our profession.</td>
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<td>8. I feel that graduate education enhances therapeutic effectiveness.</td>
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<td>9. I feel that occupational therapy is less stimulating intellectually than I anticipated.</td>
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<td>10. I believe that graduate education enhances therapeutic effectiveness.</td>
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<td>11. It is difficult to convince others of the value of occupational therapy.</td>
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<td>12. In my experience, occupational therapists rely more on technique than theory.</td>
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the advanced master’s course work had not yet done their theses.

In both groups, the majority was practicing in physical dysfunction. The least well-represented specialty area was psychiatry. A number of the respondents in both groups reported that their practice was of a generalist nature.

**Attitudes Toward Professional Issues**

Of the 12 Likert-type questions on attitudes toward professional issues (Table 1), results of two-sample *t* tests revealed significant differences between the groups on the five items listed in Tables 2 and 3.

The first statement to which the subject had to respond was “In my experience, occupational therapists rely more on technique than theory.” The basic master’s group tended to agree more strongly with this statement than did seniors, but on the whole both groups tended to agree with it. The second and third questions probed the extent to which the former students believed graduate education enhanced therapeutic effectiveness or scholarly contributions to the profession. In both instances the basic master’s students agreed significantly more strongly with these statements than did the seniors.

The fourth significant difference between the two groups was in response to the statement “I feel that occupational therapy is more of an art than a science.” The majority of seniors disagreed with this state-
ment, whereas the majority of the basic master's students agreed with it. However, the latter group was nearly equally split. The final statement to which responses showed a significant difference was "I think occupational therapists should develop treatment plans based on an established frame of reference." Both groups tended to agree with this statement; however, the basic master's students agreed more strongly.

Professional Organizational Involvement

Responses to questions with Yes/No alternatives for answers pertaining to professional organizational involvement indicated that comparable percentages of basic master's students and seniors have maintained membership in occupational therapy organizations (see Table 4). But while a greater percentage of seniors belonged to other professional organizations, a greater percentage of basic master's students had held offices in the professional organizations to which they belonged. In terms of bestowed honors by professional organizations, a larger percentage of basic master's students received such distinction.

Educational Goals

Of the seniors, 92.1% had attended continuing education programs, whereas only 87.5% of the basic master's students had participated. While a nearly equal percentage of each group anticipated further education, seniors anticipated this education at the master's level, whereas the basic master's students did so at the doctor's level.

Scholarly Contributions

The most dramatic difference between the groups surfaced in the area of contributions to the profession through publications and the development of adaptive devices and instruments for evaluation (see Table 5). A greater percentage of basic master's students made scholarly contributions than did seniors. Of the seniors, 9.4%, in contrast to 18.8% of basic master's students, had at least one publication; 3% of seniors, in contrast to 9.1% of basic master's students, had published in journals other than *The American Journal of Occupational Therapy*; and 20.6% of seniors, in contrast to 37.5% of basic master's students, had presented at professional conferences. In addition, a greater percentage of basic master's students had patented assistive devices, constructed marketable assessments, and written funded grants.

Research and Publication Productivity

Results of two-sample *t* tests revealed that basic master's students, on average, spent significantly more years in research and published a significantly greater number of articles in *The American Journal of Occupational Therapy* than did their senior counterparts. Neither the seniors nor the basic master's students had made an appre-
The majority of the respondents from this students more strongly agree that SIS process.

The greater degree to which basic master’s students held leadership roles or offices in professional organizations could be explained by the emphasis placed in

| Table 6 | Research and Publication Productivity of Former USC Senior and Basic Master’s Students |
|----------------------------------|----------------------------------|---|---|
| Seniors | Basic Master’s |
| (N = 141) | (N = 48) | * | p |
| Years in research activity | .28 | 1.44 | −4.50 | .001 |
| | .85 | 1.71 | (p < .001) | |
| Number of published articles in Am J Occup Ther | .04 | .29 | −2.13 | .05 |
| | .19 | .82 | (p < .05) | |
| Number of published chapters in books | .01 | .04 | NS | |
| | .09 | .20 | | |
| Number of published books | .02 | .0 | NS | |
| | .20 | | | |

* Two-sample t test against a two-sided alternative.

Basic master’s students may tend to believe occupational therapy is more of an art than a science again because of the critical perspective they obtained in graduate school. They are likely to be more skillful in critiquing therapeutic endeavors in terms of scientific method as a result of their own research training. That critique could result in making the basic master’s students feel that occupational therapy does not function scientifically; thus, they view occupational therapy as more of an art, having more of an intuitive approach.

Both seniors and basic master’s students may have endorsed the need for treatment planning based on a frame of reference as systematic approaches because of the emphasis placed on the need for and study of frames of reference in their basic education. This response may also be the result of a recognition generated through the thesis process, the need for a systematic approach in the understanding, and remediation of phenomena. The thesis process requires that the student self-direct his or her study; thus the approach to and organization of the content must be solely directed by the student. In the lecture format of the undergraduate program, conceptual systems for organizing phenomena are provided by the instructor. Thus, in the undergraduate program, students are passive recipients, whereas in the thesis process, the student is an active participant. So, the graduate format it seems, would be more potent in illuminating the need for frames of reference.

The McNeese State University, Department of Kinesiology, further argues that the high number of students for each of these years would comprise the sample. It is important to note that between 1975 and 1980 the basic master’s program has grown dramatically. Consequently, the majority of the respondents from this group had begun study in 1976 and therefore were still in the thesis process.

The fact that the basic master’s students more strongly agree that practicing therapists rely more on technique than theory may partially be the result of the critical perspective to their analyses of clinical practice that graduate students acquire as part of their research training. The response that both basic master’s students and seniors tended to believe occupational therapists rely more on technique could be a result of USC’s intensive endorsement of the need for a theoretical perspective to guide practice and its exploration of occupational behavior as a perspective developing in response to the technical tone of the past several decades.

Again, the nature of graduate education at USC may explain why basic master’s students feel more strongly that graduate education enhances therapeutic effectiveness and provides a foundation for scholarly contributions. The seniors who agreed with this position could have been therapists who anticipate further education at the graduate level. Also, it is possible that those seniors who disagreed with these statements did so because they lack the critical perspective and the chance for exposure to the skills and understanding of professional development that graduate education provides. In other words, they lack the skill to scientifically assess therapeutic effectiveness and they lack the knowledge of what constitutes scholarly contributions and of how graduate education fosters these.
the graduate year of education on the necessity of active participation in professional organizations for the advancement of the profession. Such course work at USC relates to administration and advocacy. The greater degree to which basic master's students received professional honors could be explained as a result of the fact that graduate education provides training for students in the execution of tasks that professional organizations recognize as honor worthy.

Graduate education at USC can also be considered the reason why more basic master's students than seniors published professional papers, presented at professional conferences, constructed assessment instruments, and wrote funded grants. Basic master's students are trained in professional or technical writing and are given more opportunities to develop and present professional programs to classmates. The thesis project involves a great deal of technical writing and periodic presentations of thesis content. All students study statistics, and some undertake instrument development as their thesis projects. Some students work with faculty and clinicians in settings requiring grantsmanship.

Finally, the nature of USC graduate education may be accountable for the greater number of years of research endeavor of basic master's students than seniors. A major responsibility during the graduate year, and often some years following, is the execution of a research project in fulfillment of the master's degree.

Finally, there are five limitations that must be considered when generalizing or interpreting the findings of this study. First, approximately 60% of the subjects responded to the questionnaire; therefore, we cannot legitimately claim that the 60% are representative of the 40% who did not respond. Second, because of incomplete cells in a chi-square analysis, percentages were reported without a test of significance. Third, the sample was not randomly selected nor obtained from a complete list of all the former USC students. Fourth, former students from the years 1970 to 1979 served as informants. Therefore, the findings are not generalizable to students enrolled at USC before and after that time. Fifth, our research design did not permit a comparison of clinical competence of the two comparative groups and thus in no way infers that the basic master's students were more competent than the seniors in clinical skills.

Conclusion

In general, our data suggest many similarities between graduate level and undergraduate level therapists who were matriculated in the basic professional program. However, a number of differences were detected which suggests that at USC from 1970 to 1979, the basic master's program better prepared occupational therapists to facilitate the professionalization of occupational therapy. According to Etzione (7), a profession is characterized by the development and validation of a knowledge base specific to the discipline and by the provision of a service needed by society that is unique to the discipline.

A greater percentage of basic master's students tend to do research, publish articles (both theoretical and scientific), and present more papers at professional conferences—activities which foster the development, validation, and dissemination of occupational therapy knowledge. A greater percentage of basic master's students also tend to hold leadership positions and receive grant funding—activities which are effective in increasing society's recognition of occupational therapy as a needed and valuable service. In short, a greater percentage of basic masters than seniors engage in activities that develop and validate occupational therapy knowledge that contributes to and identifies the uniqueness of occupational therapy and that establishes occupational therapy as a service needed by society.

Consequently, based on the findings of this study, Reilly's (4, 6) contention that student products of graduate and undergraduate education are markedly different appears to be justified. Our findings are consistent with those of Rogers and Mann (2, 3). However, it was fitting to the design of this study, which investigated graduates of a single university, to probe the unique attributes of the programs offered at that institution which may account for the differences found between former senior and basic master's students.

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