Combining Practice and Research

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Although many authors advocate research involvement for occupational therapists involved in clinical practice, no formal studies existed of the personal, educational, and workplace environmental factors thought to affect therapists’ ability to integrate clinical research with practice. This exploratory, descriptive study surveyed 103 occupational therapists reporting work functions of both direct patient care and research. Major findings included: (a) workplace learning circumstances focusing on performance and application of clinical research were important for adopting a dual practice–research role, (b) research activities reflected the evolving character of the role, (c) administrative support and a personal commitment to research were critical for success, and (d) formal research courses were important, but so were informal discussions regarding application and problem solving. The findings have implications for university curricula, continuing education, and clinical environments.

Clinical research has been identified with key occupational therapy issues, such as professionalization and establishing the efficacy of practice within a competitive health care marketplace. The natural setting of clinical practice provides an ideal environment in which to conduct research pertaining to practice (Dunn, 1985), and a small but growing number of occupational therapy practitioners have managed to integrate research and practice in such an environment. This emerging group has experienced firsthand the numerous factors thought to affect clinical research. Additionally, they have had specific educational and personal experiences that may have contributed to their ability to combine both practice and research roles.

Although much of the literature has advocated research activities and researcher roles for therapists who are primarily involved in clinical practice, before this study, the literature did not include any formal studies of the complex factors that affect an occupational therapist’s ability to integrate research activities with practice. For the most part, explanations of how practitioners became involved in clinical research were based on expert opinion, speculation, or anecdotal evidence. Additionally, influences of the work environment on clinical research had yet to be systematically explored.

Literature Review

In the increasingly competitive health care marketplace, evidence that one’s practice is effective is not only valued; it has become essential. As predicted by Christiansen (1983), the 1980s brought competition for the health care dollar. Health care efficacy issues became a recurring concern, as third-party insurance companies sought more documentation that the services they were paying for were proven to be effective (McGourty, 1986; Rausch & Melvin, 1986). Christiansen (1983) and others (Baum, 1980; Fisher, Kielhofner, & Davis, 1989) asserted that unless therapists have positive attitudes toward research, they will not be able to meet the demands of a changing health care marketplace. Ottenbacher, Barris, and Van Deusen (1986) indicated that the relationship between research and the knowledge base of occupational therapy directly affects the quality and effectiveness of patient care. Health care specialties with strong research and theoretical foundations have been projected as the survivors in an increasingly competitive health care arena (Führer, 1983).

Baum, Boyle, and Edwards (1984) acknowledged the difficulties that therapists face when they attempt to integrate research activities in the clinical environment because they often have a full caseload of patients in addition to any research activities. Ottenbacher and Hasselkus (1988) suggested that the presence of positive supports, such as role models and peer recognition, can greatly influence clinical research in occupational therapy.
practice environments.

The literature lacks a formal definition of the dual practitioner-researcher role for occupational therapy. A proposal by Polatajko and MacKinnon (1987) for the establishment of an occupational therapy graduate curriculum based on the "scientist/practitioner model" (p. 120) is most closely related to the practitioner-researcher role addressed in the present study. Their proposal was addressed to "therapists who are in clinical practice and wish to remain there, but wish to acquire further research skills in order to participate more effectively in the development and assessment of clinical methods" (p. 122). A conceptual understanding of the dual role may be gained through examination of the scientist-practitioner model, advanced by clinical psychology for more than 40 years. The scientist-practitioner model is also useful for gaining a broad understanding of both the advantages and disadvantages of performing research in a clinically based practice profession. Additionally, there are several historic parallels between the earlier establishment of the scientist-practitioner model in clinical psychology and current discussions regarding a dual practice-research role in occupational therapy.

Development of the model in the late 1940s stemmed from a prevailing view among the leaders in clinical psychology that psychotherapy was an unclear procedure and that their work was difficult to define, replicate, or verify (Barlow, Hayes, & Nelson, 1984). Advocates of the scientist-practitioner model believed that practitioners who used it would become more accountable for their interventions with patients. The model's advocates also believed that students who received a dual research-practice education could use as well as generate clinical research studies once they became practitioners (Barlow et al., 1984; Goldfried, 1984; Rainy, 1950).

Although the scientist-practitioner model continues to be the established model for the education and training of clinical psychologists, it has been found to be more difficult to implement in practice than was originally anticipated. Substantial issues have surfaced over the past 40 years, primarily focusing on the applicability of traditional quantitative research methods, the overall interest expressed by clinical practitioners in conducting research, and the practicality of performing research in clinical work settings (Barlow et al., 1984; Bibace & Walsh, 1982; Goldfried, 1984; Meltzoff, 1984; Stern, 1984).

There are, of course, well-defined differences between occupational therapy and clinical psychology. The most obvious difference is formal education of psychologists and occupational therapists: the entry-level degree for practicing psychology is a doctorate, whereas an occupational therapist may enter clinical practice with a bachelor's degree. The impetus, however, for promoting a dual research-practice role is the same for occupational therapy and largely based on intuition and experience (Polatajko & MacKinnon, 1987). Although a handful of early occupational therapy authors (Dunton, 1934; Duval, 1952; Goodrich, 1954; Jantz, 1958; Reilly, 1960) discussed clinical research in terms of its future significance, their discussions lacked the urgency found in the contemporary literature. Contemporary proponents of researcher roles for occupational therapy practitioners have addressed issues similar to those identified in clinical psychology (Christiansen, 1986; Gilfoyle, 1988; Grady, 1987; Llorens & Gillette, 1985; Ottenbacher, 1985; Rogers, 1982; Taylor & Mitchell, 1990; Yerxa, 1987).

Socialization into a researcher role, as described by Ottenbacher (1986), or instructing staff in the scientific method, as identified by Baum et al. (1984), are but two examples of the many ways in which learning can occur in a work environment. More recently, the subject of workplace learning has attracted attention because of its connection to professional knowledge generation and development (Schön, 1987, 1991). Additional interest has stemmed from the need to train or retrain employees to perform different tasks within their work settings.

Marsick (1991) suggested that employees at all levels are being challenged to think differently about their work roles because of rapid economic and social changes. She stated that one's personal frame of reference was an essential factor for the development of new knowledge and skills used in the workplace. Houle (1980) proposed that professionals use lifelong learning strategies to accommodate workplace changes, maintaining that lifelong education helps advance professionalization. He suggested that professionals use one or more of three learning modes in their work environments: (a) "inquiry—a process to create a new synthesis, idea, technique, policy, or strategy of action" (p. 31); (b) "instruction—a process of disseminating established skills, knowledge, or sensitivity" (p. 32); and (c) "performance—reinforcement—a process of internalizing an idea or using a practice habitually, so that it becomes a fundamental part of the way in which a learner thinks about and undertakes his or her work" (p. 33).

**Study Purpose**

The overall purpose of this study was to develop an understanding of the emerging practitioner-researcher role by identifying both the presence and importance of personal, environmental, and educational factors thought to influence clinical research in occupational therapy. The goal was to obtain data portraying the clinician's experience of simultaneously conducting practice and research.

**Method**

**Subjects**

The American Occupational Therapy Association (AOTA) 1990 Member Data Survey (AOTA, 1991) was used to help
identify the census population of practitioner-researchers. A questionnaire packet consisting of a cover letter, coded questionnaire, and prepaid postage-paid return envelope was sent to therapists who checked one of the following combinations of work function descriptors: primary function either (a) direct patient service or (b) research; and secondary function either (a) research or (b) direct patient service. Of the 116 questionnaires sent, 103 were returned (89%) and 100 were usable for data analysis and interpretation. Either all or most items were completed.

The responding practitioner-researchers worked in 26 states and the District of Columbia. The overwhelmingly majority was female (93%) and below the age of 40 years (77%). Sixty-six percent said the bachelor’s degree was their highest educational level, although 17% of bachelor’s level respondents indicated that they were pursuing a master’s degree. Thirty-one percent said their highest educational level degree was the master’s. Only 2% of the population had doctorates. No single college or university dominated the institutions where occupational therapy education was received, although the University of Southern California was reported most often (8%).

Most respondents (69%) had worked as occupational therapists for 10 years or fewer; almost the same proportion (70%) had been involved in clinical research activities for 3 or fewer years. Forty-two percent described their research role as a “coinvestigator/collaborator,” performing some functions independently and others with supervision, and 27% described themselves as an “assistant” to an investigator.

Three times as many worked in the state of California as in the next largest state represented. Respondents were somewhat more likely to work in private, non-university affiliated facilities (37%) than in facilities having a university affiliation (33%). Close to two thirds (64%) worked with patients who have a type of physical disability.

**Instrument**

The questionnaire designed for this study reflected the major themes that emerged after review and analysis of literature pertaining to clinical research in occupational therapy. The emergent literature themes were also used as the framework for the study’s major research questions: (a) research experiences and recommendations; (b) research activities in the clinical environment; (c) factors affecting research in the clinical environment; (d) education and training for clinical research; and (e) activities for research learning in the workplace.

With the exception of two sets of questionnaire items, those pertaining to demographics and specific activities constituting clinical research for respondents, most items were designed to be completed in two parts. Most items contained two sets of four Likert-type categories intended to rate the factors thought to either facilitate or obstruct efforts toward clinical research. Thus, the instrument sought to obtain separate data describing the respondents’ actual research experiences (the presence of), and their recommendations (the importance of) for those experiences. Additionally, there were various open-ended items that allowed respondents to elaborate on individual experiences.

**Data Analysis**

Measures of central tendency and variability were applied to all data where appropriate. Frequency tables were then constructed from the two-part items to display proportional differences between levels of presence (limited presence or present) and levels of importance (not important or important). Thus, the categories of limited presence and not important were created by collapsing the first two response categories. Likewise, the categories of present and important were formed by combining the second two response categories.

Written comments were qualitatively assessed and coded. Data were then arranged into descriptive matrices as suggested by Miles & Huberman (1984). When specific learning experiences were reported, they were placed into predetermined matrices (Miles & Huberman) based on Houle and colleagues’ (Houle, 1980; Houle, Cyphert, & Boggs, 1987) concepts of the modes used by professionals for their lifelong learning. To further identify and describe the practitioner-researchers’ clinical research learning experiences, a qualitative content analysis on the questionnaire items pertaining to learning and educational experiences was conducted. The content analysis also used the same predetermined matrices based on the Houle typology for professional learning.

**Results**

The study’s five major research questions function as the headings in the following section. Again, the major questions resulted from themes that emerged after literature analysis on the topic of research in occupational therapy.

**How is a Practitioner-Researcher Role Adopted?**

The respondents’ ratings of experiences thought to provide occupational therapy practitioners with exposure to research are shown in Figure 1. Of these experiences, the item rated most present and important highlighted the relevance and application of clinical research: “incorporating the findings from research studies into occupational therapy practice.” This finding was remarkable because it underscored the intent of clinical research (i.e., to have an empirically based practice) and was consistent with Fleming and Piedmont’s (1989) study, which found among the general occupational therapy population two areas (among others) that were believed to need im-
The work environment played a key role: the majority (81%) said their work setting encouraged but did not require a practitioner's research involvement. Analysis of written comments further stressed the importance of having a conducive work environment, one where research resources were readily available. Learning experiences that fit Houle's (1980) and Houle et al.'s (1987) “performance/reinforcement mode” of a professional’s lifelong learning were reported, and mainly consisted of activities that involved on-the-job contact.

### Figure 1. Proportional frequencies: The presence of circumstances leading to interest or involvement in research versus their importance.

<table>
<thead>
<tr>
<th>PRESENCE</th>
<th>FACTOR</th>
<th>IMPORTANCE</th>
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<tbody>
<tr>
<td>90%</td>
<td>Incorporating the findings from research studies into occupational therapy practice</td>
<td>93%</td>
</tr>
<tr>
<td>83%</td>
<td>Having a mentor in clinical practice from whom to learn the &quot;ropes&quot; of doing research</td>
<td>91%</td>
</tr>
<tr>
<td>81%</td>
<td>Working in a facility where research is encouraged but is not mandatory</td>
<td>88%</td>
</tr>
<tr>
<td>78%</td>
<td>Having a colleague who is involved in research</td>
<td>85%</td>
</tr>
<tr>
<td>72%</td>
<td>Attending conferences where occupational therapy research is discussed</td>
<td>90%</td>
</tr>
<tr>
<td>71%</td>
<td>Participating in training such as continued education where occupational therapy research is discussed</td>
<td>87%</td>
</tr>
<tr>
<td>70%</td>
<td>Taking research course(s) at a college or university</td>
<td>86%</td>
</tr>
<tr>
<td>46%</td>
<td>Participating in research while a student</td>
<td>70%</td>
</tr>
<tr>
<td>49%</td>
<td>Participating in informal meetings such as &quot;journal clubs&quot; to discuss research</td>
<td>62%</td>
</tr>
<tr>
<td>51%</td>
<td>Working in a facility where therapists are required to perform research as part of job</td>
<td>51%</td>
</tr>
<tr>
<td>53%</td>
<td>Supervising a student who has a research project</td>
<td>52%</td>
</tr>
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The percentages in Figure 1 lead to several inferences regarding how practitioners adopt researcher roles. First, questionnaire items that described learning experiences relating to performance or application of research were highly present and important for 70% or more of respondents. These same experiences involved persons (a mentor, colleague, or instructor) who were already involved in research. A second inference is that learning experiences that fit Houle's (1980) and Houle et al.'s (1987) "performance/reinforcement mode" of a professional's lifelong learning were reported, and mainly consisted of activities that involved on-the-job contact.
with research. Findings from respondents' written comments as well as the proportions listed in Figure 1 are consistent with Taylor and Mitchell's (1990) study, which found that a clinician's first choice for continuing education and research activity was "research projects with experienced researchers" (p. 353). Content analysis of the circumstances shown in Figure 1 found that 4 of the 11 items best fit the description of the performance-reinforcement model of learning.

A third inference regarding how practitioners adopted researcher roles stems from demographic data and comments regarding the respondent's research tools. Close to two thirds (64%) of the practitioner-researchers checked "physical dysfunction" or wrote the name of a physical disorder or disease when identifying their clinical population. Additionally, these respondents described their research tools as clinical measures or equipment that would allow the technical aspects of treatment to be correlated with numerical categories. The inference here is that the availability of quantifiable measures may support already familiar research designs. Ottenbacher and Hassellkus (1988) suggested that particular research designs—those of a quantitative orientation—are often taught and thus understood to be the primary approach to clinical or behavioral research.

One last inference pertaining to how the practitioners adopted a researcher role results from data on years of clinical practice and educational level, and indicates that research was viewed as a professional responsibility. Considering the years of clinical practice, recall that 69% of respondents had worked as occupational therapists for 10 or fewer years. Specific research competencies for educators and clinicians, as well as skills to be fostered in educational curricula, were identified in 1983 by the American Occupational Therapy Foundation (AOTF). AOTF recommended that students pursuing a bachelor's degree (basic professional education) be taught the "application of existing clinical knowledge to practice, be consumers of research, and assist the investigator in research functions" (p. 45).

Data on respondent educational level found that 31% named the master's degree as their highest educational level, and more than twice that percentage (66%) named the bachelor's degree. However, among the bachelor's degree group, 17% said they were also in the process of pursuing a master's degree (major field not specified). These data suggest that apart from the research exposure acquired at the level of basic occupational therapy education, 48% of respondents had contact with the increased research values and responsibilities imparted at the graduate level.

**What Activities Constitute Research in Clinical Settings?**

Clinical practice clearly took priority over research: 72% of respondents spent less than 25% of work time on research activities. Separate analyses were run on the small percentage (12%) of respondents who said they spent more than half of their work time on research. Examined independently of the overall population of respondents, levels of involvement differed most for: (a) "developing instruments for research" (μ = 3.0); (b) "data analysis" (μ = 3.4); and (c) "writing for research funding" (μ = 2.3).

The findings for research activities performed in clinical settings are shown in Table 1. Item means show minimal-to-moderate levels of involvement for most activities. Because of the relationship to the broader issue of professionalism in occupational therapy, it is worth noting the actual percentages of responses to activities that involved either publishing or presenting clinical research. It is possible that the low levels of involvement reflect the ongoing status of research projects, because the great majority (91%) had been in clinical research for fewer than 7 years. It may also be possible that these studies are not ready to be published or presented, or that another person—perhaps the primary investigator—was doing the publishing or presenting. Other considerations are that because research was clearly secondary to practice, clinical studies may take a back seat in light of more pressing treatment responsibilities, and that a number of written comments indicated the desire for assistance with various "research writing" activities.

Although 53% of respondents said they had not published or presented their research, it was encouraging that among the 27 respondents who had published, close to three quarters of their publications were in refereed journals. Less encouraging were data on presentations: of those who had presented their research (N = 56), only 14 presentations had refereed review. This situation deserves attention because Grady (1987) and Ottenbacher (1986) stressed the need to communicate research through scholarly channels because of the overall connection to the professionalization process.

**What Factors in the Clinical Environment Affect Research Activities?**

Factors in the clinical environment were understood to include both human and nonhuman influences that could affect one's ability to perform research. From these factors, as well as from written comments, three broad conclusions pertaining to the clinical environment and research can be made. First, success in clinical research was likely to depend on the support of important persons. Second, time was an essential commodity, contingent on the support of important persons (time was also viewed as a material resource, a privilege, or a reward); and third, respondents stressed (through written comments throughout the questionnaire) that one must have a per-
sonal commitment to research to successfully fulfill a dual research-practice role.

Findings for the presence and importance of factors thought to facilitate research in clinical settings are shown in Figure 2. Almost all (98%) respondents said that support from the facility's administration was present, and 95% said that occupational therapy administrative support was also present. It is crucial to note that, although a scheduled time for research and support from occupational therapy administration were perceived as equally important (98% for each), a regularly scheduled research time was present for only 35% of the respondents.

Findings on forms of support are consistent with assertions made by Christiansen (1986) and Baum et al. (1984) that research must be valued by both management and practitioners, and support must be obtained from the managerial hierarchy. What is less clear from Figure 2 is that high levels of administrative support did not necessarily give rise to similar levels of presence for more tangi-

![Figure 2](http://ajot.aota.org/pdfaccess.ashx?url=/data/journals/ajot/930250/)
ble factors such as consultation, clerical support, funding, and time. These data raise more questions than they answer, and are important to the administrator interested in advancing the practitioners' research efforts. Additional insights may be gained however, from analysis of the four specific factors discussed next.

More personalized data were collected from respondents who reported experiences with the following workplace factors: (a) recognition from administration, (b) rewards for research involvement, (c) funds for research, and (d) access to research tools. Analysis of the experiences with administration recognition revealed six categories: support from colleagues or associates, increased opportunities to pursue research, in-house recognition, recognition outside their facility, monetary recognition (pay or merit increases), and help as a form of suggested recognition.

Five categories of rewards were reported: various privileges, recognition, professional opportunities, monetary rewards, and personal satisfaction. Privileges included time for research, travel, and access to otherwise off-limit patient records. Research tools included clinical evaluation measures; treatment equipment, technology, and techniques; tangible or material resources; environmental resources; various persons; and the researcher's personal assets. It is important to note, however, that from the personalized data on the four workplace factors thought to affect research in clinical settings, respondents listed persons such as experienced researchers or administrators almost twice as often as they listed material factors.

What Educational and Training Experiences Advance a Research Role?

The presence and importance of research-related educational experiences are contrasted in Figure 3. Of particular interest is the lack of any particular educational experience that was overwhelmingly present (95% or greater). These findings may reflect the status and overall progression of research in formal occupational therapy education. That the educational experiences received presence ratings over 50% is probably due to the input of younger practitioner-researchers whose formal education is more current.

Most present for respondents was "taking a course in statistical methods" (89%), yet it ranked ninth in terms of importance, being so rated by only 75% of the respondents. Of additional interest is that although all items were rated important by at least 75% of respondents, only the top three were actually present for 75% of respondents. Learning to design studies for clinical practice was rated as the most important (95%) educational experience. This finding may suggest that even though respondents were successfully involved in clinical research, they recognized the issues and obstacles faced when attempting to apply the information taught in traditional research courses to their clinical settings.

Analysis of written comments showed that Houle's (1980) and Houle et al.'s (1987) performance-reinforcement learning mode was reported and again included on-the-job experiences and situations involving more experienced persons. Item content analysis for Figure 3 based on the Houle typology found that half of the items fit the instructional mode of learning.

What Workplace Learning Activities Advance Research?

The availability of continuing education for clinical research appeared limited for respondents: 36% had not taken any sessions for research purposes. On the other hand, only 14% were without any formal (college or university) research courses.

Figure 4 presents an interesting finding regarding workplace learning activities for research: the percentages for presence and importance were lower than reported for other areas of the questionnaire. This finding suggests that, overall, respondents had fewer experiences with workplace learning, and they were less opinionated on the importance of the activity.

Analyses of written comments based on the Houle (1980) and Houle et al. (1987) typology found only one activity accomplished in the performance-reinforcement mode, as contrasted with written comments that again stressed respondent preferences for hands-on learning experiences. This is important to note because not only did the respondents prefer performance-reinforcement learning modes for research learning throughout the questionnaire, but adult educators such as Houle (1980) and Cervero (1988) maintained that workplace learning is typically best accomplished by means of performance-reinforcement modes.

Implications

This study has shown that practitioners can be successfully involved in research given favorable conditions in the clinical work environment, as well as through a variety of educational and learning experiences. The study thus has important implications for educational curricula, continuing education, and administrators in clinical settings.

Educational Curricula

Although formal research courses were considered important for acquiring research skills, the need for a "personal research commitment" was underscored. The implications for educational curricula are not that more research courses should be taught, but that changes should be made in the way that research is perceived. Faculty could focus on instilling a sense of research com-
commitment by stressing the relationship of research to knowledge development, professionalization, and the ultimate survival of occupational therapy in both health care and academia.

The importance of having real life examples of occupational therapists who are involved in research also has implications for education. If faculty themselves are not involved in research, then it is imperative that local resources be explored and collaborative efforts be made so that students have appropriate role models. Educators' investments in students research activities may help establish a much needed network of local practitioner-researchers. Geographic findings for occupational therapy education and practice indicated that respondents tended to work in the same area of the country where their occupational therapy degree was received.

**Continuing Education**

Although involvement in continuing education for clinical research was low, other results pointed to a need for combining resources to facilitate both the development and availability of such sessions. One way to increase the availability of continuing education is to address the obstacles present in the research development phase. These obstacles include a lack of experience or knowl-
edge of the forms of research writing and may also include limited ideas for viable clinical research projects because of one's preconceptions regarding appropriate designs or methodologies. Efforts could be made (perhaps at the state association level) to organize professional strengths, skills, and resources to assist practitioners who need help with research development, including writing. These strengths, skills, and resources could also be drawn from a network of experienced faculty and researchers on the state or local level.

Clinical Environment

It was clear that successful research requires a team effort backed by the administrative hierarchy. The data strongly suggest that the best of intentions by the lone practitioner will be frustrated if management and colleagues are not supportive. There is a great potential for furthering the dual research-practice role by learning more about the actual sites where research and practice exist simultaneously.

Recommendations for Further Research

With identification of the important circumstances, factors, experiences, and activities that constitute a researcher role now completed, complementary research is needed. The findings from the current study concerning the practitioner's sense of commitment to research and administrative support of research suggest that combining clinical practice and research most likely involves a learning process that future research could explore more fully. A better understanding of this process could facilitate and promote clinical research. Further research should be approached from a theoretical framework that is dynamic and capable of discerning the integral links fundamental to learning processes. The framework of critical theory advanced by Habermas (1979) outlined procedures that take into account the nature and source of professional expertise as it exists among conflicting value orientations and environments (Cervero, 1988).

Because of the importance given to administrative support, another useful study would be to investigate the
managers who supervise research practitioners. Of particular interest would be to find out how or why managers are able to allocate resources for an activity that may not have a direct financial benefit to the facility.

Finally, and because of the percentages of responses reported in Table 1, more needs to be known about the specific research activities performed in clinical settings. For example, it would be beneficial to find out more about the researchers with whom the respondents collaborated in order to learn whether the levels of research writing and publishing activity are low because those activities are being performed by someone else.

Summary

This study attempted to systematically substantiate occupational therapy expert opinion (as evidenced in the literature) regarding the circumstances, activities, workplace factors, and educational experiences thought to facilitate clinical research. For the most part, the findings from the current study are consistent with expert opinion, with the great exception of the demographic finding that two thirds of the respondents named the bachelor’s degree as their highest educational level. The study also presented the perspective of those involved in an emerging role that, if properly nourished, can greatly contribute to the overall professionalization of occupational therapy.

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