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ABSTRACT

A study was conducted to: depict the current types of research assistantships in universities; ascertain students' perceptions of their assistantship experiences; depict the specific activities of research assistants; determine whether today's assistantships provide a genuine research apprenticeship; and compare today's assistantships with those considered predictive of later research productivity. The population consisted of all graduate students holding education, social science of behavioral science research assistantships at five U.S. universities. A questionnaire was distributed with the aid of a local facilitator at each university. Of the 838 students who received questionnaires, 430 (52%) responded; the final sample consisted of 294 responses. Results, which are compared with those of the Worthen and Roaden study (1971), included the following: (1) 44% of the research assistants (RAs) were female, and 55% male, ratios that were similar to those of the graduate student pools at the universities; (2) 72% of the assistantships lasted between 4 and 12 months; (3) 81% of the RAs reported that their assistantships had been created to provide support for a research activity, and 17% gave "training for the RA" as the reason; (4) financial support and desire for research experience were the predominant reasons for seeking an assistantship; and (5) although RAs are involved in research activities, it does not appear that they receive complete training, and their participation in research is far less than in the 1971 study. The results are considered more provocative than conclusive, but suggestive that assistantships may be falling below their training potential. Data are provided in five tables and a series of handouts that accompanied the presentation. (KM)

A Second Look at the Relation of Research Assistantships and Research Productivity

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Research Assistantship Experiences in Graduate Education and Social and Behavioral Science Programs

For decades, the value of research apprenticeship experience has been widely accepted (e.g., Garner, Hunt, & Taylor, 1959). The importance of learning research by doing it has been stressed repeatedly, especially by those who argue that scientific method is pluralistic, perhaps even individualistic. Yet, strangely, the requirement of apprenticeship experience so common in many areas has never become established in programs designed to train researchers and scholars. The notion of the apprentice sitting at the feet of the master has always been part of the romantic tradition of Academe, but apprenticeships to master researcher-scholars are almost never a required part of curricula for training neophyte researcher-scholars. Although required formal course work, seminars, and dissertation work are obviously important ingredients in training researchers, dissertations seldom provide genuine research apprenticeship experience (Buswell, McConnell, Heiss, & Knoell, 1966; Heiss, n.d.) and formal courses in research frequently bear little relationship to actual research practice (Buswell, et al., 1966; Sieber & Lazarsfeld, 1966; Worthen & Roaden, 1975). Consequently, many -- perhaps a majority -- of the persons who exit from graduate programs ostensibly prepared for a scholar's life have had less practical preparation for their role than newly qualified journeyman plumbers have had for the work they will pursue.

One could argue that research apprenticeships are common in higher education. After all, research assistants are familiar figures in most universities, and part-time utilization of graduate students for research assistantships is a thoroughly ingrained practice in American higher education. Collectively, occupants of these positions are generally considered to be gaining useful research experience by serving as apprentices to one or more senior researchers. However, making the research assistantship an optimal apprenticeship experience is more than a matter of merely assigning the assistant to work with the researcher. Consider, for example, the possible conflict between working-learning purposes of research assistantships. Universities typically expect professor-researchers to engage in both the training of prospective researchers and in the production of new knowledge. In such a context, assistants might be assigned to routine and menial tasks devoid of any training value but enormously useful to their supervisor's effort to produce research. The view that students are a ready source of cheap labor for producing research is obviously antithetical to the main purpose of research training.

Knowledge of specific assistantship variables and their relationship to subsequent career development in research is needed badly to enable research trainers to determine the extent to which the assistantship provides genuine and useful research apprenticeship experience. Without such knowledge, most researchers seem to assume that research

assistantships do provide desired apprenticeship experience. Long standing assumptions among researcher-professors include the following (Worthen & Roaden, 1975):

1. Real apprenticeship training is provided to persons who hold research assistantships.

2. Occupying a research assistantship is likely to lead the assistant toward a career in research.

3. The more time a person spends as a research assistant (up to a point of diminishing returns where the assistant is in perpetual servitude), the more likely that person is to go on to a career in research.

4. Most researchers know how to use research assistants to the mutual benefit of both the research and assistant.

In an effort to test these assumptions, one of the present authors conducted a national study of the relationship of research assistantship experiences to subsequent research involvement and productivity (Worthen & Roaden, 1971). The results of this study, synthesized with information about research assistantships gleaned from other studies, led to a series of recommendations directed to university officials responsible for research training programs and to faculty researchers responsible for supervising research assistants (Worthen & Roaden, 1975).

Distributed widely to American universities, these recommendations suggested specific research assistantship experiences that correlate

positively with later research involvement and productivity. Specific experiences were identified that would greatly enhance the utility of the research assistantship for training researchers.

Since that earlier study, no research has been conducted to determine whether research assistantships have changed in ways that would enhance their training value. Many other changes have occurred, however, that seem likely to have major impact on the structure and function of research assistantships. Federal funding of research training programs in education and in the social and behavioral sciences was discontinued more than a decade ago. Economic austerity has resulted in reduced support for both public and private higher education, and explicit funding for research training has virtually vanished. Declining resources for research grants in education and the behavioral and social sciences has led to pressure for greater economy, and seemingly to different patterns of use of research assistants. These changes underscore the importance of examining today's research assistantships to see if they are being used in ways that will enhance their training value, since they currently represent the primary way in which research apprenticeship experience might be gained.

The present study attempted to:

1. depict the types of research assistantships currently existing in universities;

2. ascertain students' perceptions of their research assistantship experiences;

3. depict the specific activities and experiences current research assistants experience;

4. determine whether today's research assistantships provide genuine research apprenticeship experience and, therefore, represent valuable research training opportunities; and

5. compare, where appropriate, today's research assistantships with those found by Worthen and Roaden to be predictive of later research productivity.

Method

The Sample

All graduate students holding education, social science, or behavioral science research assistantships at five selected U.S. universities constituted the sample. A description of these universities by geographic region and type appears in Table 1.

Insert Table 1 about here

Although reasonably well distributed geographically and by type of institution, it should be recognized that this sample of universities may not be completely representative of all American universities.

Within each university, all academic departments and research centers in education and in the social and behavioral sciences were identified.

Administrators of each unit were asked to supply the names of all graduate students holding funded assistantships either in the current or previous year. All identified assistants were sent a questionnaire; the first question asked whether they had ever held a research assistantship, defined as "any experience in which you served as a research apprentice to a researcher or a group of researchers, or worked on research in a research project or bureau, or held any graduate assistantship, internship, or associateship in which assisting in the conduct of research was your primary activity." Students whose assistantships did not qualify under this definition (e.g., teaching assistants) were instructed to return the questionnaire uncompleted. Asking students (rather than administrators) to define whether or not theirs was a research assistantship was deemed necessary because of Worthen & Roaden's (1971) finding that student discriminations were more accurate than administrative or institutional labelling.

Of the 828 students who received questionnaires, 430 (52%) responded. Of these, 301 (70%) indicated they had held a research assistantship. Seven of these 301 questionnaires were incomplete or illegible, resulting in 294 respondents constituting the final sample used for our analyses in this study. Samples of non-respondents at each institution were contacted by telephone to determine if there was a non-response bias due to assistantship type, gender, or type of degree sought. No such biases were identified. The numbers of questionnaires distributed and returned, and the

proportion qualifying as research assistants at each university, appear in the description of the sample in Table 2. In all analyses presented in this paper, the sample has been collapsed across universities.

Insert Table 2 about here

Data Collection

A questionnaire used by Worthen and Roaden (1971) was adapted to form the questionnaire used to collect data for this study. It elicited descriptive information about the nature and direction of specific research assistantship experiences, structural and fiscal arrangement for the assistantships, and students' perceptions about the various aspects of their assistantships.

A colleague (hereafter referred to as "local facilitator") was employed at each university to facilitate distribution and collection of questionnaires. Questionnaires were distributed to graduate students via their campus mailbox or department secretary. A personalized cover letter from their department head or center director was used to encourage students to respond and to return completed questionnaires to the local facilitator via campus mail, with assurance that responses would be confidential and not read by anyone at their institution. To assure confidentiality further, respondents were allowed to mail their responses directly to the project director if they desired.

A follow-up letter and replacement questionnaire were sent to non-respondents after 15 days and a telephone follow-up was used with those who had not responded after another 30 days.

Data Analysis

Descriptive statistics were used as the primary means of addressing the objectives of this study. Simple frequencies and percentages provide most of the descriptive information about the sample presented herein. Since the present sample and the earlier sample studied by Worthen and Roaden are not drawn from the same population, no statistical tests of differences in response of the two groups have been conducted. Descriptive comparisons have been made, however, to enable examination of the extent to which current research assistantship conditions are predictive of future research productivity of those who hold such positions.

Results and Discussion

Unless otherwise specified, all analyses reported hereafter will include all 294 (usable) responses of those indicating they had held research assistantships. Only percentages of that group will be reported for each analysis; frequencies will not be provided since the analysis group is constant. For parsimony, our respondents will hereafter be referred to as RAs (research assistants), while the earlier sample of productive researchers who provided information about their prior research assistantships will be referred to as the W-R (Worthen & Roaden, 1971) sample or study, or

simply as the "earlier sample." Unless otherwise specified, results pertain to the present study.

Incidence of Research Assistantships

Of those identified by department heads as having held assistantships of any type, 70% reported they had held a research assistantship at some time during their graduate studies. Although most direct funding for research training has disappeared in the past decade, it appears that opportunities for graduate students to be involved in research are still available, at least for a substantial proportion of those students.

Description of Research Assistants

Of the 293 who indicated their gender, 56% were male and 44% female; these ratios are very similar to the proportion of males and female in the relevant graduate student pools of the five participating universities. There does not appear to be a gender bias in opportunities for research assistantships. It is also noteworthy that females represent a far greater proportion of the assistants in the sample than Worthen and Roaden found in their earlier sample (19% female; 81% male).

The duration of these research assistantships ranged from 1 to 60 months; the majority (72%) lasted between 4 and 12 months.

Most respondents were pursuing masters (47%) or doctoral (47%) degrees while engaged in their research assistantships, although a small number were seeking postdoctoral or specialist training. Worthen and

Roaden found over 85% of their sample of researchers had held their assistantships at the doctoral level, whereas less than 10% had held their assistantships at the masters level.

Assistantships Structure and Purpose

Although a few RAs (2%) did not know why their assistantships were created, an overwhelming majority (81%) reported that their assistantships had been created for the purpose of providing support personnel for a research activity. Only a small proportion (17%) said the assistantship was created to provide training for the research assistant. Worthen and Roaden had found approximately 25% of their earlier sample of research assistantships had been created to provide planned training for the RA. Apparently, even in the absence of funding for research training, faculty members are using assistantships funded through research grants and contracts to accomplish a training purpose.

Respondents were asked, "Why did you seek (or accept) the research assistantship?" Two reasons stood out: Financial support (89%) and desire for research experience (74%). Two other reasons were mentioned relatively infrequently: an advisor's recommendation (20%) and a degree requirement (14%). It seems that students saw their research assistantships in fairly pragmatic terms -- monetary benefit and academic experience that might prove useful in their future careers. By contrast, Worthen and Roaden's earlier sample of researchers less frequently sought their assistants because

of financial need (75%) or because the assistantship is a degree requirement (3%). It would seem assistarts are pressed into service somewhat more by fiscal need or faculty demands than was the case in the 1970s.

The RAs were also asked whether they had worked with a single research mentor or with a variety of such persons, and whether they had worked on a single project or several. Table 3 presents these results. Most RAs (46%) had worked with one specific individual on a specific project, although the proportion number of RAs in the other three categories is also substantial. (No directly comparable data exists for the W-R sample.)

Insert Table 3 about here

Since even the best-designed study may be difficult to carry out in the absence of adequate support, RAs were asked what equipment, services, and benefits they had access to during their assistantships. The majority indicated they had adequate office space and furniture (70%), sufficient salary (62%), and adequate access to data analysis equipment (68%). Far fewer reported that they had financial support in the areas of reduced tuition or fees (41%) or financial support for travel to conferences (20%). It would seem reasonable to assume that the real monetary value of assistantship salaries and tuition and fee waivers will be seriously eroded, however, by provisions of the new federal tax law concerning scholarships

and fellowships (Internal Revenue Service, 1987), which are being interpreted to mean that all such monies are taxable. Indeed, if that ruling is not reversed by Congress, the title of "research assistantship" may soon disappear as universities creatively redefine and re-label such positions to provide to students the non-taxable income that has become increasingly important to graduate students as other stipends and student loans have eroded.

Assistantship Experience

Worthen and Roaden found that the actual details of an RA's activities are linked to their later productivity as independent researchers. Because of this, the activities that RAs were actually performing during their assistantships were investigated in the present study. These data are presented in Table 4, along with an indication of whether the activity was engaged in more or less often by Worthen and Roaden's sample of productive researchers.

Insert Table 4 about here

Several things are apparent from Table 4. First, RAs are, for the most part, involved in research activities to some degree. Relatively few RAs are teaching courses (which would be a teaching assistantship), typing and filing (which would be more of a secretarial position), or assisting their supervisor with personal matters. Furthermore, most RAs are involved in

activities such as reviewing literature, conceptualizing research problems, and collecting, coding, tabulating, or interpreting data. These are activities one would expect an RA to be involved in. It does not appear RAs are receiving a complete package of research training, however. Relatively few RAs are involved in activities such as writing research proposals, designing statistical analyses, writing research articles, and presenting research papers. One could explain the lack of RA's involvement in these activities by noting that (1) these are among the most complicated aspects of research and (2) RAs are not sufficiently trained to conduct these activities. But if RAs do not receive training in these tasks as RAs, how will they master them as junior faculty members when they complete their graduate training? At some point the apprentice must learn the master's art.

This concern is underscored by examining the last column in Table 4. In almost every task that is central to research and also requires some sophistication, this sample of RAs was found to participate far less often than had Worthen and Roaden's sample of productive researchers during their assistantships. Conversely, these RAs spent far more time engaged in clerical tasks (typing, filing, answering telex phones). Indeed, one might predict on the basis of the earlier study that the present sample of RAs is far less likely to go on and become productive researchers than one would hope. It would seem that the training value of research assistantships may

currently be less than desirable, and also that they have less value in providing thesis or dissertation data than was once the case.

RAs were found to vary considerably in the methods of data analysis they used in their work. Table 5 presents the percentage of our group of RAs who used each of a number of common classes of data analysis. The pattern of responses is quite predictable: the more mathematically or conceptually complex a method of data analysis was, the less likely an RA was to use it. Once again, the W-R sample of productive researchers used these techniques, with the exception of "logical or conceptual analysis" and "content analysis" far more often (two to five times more often) than the present sample. Of course that could reflect a shift from quantitative to qualitative data analysis during the past 15 years, but it could suggest a more disquieting conclusion -- that these RAs are not deeply engaged in analyzing research data.

Insert Table 5 about here

RAs Perceptions of Their Knowledge

The questionnaire elicited a variety of information from RAs about how they perceived the quality or value of the projects on which they worked, their interaction with their assistantship supervisor, the conduciveness of their working environment to research, whether their assistantships had been valuable in preparing them to be competent

researchers, and the extent to which their assistantships had influenced them toward (or away from) further involvement in research. Each of these clusters of variables, found by Worthen and Roaden to be predictive of future research productivity, are reported and discussed here. For comparisor, two percentages are given for variables on which comparable data are available from the earlier study, with the second figure being that for the W-R sample of productive researchers.

RAs who had worked primarily on one specific research project (N = 188) were asked how they would describe that project along a number of qualitative dimensions. Every RA (97% for the earlier W-R sample) said the project was focused on a significant problem; 69% (79%) thought the project was well designed; 57% (65%) indicated it was well managed; 52% (75%) said the results were well analyzed; and 46% (79%) felt the project was accurately reported. The RAs found greater fault with the projects they were involved in during the latter phases of the research (e.g., analysis and reporting). This study provides no clue as to why RAs become increasingly disenchanted as the project continued across time. It also reveals them to be more critical of the projects they worked on than were respondents in the earlier W-R sample.

Most RAs found their working environment to be conducive to research: 48% (78% for the W-R sample) described their environment as "very conducive to research" and 47% (22%) described their environment as

RAs were also asked, "During the period of your research assistantship, did your career goals shift?" Sixty-four percent (26% for the W-R sample) indicated no shift in their career goals, while 24% (74%) indicated a shift toward research as a career and 11% (0%) indicated a shift away from research as a career. Clearly current research assistantships are less effective for recruitment into research careers than was true of research assistantships held earlier by those in the W-R sample who went on to be productive researchers.

RAs were asked, "What value do you feel your research assistantship had in helping you to be a competent researcher?" RAs clearly felt the research assistantship was a valuable experience. Forty-four percent (75% for the W-R respondents) felt the RA was of "great value"; 41% (23%) felt the RA was of "some value"; 13% (0%) felt the RA was of "little value"; and 2% (2%) felt the RA was of "no value." Again, the perceived value of the research assistantship seems to have eroded across the time span reflected by this study and its predecessor.

Finally, would RAs "do it again?" Assuming equal pay and equal work, 52% (92% for the earlier sample) RAs said they would choose an RA as their next graduate assistantship, 32% (6%) said they would choose a teaching assistantship, 10% (0%) said they would prefer an administrative assistantship, and 5% (2%) indicated they would prefer some other alternative. Thus, while it seems that research assistantships are

"somewhat conducive to research." Only 5% (0%) described their environment as "not at all conducive to research."

One of the most beneficial aspects of a research assistantship for a student can be the close interaction it affords with a senior researcher. RAs were asked how many senior researchers they enjoyed profitable interaction with as a result of their research assistantship. Fifteen (2% for the earlier W-R sample) reported they had not had profitable interactions with any senior researchers; 68% (48%) said they had profitable interactions with one or two senior researchers; and 17% (50%) said they had profitable interactions with several senior researchers. It seems that a "single mentor model" is the model that present research assistantships most commonly employ, whereas the earlier W-R sample showed more tendency to interact with several senior researchers during the assistantship.

The RAs were asked, "How often did your supervisor teach you techniques or methods that could be useful in subsequent research?" Useful methods or techniques were taught by supervisors less frequently than was true for the W-R sample of productive researchers. Twenty-two percent said useful techniques were often taught to them by their supervisor (44% for the W-R sample); 37% (32%) said their supervisors sometimes taught useful techniques to them; 25% (22%) stated that their supervisors seldom taught useful techniques to them; and 15% (2%) stated

that they were never taught useful techniques during their research assistantships.

RAs were asked how closely their work had been supervised during their assistantship. The great majority (73%; 81% for W-R) felt their supervision had been satisfactory. Only 1% (5%) felt they had been supervised too closely, while 13% (3%) felt they had been supervised inadequately and another 13% (11%) reported they had received no real supervision at all. Although a majority of research assistants seem to be receiving adequate supervision, there is certainly room for improvement and supervision may have declined a bit from a decade or two ago.

A major interest of this research concerns whether or not research assistantships are facilitating the production of future researchers. RAs were asked whether their interaction with their supervisor had influenced them toward or away from research activities. Over half (55%) stated that their interactions with their supervisors had influenced them toward more involvement in research, while only 8% said that their interactions with their supervisors had influenced them away from involvement in research. The balance (37%) said that their interaction with their supervisors had not influenced them either toward or away from involvement in research. By contrast, 90% of the productive researchers in the W-R sample reported their assistantships had influenced them toward more involvement in

research, 10% said they were uninfluenced, and none said their assistantship had moved them away from future research involvement.

Overall, RAs have a great deal of respect for their supervisors. RAs reported, in the majority, that they respected their supervisor as a productive scholar (69%), as a good model of professional behavior (65%), as a competent researcher (67%), and as a person (73%). These percentages were similar to those found by Worthen and Roaden. RAs were also asked how they felt their supervisor viewed them. Most RAs thought their supervisors viewed them positively: 31% (64% for W-R's earlier sample) said their supervisors viewed them as "highly competent"; 51% (31%) said "quite competent"; 15% (3%) said "average in competence"; and only 2% (2%) said "somewhat incompetent." The present sample does not perceive themselves as being quite as competent as did the earlier sample.

For most RAs (47%; 59% in the earlier study) their RA supervisor and academic advisor was the same person. But for those who had separate RA supervisors and academic advisors, academic advisors had greater influence on the subsequent career development of RAs than did RA supervisors. Sixty-seven percent (57% for the W-R sample) of those with separate supervisors and academic advisors said their academic advisor had greater influence on their career development, while only 33% (43%) said their RA supervisor had the greater influence.

sufficiently desirable that a majority of those presently employed in them would choose them again, the proportion is dramatically lower than was true of the earlier sample of productive researchers.

Conclusion

Caution should be taken in generalizing the results or conclusions of this study without replication with other samples of universities and research assistants. There is no Stanford or Harvard -- or Eastern Institute for Phenomenological Studies, for that matter -- on the list of institutions we studied. Perhaps research assistants would find conditions there dramatically different. Until such replications are conducted, these results must be viewed as more provocative than conclusive.

Also, if one were to follow the RAs in the present study for a decade to identify those who have become highly productive researchers, a retrospective analysis might reveal their assistantships to resemble the earlier W-R sample more than was true of our RAs as a whole. This should not concern us, however, since a major intent of this study is to determine the extent to which each and every current research assistantship is serving to prepare persons for productive research careers.

If one only examined the current status of research assistantships, one might well conclude they are serving as useful research apprentice opportunities, thus providing important research training. While most current research assistantships were created to provide personnel support

for the completion of a research project, these positions also would seem to have the potential of serving as one of the major training grounds for tomorrow's educational, social and behavioral science researchers. A majority of RAs we studied report their research assistantships to be positive learning experiences with adequate supervision. They respect their supervisors. And a slight majority of these RAs report that they want to become involved in further research endeavors.

This study also suggests that research assistantships may be falling far below their training potential and may not be providing the genuine research apprenticeship experience assumed. For example, less than half of the RAs studied found their assistantship environment to be very conducive to research, only slightly more than half found in their research assistantships anything that prompted them to seek greater involvement in research, and only one in four said their assistantship had caused them to want to pursue a research career. In addition, RAs seem to be increasingly dissatisfied with aspects of the research project in which they are involved, especially as it progresses toward completion. They are less satisfied with the way their research project is analyzed and reported than they were with the initial research problem and design. Further, more than half the RAs in our present sample reported having never given a research paper or written a research proposal or research article. A particularly

appalling finding is that fewer than one third of RAs used statistics as simple as a t-test during their assistantships.

Perhaps the most disconcerting conclusion one could reach from this study, however, is that the research assistantship today may provide a far less valuable apprenticeship in research then it did in earlier years, suggesting an unwholesome regression in the training of researchers. Almost every comparison of the present findings with the W-R sample shows a hiatus of non-trivial proportions. One quickly gains an impression of RAs employed for different purposes and used in different ways than was true of RAs who later went on to become productive researchers. Current RAs seem to be functionaries more than colleagues, students who perform clerical tasks, at the expense of being involved in those tasks that lie at the core of doing research. More and more students fill research assistantships not because they want to, but because such assistantships have become perceived as a necessary requirement for entering the postgraduate job market. Students, educators, and employees have failed to recognize that the assistantship is a useful training opportunity only when it provides useful training.

Financial need is also increasing as a reason for seeking a research assistantship, even as interest in research declines as a motivating force. Many research assistantships are too short in duration to allow much training; 72% of the current sample of RAs had research assistantships that

only lasted between 4 and 12 months. At some point RAs must learn the complicated aspects of research if they are to become successful social scientists. Yet seasoned researchers know that the most complicated tasks are not easily taught to novice assistants. Which leads to the age-old question of how can the needs of the researcher be balanced with the needs of the RA for training? One solution might be for research assistantships to be of longer tenure. If an RA were hired for two years, rather than a year or less, there would be greater time, and greater incentive, for senior researchers to train RAs in the more complicated aspects of conducting research. RAs could then learn to design and perform complicated statistical analyses, to write proposals and papers, and to give presentations before scholarly societies. This would provide a more useful assistant for the researcher, as well as a more useful research assistantship experience for the RA.

The cost of superficial research training, wherever it exists, is great -- if not to researchers, then to society. If we force prospective researchers to learn the most difficult aspects of their trade through trial and error at a time when they are supposed to be journeyman researchers, rather than through sound apprenticeship experience at an earlier stage, the results are predictable. Talented people will become discouraged and leave research for other careers. Scarce research funds may be wasted -- funds that could have been used to train RAs in the first place. To the extent

that research assistantships are not serving as useful research apprenticeships in which students are taught research skills and socialized into productive research careers, valuable training opportunities are being lost. While one cannot conclude unequivocally from the present study that research assistantships are failing to reach their training potential, all indications suggest that to be the case.

If the research assistantship is supposed to be a place where the apprentice learns the master's trade, then we can ill afford to squander the potential training value of such assistantships. Not unless we want to send out the graduates of our research training programs with less practical experience than plumbers.

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Table 1

Geographic Region and Type of Selected Universities

University	Geograpl. Region	Type
Brigham Young University	Western U.S.	Private
Cornell University	Eastern U.S.	Land-grant
University of Utah	Western U.S.	State-supported
Utah State University	Western U.S.	Land-grant
Western Michigan University	Midwestern U.S.	State-supported

Table 2

Number of Questionnaires (by University) Distributed, Returned, and Indicating a Research Assistantship Experience

University	Number of questionnaires distributed	Number (and percentage) of questionnaires returned	Number (and percentage) of returned questionnaires indicating a research assistantship
1. Brigham Young University	366	168 (46%)	111 (66%)
2. Cornell University	198	97 (49%)	83 (86%)
3. University of Utah	88	27 (38%)	20 (74%)
4. Utah State University	142	111 (78%)	67 (60%)
5. Western Michigan University	29	27 (93%)	20 (74%)
Total	823	430 (52%)	301 (70%)

Table 3

Distribution of Research Assistantships by Number of Faculty and Number of Research Projects to Which Assistant was Assigned

RA was Assigned to Work With:	Number of Research Projects		Total
	One	Several	
One faculty member	136	67	203
	(46%)	(23%)	(69%)
A variety of faculty members	53	37	90
	(18%)	(13%)	(31%)
Total	189	104	293
	(65%)	(35%)	(100%)

Table 4

Details of Research Assistant's Activities and Frequency of these Activities

	Percent Responding				Worthen & Roaden's "productive researchers"
	Never	Seldom	Sometimes	Often	performed this activity
Designed a research study	39	18	23	18	Far more often
Reviewed and/or abstracted literature on a topic	14	15	26	43	More often
Conceptualized a research problem	25	17	33	22	Far more often
Assisted in other conceptual activities	17	17	36	20	Far more often
Wrote a research proposal	59	12	15	10	Far more often
Designed statistical analyses	44	16	18	16	Far more often
Wrote computer programs	54	8	13	20	About the same
Interviewed and/or observed subjects	43	7	19	27	More often
Constructed research instruments	45	11	22	17	Far more often

(continued)

Table 4 - (continued)

Details of Research Assistant's Activities and Frequency of these Activities

	Percent Responding				Worthen & Roaden's "productive researchers"
	Never	Seldom	Sometimes	Often	performed this activity
Administered or scored research instruments	39	9	22	26	More often
Collected data in other ways	22	14	24	31	About the same
Assisted in actual teaching of courses	59	11	13	10	More often
Did typing, filing, and/or answering telephones	47	20	16	12	Far less often
Coded and/or tabulated data	22	11	26	38	About the same
Submitted data for computer analysis	39	10	18	28	About the same
Used other computer-related equipment	38	10	17	29	About the same
Interpreted data	23	12	29	32	Far more often
Helped write up final research report	38	11	20	24	Far more often

(continued)

Table 4 · (continued)

Details of Research Assistant's Activities and Frequency of these Activities

	Percent Responding				Worthen & Roaden's "productive researchers"
	Never	Seldom	Sometimes	Often	performed this activity
Wrote research article	55	10	14	12	Far more often
Gave a research paper	64	11	9	8	Far more often
Assisted supervisor with personal matters	60	14	12	5	About the same
Gathered data for thesis or dissertation	53	10	13	18	Far more often

Note: Percentages do not add to 100 because some individuals omitted some items.

Table 5

Number (and Percentage) of Research Assistants Using Various Methods of Data Analysis

Data analysis method	(%)	Worthen & Roaden's "productive researchers" performed this activity
Logical or conceptual analysis	(57%)	About the same
Content analysis	(41%)	About the same
Descriptive statistics (e.g., frequency, central tendency measures)	(56%)	Far more often
t-tests or critical ratios	(31%)	Far more often
Non-parametric analyses	(12%)	Far more often
Correlation or regression analysis	(40%)	Far more often
Factor analysis	(14%)	Far more often
Analysis of Variance or covariance	(26%)	Far more often
Multivariate analysis	(20%)	Far more often

Handouts to Accompany

A Second Look at the Relation of Research Assistantships And Research Productivity

Blaine R. Worthen

Department of Psychology
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Paper presented at the American Educational Research Association Annual Meeting

New Orleans, April 8, 1988

Common Assumptions About Research Assistantships

1. Real apprenticeship training is provided to persons who hold research assistantships.

2. Occupying a research assistantship is likely to lead the assistant toward a career in research.

3. The more time a person spends as a research assistant (up to a point of diminishing returns where the assistant is in perpetual servitude), the more likely that person in to go on to a career in research.

4. Most researchers know how to use research assistants to the mutual benefit of both the research and assistant.

Research Objectives

1. Depict the types of research assistantships currently existing in universities;

2. Ascertain students' perceptions of their research assistantships experiences;

3. Depict the specific activities and experiences current research assistants experience;

4. Determine whether today's research assistantships provide genuine research apprenticeship experience and, therefore, represent valuable research training opportunities; and

5. Compare, where appropriate, today's research assistantships with those found by Worthen and Roaden to be predictive of later research productivity.

Method

Sample

Table 1

Geographic Region and Type of Selected Universities

University	Geographic Region	Type
Brigham Young University	Western U.S.	Private
Cornell University	Eastern U.S.	Land-grant
University of Utah	Western U.S.	State-supported
Utah State University	Western U.S.	Land-grant
Western Michigan University	Midwestern U.S.	State-supported

Table 2

Number of Questionnaires (by University) Distributed, Returned, and Indicating a Research Assistantship Experience

University	Number of questionnaires distributed	Percentage of questionnaires returned	Number (and percentage) of returned questionnaires indicating a research assistantship
1. Brigham Young University	366	168 (46%)	111 (66%)
2. Cornell University	198	97 (49%)	83 (86%)
3. University of Utah	88	27 (38%)	20 (74%)
4. Utah State University	142	111 (78%)	67 (60%)
5. Western Michigan University	29	27 (93%)	20 (74%)
Total	823	430 (52%)	301 (70%)

Data Collection: Mailed questions, with two follow-ups, by local "facilitator"

Data Analysis: Descriptive statistics and comparisons with results of evaluation study (Worthen and Roaden, 1971)

Results

Incidence of Research Assistantships

- 70% of all assistantship holders said they had held one or more research assistantships

Description of Research Assistants

Current Sample	1971 Sample
56% male, 44% female	81% male, 19% female
47% doctoral students	85% doctoral students
47% masters students	10% masters students
6% postdoctoral/specialist	5% postdoctoral/specialist

Assistantship Structure and Purpose

Assistantships created for the purpose of:	
81% providing support personnel for a research activity	(75%)*
17% providing training for the research assistant	(25%)
2% didn't know	(0%)
Assistantship was sought/accepted for the purpose of:	
89% financial support	(75%)
74% desire for research experience	(70%)
20% advisor's recommendation	(30%)
14% degree requirement	(3%)
Research assistants worked with:	
46% one specific individual on a specific project	(18%)
Research assistants had:	
70% adequate office space and furniture	(73%)
62% sufficient salary	(56%)
68% adequate access to data analysis equipment	(70%)
41% financial support in the areas of reduced tuition or fees	(32%)
20% financial support for travel to conferences	(36%)

*Indicates 1971 sample

Table 3

Distribution of Research Assistantships by Number of Faculty and Number of Research Projects to Which Assistant was Assigned

RA was Assigned to Work With:	Number of Research Projects		Total
	One	Second	
One faculty member	136	67	203
	(46%)	(23%)	(69%)
A variety of faculty members	53	37	90
	(18%)	(13%)	(31%)
Total	189	104	293
	(65%)	(35%)	(100%)

Assistantship Experience

Table 4

Details of Research Assistant's Activities and Frequency of these Activities

	Percent Responding				Worthen & Roaden's "productive researchers" performed this activity
	Never	Seldom	Sometimes	Often	
Designed a research study	39	18	23	18	Far more often
Reviewed and/or abstracted literature on a topic	14	15	26	43	More often
Conceptualized a research problem	25	17	33	22	Far more often
Assisted in other conceptual activities	17	17	36	20	Far more often
Wrote a research proposal	59	12	15	10	Far more often
Designed statistical analyses	44	16	18	16	Far more often
Wrote computer programs	54	8	13	20	About the same
Interviewed and/or observed subjects	43	7	19	27	More often
Constructed research instruments	45	11	22	17	Far more often
Administered or scored research instruments	39	9	22	26	More often
Collected data in other ways	22	14	24	31	About the same

(continued)

Table 4 (continued)

Details of Research Assistant's Activities and Frequency of these Activities - (continued)

	Percent Responding				Worthen & Roaden's "productive researchers" performed this activity
	Never	Seldom	Sometimes	Often	
Assisted in actual teaching of courses	59	11	13	10	More often
Did typing, filing, and/or answering telephones	47	20	16	12	Far less often
Coded and/or tabulated data	22	11	26	38	About the same
Submitted data for computer analysis	39	10	18	28	About the same
Used other computer-related equipment	38	10	17	29	About the same
Interpreted data	23	12	29	32	Far more often
Helped write up final research report	38	11	20	24	Far more often
Wrote research article	55	10	14	12	Far more often
Gave a research paper	64	11	9	8	Far more often
Assisted supervisor with personal matters	60	14	12	5	About the same
Gathered data for thesis or dissertation	53	10	13	18	Far more often

Table 5

Number (and Percentage) of Research Assistants Using Various Methods of Data Analysis

Data analysis method	N (%)	Worthen & Roaden's "productive researchers" performed this activity
Logical or conceptual analysis	167 (57%)	About the same
Content analysis	120 (41%)	About the same
Descriptive statistics (e.g., frequency, central tendency measures)	165 (56%)	Far more often
t-tests or critical ratios	91 (31%)	Far more often
Non-parametric analyses	34 (12%)	Far more often
Correlation or regression analysis	118 (40%)	Far more often
Factor analysis	40 (14%)	Far more often
Analysis of Variance or covariance	75 (26%)	Far more often
Multivariate analysis	60 (20%)	Far more often

Research Assistant's perceptions of Their Assistantships

Design/Implementation of the Project

100% project was focused on a significant problem	(97%)
69% project was well designed	(79%)
54% project was well managed	(65%)
52% results were well analyzed	(75%)
46% project was accurately reported	(79%)

Research Assistant's Environment

48% very conducive to research	(78%)
47% somewhat conducive to research	(22%)
5% not at all conducive to research	(0%)

Interaction with Senior Researcher

15% had not had profitable interactions with any senior researcher	(2%)
68% had profitable interactions with one or two senior researchers	(48%)
17% had profitable interactions with several senior researchers	(50%)

Training of Research Assistants

22% useful techniques often taught	(44%)
37% useful techniques sometimes taught	(32%)
25% useful techniques seldom taught	(22%)
15% useful techniques never taught	(2%)

Amount and Quality of Supervision

73% satisfactory supervision	(81%)
1% supervised too closely	(5%)
13% inadequate supervision	(3%)
13% no real supervision	(11%)

Interactions with Senior Researcher

55% interactions influenced them toward more involvement in research	(90%)
8% interactions influenced them away from involvement in research	(0%)
37% interactions did not influence either toward or away from involvement in research	(10%)

Research Assistant's View of Supervisor

69% RA respected supervisor as a productive scholar	(71%)
65% RA respected supervisor as a good model of professional behavior	(73%)
67% RA respected supervisor as a competent researcher	(76%)
73% RA respected supervisor as a person	(85%)

Supervisor's View of Research Assistant	
31% supervisor viewed RA as highly competent	(64%)
51% supervisor viewed RA as quite competent	(31%)
15% supervisor viewed RA as average in competence	(3%)
2% supervisor viewed RA as somewhat competent	(2%)
Supervisor as Academic Advisor	
47% RA's supervisor and academic advisor was same person	(59%)
Separate Advisor and Supervisor	
67% academic advisor had greater influence on RA's career development	(66%)
33% research supervisor had greater influence on RA's career development	(34%)
Career Goals	
64% no shift in career goals	(26%)
24% shift toward research as a career	(74%)
11% shift away from research as a career	(0%)
Value of Research Assistantship	
44% research assistantship of great value	(75%)
41% research assistantship of some value	(23%)
13% research assistantship of little value	(0%)
2% research assistantship of no value	(2%)
Next Year's Preference	
52% RA would choose a research assistantship next year	(92%)
32% RA would choose a teaching assistantship next year	(6%)
10% RA would prefer an administrative assistantship	(0%)
5% RA would prefer some other alternative	(2%)