AN INDUSTRIAL RESEARCHER LOOKS AT THE MASTER'S DEGREE

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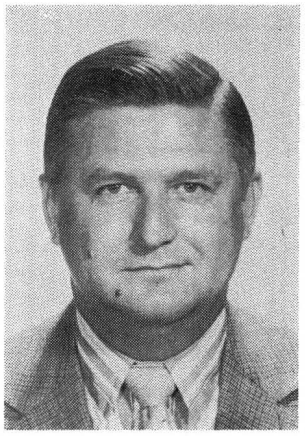
Some education at the graduate level prior to going to work makes a research engineer or chemist more productive sooner. The advantage disappears beyond the Master's level due to restrictions in hiring opportunities for PhD's.



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Advantage of Graduate Level Work to the Employer

The employer expects his research scientists to be familiar with basic fundamentals and to be able to use them as a tool toward some practical end. Thus, graduate work offers specialized training which can result in a high degree of productivity. In addition, there is generally some opportunity to get acquainted with the hardware for doing research and the hardware of a production plant. This is especially true when the graduate is required to do a research thesis.

An important benefit to the employer often resulting from a person's exposure to graduate studies is an improvement in maturity. The graduate must make many decisions in planning his program, he establishes personal relationships of a professional nature, and he has the chance to apply his newly learned theories for the first time.

Advantages of Graduate Level Work to the Employee

The graduate with an advanced degree first of all enjoys a higher starting salary than the BS. But more important, he has a competitive edge over the BS and is therefore more productive sooner during the first five critical years of his career when his rate of progress is quite often established.

There is a considerable amount of personal satisfaction resulting from having at hand the needed tools to be able to solve new problems facing the research man each day.

An important decision that a young scientist must make relatively early in his career is whether to become a specialist at doing research or whether to become a supervisor and do research through other people. The added professional exposure at graduate school quite often leads one to set his own personal goal.

Some Disadvantages of Graduate Level Work

The employer who interviews graduate students quite often discovers a concentration of extreme personalities. The student is often motivated to graduate school by a lack of confidence in his abilities to achieve competitively in industry. He feels that more and more education at the university will help him to overcome this sense of insecurity. I would guess that this rarely solves his problem. This problem is more often one of poor judgment. Scholastic excellence sometimes does not indicate a problem to the interviewer; but very often, highly specialized academic training is an end in itself to the superior student.

One problem that is rarely admitted by the employer is discrimination by individual supervisors who lack an advanced degree.

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The larger companies often have sophisticated organizations of specialists. Those companies prefer to provide needed specialized training and on-the-job training. By so doing, the company is able to better set standards for applying fundamentals according to proven methods. Supervisory training is certainly best obtained on the job.

The starting salary is greater for a man with an advanced degree. In the case of the PhD, the starting salary is quite often a restriction. The PhD has another difficulty in being able to fit into a training program at a company which might feel awkward in assigning the man to a young supervisor of lesser degree.

Possible Ways to Improve the Image of Graduate Level Training

I believe the university must depart from an emphasis on peer group ratings and accreditation institutions and turn an ear towards the needs of industry. On the other hand, industry must express its needs to the universities and supply ratings of the industries based on their ability to turn out the type of people that are needed by industry. This could occur in the way of participation in accreditation institutions. To encourage more emphasis on applied fundamentals, industry should participate more actively in providing temporary work for professors during sabbaticals and summer vacations. Industry should continue to participate and encourage cooperative programs for undergraduate students to produce graduate students with some practical experience, whereas the universities should provide more exposure to industrial hardware and practical use of new fundamental tools.

Summary

Some graduate level work is valuable for making an employee productive sooner. It provides a better understanding of how to apply fundamental concepts; it tends to aid in building professional maturity and job satisfactions through better pay and job preparedness.

On the other hand, there seems to be a trend away from practical applications of fundamentals which are of primary concern to an employer. As a result of this trend and the higher starting pay offered to graduate students, the Master's level appears to be an optimum level to this author. There are added social problems related to the hiring of a PhD which limit his opportunities.

It is believed that the image of graduate level training would be improved and its value enhanced if industry would more clearly state its needs to the universities. Joint participation by industry with the universities in accreditation institutions might be a start in this direction.

Survey Relates Quality Ratings To Teaching Load

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indicated, for instance, the general levels of degree output, fellowship support, grant support, and paper and publication production for schools in the three rating categories. The distribution of support among federal, industrial, and private foundation sources was also indicated. A few especially interesting statistics are (1) the inverse relation of teaching load to graduate quality, (2) the large average number of federal fellowships held by the best departments, (3) the relatively low level of research support given all departments by industry, (4) the relatively high rate of publication by faculty at the best departments, and (5) the relatively high stipends for teaching and research assistants at the best departments.

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