

# ***Essential Qualifications and Training for Value Analysts and Engineers***

## **14-1 *Qualifications***

Successful accomplishment of some types of work requires logic and experience. Examples are the work of the plumber and the electrician. Other types of work require logic and experience supplemented by the development of certain skills. Examples are the work of the surgeon, the typist, the telegraph operator, and others. Then there are types of work whose successful accomplishment depends on experience and extreme creativity. Examples are certain types of art and some types of music production. Probably most other types of work activity fall in the range between these extremes.

As wider experience is gained, the specific qualifications for the relatively new vocation of value specialist or consultant will become more clear, more tangible, and more reliable. The indications of experience to date are that for the successful accomplishment of value work, the requirements are logic, experience, and great creativity, plus the development of certain mental skills such as ability to:

- Make rapid and effective searches
- Recall

Sort out useful information from what is not useful

Put together new, different, and useful combinations of ideas, materials, products, and processes to accomplish functions

Promptly select those combinations which are most apt to be good ones

All these abilities and skills, it will be seen, have a close tie-in with creativity and thus actually become the means through which creativity operates. It will also be noted that the special information and knowledge of value analysis operate directly to support the development and use of this skill.

#### ***14-2 Traits, Characteristics, and Experience***

The necessary traits, characteristics, and experience, as spelled out and defined below, constitute essential qualifications for men engaged in value work.

##### ***Knowledge***

For product work, a practical understanding of the properties of materials and their uses and of manufacturing processes, their potentialities, and their limitations is needed. For service work, the equivalent knowledge in that field is necessary.

##### ***Imagination***

A good practical creative imagination commonly includes ability to retain extensive amounts of information concerning ideas for approaches and solutions to product problems, types of materials, properties of materials, processes, costs, and so forth, all arranged in a suitable order so that differing combinations may be creatively brought together and examined for applicability to problems at hand.

##### ***High Degree of Initiative***

In value work, there are no definite beginning and ending points, and specific instructions on how and where to proceed are usually nonexistent. Further, this type of work is not well enough comprehended by general management for a rate at which it should be accomplished to be spelled out. For these reasons, it is essential that men in value work have a high degree of initiative, which must include what might be called self-

drive, so that work activities will be started and carried through to completion with little if any supervision.

### ***Self-organization***

Initiative and drive are not enough; work must be effectively organized. Because of the lack of precedent and the lack of knowledge of organization for value work, conventional management supervision provides no experience for effectively instituting and executing the work. Therefore, the individual doing the work requires the ability to organize his activity effectively, as well as enough initiative to carry it out.

### ***Personality***

The work requires a mature, stable personality which is not easily discouraged. The entire field of activity in value work comes within the area of change. The amount of opposition to change usually prevailing cannot be conceived by anyone who has not attempted to operate in this area. The individual doing value work will be confronted with negative attitudes and delays of all sorts, with belittlement, and even with ridicule. The basic nature of anything new and the inherent attitude of the people with whom he will be dealing decree this. As Charles Kettering said, "The consensus of any group of people concerning something new in their field is always wrong." Or, as Thomas Edison said in 1926, "It requires about seven years for the average individual to accept a new proven solution to a problem." Because of this very exhausting aspect of value work, it is strongly recommended that it be performed by two or more persons working together. Each can then have an emotional environment of support, at least part of the time, which helps him feel that his work is a satisfactory and worthwhile endeavor.

### ***Cooperative Attitude***

A desire to work with others and a general knowledge of how to do it are other requirements, since the work is largely an endeavor based on working with others. It begins with acquiring an understanding of the job and proceeds by developing information which is often not available in ready form but which must be obtained if good value alternatives are to be produced. Knowledge concerning desired functions and methods for accomplishing them must be collected. Significant information must be communicated to competent commercial and technical people, and their wholehearted support (often with quotations) must be enlisted in expanding the area of knowledge in the direction of their skills through

the preparation of value alternatives. In many instances, the work includes the difficult assignment of getting information without giving offense.

### ***Experience***

All indications to date suggest that some five years of industrial experience in engineering, in manufacturing, or in special procurement dealing with particular specifications, opportunities, arrangements, and negotiations between buyer and seller (or equivalent experience) is essential. It seems also that actual experience in working with the normal situations that affect the development of value alternatives is required. These situations involve decisions between varying ways of accomplishing a function, between varying sources of supply, between differing systems of make versus buy, etc. Without experience along this line, there is a lack of background for efficient and effective search of possible combinations and for presentation of new and good value alternatives.

### ***Belief in the Importance of Value***

Starting with certain native inclinations and modified by childhood and business experience, any person develops interest in certain lines and disinterest in others. In essentially all cases, human beings are interested in food, although in some cases of unusually unfortunate environments, even loss of interest in food is developed by people. Some individuals are interested in flying, while others vow that they will resist it to the death. Similarly, some people develop an interest in providing new products through the development of new functions which their ingenuity can translate into a practical product. Other individuals develop an interest in making products more economical so that distribution may be widened with resultant benefits, not only to the company involved in selling the products, but to mankind in general, through more universal use. At the present stage of experience with value work, it appears that there exist marked degrees of difference in the beliefs of various individuals in the importance of low cost—or its equivalent, high value—in the general sense. Experience has shown that men who have strong belief in the importance of value are much more likely to be sufficiently motivated to develop the initiative, self-drive, and enthusiasm necessary to accomplish their work well. Such strong belief also seems to be an important factor in creating emotional stability in this very frustrating type of work. Hence the conclusion that “belief in the importance of value” is a significant trait.

## ***An Understanding of the Management and Decision Process***

It is also important to have a reasonable comprehension of the management and decision process. A host of good books provide this knowledge in depth. Management processes are not always optimum. For years, up to and including the present, decisions have not always been the best ones, but they are very real and very "controlling." Removing unnecessary costs often means patient, persistent, effective work for improvement in these areas.

### **14-3 Training**

#### ***Five Essentials of Training***

With the following training essentials, men will be prepared with understanding, with procedures and the experience of using them in disciplined thinking and acting, and with the confidence that grows only from a self-done task.

1. It must allow and cause each trainee to develop his own disciplined thinking.
2. It must provide understanding of reasons for excess costs.
3. It must provide disciplined procedures for identification and removal of unnecessary costs.
4. It must provide some new knowledge and much technique to be used in determining what knowledge to get, how to get it, and how to use it.
5. It must cause and allow each man to actually use the system and to secure better results than he thought he could.

#### ***How Much Training?***

One week of training followed by six months of good on-the-job value work (preferably with other trained and experienced men), another week of training of a more advanced nature, often including the teaching of beginners), and then six months of additional value work are good.

A general conclusion is that with this year of alternating between on-the-job work and periods of training, men who have the proper characteristics, qualifications, and traits for the type of work involved can acquire a sufficient degree of knowledge and skill to be considered competent to start on a career of work as value consultants.

It is significant to understand that training is mandatory because value work is based on the use of different sets of techniques in a special way

and on the use of special knowledge. Without suitable training, the quality of the value work will degrade the profession for those competent qualified people who can accomplish results of the highest order.

### *An Effective 40-hour Training Seminar*

Sessions can run continuously for a week or can be spaced.

Hours 1 to 4:	<i>Minutes</i>
Why the training?	15
What are we trying to do?	15
What is the value analysis and engineering system?	30
Why is the value analysis and engineering system needed?	30
Case studies	60
The vitalness of the right complete system	30
What must the system do?	30
 Hours 5 to 8:	
All cost is for function	30
Case study	30
Identify, classify, and name the functions	30
Project work—get started, understand it	30
Identify, classify, name functions of project	90
 Hours 9 to 12:	
Evaluate the function	30
Case study	30
Evaluate the functions of the project	60
Problem setting—function grouping and dividing	30
Case study	30
Problem setting on the project	30
 Hours 13 to 16:	
Specific knowledge	30
Problem setting on the project	60
Problem solving—job plan	60
Project work—"What are we trying to do?"	15
"Information" step on project	45
 Hours 17 to 20:	
Problem solving—job plan continued	60
Case study	30
Finish "information" step and get into "analysis" step of project	60
Decide and precisely define what problems are to be solved	30
Case study	30
 Hours 21 to 24:	
Specialized knowledge	30
Group creativity	30
Creativity on project problems	60
More "information, analysis, and creativity" on project problems	60
Case study	30

Hours 25 to 28:	
Specialized knowledge	30
“Judgment” step of job plan	30
Project work—information, analysis, creative, judgment	120
“Development” step	30
Hours 29 to 32:	
Specialized knowledge	30
“Decision environment”	60
Case studies	30
Project work	90
Hours 33 to 36:	
Using the system to solve the hard ones	30
Overcoming roadblocks	30
Finish project work—get into shape for reporting	120
Examples of good reporting form	15
Questions and answers on reporting	15
Hours 37 to 40:	
Finalize results and suggestions and prepare charts, reports, presentations	120
Present reports	60
Discussion	30

## **SUMMARY**

Value analysis is a system for use when better than normal results are needed. It is readily understandable that before an individual can be expected to achieve better than normal results, he needs the experience that enables him to produce normal results under the usual conditions. Five years or more of experience dealing with product or service factors of similar types are usually essential.

Broad knowledge in the field, a good practical creative imagination, a high degree of initiative, the habit of good self-organization, a mature personality, a very cooperative attitude, a belief in and “feeling for” the importance of low costs, and an understanding of the management decision process—all are essential for the optimum value analysis person.

An initial training period of 40 hours, of which about half is actual work, using the system, starts the use of the techniques. Six months of experience followed by another period of training usually results in enough familiarity with the system so that the individual can develop skill in value analysis.