

Research chefs' competencies: a Delphi approach

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Abstract

Identifies the basic competencies of research chefs. A modified, three-round (pilot round plus two rounds) Delphi procedure was employed. The Research Chefs Association nominated 33 research chefs. Ten of these chefs contributed to the pilot round; 25 to the first round; and 22 to the second round. In the pilot round, the chefs identified the knowledge, skills and abilities that a successful research chef should have. In the first round, the chefs rated and analyzed the competencies identified in the pilot round. In the second round, competencies were identified. The title "research chef" is actually a generic name for two different kinds of research chef: "research-focused research chef" or "management-focused research chef". Even though these chefs share some common competencies, they differ in their basic competencies. A total of 12 basic competencies (competencies rated four and over on the five-point Likert scale) were identified for research-focused research chefs, and eight basic competencies were identified for management-focused research chefs. A total of 19 basic competencies were also identified that applied to both research- and management-focused research chefs.

Introduction

Research chefs are serving one of the most important industries in the USA – the food service industry. However, to the present time, little, if any, attention has been given to the research chef job. Even the 1990 *Dictionary of Occupational Titles* does not list this occupation. There is virtually no published research on the occupation. As a result, this study is designed to determine the basic competencies required of a successful research chef.

A recent study by the American Compensation Association (1996) conducted on 217 companies revealed the following important insights on competence. Of those companies using competencies for:

- staffing, 88 per cent use competency-based interviews for hiring/selection decisions;
- training and development, 62 per cent have developed or acquired training or learning programs specifically for competencies;
- performance management, 90 per cent use competency-based performance appraisal data for employee development;
- compensation, 64 per cent reported that pay increase decisions are affected most by change/growth in competencies.

According to McLagan (1996), competency models can be used as criteria for the following:

- training curriculum design;
- recruitment, selection and assessment;
- coaching, counseling, and mentoring;
- career development, and succession planning;
- a central point for organizational development.

According to Ulrich (1996, p. 1), "understanding HR (human resource)

competencies ... is at the core of the emerging HR profession". Therefore, it is believed, understanding research chef competencies is at the core of the emerging research chef profession.

Competence defined

There seems to be many competing definitions of competence in the literature. According to Gale and Pol (1975, p. 20):

Competence is a molar concept similar to the concept of intelligence. Both terms imply that they are composed of a complex of important interrelated elements. It is, therefore, conceptually unsound to speak of competence as a plural term unless two or more different roles or positions are intended. ... Speaking of "competencies" as sub-parts and pieces that go to make up a total competence is just as illogical as calling "intelligencies" pieces of an intelligence.

For Gale and Pol (1975), major elements of the components of competence are skills, judgment, attitudes and values, entry-skills, knowledge, ability, and capacity.

Boyatzis (1982, p. 21) discusses that a job competency is "an underlying characteristic of a person which results in effective and/or superior performance in a job ... an underlying characteristic of a person in that it may be motive, skill, aspect of one's self-image or social role, or a body of a knowledge which he or she uses".

To McLagan (1997), on the other hand, in the job, competency relates to the work-tasks, results, and outputs. Also, the characteristics of the people doing the work – knowledge, skills, and attitudes. A hybrid often mixes those two kinds into "an attribute bundle" (McLagan, 1997, p. 41).

Following the competence definitions that have been provided by various researchers and sources, competence for this study is defined as skills, ability, knowledge, and other attributes that make a successful research chef.



Study design

A modified version of Delphi was used for the study. The Delphi method was modified by eliminating the first round questionnaire containing unstructured questions (Delbecq *et al.*, 1975; Murry and Hammons, 1995). Instead, a pilot unstructured questionnaire was sent to a leader group (a total of 12) nominated by the Research Chefs Association. The leader group’s responses to the unstructured questions were utilized to develop a structured questionnaire.

Population and sample

The Research Chef Association has assumed sponsorship in developing and conducting this research. To identify participants in the study, the Association was asked to nominate people in the field considering their experience, educational, and ethical background. According to Murry and Hammons (1995), in any Delphi study the major criterion should be the panelists’ expertise (e.g. being members in a relevant professional association) on the subject to be studied. The Association’s code of ethics were used as ethic criteria. No other criteria were established.

Delbecq *et al.* (1975) state that ten to fifteen participants might be enough with a homogeneous group. “Our experience indicates that few new ideas are generated within a homogeneous group once the size exceeds 30 well-chosen participants” (Delbecq *et al.*, 1975, p. 89). A literature review has revealed that Delphi studies in identifying competencies of various occupations had a range of 30 to 50 panelists (Everett and O’Neil, 1990; Graves, 1993; Tillman, 1989; Thach and Murphy, 1995; Warner, 1990). For this research, a total of 30–35 panelists were projected. The Association nominated a total of 33 names.

Pilot instrument

To assist in question development, a modified version of the question system developed by Hale (1991) was utilized for this study. Modifying Hale’s questions and following recommendations by McLagan (1997) and Gale and Pol (1975), the following Delphi questions were developed:

- What skills and knowledge areas are required of successful research chefs?
- What responsibilities (task areas) distinguish a research chef from other chefs?
- What factors distinguish a respected leader among research chefs from those who are less successful?

On 4 November 1997, the pilot instrument was mailed to a total of 12 chefs. However, only ten of them completed and returned the pilot instrument.

Delphi instruments

The first instrument was developed using responses to the pilot instrument. Competence statements were clarified and combined, and each useful statement was included in the first instrument. In the first round, the participants were asked to rate each competency statement on a 5-point Likert scale. A Likert scale has been the most common tool that is used to quantify views in a Delphi study (Murry and Hammons, 1995).

A total of 33 research chefs were invited to participate in the first round; 28 of them accepted to join the study. The first instrument was mailed to the participants on 2 January 1998. A total of 25 chefs completed and returned the instrument.

Following participant recommendations from the first instrument, the second instrument was developed. Some statements were rewritten and restated. New knowledge statements, skill and ability statements, and behavioral statements provided by the participants were added to the second instrument. At the end, there were 46 knowledge statements, 38 skill and ability statements, and 23 behavioral statements in the final instrument.

On 16 February 1998 the instrument was mailed to 25 research chefs who contributed in the first round.

Findings

An analysis of the identified competencies of chefs showed that it was possible to cluster the research chef into two main groups, specifically:

- 1 research focused research chef (see Table I);
- 2 management focused research chef (see Table II).

“The research focused research chef” primarily develops new products, creates new recipes, and does food testing. This chef has a substantial background on food ingredients, sauces and stocks, and various cuisines. Twelve basic competencies (competencies rated four and over on a 5-point Likert scale) were identified for “research focused research chefs” (see Table I).

The second type of research chef identified by the study was named “management focused research chef”. This chef is a person who represents his/her employer, does presentations, and sells products. This

Table I

Competencies for research focused research chef

Competencies ^a	M ^b
Knowledge of recipe development and formula ratios	4.55
Ability to work with a product development team	4.55
Knowledge of culinary fundamentals and production systems	4.32
Knowledge of ingredients functionally	4.23
Knowledge of traditional sauces/stocks	4.23
Understanding of the complete process of research through production of a product which can be produced in large volumes	4.14
Knowledge of all commercial kitchen functions and pressures	4.14
Ability to leverage trends into new products	4.09
Understanding of food testing	4.09
Ability to work effectively with other company departments to develop large scale products	4.09
Knowledge of regional cuisines, including preparation, spicing, and presentation	4.05
Understanding of changes in ingredients resulting from the research process	4.05
Knowledge of sensory analysis	3.95
Ability to keep high concentration	3.95
Knowledge of research methodologies – experimental design	3.64
Knowledge of oils and spice extractives	3.59
Knowledge of gum/starch stabilization systems	3.50
Knowledge of other research and research activities through networking skills	3.45
Knowledge of food additives	3.41
Knowledge of food chemicals and their usage levels	3.36
Knowledge of applicable food chemistry and microbiology	3.27
Knowledge of product changes necessary for multi-cultural distribution	2.86
Knowledge of the physics of heat exchange	2.64

Notes: N = 22; ^a Rating scale: 5 = extremely important, 4 = very important, 3 = important, 2 = slightly important, 1 = not important; ^b M = mean

Table II

Competencies for management focused research chef

Competencies ^a	M ^b
Ability to work with customer/client groups	4.59
Knowledge of end user skills (e.g. cooks in national chains)	4.32
Skilled at food presentation	4.18
Management skills (delegating and organizing, personnel development)	4.14
Knowledge of food service operations	4.09
Skilled at basic computer systems	4.09
Skilled at presentation of research and plans	4.00
Skilled at writing accurate reports	4.00
Leadership skills (ability)	3.91
Skilled at public speaking	3.77
Ability to think analytically	3.77
Ability and willingness to travel	3.73
Knowledge of operations (back and front of house)	3.68
Knowledge of large scale production systems	3.59
Knowledge of food safety and OSHA safety systems and laws	3.59
Knowledge of quality assurance systems	3.55
Ability to have or create a vision (not necessarily a solution)	3.50
Knowledge of strategic planning	3.32
Knowledge of current economic climate	3.23
Understanding of the nature of prod./distribution system delays and hurdles	3.18
Knowledge of government food regulations	3.14
Skilled at execution of consumer research projects	2.86
Knowledge of business marketing	2.73
Knowledge of cost accounting	2.68
Knowledge of finance systems	2.18

Notes: N = 22; ^a Rating scale: 5 = extremely important, 4 = very important, 3 = important, 2 = slightly important, 1 = not important; ^b M = mean

person is a strategic planner, a visionary, who carries the goals and objectives of his/her organization, and works with customer/client groups and end users; a manager type. Eight basic competencies were identified for “management focused research chefs” (see Table II).

There were also various competencies identified which applied to both the research focused research chef and the management focused research chef (see Table III). A total of 19 basic competencies were identified in this category.

Discussion and recommendation

The two research chef roles that were identified in this research were loosely

named as “research focused research chef” and “management focused research chef”. The first is a person who primarily engages in new product development, in creation of new recipes, and in food testing. This chef also possesses a strong background in food ingredients, sauces, stocks, and various cuisines. On the other hand, the “management focused research chef” is a person who is primarily engaged in representation of his/her organization, in product sales, and presentations. Moreover, this person is a major figure in strategic planning, and overall goals.

As a result, the products of this research were identified as: two roles of research chef; and the necessary competencies of these two roles.

Table III

Competencies for both research and management focused research chefs

Competencies ^a	M ^b
Knowledge of flavors	4.59
Knowledge of food sanitation	4.55
Ability to distinguish levels of quality in food products	4.55
General communication skills (verbal, written, listening)	4.50
Ability to make decisions	4.45
Ability to conceptualize new products, processes, systems – Creative	4.36
Ability to keep ego in check	4.36
Ability to see the “Big Picture”	4.36
Ability to work in multi-task environments	4.32
Ability to prioritize projects	4.27
Knowledge of projected/future food trends	4.27
Knowledge of culinary uses and applications of products	4.23
Knowledge of current food trends	4.23
Ability to balance personal and professional lives	4.18
Ability to take criticism	4.14
Ability to control emotion during communication with people	4.14
Knowledge of weight and measurement conversions	4.05
Skilled at time management	4.00
Skilled at motivating a team	4.00
Knowledge of formulas for conversion computations	3.95
Ability to perform public relations functions with new customers/clients	3.91
Ability to balance between competing pressures – Perspective	3.82
Knowledge of menu engineering	3.82
Knowledge of competitive products	3.82
Knowledge of cultural preferences as they affect food products	3.64
Skilled in helping others – Mentor	3.59
Knowledge of technologies affecting projects	3.55
Skilled at general mathematics and statistics	3.55
Knowledge of human nutrition	3.45
Skilled at computer wordprocessing (Word, WordPerfect)	3.27
Ability to use internet as a research tool	3.23
Knowledge of large production equipment and limitations	3.18
Skilled at computer spreadsheets (Excel, Lotus)	3.05
Skilled at/with computer presentation programs (PowerPoint, CorelDraw)	2.55
Ability to develop “packaging” for finished products	2.05

Notes: N = 22; ^a Rating scale: 5 = extremely important, 4 = very important, 3 = important, 2 = slightly important, 1 = not important; ^b M = mean

However, much more work remains and is needed on the identified competencies. Developing the competency statements into training programs and/or reward eligibility criteria would probably be challenging. A major difficulty that would be encountered would probably be using behavior competencies. Developing training programs for and measuring behavior competencies has always been difficult.

On the other hand, the findings offer great opportunities to conduct more research on the research chef occupation. The profession is expected to change quickly. There are at least three major factors that might be expected to contribute to this change:

- 1 advances in food chemistry;
- 2 interactions of food product and food equipment specialists; and
- 3 expanding roles within companies.

Further analyzed and refined, the competencies can be used to define today’s research chef, and research chef occupation. Development of any education programs to maintain, or enhance members’ skills, and development of any achievement recognition systems might also be done using the competencies.

As discussed before, one of the major findings of this study is the identification of two major research chef roles, namely “research focused research chef”, and “management focused research chef”. It would be a worthwhile undertaking to further study this finding and validate it.

Overall this is a major step toward developing the research chef and research chef occupation. Cited in Gale and Pol (1975, p. 20), McCleary charges:

No group can claim professional standing without explicit statements about what constitutes competence in that field and the means by which competence can be obtained and assessed.

McLagan and Bedrick (1983) states:

The competency study is a major step toward professionalization of the very important field of training and development. It demonstrate that ASTD [American Society for Training & Development] is committed to leading, creating and refining the models that can make synergy and professionalization happen” (p. 20).

It can be claimed that these statements are also true for the research chef occupation and The Research Chefs Association. A major step has been taken toward a professionalized, more respected, and more valuable research chef.

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