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## Students perception of the 21st Century Chefs

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**Abstract:** The tourism sector in Costa Rica represents between 6 and 7% of GDP and 25% to 30% of this contribution comes from food and food related services. The professionalization of the chefs is essential for the maintenance and stability of this contribution. The study identifies the perception of culinary arts students in relation with the skills required to be a successful chef. A census of the 184 students was conducted at culinary arts school of a private university. The survey demonstrated a robust construct validity with an alpha value of 0.88. The results of the study indicate the need to combine the technical and managerial skills in the curriculum of the students as they clearly perceive these combination as a future need. The factor analysis identified two factors: a first factor, associated with general management skills and a second factor with skills, values, attitudes and personal characteristics. The results suggest the need for trans-disciplinary cooperation between technical and managerial training students to chefs, something that is already accepted in some of the largest U.S. schools and Europe

**Key words:** Gastronomy, Education, competencies, Costa Rica.

### Percepción entre los estudiantes de los Chefs del siglo 21

**Resumen:** El sector del turismo en Costa Rica, representa aproximadamente entre el 6 y 7% del PIB y los negocios ligados a la comida en forma directa son entre el 25 y el 30% del aporte. La profesionalización de los chefs es esencial para el mantenimiento y estabilidad de esta contribución. El estudio aquí reportado identifica, la percepción de los estudiantes universitarios de artes culinarias, sobre las competencias requeridas para ser un chef exitoso para lo cual se realizó una encuesta a todos los estudiantes de esta especialidad, 184 en total, en una escuela de artes culinarias de una universidad privada. Los resultados del estudio señalan la necesidad de combinar las competencias técnicas y de gestión en la escuela de artes culinarias en los planes de estudios ya que los estudiantes perciben claramente estas necesidades futuras. El instrumento usado en la encuesta mostró tener una validez robusta dado el valor de 0,88 para la prueba alfa. El análisis factorial exploratorio identificó: (f1) asociado con habilidades de dirección general y (f2) con habilidades, valores, actitudes y características personales. Los resultados plantean la necesidad de una cooperación más trans-disciplinaria entre los aspectos técnicos y de gestión en la formación de los estudiantes a chefs, algo que ya está siendo aceptado en algunas de las escuelas de hospitalidad y artes culinarias más importantes de EE.UU. y Europa.

**Palabras Claves:** Gastronomía, Educación, Competencias, Costa Rica.

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## 1. Introduction

Tourism in Costa Rica and in the other countries of Central America and Mexico – Panama, Nicaragua, Honduras, El Salvador and Guatemala. is an economic activity that governments of the area look to, as a way to create jobs, and reduce unemployment rates, that the current global economic crisis has created.

To make sure that the role of job creator is fulfill, is extremely important that the culinary arts schools understand that training of future chefs, in how to cook will not be enough

in the years ahead to be a successful professional.

The combination of technical and management abilities is believe will be the foundation for success of the future chefs, when they go to meet the challenges of the real world in a global society. Challenges that are very different from those faced by their instructors when they were trained in many cases, at least a decade or so ago.

The problem that we address in this research paper, is whether or not, the new generations of chefs that are being trained at this time, by the gastronomy and cooking schools of the area, are aware of what the future will be like for them and if they understand and appreciated the challenges that global societies will placed on them.

The understanding of what the future will be like is very important on behalf of the students, because over the past decade Costa Rica has become a major destination and food services in the country are going through a rapid professionalization process and that will required professional chefs not just cooks.

Tourism in Costa Rica, in 2011 accounted for 6 and 7% of GDP and 19.8% of total exports and employs about 300,000, despite the international crisis, the restaurant and catering sector, between 25 and 30% of the expenditures associated with hospitality (ICT, 2012)

This is important to understand, because many continue to apply the recipes of the “boom” era of the seventies and eighties almost to the training of chefs of the 21<sup>st</sup> century, forgetting that in 2012, the others countries of the region compete openly with each other, to obtain a piece growing tourist dollar and a share of Costa Rica growing tourist market.

In Costa Rica, currently there are an undetermined number of culinary schools, ranging from technical schools to universities, where students, are taught “how to cook”. The growth and job opportunities in the sector, makes many universities and technical schools, interested in this activity as a lucrative and attractive market for

education services in gastronomy, without evaluating what involves teaching culinary arts in 2012 vs. 10 or 20 years ago, and for that matter, what it means to be a chef in a luxury hotel or restaurant for vs. the “small hotel or little restaurant” in the town were one was born.

Instructors and students should understand that the tourism business became global, and this change the rules of the game, today it does not seem to be enough, to know how to cook, the recent literature indicates that along with knowing how to cook, one has to be able to manage the kitchen and be bilingual. In essence the purpose of the study was to identify,

What competences do students feel they need today to get a job and be successful chefs?. We recognize that academics and experts opinion are very important in deciding what and how to teach a subject, but we feel the time has come to ask them, what do they think they need, in order to better guide what needs to be taught to the students so they can be successful chefs in the new global context..

## 2. Objectives of the study

The new global context led to proposing the following objectives for the study:

- a) Establish core competencies that students perceive as important in the culinary arts to become a successful chef after graduation
- b) Suggest on the basis of the results, items to include in the curriculum, to improve the training of students and facilitate success for the young chefs and
- c) Contribute to the harmonization of the work of educators and student satisfaction with the educational programs.

### 2.1. Hypothesis

The central hypothesis of the study was:

H1. The new generations of students chefs are aware of the new global needs of the gastronomy industry.

## 3. Framework for Analysis and Literature Review

### 3.1. The definition and philosophy of Competences

The study defines competence as a set of related knowledge, skills, and behavior patterns

that affect a significant portion of a job (a role or responsibility), that correlate with job performance, which can be measured against accepted standards, which can be improved through training and development, and that enable a person to carry out their tasks and functions with competence and, in the case of students, should reflect the graduation requirement of academic or vocational training institutes for future professionals.

Traditionally cooking has been related to the concept of learning by doing. One learned to cook from a master, that in turn learned from a master, but today with clients from many countries and cultures, young chefs must be ready to face this diversity of cultures and tastes. To get an idea of the clients diversity, for example, Costa Rica received in 2011, visitors from 51 countries, from North America, Central and South America, Europe, Asia, Africa and the Middle East. (ICT, 2011). Today a chef in a hotel or a restaurant of some "prestige" will be facing the challenge of finding customers among its clients from many parts of the world with different tastes and needs.

The emergence of global hotel chains requires levels of operating standards, procedures and protocols to operate and manage hotels and restaurants, and at the same time will demand from the chefs, an appreciation and management of the local cuisine, that will be a combination of world / local conditions particularly in the case of the new global hospitality operators.

In Costa Rica, if one reviews the hotel chains that have started operations in the country in the last 10 years, the vast majority are global chains, where the chefs, will run the kitchen with a team that is usually complex in races and expertise, given the complexity of a global operation, the chefs will have to know how to cook and how to manage the kitchen, in order to meet the operational requirements of global operating chains.

Today one, cooks for the world and operates within it. We believe that this reality is exacerbated in small and medium restaurants nationwide, (which receives for) receiving tourists from many countries that when couple with the fact that local costarricans have been "growing" in sophistication and appreciation of good food making the world increasingly complex not only for those working for large global, local and regional brands, but also for those that will become gastronomy entrepreneurs, because they must provide or contract, logistic support, economic and administrative services that large hotel chains and restaurants by their very nature,

provide its operating units around the world in many cases from a central source.

Whether you work for large hotel chains, restaurants or on your own one, the complexity of global and local clients with more knowledge about culinary topics, will make the skills for chefs, move beyond the traditional hands-on learning to a more comprehensive education, not that cooking has become less important, but cooking skills in the future, must be complemented with other administrative s, management and language skills, which are required when operating in a global environment. The balance between cooking and administration will be essential and to achieve it one will have to possess skills, knowledge beyond cooking. Global tourism does not mean "boring food"

### **3.2. Skills and competences of the New Chefs.**

What is the current view of the skills required to operate in an environment like the one described?. Opinions are varied, Balazs (2001), argues that the chefs of the great french restaurants play multiple roles: creative, technical, leader, entrepreneur, and leading representative of French culture. Gomez et al. (2011) conclude that the difference between a great chef and a good one in France, is not only technical, but a mixture of confidence, concentration and ability to face challenges at every turn, which is socially constructed. (Gomez et al 2011).

### **3.3. A Summary of Recent Ideas and Potentials Trends**

The most recent material have been summarized in Table 1.

The central areas of future competences appear to be:

- a) Technical area, manage the physical, chemical and nutritional food preparation, not only know how to cook, but also how to adapt these criteria to the local cuisine,
- b) Hygiene area, manage and adapt the concepts and hygiene protocols and international operating conditions, that often by culture and tradition, scuffle with the minimum international operating standards.
- c) Administrative area, manage and adapt the economic, administrative and logistic of supply of products and services that involve the menu, keeping a balance between flavor, nutrition and cost, efficient

**Table 1. A Resume of Values, Competence and Attitudes**

Values, Competences and Attitudes	Source
Knowledge of food sanitation Knowledge of flavors , Distinguish levels of quality in food products Good Communicator ability to make decisions , New products development Knowledge of processes and systems, Keep ego in check , Multi tasking See the "Big Picture" , Prioritize projects. Passion for food, Passion for personal presentation Go getter Good Trainer and mentor Interest for new culinary knowledge, HACCP hygiene management, Product freshness assessment and pre handle Knowledge of accident corrective action ability, Accident management ability, Menu design and analysis ability, Food preparation ability	(Johansson et al,2010) (Bisset, 2009) (Bisset et al, 2009) (Bisset, 2009) (Harrison and Kelly, 2006) (Wang et all, 2011) (Fu-Jin et al,2011) (Lee, 2010)
Time management Knowledge of culinary fundamentals Handling big volumens Food presentation New Culinary Products usage Knowledge of kitchen management Knowledge of functional foods Knowledge of food qualities Knowledge of food analysis Knowledge of food safety Capable of taking decisions Capable of multitasking Good Communicator	Hayama, et al, 2003
Knowledge of nutritional aspects	Canter, et al 2009
Teamwork and development	Riggs y Hughey, 2011 Gersch, 2011
Leadership	Riggs y Hughey, 2011 Pettersen, 2006 Lutzen , 2010

Note: Sources are presented in Bibliography

handling within a give time frame and see that others do the same,

- d) Personal area to understand what it means to be a leader, educator, motivator, and good listener. Understand that you will work in / with other cultures, in terms of teams and people. Being bilingual and human according to the needs of the employees and employer.
- e) Communication area, know how to present and communicate ideas "orders" respecting cultural diversity and respect for others, keeping his ego and success in check.

### 3.4. University Readiness to Meet the Challenge

In 2012, culinary arts educators and are not experienced enough, on how to develop this combination of skills, even though many educators recognize that the combination of soft and hard skills is needed, and if provided, will ensure the "marketing" of their graduates in a more appealing fashion. However, many are still teaching without considering the new and changing needs in the environment (Chen and Hsu, 2007; Feng et al, 2011).

However, it is important that gastronomy education and training programs be aligned with industry needs. The culinary arts education needs to be examined more closely to ensure that the skills and competencies that are taught are actually needed by industry when students enroll in career programs (Van Leeuwen et al 2010).

As we look, at the competence, values and attitudes, and the institutional capacity to deal with the 21<sup>st</sup> century challenges, it is felt, that it is essential to explore, the students perceptions and acceptance of the new needs and trends, in order to aligned perceptions, needs and education programs with the new reality, and above all industry needs, something that at times is question by those in charge of hiring the chefs of the 21<sup>st</sup> century.

## 4. Methodology

### 4.1. Site

The study site was the Culinary Arts program at a private university, which has a three-year program to prepare chefs. The 184students represented a census of all the students of the school at the time of the survey.

## 4.2. Data collection and analysis

The data collection phase consisted of four steps:

- (1) selection of a pre-sample random of students from each of the three levels of study (30 in total), explanation of the meaning of the word competence and request their opinion concerning which they considered were the five core competencies that a young graduate must have to become a successful chef in the 21<sup>st</sup> century.
- (2) Selection of responses that were repeated more than three times in the 30 responses and tabulation, which resulted in 32 words that were a mixture of skills, values, attitudes and personal characteristics associated with the individual and 12 small one-line comments, related to management skills.
- (3) Development of the survey using the results of the previous tabulation. The questions were assessed using a five levels Likert scale where the number one meant that the word or statement was not important, and five that was very important for success as a chef in the 21<sup>st</sup> century.
- (4) Application of the survey to 184 students of the school in 2012.

## 4.3. Analysis of the Data

The analysis performed, was a combination of principal components and exploratory factor analysis. The exploratory factor analysis, used a Varimax rotation, with an eigen value load restriction of 0.5. Construct validity and reliability was assessed using Cronbach's alpha. Statistical analyzes were performed using Minitab 16

## 5. Results and Discussion

The socio-demographic characteristics of the students are presented in Table 1. Two elements that deserved being highlighted. The education level of the parents, with 54, 9% of the fathers and 46, 7% mothers with university and graduate degrees. The other interesting finding is the percentage of business people in the group of parents, in the case of the fathers 25, 5% and in the case of the mothers 15, 2%, could be indicating, that they belong to homes, with a definite contact with the global conditions, making the students fully aware what is the meaning and implications of a global society. The results that

will be presented in Table 2, we feel is a clear evidence of the fact that 21<sup>st</sup> century university students are more connected with the world than the previous generations, probably making them more demanding and knowledgeable than any other generation in history.

H1. The new generations of students chefs are aware of the new global needs of the gastronomy industry.

The Cronbach's alpha was estimated at 0.8870 value that shows that the instrument is reliable for the purpose it was developed.

The results of the exploratory factor analysis are presented in Table 2, indicates that two factors accounted for 59% of the variance, all other factors did not meet the Kaiser rule and were not considered. The first factor is interpreted as related to management skills, and include 'from crisis management to general management capacity and the second to the personal characteristics of the future chef as perceives by students.

The "soft" management skills seem to be the basis of the results of this first factor since, considerations and customer relationship, clients management and speak other languages, reinforce the management perspective. This combination, in our opinion, sends a message from the perspective of the students that in the case of Costa Rica, as in the case of many developing countries that are economically dependent on tourism when a young chef is hired by a large hotel, global hotel chain or restaurant is expected of them that, they will be not only good cooks, but also stewards of their kitchen. The other important variable included in this factor is communication. In a global world with global communications is essential mastering other languages and they themselves seem to understand very clearly this fact. It is our interpretation that the first factor tends to convey the idea of global manager and chef. The other reality is that chefs are transferred within global chains from one place to another as needed this is a common theme of personnel management that the overall chef need to accept without discussion if it chooses to be a chefs in a global operation.

The second factor, combine the ideas associated with culture, tenacity, dedicated, confidence, good cook, efficient, discipline, knowledgeable, perfectionist and craftsmanship, this group of variables described, a chef focused on their cooking skills and all the abilities, competences, virtues and attitudes of a person.

**Table 1. Socio demographic characteristics of Students, 2012.**

<i>Age</i>	<i>Frequency</i>	<i>%</i>	<i>FaEduLev</i>	<i>Frequency</i>	<i>%</i>
16	1	0,5	Primary	50	27,2
19	72	39,1	High School	33	17,9
21	58	31,5	University	63	34,2
24	25	13,6	Graduate	38	20,7
27	14	7,6	Total	184	100,0
30	2	1,1	<i>MoEduLev</i>	<i>Frequency</i>	<i>%</i>
over 30	12	6,5	Primary	51	27,7
Total	184	100,0	High School	47	25,5
Female	82	44,6	University	55	29,9
Male	102	55,4	Graduate	31	16,8
Total	184	100	Total	184	100,0
<i>Quarter</i>	<i>Frequency</i>	<i>%</i>	<i>FaLabAct</i>	<i>Frequency</i>	<i>%</i>
1	45	24,5	Employee	118	64,1
2	22	12,0	Employer	47	25,5
3	22	12,0	Graduate	14	7,6
4	0	0,0	Retire	5	2,7
5	34	18,5	Total	184	100
6	27	14,7	<i>MoLabAct</i>	<i>Frequency</i>	
7	7	3,8	Employee	107	58,2
8	8	4,3	Employer	28	15,2
9	19	10,3	Home	49	26,6
Total	184	100,0	Total	184	100

Source: The Survey.

The management and person concepts of factor one and two, if one thinks of issues like time management, crisis management, good communicator, customer relationships, empathy and knowledge of other languages is easy to develop the idea that to meet the challenge of profession, is not enough to be a good cook conditions and characteristics that are represented in factor two. In other word, to be a succesfull managers, you must be a good cook and a good manager, human being and businessman.

A comment that is warranted at this time is, that if we combine the findings of tables 1 and 2, is easy to conclude that, if an important portion of the students come from, educated and business homes, is logical to assume, that they be fully aware of the global world and what it means in terms of the profession that they have chosen. Another interesting idea, that comes out of the previous numbers is, what is the impact of the of the group coming from, high education and business homes, in the group as

a whole in a society where the family and peers plays and important role in influencing the way one thinks, behave and believe. Although this was not a topic of the study is an interesting research speculation,

The findings of the study are very relevant, because they points out, that there is a coincidence, in terms of what students believe and what industry seems to be requiring in terms of including, soft management skills in the student training. Is evident that students feel they themselves need this new skills, to face the 21<sup>st</sup> century recruitment needs of a global hospitality business. As we move into a global world, with global chains and global tourism, it is important that we move beyond the traditional chef. to the idea of a combination of artist and manager.

In other words, the new chef of the 21<sup>st</sup> century as perceived by the students, emerges as a combination of artist and manager. Culinary educators must understand that we are not

**Table 2. Factors, Loadings and Communalities, 2012**

Variable	Factor 1	Factor 2	Communalities
Crisis management	0,91	0	0,88
Time management	0,92	0	0,86
Cultural differences	0,90	0	0,82
Good communicator	0,87	0	0,77
Demonstrated empathy	0,79	0	0,68
Speak others languages	0,74	0	0,63
Customers relations	0,70	0	0,54
Management Skills	0,69	0	0,40
Culture	0	0,86	0,67
Tenacity	0	0,81	0,66
Dedicated	0	0,79	0,59
Confidence	0	0,74	0,59
Good Cook	0	0,72	0,54
Efficient	0	0,71	0,53
Discipline	0	0,70	0,53
Knowledgeable	0	0,66	0,52
Perfectionist	0	0,62	0,49
Craftmanship	0	0,60	0,45
Variance	5,7078	5,5837	11,291
% of Variance.	0,2966	0,2943	0,5909

Source: The survey

advocating that chefs, will turn business managers. The suggestion is to give the “students chefs” the tools and knowledge, they need to be a good cook, and to manage the kitchens of the restaurants and hotels they will be in charge, in a more professional and competent fashion.

Gastronomy is becoming a science, a food science, with all the implications of a science, in learning, research, industry contacts, languages and management. As we see it, the chefs of the 21<sup>st</sup> century will probably be a blend of artist and manager, the interesting thing about this comment, is that the students themselves see it that way, and that should be an eye opener for everybody.

Based on the results obtained the we are able to accept the hypothesis of the study.

**5. Conclusions**

- The instrument used proved to be valid on the basis of the value of 0.88 alpha test.

- The apparent successful combination of qualitative and quantitative methods, combination that can be criticized. Nevertheless combination that is the study greatest strength, because the client was very actively involved in drafting the final survey and reflects its own ideas and opinions not those of the “experts” and that was one of the central goals of the study, students involvement.
- The results identify, factor one, with general management skills and factor two, with the skills, values, attitudes and personal characteristics, related to the person. The results suggest that culinary arts curriculum should consider, a minimum of management information in order to meet the needs that students themselves perceives, will face once they leave the kitchens and classrooms of technical schools and universities and enter the real world..
- The study identify a student that seems to be in tune with the future. It is clear that they understand that the chefs of the future will operate in a global environment, creating a real need for gastronomy educators, to rethink the process of academic and technical learning that today are used in schools and universities in many parts of the world, to cover the skills, competences and attitudes, in line with the needs of the industry, that have been identify, in the literature review and confirm to a large extent by the findings of this study, in the following subject areas: technical, hygiene, administrative, personal, and communication areas.
- The hypothesis of the paper based on the results is accepted.
- Finally, how to address each area obviously will depend on the context, and the culture in which one is operating, since the context will clearly determine, the academic and cultural context, educators are dealing with. The chef of the 21<sup>st</sup>, raises the need for more cross-disciplinary cooperation between technical and management academics, to train students chefs that are competent to meet the new global food and tourism sector needs, something that has been already accepted in some of the largest U.S. and European culinary schools

## 6. Limitations

The population is small, one hundred and eighty four and the fact that there are no similar studies in the country that we were able to detect and to compare the results.

## 7. Policy Implication

The study makes clear, the request of the students that culinary technicians and administrators cooperate and include management courses as a way to help them become more employable and its creates a reference point to be used in the future to compare results.

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