

Perceptions of Executive Chefs Regarding Skills and Competencies of Culinary Arts Students

Abstract

Given the skills and competencies that culinary arts students possess, the purpose of this study is to create a conceptual framework for defining and raising the bar for postsecondary culinary education. Graduates are certain to be well-equipped with the knowledge and abilities that employers value in Botswana. A quantitative approach was utilised, with questionnaires, based mainly on graduates' competencies. Data were sought from executive chefs and 105 effective responses were received covering views on skills and competencies possessed by culinary arts graduates in the hospitality industry. The findings suggest that group tests be implemented to evaluate students' abilities in communication and management, including overseeing kitchen operations. The effectiveness and applicability of the assessment methods should be regularly reviewed by institutional administrators. Stakeholders should work with higher educational institutions to provide the required training, to develop the right competencies and skills that graduates need to benefit the industry. Proficiency in menu design and food costing makes individuals more marketable in the hospitality industry.

Keywords: Chefs, competencies, culinary arts, skills

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Introduction

The culinary arts sector demands a special combination of technical expertise, creativity, and adaptability (Ekincek & Gunay, 2023). It is a dynamic and demanding field. Culinary education programmes are attended by aspiring chefs who wish to acquire the skills and knowledge required to succeed in professional kitchens (Marinakou & Giousmpasoglou, 2022). Nonetheless, the opinions of executive chefs—who have a significant influence in the industry are essential to comprehending how prepared culinary arts students are for the difficulties they will encounter in the workplace (Vingerling, 2020). Their perceptions of what culinary arts students are capable of can offer valuable insight into how well culinary education initiatives are working (Meiser, 2021). The purpose of this paper is to investigate executive chefs' opinions of culinary arts students' abilities and competencies to identify areas where culinary education could be strengthened and improved in Botswana. Executive chefs are in charge of managing all areas of culinary operations, from menu development to kitchen administration (Walker, 2021). Executive chefs as managers in the kitchen are frequently recognised as the creative forces behind successful kitchens (Farrer, 2021). Chef's perceptions of what culinary arts students are capable of can offer insightful commentary on how well culinary education initiatives are working. With an increasing emphasis on innovation, sustainability, and a diversity of culinary traditions, the culinary landscape has rapidly changed (Palmi & Lezzi, 2020). As a result, greater demands are made on culinary arts students than ever before (Maryanti et al., 2021). This paper aims to pinpoint the critical abilities and knowledge that executive chefs believe are necessary for success in the contemporary culinary sector. It also seeks to identify any discrepancies or inconsistencies between the abilities that students learn during their culinary schooling and what industry experts require. Furthermore, the paper aims to add more discussion on improving the preparation of culinary arts students for their future responsibilities as culinary professionals by investigating the perspectives of individuals at the forefront of culinary innovation and excellence. It is helpful for culinary institutions as well as aspiring chefs who want to effectively navigate a cutthroat and dynamic market to understand the perspectives of executive chefs.

Literature review

Skills and competencies for chefs

According to Marinakou & Giousmpasoglou (2022), a chef's competency is defined as the talents, abilities, knowledge, and other characteristics that support a successful chef. Chefs need knife skills that are accurate and effective to be successful in the kitchen. Professional chefs must possess the necessary knife skills as well as practice safety in the kitchen (Hall, 2022). In addition, chefs are expected to be familiar with the five mother sauces that set them apart from cooks. Chefs should also understand how to make a good stock. A full-fledged chef needs to know how to prepare egg dishes, handle meats safely, prepare vegan dishes, clean vegetables, and work with pastry and confectionaries. A professional chef needs to have all these components (Aggarwal et al., 2022). The most valuable competencies in culinary arts comprise knowledge of flavour, knowledge of food sanitation, the ability to differentiate the level of quality of food products, general communication skills, and the ability to make decisions (Hall, 2022). Furthermore, Chaileuangleu et al. (2021) purport that a person's underlying characteristics, including their character, motivation, social role, self-image, or talents can be referred to as professional competencies. These characteristics might be viewed as the body of knowledge necessary for an individual to carry out their work in a professional manner and to perform at a level above their current ability (Fitzgerald, 2020). Personal, academic, and technical competencies are the three tailored credentials and competencies for the growth of food service providers or



professional chefs (Roseman & Miller, 2021). These skills influence the effectiveness of culinary arts programmes and result in a professional chef performing exceptionally well in Botswana's food service sector.

Executive chefs' perspectives on graduates

There is a scarcity of qualified executive chefs and cooks in the culinary sector of the hospitality business as a result of Botswana's notable rise in tourism and hospitality (Koobonye, 2020). This phenomenon does not only affect Botswana but also many countries around the world (Dube, 2021). Executive chefs surmised that graduates who studied culinary arts face a skills shortage in the catering industry for positions like cooks and executive chefs (Ngoni, 2020). The global phenomenon of significant skills shortage in the kitchen brigade has an impact on the entire hospitality and tourism industry. This challenge has put a lot of pressure on technical and vocational education training (TVET) to bridge the existing gap (Mosalagae, 2020). Nevertheless, this industry's history of suffering from an unbalanced and distorted chef demographic, combined with the severe skills shortage in the culinary field, poses significant challenges to this sector (Gray & Farrell 2021). However, Ngoni (2020) laments that hiring foreign chefs has robbed local chefs of the opportunity to showcase their skills. Jotikasthira & Santithamsakul (2020) contend that better education and training at all levels of the culinary sector are necessary to develop high-end capabilities, even when cooking abilities range from basic to advanced.

Vocational education and culinary arts training

The primary goal of culinary arts education is to prepare students for jobs in the food service industry. It includes several tasks such as food preparation, serving, and kitchen administration (Gray & Farrel, 2021). Secondary objectives are the development of inventiveness, culinary abilities, and a thorough comprehension of food and its preparation. Graduates frequently go on to work as restaurant managers, sous chefs, pastry chefs, or chefs (Marinakou & Giousmpasoglou, 2022). A variety of subjects are covered in culinary arts training, such as knife skills, cooking methods, dietary principles, menu planning, food safety, and culinary management (Ekincek & Gunay, 2023). Practical training in kitchens and internships in actual culinary environments are common components of the curriculum (Hall, 2022). Benefits of culinary arts training include, among others, access to a certain industry's specialised skill set (Sweeney, 2022). It encourages originality and artistic expression when preparing cuisines (Welch et al., 2021). Culinary arts training provides networking and internship possibilities in the culinary industry (Mashuri et al., 2020). As a result, the training prepares students for a variety of job opportunities in the food service sector. A comprehensive strategy can be achieved by combining culinary arts instruction with vocational education, allowing students to specialise in culinary knowledge and general practical skills (Maryanti et al., 2021). Furthermore, graduates would be adaptable in many facets of the food sector because they would bring a well-rounded skill set to the profession (Fernandes & O'Sullivan, 2021). Training in the culinary arts combined with practical education can also enable people to launch their culinary enterprises (Duncan, 2022). Training in the culinary arts and vocational education are essential in preparing people for particular vocations. Combining these two fields can offer a comprehensive skill set necessary for success in the food and hospitality sectors.

The scope and education of Botswana train students mainly to acquire employment, however, the government of Botswana has reviewed this policy because there are inadequate resources in the work environment (Kampamba, 2023). The culinary arts curriculum must emphasise transitioning from traditional education to modern education where students are taught how to sustain themselves through knowledge of culinary arts and entrepreneurship education (Ekincek & Gunay, 2023). Learning about entrepreneurship through successful entrepreneurial role models may support education for sustainable development in higher education, especially in culinary arts education where students learn mainly by being hands-on (Jalinus, 2021). Numerous theoretical stances contend that entrepreneurship education is positively correlated with students' entrepreneurial intentions because it equips them with the necessary knowledge and skills and inspires them to pursue their entrepreneurial careers. These viewpoints include the human capital theory, the entrepreneurial self-efficacy theory, and the self-determination theory. Exposure to successful entrepreneurial models in entrepreneurship education programmes may play a major role in boosting students' self-confidence and improving their views toward starting their businesses (Boldureanu et al., 2020).

Research methods

This paper's research objective possesses a strong inclination for positivism where the quantitative part was applied in the collection of data from the chefs in two regions within Botswana, namely Maun and Francistown. Due to their extensive practical experience, executive chefs seemed to have a broad understanding of the sector, but they did not have information about the difficulties faced by training institutions and the training methods used in the culinary arts. As such, the focus of the questionnaire was to ascertain the competencies and skills that are imparted to students studying culinary arts. The questionnaire's reliability was assessed using Cronbach's alpha. To create a convergent model, this study employed a triangulation strategy, in which quantitative data was gathered and examined independently. The purpose of this design is to understand and support opinions (Schoonenboom & Johnson, 2017). The results were then contrasted to see if they supported one another. In this paper, only the quantitative results of the executive chefs will be reported. There were 143 executive chefs in Botswana (Stone et al., 2021). They were chosen among 15 hotels, eight of which were in Francistown and seven of which were in Maun. There were 85 chefs in the hotels in Francistown and 58 in the hotels in Maun. Both primary and secondary data were employed in the study. Questionnaires were used to obtain primary data from executive chefs.

The information gathered from the questionnaires was about Botswana's culinary arts training programme. A meticulously crafted survey was created to collect data from the culinary experts. The purpose of the created surveys was to



investigate a theoretical framework for teaching culinary skills in Botswana's tertiary institutions. Questionnaires were given to the hotel managers to distribute to the executive chefs in Francistown while in Maun research assistant was used to give the questionnaires to the hotel managers to distribute to the executive chefs.

For several questions, the replies were guided by the five-point Likert scale, where a 1-5 scale was developed for the chefs to tick their correct responses. SPSS was used to analyse the data. When using questionnaires, it is possible to get a lot of data in a short amount of time (Abawi, 2017). Quantitative questionnaires for executive chefs were piloted using simple random sampling with 20 executive chefs. The primary objectives of the pilot study were to assess the participants' comprehension of technical terms, determine the degree of sensitivity that could elicit defensive responses, determine the degree to which leading questions were utilised to mitigate bias and determine the average time required to complete the questionnaires. Upon application of questionnaires, Cronbach's Alpha coefficient was computed for every variable. It was necessary to reword, remove, or alter some of the questions in constructs with Alpha coefficients less than 0.6 to establish internal consistency. Put another way, after the pilot survey was completed, participant feedback was used to eliminate unnecessary questions and modify the statements to make them clearer. The research methodology for the paper is derived from the thesis that the author has completed.

Results

Questionnaire for executive chefs

Due to their extensive practical experience, executive chefs seemed to have a broad understanding of the sector, but they have inadequate information about the difficulties faced by training institutions and the training methods used in the culinary arts. As such, the focus of the questionnaire was to ascertain the competencies and skills that are imparted to students studying culinary arts. Table 1 presents the reliability of the questionnaire, as determined by Cronbach's alpha, which also attests to the questionnaire's internal consistency.

Table 1: Cronbach's Alpha reliability test results – Executive chefs' questionnaire

No	Variable	Cronbach's alpha	No. of items
1	Determining skills and competencies transferred to culinary arts students (i) Graduate employment	0.644	13
2	Determining skills and competencies transferred to culinary arts students (ii) Cooking techniques	0.751	16
3	Determining skills and competencies transferred to culinary arts students (iii) Menu planning	0.935	8
4	Determining skills and competencies transferred to culinary arts students (iv) Ingredient selection	0.803	5
5	Determining skills and competencies transferred to culinary arts students (v) Recipe development and modification	0.813	4

Demographic characteristics of the executive chefs

The demographic trend of the survey respondents is examined in this section. The primary variables of importance are the following: the chef's year of study, area of specialisation, level of qualification, marital status of the executive chefs and their age category. These are critical to contextualise the study and formulate pertinent recommendations. The findings on each variable are discussed in the following subsections.

Interpretation and discussion of demographic data

From the findings displayed in Table 2, female chefs dominated in the gender category with 59%, while male chefs came to 41%.

Table 2: Demographic characteristics

	(n)	(%)
Gender		
Male	43	41
Female	62	59
Total	105	100
Marital status		
Single	51	49
Married	49	47
Other	5	5
Total	105	101
Age		
20-29	28	27
30-39	32	30
40-49	32	30
50-59	13	12
Total	105	99
Qualification		
Certificate	70	67
Diploma	9	9
National Craft certificate (NCC)	5	5
Other	21	20
Total	105	101

The study conducted by García-Henche & Cuesta-Valiño (2022) found that there is a high number of females working in the kitchen, however, in this study results showed that women dominate as chefs in the kitchen. The percentage of single chefs came to 49%, married to 47% and others at 5%. The study reveals that the number of single chefs is slightly higher than the number of married chefs, while others covered a relatively lower percentage at 5%. According to the age variable, 27% are in the age category 20-29, while 30-39 and 40-49 carry the same percentage of 30% respectively, 12% are in the age group of 50-59. Respectively, 20-29, 30-39 and 40-49 fell into the 27-30%. This shows that these categories are the working age group



categories since they are still active, and therefore these age categories have always displayed positive results in the workplace (Rosenkranz et al., 2020). The small number of participants in the 50-59 age category (12%) indicates that members of this age group are at the stage of life where they are preparing for retirement from the work environment. Regarding the chefs' qualifications, a high number of chefs (67%) possess a certificate, followed by other certificates at 20%. The results revealed that chefs with a diploma and National Craft Certificate (NCC) are few with 9 and 5% respectively. This shows that many chefs might have the required skills, but lack food production qualifications because of high demand and the evolving food technology in the food industry sector (Winters et al., 2022).

Table 3: Determining graduate employability skills and competencies

	KMO	Bartlett Test	Mean	Standard Deviation	AVE	Factor Metrics
<i>(i) Graduate employment +-</i>	0.601	237.818			69.467	
Employed graduates have skills and competencies that are needed in the kitchen			4.05	0.526		0.723
It is important to train graduates on the required skills after employing them			4.62	0.595		0.758
Graduates who studied culinary arts are employable			4.11	0.593		0.618
It is important to partner with institutions to instill skills in students			4.71	0.600		0.759
Soft skills (non-technical skills) are important for chefs			4.25	0.918		0.728
The industry needs a formal culinary education programme for an entry-level position of a chef			4.57	0.677		0.574
Graduates need to have a career path by becoming a chef			4.09	1.057		0.734
Graduates have professional techniques in coming up with different dishes			3.78	0.772		0.698
Graduates should have gone through an internship or apprenticeship programme			4.40	1.006		0.756
Institutions are instilling enough knowledge and skills in graduates			3.57	0.897		0.600

Table 3 shows that the executive chefs agreed with all the individual items stated under the graduate employability construct. The executive chefs believe that culinary arts graduates possess the employability skills and competencies to work in the kitchen, but that they should receive further in-service training with a mean of 4.62. This is consistent with their perception that formal culinary arts education is necessary for the industry and should be backed by internships or apprenticeships and industry partnerships with training institutions. The respondents hold the opinion that soft skills are important for chefs, but an established career path to become a professional chef was of lesser importance with a mean score of 4.09. Mahfud et al. (2017) believe that apprenticeship programmes not only focus on technical skills but also emphasise generic skills in the workplace. It is stated in the literature that the connection between vocational institutions and the industry should be markedly strengthened to put more effort into curriculum development and review. Kenayathulla et al. (2019) state that there is a remarkable need to determine the types of skill sets demanded by the industry, hence there is common agreement that job-related preparation should begin at the vocational institutions.

Table 4: Graduate skills and competencies for cooking techniques

	KMO	Bartlett Test	Mean	Standard Deviation	AVE	Factor Metrics
<i>(ii) Cooking techniques</i>	0.625	711.052			66.821	
Graduates can identify specific ingredients			4.05	0.526		0.640
Graduates know basic food preparation techniques			4.08	0.583		0.521
Graduates can prepare food using (i) Sautéing dry-heat cooking technique			4.10	0.570		0.691
Graduates can prepare food using (ii) Grilling dry-heat cooking technique			4.12	0.454		0.746
Graduates can prepare food using (iii) Broiling dry-heat cooking technique			3.96	0.499		0.812
Graduates can prepare food using (iv) Roasting dry-heat cooking technique			4.20	0.544		0.740
Graduates can prepare food using (v) Smoking dry-heat cooking technique			4.00	0.537		0.679
Graduates can prepare food using (i) Steaming moist-heat cooking technique			4.18	0.476		0.782
Graduates can prepare food using (ii) Poaching moist-heat cooking technique			3.97	0.596		0.560
Graduates can prepare food using (iii) Boiling moist-heat cooking technique			4.47	0.520		0.814
Graduates can prepare food using (iv) Stewing moist-heat cooking technique			4.48	0.606		0.815
Graduates can prepare food using (v) Braising moist-heat cooking technique			3.99	0.546		0.695
Graduates know about pastry techniques and optimal uses			3.38	0.965		0.580
Graduates know nutrient retention in food preparation			3.44	0.820		0.622
Graduates know savoury and sweet dishes			3.37	0.823		0.636
Graduates know about preparing meals to a required temperature or endpoint for optimal food safety and quality			3.49	0.786		0.560

Table 4 indicates that the executive chefs believe there are only two cooking technique items that the graduates may be lacking. They believe that the graduates might have a mediocre understanding of pastry recipes, their best usage, and both savoury and sweet foods. In a study conducted by Griffin (2020), the scholar opines that it depends on a variety of factors, including the expectations of the employers who hire graduates as well as the curriculum, faculty, and pedagogy in university systems. Graduates' qualities include knowledge, subject matter, skills, personality traits, and experience. Graduates must receive instruction in baking and pastry arts, as these subjects are now pertinent to contemporary circumstances. According to the literature assessment, the bakery and confectionery industries provide graduates with entrepreneurship skills and greater career chances (Mahfud et al., 2017).

Table 5: Graduate skills and competencies for menu planning

	KMO	Bartlett Test	Mean	Standard Deviation	AVE	Factor Metrics
<i>(iii) Menu Planning</i>	0.897	687.975			68.969	
Graduates know menu planning for specific groups of people (i.e. vegetarians)			3.00	0.930		0.641
Graduates can plan menus considering cultural, ethnic, and religious groups (specific food ingredients and cooking methods)			2.92	0.829		0.620
Graduates can evaluate menus			2.72	0.915		0.589
Graduates know food sauces and essential nutrients			3.23	1.031		0.753
Graduates know about the purchasing trends of consumers			3.12	1.080		0.777
Graduates have knowledge on flavour balancing of meals			3.26	1.056		0.757
Graduates have knowledge of seasonal menu planning			3.21	1.016		0.694
Graduates are aware of food costs and control			2.91	1.153		0.687



Table 5 presents the findings indicating that executive chefs held a slight belief that graduates lack a comprehensive understanding of menu design. They only somewhat agreed with each other over the individual elements, which suggests a deduction for the analysis. This includes assessing menus and creating menus for particular groups of people, ethnicities, or beliefs. This encompasses an understanding of food sauces, customer purchase patterns, flavour balancing, menu planning for the seasons, and food pricing and control. Even though the primary responsibility of the chef in the kitchen is menu planning and even though many educational institutions provide culinary arts courses, there is no evidence in the literature to support the claim that skilled graduates in the field are proficient in this area (Bertoldo et al., 2022).

Ingredient selection

Table 6 displays the results of the executive chefs' opinions regarding the competencies and skills needed to choose ingredients. At 0.665, the KMO metric is more than 0.5, and at the 0.01 level, the BTS is statistically significant. According to the AVE measure, 63.5% of the component selection methods may be explained by the criteria mentioned. Factor metrics vary from 0.542 and 0.733.

Table 6: Determining graduate skills and competencies for ingredient selection

	KMO	Bartlett Test	Mean	Standard Deviation	AVE	Factor Metrics
(iv) <i>Ingredient selection</i>	0.665	168.716			63.547	
Graduates have skills and knowledge on functions, characteristics, and selection of ingredients			3.24	0.995		0.640
Graduates have skills and knowledge on the seasonal availability of food items			3.15	1.026		0.627
Graduates are aware of food laws and standards			2.61	1.122		0.733
Graduates know the standard of quality in purchasing and storing food items			2.78	0.990		0.542

The findings show that while the executive chefs moderately agreed with every item on the individual scale, they were doubtful about graduates' level of ingredient selection knowledge. This includes food legislation, requirements for quality in purchasing and storage, seasonal availability of food items, functions, characteristics, and ingredient selection (Dion-Poulin et al., 2021). Furthermore, Dion-Poulin et al. (2021) opine that the uniqueness of the current findings is enhanced by the lack of literature on the values of chefs or student cooks regarding the utilisation of food items. On the other hand, not knowing how to choose ingredients, master cooking methods, and combine flavours is a drawback within the food sector (Spence et al., 2017).

Recipe development and modification

Executive chefs were requested to rate graduates' abilities and competencies for developing and modifying recipes. The results are displayed in Table 7. At 0.775, the KMO metric is more than 0.5, and at the 0.01 level, the BTS is statistically significant. According to the AVE measure, 64.2% of the talents in recipe formulation and modification may be explained by the criteria mentioned. For each item, the factor metrics vary from 0.576 to 0.682.

Table 7: Graduate skills and competencies for recipe development and modification

	KMO	Bartlett Test	Mean	Standard Deviation	AVE	Factor Metrics
(v) <i>Recipe development and modification</i>	0.775	136.031			64.153	
Graduates have the skills and knowledge on the use of herbs, spices, organic food, seasonings, condiments, aromatics, marinades, and food preparation techniques for flavour development and enhancement			3.48	0.867		0.671
Graduates have skills and knowledge about the standard and appropriate portions of commonly purchased dishes			3.26	0.961		0.682
Graduates know about the substitution of ingredients			3.60	0.862		0.576
Graduates can create or modify standardised recipes			3.05	0.892		0.637

The findings show that the executive chefs thought graduates had some abilities and expertise related to creating and modifying recipes. The mean score of 3.48 show that they believe that graduates have the abilities and expertise to generate and improve flavour through the use of herbs, spices, organic food, seasonings, condiments, aromatics, marinades, and food preparation techniques. They also thought, as the mean score of 3.6 reflects, that graduates have the expertise of ingredient replacement. They were, however, dubious of graduates' ability to modify recipes and their understanding of standard and suitable portions of regularly purchased dishes (Gillis et al., 2022).

Discussion

Practical exams, according to hospitality experts, guarantee that graduates are prepared for the workforce and able to function effectively in professional kitchens. Results showed that practical exams in culinary arts give students real-world experience in learning. Institutions emphasised the value of practical evaluations that mimic real-world situations as it is further disclosed. The findings also suggest that group tests be implemented to evaluate students' abilities in communication, cooperation, and task management, including overseeing kitchen operations. The effectiveness and applicability of the assessment methods should be regularly reviewed according to institutional administrators. Supervisors of portfolio evaluations ensure that the portfolios meet industry norms and are acknowledged by possible standards. The results showed that specialised equipment, materials, and facilities are required for culinary assessments. Hospitality experts lamented that a lack of resources may affect the impartiality and breadth of assessments. Additionally, the findings of the study revealed that core competencies in culinary arts education are fundamental. These core competencies, to be integrated into the curriculum, include cooking skills, culinary theory, food safety, menu planning, and ingredient understanding. It was also revealed in the study that the culinary arts



curriculum should encompass aspects such as skill progression, integrated learning, culinary specialisations as well as industry relevance in the curriculum.

Conclusion

Executive chefs frequently stressed the value of technical proficiency in culinary arts training. Success in a professional kitchen is considered to have a solid foundation in culinary principles, proficiency with knives, and mastery of basic cooking techniques. The world of food is changing and executive chefs believe that students must be flexible and creative. Students studying culinary arts should be able to play around with flavours, come up with creative recipes, and adapt well to shifting customer tastes and trends. Culinary arts students should not only be able to work on their own, but also be able to collaborate with others to create a productive and happy work atmosphere in the kitchen. Students with a strong grasp of varied cuisines, culinary history, and cultural influences are highly valued by executive chefs. With this expertise, chefs may produce dishes that are authentic and well-rounded, enhancing the culinary experience. In conclusion, future studies on the perceptions of culinary arts experts, especially on establishing cooking talents from trainers, should focus on multi-stakeholder engagement complaints. Food production sustainability and resilience make it easier to deal with current and upcoming challenges in the food industry (Muresherwa et al., 2022). Future research might employ an empirically quantitative study design to look into how developing nations can use the culinary arts to build young chefs' skills and develop the culinary arts about indigenous products. This would help to further the current study by providing assertions about culinary arts talent development that are supported by evidence and highlighting workable solutions that may be implemented empirically. Concerning the limitations, relying solely on self-reported data from surveys may make it challenging to develop a comprehensive understanding of the challenges and opportunities in culinary skills training. Lack of resources, such as money, time, or access to particular organisations or individuals has affected the study's breadth and depth. Data collection presented significant challenges because the investigation was conducted during the COVID-19 pandemic.

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