

Food Safety Culture from The Perspective of The School Food Service in Malaysia

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Abstract

Foodborne illness outbreaks associated with food produce suggest a focus on food safety culture within food safety management systems throughout food supply chains would benefit the school food service industry. The recent presence of food safety culture in food hygiene standards will drive the need for better understanding, integration into business activities, and monitoring, to help ease foodborne incidents in school food service industry. The purpose of this review was to identify definitions of food safety culture and methods of measuring its performance in the context of the Malaysia school food service industry. Investigation of how to better apply and integrate a positive food safety culture into existing food safety management systems was conducted. A roadmap for food safety culture improvement in Malaysia school food service is presented, highlighting the challenges and opportunities. Food safety culture can be developed by using feedback from regular culture assessments that identify weaknesses and opportunities for improvement, leading to increased knowledge, alignment of attitudes, and better food safety and hygiene behavior. Overall, the development of measurement tools specific to school food service operations would be beneficial. Despite unpredicted challenges like the COVID-19 pandemic, the Malaysia school food service industry continues to investigate the effectiveness of its food safety management.

Keywords: Food Safety, Foodborne Illness, Food Safety Management System, Organizational Culture, School Food Service.

Introduction

Food safety culture is important in food service organizations because it can influence food safety behavior (Zanin et al., 2022). Besides, food safety culture is described as a long-term organizational construct referring to deeply ingrained attitudes, actions, and beliefs that are learnt and shared by all employees and influence the organization's performance in terms of food safety (Sharman, 2020; Cunha, 2021). Foodborne diseases may impact consumer health,

causing food safety issues to become important in worldwide apprehension. In a year, almost 10% of people suffer from foodborne diseases (World Health Organization, 2015; Zanin et al., 2022). The less advanced country was impacted in socioeconomic development, which is their medical expenses becoming surge and productivity collapse (World Bank Group, 2019; Zanin, Luning & Stedefeldt, 2022). The basis of foodborne diseases is food safety and hygiene practices according to food service establishments (Da Cunha et al., 2014; Soon et al., 2011; Todd et al., 2007; Walsh & Leva, 2019; Zanin et al., 2022). Based on Fatimah et al (2014); Zanin et al (2022), working conditions are vital because they promote good handling practices and support food handlers' behavior. To avoid foodborne diseases, training is one of the vital factors that may improve hygiene practices (Egan et al., 2007; Malavi et al., 2021; McFarland et al., 2019; Murphy et al., 2011; Yu et al., 2018; Griffith & Redmond, 2014; Zanin et al., 2022). Nevertheless, there is no guarantee of long-lasting change in behavior and better performance of safe practices in old-style food safety training (Da Cunha et al., 2014a; Ehiri et al., 1997; Reynolds & Dolasinski, 2019; Young et al., 2019; Zanin et al., 2022). The six variables of management systems, styles, procedures, leadership, communication, and organizational commitment, environment, and risk perceptions are typically used to assess food safety culture (Griffith, 2010; Cunha, 2021).

Further, food handlers are important contributors to foodborne illness outbreaks because of their unsanitary habits and casual demeanor (da Cunha et al., 2015; Sabbithi et al., 2017; Walker et al., 2003; Taha et al., 2021). To be successful, food service operators must integrate a number of complex components into their business; after all, it's not just about the food. To give customers a satisfying dining experience, they must combine cuisine, service, ambiance, and, if appropriate, entertainment (Barrows et al., 2012; O'Bree, 2020). Despite recent improvements in science and technology, foodborne diseases are still a major problem worldwide. As the amount of food eaten outside the home increases, the foodservice sector is increasingly important in preventing foodborne illness and safeguarding the health of consumers (da Cunha, 2021). Despite recent technical developments, local regulations, and investments, food safety remains a major concern on a global scale. Organizations, academics, and health managers are looking for ways to lessen the risks and effects of foodborne illness (FBI). However, the World Health Organization (WHO) estimates in its most recent assessment on the FBI burden that the FBI causes 600 million illnesses and 420 000 deaths annually (Havelaar et al., 2015; da Cunha, 2021). In fact, food safety is so important from a biological, social, and economic perspective. Most FBI outbreaks are brought on by the food handler's avoidable mistakes. (WHO, 2020; da Cunha, 2021).

According to studies, the most frequent food handling errors, such as temperature and exposure time violations, as well as issues with personal and environmental cleanliness are the main causes of FBI outbreaks in many different nations (Angelo et al., 2017; Wu et al., 2018; Hull-Jackson & Adesiyun, 2019; da Cunha, 2021). The annual report from the Centers for Disease Control and Prevention, CDC (2019); da Cunha (2021), states that restaurants were responsible for 64 percent of all FBI outbreaks that were recorded and affected 5533 persons. Consequently, effective solutions to increase food safety are required given the significance of the foodservice sector to both the economy and public health. Griffith (2006); da Cunha (2021), was the first to call for the need to improve organizational culture regarding food safety, based on an appropriate food safety management system (FSMS), in 2006. To assure food safety, FSMS is viewed as a systematic strategy to control food safety threats within the foodservice industry. Yiannas (2007); da Cunha (2021), issued an iconic opinion, stressing the importance of enhancing behavioral and cultural approaches to food safety to enhance

performance in this area. While hard quality management represents an orientation toward the process and operations, soft strategies highlight the treatment of employees as individuals and a management system focused on communication and people (Escrig-Tena et al., 2018; da Cunha, 2021). Besides, uncertainty in food handling can be brought on by several things, including optimistic bias, knowledge with limited application, external locus of control, poor infrastructure, a lack of drive, and egocentrism. In actuality, the impediments promoting improper behaviors or "shortcuts" may make it difficult for the food handler to put knowledge to use (Rodrigues et al., 2020; Pellegrino, 2015; de Freitas et al., 2019; Harris et al., 2017; Shepherd et al., 2015; da Cunha, 2021).

During the six hours they spend in school, students are captive customers who are typically unable to acquire meals from outside sources. It is critical that schools to recognize their joint obligation to give pupils access to wholesome food. Because they are one of the most obvious tools for policy intervention in the establishment of healthy eating behaviors, school meals are significant (Moy et al., 2006; Yabanci and Sanlier, 2007; Aziz & Dahan, 2013). According to Zain and Naing (2002); WHO (2008); Sharif and Al-Malki (2010); Aziz & Dahan (2013), there has been an increase in the number of foodborne outbreak occurrences in Malaysia that have been recorded by several states. Additionally, school children were the main victims of numerous food poisoning incidents in Malaysia. Eventually, children with compromised immune systems are more susceptible to contracting food poisoning than healthy children. In general, school canteens are within many different types of foodservice businesses, and they are regularly listed as one of the sites of causing foodborne illness outbreaks (Seaman, 2010; Sanlier and Konaklioglu, 2012; Aziz & Dahan, 2013).

Clearly, supportive management techniques in food service establishment (such as management, supervision, communication, training, evaluation, employee engagement, social activities, and promotion) Griffith (2014); Yiannas (2009); Taha et al (2021) and Fatimah, Strohbehn & Arendt (2018); Taha et al (2021), state that improvements are necessary to increase the effectiveness of the food safety management system. Furthermore, managers can communicate with food handlers through the organizational structure because communication is crucial to comprehending food safety procedures. Along with enhancing dedication, emotions of emotional attachment to their work, and awareness of organizational goals, communication between managers and employees, especially from employees to managers, may reduce employee stress (Sharma & Dhar, 2016; Taha, 2021).

Meanwhile, a leader is someone important to sustain a food safety culture who effectively affects a variety of subordinates to direct their attention toward achieving organizational goals (Winston and Patterson, 2006). Therefore, Welch (2011) emphasized the importance of senior leadership communication in fostering workforce engagement especially in food service organization. Therefore, good corporate leadership and communication will ensure that the necessary psychological conditions are created, resulting in the physiological dimensions of engagement, which will ultimately inspire desired outcomes like innovation, competitiveness, and organizational effectiveness (Welch, 2011). This paper proposes a food safety culture. The purpose of this review was to identify definitions of food safety culture and methods of measuring its performance in the context of the school food service industry.

Literature Review**Food safety management practices issues in the communication among food handlers in school canteen**

Food safety management is referred to as ensuring that food is safe to eat while also reducing the risk of food poisoning, food-borne illness, or other types of contamination that may be more widespread and potentially dangerous. To ensure their effectiveness at all points along the food supply chain, from the point of origin in primary production through to the ultimate consumer, food safety management must be created, verified, and then effectively deployed (Manning et al., 2019). The primary cause of food-borne infections worldwide is the salmonella bacteria, which typically infects foods of animal origin, such as eggs, chicken, meat, and milk, and is passed on to people through eating (World Health Organization, 2019). These occurrences have a significant negative impact on the food industry's growth as well as individual health and safety. Also, people have different expectations for the level of safety of food. The execution of the food safety program has to be assessed in order to ensure life quality and decrease the likelihood of food safety issues (Kholil et al., 2020). Leads to the issue of food safety nowadays is one of the biggest health-related issues. Similarly, food safety is dealt with by controlling biological, chemical, and physical hazards in food from farm to table (Barjaktarovi et al., 2018). According to Taha et al (2021), food operators should concentrate on management support procedures that favor food handlers' dedication to personal hygiene standards. Besides, training providers should include management principles and commitment in their manuals to teach food operators and food handlers.

Thus, communication can be defined as interaction that often involves a sender (source) and a recipient in a social setting. It entails the exchange of signals between the parties, which may be gestural, visual, vocal, or both (photographic) (Fatimayin, 2018). As stated by Taha et al (2021), management must identify the behaviors that make workers happy and improve their commitment to safe and sanitary behavior. In addition, workers would anticipate that their employers would engage in efficient two-way communication, provide them with the necessary training, treat them with respect and appreciation, and regularly include them in decision-making. During the communication of the instructional action, the managers were urged to establish confidence by speaking with the food handlers (Zanin et al., 2021). According to Taha et al (2020), the compliance of food handlers regarding intended behaviors, processes, and practices may thus benefit from effective and efficient management and food handler communication. Indeed, better coordination, collaboration, and compliance could result from improved communication. Notably, food handlers may maintain good hygiene procedures by using management strategies including efficient communication among the food operators and food handlers in decision-making (Taha et al., 2021). Besides that, decisions on risk assessment and risk management are frequently improved and informed by the disclosure of food safety risks. For instance, risk communication is necessary to assist risk managers in comprehending the anticipated effects of their various actions and determining how successful those decisions will be. Then, food safety risk communication, such as the promotion of hygienic measures, is frequently continued to lower the risk of food safety problems (World Health Organization, 2018).

Furthermore, food preparation, lifestyle, personal hygiene, and water supply are the main causes of food-borne illnesses and the prevalence of food poisoning among students (Kholil et al., 2020). The primary food source for students at schools is the canteen. Besides, the total amount of calories consumed daily by students from food sold in the school canteen can reach 50%. Therefore, it is imperative to emphasize the significance and duty of food operators and food handlers in schools to contribute to the creation of a healthy food environment and to offer a balanced dietary meal (Azizan et al., 2021). While many food handlers do know about

hygienic measures, Mjoka & Selepe (2018) discovered that they rarely put such knowledge into practice. Most food handlers practice hygiene, but not all of them. Considerable care should be taken during the food preparation process, especially to make sure good handwashing techniques are a normal practice among food handlers to lower the incidence of foodborne illness in schools. All food handlers should use proper handwashing techniques as part of excellent personal hygiene (NH et al., 2018).

Leadership perception among food handlers in food safety management practices

Leadership is described as "a process of social influence" since its effectiveness involves the involvement and assistance of others. The most fundamental definition of leadership is a strong power connection that pushes people to act or alter their behavior (Khosro et al., 2022). Besides that, clause 5 of ISO standard 22000: 2018 mandates the leadership and commitment of senior management to ensure a successful implementation. Thus, senior management must demonstrate leadership and accountability by creating, executing, and maintaining a food safety policy (ISO, 2018; Purwanto et al., 2019). As stated by Rifat et al (2022), training and education sessions are essential since many food handlers lack the necessary knowledge to comprehend the significance of awareness messages. Consequently, training and education sessions may be more successful than messages alone in ensuring food safety procedures. Low education levels and lack of food safety training have been cited as the underlying causes of ineffective transition of knowledge into behaviors (Al Banna et al., 2021; Haque & Kohda, 2020; Rifat et al., 2022). Therefore, the ability to proactively develop and communicate intervention plans, supervisory oversight over implementation staff and contractors, and recognition of intervention messaging. For example, how leaders message the intervention to staff and can influence implementation success were the four major themes that emerged, reflecting how participants perceived that leadership characteristics shaped implementation success (Machado et al., 2022).

According to Macahado et al (2022), four major characteristics define successful leadership, which are knowing the technical and operational details of the intervention by having the initiative to create and communicate intervention plans, being able to supervise implementation staff, and realizing that the way leaders communicate the intervention to their staff can affect how supportive and accepting they are of it. Therefore, the significance of leaders' supervisory supervision for successful implementation is that leadership duties are seen as being done more effectively when leaders have the proper power inside the organization. In accordance with da Cunha (2021), more educated individuals impart their expertise to less educated food handlers in the hopes of inspiring beneficial changes in the latter. The manager must first recognize his part in changing the dominant culture from one that is reactive to one that is active or proactive. Numerous studies have shown that a manager's devotion significantly impacts the team's actions, goals, and morale. A dedicated manager is required to enhance relationships within the workplace as well as provide the food service with enough infrastructure and a dependable food service management system. Additionally, increasing staff awareness alone will not be enough to alter practices. Since these elements may impact food safety and climate, managers must also be mindful of staff fatigue, work complexity, motivation, and unhappiness.

Food Risk Awareness among Food Handlers in Food Safety Management Practices

Food risk awareness is vital among food handlers, especially in food safety management practices. Hence, awareness of the possibility of food contamination can exert pressure on

suppliers by asking them for more information, asking them to be more open about their procedures, and asking them to take more preventative measures (Nardi et al., 2020). Therefore, food safety is unquestionably one of the most pressing issues facing the world today, one for which people are constantly battling (Lv et al., 2018; Nagyová et al., 2019). As mentioned by Carrero et al (2021); Min et al (2021), a crucial element of food safety culture, the food safety environment fosters and sustains the understanding, attitudes, and beliefs necessary to create safe food. Prokaryotic and eukaryotic food spoilage microorganisms and bacterial foodborne pathogens are now the main focus of food makers and suppliers, with infective waterborne and foodborne viruses receiving relatively less attention (Ezzatpanah et al., 2022). Razaei (2018); Mohamed et al (2021), also stated that food safety includes a component for food cleanliness. Food safety refers to the security of food intake and the absence of bacterial, microbial, parasitic, or chemical contamination. Today, unsafe food poses a threat to billions of people around the globe. Every year, hazardous food consumption causes hundreds of thousands of deaths and millions of illnesses each year. Therefore, safe food improves both individual and population health and saves lives (Fung et al., 2018; Nagyová et al., 2019). Food hygiene policies are developed to guarantee that food operators and food handlers provide consumers with safe and wholesome food. Maintaining strict cleanliness standards when handling, preparing, and storing food is one of the most crucial parts of enhancing food safety (Mohamed et al., 2021). Understanding a situation is another name for awareness, which is defined as "knowing that something exists" (Cambridge Dictionary, 2020; Mohamed et al., 2021). When studying food hygiene, awareness, knowledge, and comprehension are essential.

Food safety has grown to be a major concern on a global scale, especially for developing nations. Food safety knowledge is the fundamental building block to use as a starting point for improving the standard of food safety measures being used. Additionally, food handlers' attitudes and behaviors related to food safety are significantly influenced by their level of knowledge in this area (da Vitória et al., 2021; Ahmed et al., 2021). Furthermore, as stated by Dajaan et al (2018); Mohamed et al (2021), it is unacceptable if such negligent food vendor sanitary standards put schoolchildren at danger. Therefore, the person serving the meal should be instructed in fundamental food hygiene procedures. Inappropriate cooking and storage temperatures, unhygienic handling techniques, poor personal hygiene, and consuming food from ambiguous sources may all contribute to outbreaks of foodborne illness in the food preparation and service industries (Da Vitória et al., 2021; Ji et al., 2022). It is the duty of food handlers in schools to make sure that only safe food is produced. They have a significant impact on the frequency of food poisoning episodes through their knowledge, attitudes, and behaviors (Suryani et al., 2019). Thus, it seems that working experience does affect the crucial practice of food hygiene and safety, as reported by (HAS et al., 2018). To develop a top-notch practice, must increase the food handlers' understanding of food safety and cleanliness. One of the main ways that diseases are transmitted via food is through improper food handling practices. The role of food handlers in commercial food management systems is crucial. Several foodborne illnesses may be caused by food handlers if adequate food safety procedures are not followed (Kwol et al., 2022; Ahmed et al., 2021).

Conclusion

The purpose of this review was to identify definitions of food safety culture and methods of measuring its performance in the context of the Malaysia school food service industry. Investigation of how to better apply and integrate a positive food safety culture into existing

food safety management systems was conducted. Therefore, school food service operations can focus on where and what food safety programs or interventions should be aimed to assist each group of employees by evaluating the food safety culture among food handlers and managers. As its importance has only been relatively recently recognized it can be on what organizational dimensions drive the maturity of food safety, and how a strong food safety maturity can be sustained over time through the organization's culture and if studied in greater depth could prove to be important in a many more cases. When culture is evaluated by building, for instance, a school district with numerous food production and service buildings can discover parallels and contrasts. This comparison can be used to identify locations or components that need extra care. Moreover, school food service organizations may be inspired to enhance food safety results and better understand risk by comparing food safety cultures in related sectors of the food businesses. Finally, future studies might focus more on how interconnected and dynamic food safety culture dimensions to strengthen and maintain a positive and mature food safety culture organization and in turn, protect customers, consumers and communities globally.

References

- Ahmed, M. H., Akbar, A., & Sadiq, M. B. (2021). Cross sectional study on food safety knowledge, attitudes, and practices of food handlers in Lahore district, Pakistan. *Heliyon*, 7(11), e08420.
- Azizan, N. A., Papadaki, A., Su, T. T., Jalaludin, M. Y., Mohammadi, S., Dahlui, M., ... & Majid, H. A. (2021). Facilitators and Barriers to Implementing Healthy School Canteen Intervention among Malaysian Adolescents: A Qualitative Study. *Nutrients*, 13(9), 3078.
- Barjaktarovic-Labovic, S., Mugosa, B., Andrejevic, V., Banjari, I., Jovicevic, L., Djurovic, D., & Radojlovic, J. (2018). Food hygiene awareness and practices before and after intervention in food services in Montenegro. *Food Control*, 85, 466-471.
- Da Cunha, D. T. (2021). Improving food safety practices in the foodservice industry. *Current Opinion in Food Science*, 42, 127-133.
- Dictionary, C. (2020). Awareness | meaning in the Cambridge English Dictionary. Retrieved July 24, 2022, from the Cambridge Dictionary website: <https://dictionary.cambridge.org/dictionary/english/awareness>.
- Ezzatpanah, H., Gomez-Lopez, V. M., Koutchma, T., Lavafpour, F., Moerman, F., Mohammadi, M., & Raheem, D. (2022). Risks and new challenges in the food chain: viral contamination and decontamination from a global perspective, guidelines and cleaning. *Comprehensive Reviews in Food Science and Food Safety*, 21(2), 868-903.
- Fatimayin, F. (2018). Chapter two what is communication? Foluke Fatimayin. *Communication and Language Skills*, 21.
- Fung, F., Wang, H. S., Menon, S. (2018). Food safety in the 21st century. *Biomedical Journal*, vol. 41, no. 2, p. 88-95. <https://doi.org/10.1016/j.bj.2018.03.003>.
- HAS, S. M. C., JAAFAR, S. N. A., & CHILEK, T. Z. T. (2018). An assessment on pre-and post-food hygiene training on food safety's Kap level among food handlers in Kuala Terengganu and Kuala Nerus. *Malaysian Applied Biology*, 47(4), 61-69.
- International Standard Organization. (2018). ISO 22000:2018 Food safety management systems-Requirements for any organization in the food chain. ISO.org, <https://www.iso.org/standard/65464.html>
- Ji, Y. G., & Ko, W. H. (2022). Developing a Catering Quality Scale for University Canteens in China: From the Perspective of Food Safety. *Sustainability*, 14(3), 1281.

- Kholil, K., Sulistyadi, K., & Arlan, S. (2020). Strategies Of Food Safety Program Improvement To Prevent Food Poisoning Outbreak At Oil & Gas. *ADI J. Recent Innov.* 1st Ed. Vol 1. No 1. Sept, 46.
- Khoso, F, Alwi, J. K. S K. (2022). Educators Perception about Leadership Competencies: A Comparison of Public and Private Universities of Pakistan. *Pakistan languages and humanities review* ,6(1),66-73, doi:10.47205/plhr.2022(6-1)6.
- Kwol, V. S., Eluwole, K. K., Avci, T., & Lasisi, T. T. (2020). Another look into the Knowledge Attitude Practice (KAP) model for food control: An investigation of the mediating role of food handlers' attitudes. *Food Control*, 110, 107025.
- Ling, S. J., Hassan, Z., & Regina, G. (2021). Food Borne Disease and the Lifestyles of the Students and Food Handlers in Rural Schools: A Preliminary Observation. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 6(9), 430-436.
- Lv, M., Liu, Y., Geng, J., Kou, X., Xin, Z., Yang, D. (2018). Engineering nanomaterials-based biosensors for food safety detection. *Biosensors and Bioelectronics*, vol. 106, p. 122-128. <https://doi.org/10.1016/j.bios.2018.01.049>.
- Machado, S. S., Brewster, A. L., Shapiro, V. B., Ritchie, L. D., Magee, K. S., & Madsen, K. A. (2022). Implementation leadership in school nutrition: A qualitative study. *Journal of Nutrition Education and Behavior*, 54(1), 56-64.
- Manning, L., Luning, P. A., & Wallace, C. A. (2019). The evolution and cultural framing of food safety management systems—where from and where next?. *Comprehensive Reviews in Food Science and Food Safety*, Vol. 18, No. 6,, 1770-1792.
- Min, K., & Hong, W. (2021). The effect of food sustainability and the food safety climate on the job stress, job satisfaction and job commitment of kitchen staff. *Sustainability*, 13(12), 6813.
- Mjoka, J., & Selepe, M. (2018). Assessment of food hygiene knowledge and practices among food handlers in selected hotels around uMlathuze Area. *African Journal of Hospitality, Tourism and Leisure*, Vol 7 (4).
- Mohamed, M. I. P., & Azizi, F. N. N. (2021). Awareness and Practices of Food Hygiene Regulation among Food Vendors in Negeri Sembilan. *Research in Management of Technology and Business*, 2(2), 297-313.
- Nardi, V. A. M., Teixeira, R., Ladeira, W. J., & Santini, de O. F. (2020). A meta-analytic review of food safety risk perception. *Food Control*, 112, 107089.
- Purwanto, A., Asbari, M., & Budi Santoso, P. (2019). Influence of Transformational and Transactional Leadership Style toward Food Safety Management System ISO 22000: 2018 Performance of Food Industry in Pati Central Java. *Inovbiz: Jurnal Inovasi Bisnis*, 7(2), 180-185.
- Rezaei, A. (2018). Food safety: The farmer's first health paradigm. *One Health*, Vol. 5, pp. 69–73. <https://doi.org/10.1016/j.onehlt.2018.04.001>.
- Rifat, M. A., Talukdar, I. H., Lamichhane, N., Atarodi, V., & Alam, S. S. (2022). Food safety knowledge and practices among food handlers in Bangladesh: A systematic review. *Food Control*, 109262.
- Suryani, D., Sutomo, A. H., & Aman, A. T. (2019). The factors associated with food safety practices on food handlers in primary school canteens. *Unnes Journal of Public Health*, 8(1), 1-9.
- Taha, S., Osaili, T. M., Saddal, N. K., Al-Nabulsi, A. A., Ayyash, M. M., & Obaid, R. S. (2020). Food safety knowledge among food handlers in food service establishments in United Arab Emirates. *Food control*, 110, 106968.

- Taha, S., Osaili, T. M., Vij, M., Vij, A., Alhogaraty, E., Ghassan, A. U., & Altaher, S. (2021). Measuring management practices impact on hygiene practices of food handlers: The mediating role of commitment and training perception. *Food Control*, 130, 108313.
- World Health Organization. (2019). Food Borne Illnesses. Retrieved from <https://www.who.int/>
- World Health Organization. (2018). Risk communication applied to food safety: handbook. Food & Agriculture Org., 2018.
- Zanin, L. M., Stedefeldt, E., da Silva, S. M., da Cunha, D. T., & Luning, P. A. (2021). Influence of educational actions on transitioning of food safety culture in a food service context: Part 2-Effectiveness of educational actions in a longitudinal study. *Food Control*, 120, 107542.