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THE DIMENSIONS OF FOOD CITIZENSHIP: A CONSUMER-ORIENTED APPROACH

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To José Monteiro Júnior *(in memoriam)*, my godfather, who told me since I was little that I would be a scientist.

“People are starving
Some for food
Some for fame
Some for love
Some for money
Some for everything
Some for nothing.”

(Seerat)

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THE DIMENSIONS OF FOOD CITIZENSHIP: A CONSUMER-ORIENTED APPROACH

Abstract

Individuals' food choices impact the planet and society, but only a portion of consumers is concerned with food-related aspects. Food citizenship emerges when people mobilize to access healthy, sustainable, and equitably produced food. This phenomenon is an exercise of rights and duties regarding the food system, which enables movements and initiatives that mitigate individual concerns about problems caused by traditional models of food provision. The present thesis, composed of three complementary studies presented in the structure of papers, contributes to understanding food citizenship at the individual level, i.e., as consumer behavior. In Study 1, a measure of food citizenship is developed and tested with Brazilian consumers (n=329), using an exploratory factor analysis, adding empirical insights into the studied behavior. In Study 2, the behavior change model based on information, motivation, and skills (IMB model) was used to support the search for factors that determine food citizenship in individuals. This exploratory investigation implemented a projective technique with consumers (n=207) after they were after they were familiarized with the concept of food citizenship. In Study 3, the same model (IMB model) allowed us to understand the antecedents of the individual's participation in a productive arrangement mobilized by food citizens: The Community-Supported Agriculture (CSA). In addition, we conducted 17 in-depth interviews, which generated a descending hierarchical classification for each of the constructs of interest - information, motivation, and behavioral skills. The results revealed that the factors of Actions and Beliefs (Study 1) compose the food citizenship measure with 15 items. Those factors allowed the investigation of some meaningful relationships, demonstrating the potential of the scale for future research. In addition, we explored the 34 variables that integrate the

information, motivations, and behavioral skills determining food citizenship (Study 2), and the 15 variables that precede the participation of individuals as part of a CSA (Study 3), both within the scope of the three constructs of the IMB model. Theoretically, this research contributes to advancing the understanding of food citizenship at the consumer level and expands the use of the IMB model in the food context. This behavior change model is promising not only to explain behaviors but also to support intervention proposals. From a managerial and social perspective, there are contributions to public policies and food citizenship movements or initiatives, as the studies increase the understanding of engaging more people in their purposes. Finally, providing an overview of the studies and future paths, two unified models are outlined, and a research agenda with 20 questions to be studied, under six different themes, is presented.

Keywords: food citizenship; consumer behavior; information, motivation, and behavioral skills (IMB); Community-Supported Agriculture (CSA); Alternative Food Network (AFN).

AS DIMENSÕES DA CIDADANIA ALIMENTAR: UMA ABORDAGEM ORIENTADA PARA O CONSUMIDOR

Resumo

As escolhas alimentares dos indivíduos impactam o planeta e a sociedade, mas apenas uma parcela dos consumidores se preocupa com os aspectos relacionados à alimentação. A cidadania alimentar emerge quando as pessoas se mobilizam para ter acesso a alimentos saudáveis, sustentáveis e justos. Esse fenômeno é um exercício de direitos e deveres em relação ao sistema alimentar, que viabiliza movimentos e iniciativas que mitigam as preocupações individuais sobre os problemas dos modelos tradicionais de acesso aos alimentos. A presente tese, composta por três estudos complementares apresentados na estrutura de artigos, contribui para a compreensão da cidadania alimentar no nível individual, ou seja, como comportamento do consumidor. No Estudo 1, uma escala de cidadania alimentar é desenvolvida e testada com consumidores brasileiros (n=329), utilizando análise fatorial exploratória e envolvendo achados empíricos sobre o comportamento estudado. No Estudo 2, o modelo de mudança comportamental baseado em informação, motivação e habilidades (IMB, na sigla em inglês) foi utilizado para subsidiar a busca de fatores que determinam a cidadania alimentar nos indivíduos. Esta investigação exploratória fez uso de uma técnica projetiva com consumidores (n=207) previamente introduzidos no conceito de cidadania alimentar. No Estudo 3, o mesmo modelo IMB permitiu compreender os antecedentes da participação dos indivíduos em um arranjo produtivo mobilizado pelos cidadãos alimentares: a Comunidade que Sustenta a Agricultura (CSA). Foram 17 entrevistas em profundidade, que geraram uma classificação hierárquica decrescente para cada um dos construtos de interesse – informação, motivação e habilidades comportamentais. Os resultados revelaram que os fatores Ações e Crenças (Estudo 1) compõem a medida de cidadania alimentar com 15 itens. Esses fatores permitiram a

investigação de algumas relações significativas, demonstrando o potencial da escala para pesquisas futuras. Além disso, foram exploradas as 34 variáveis (Estudo 2) que integram as informações, motivações e habilidades comportamentais que determinam a cidadania alimentar, e as 15 variáveis (Estudo 3) que antecedem a participação de indivíduos em uma CSA, ambos no escopo dos três construtos do modelo IMB. Teoricamente, esta pesquisa contribui para o avanço da compreensão da cidadania alimentar no nível do consumidor e amplia o uso do modelo IMB no contexto alimentar. Este modelo de mudança comportamental é promissor não somente para explicar comportamentos, mas também para apoiar propostas de intervenção. Do ponto de vista gerencial e social, há contribuições para políticas públicas e movimentos ou iniciativas de cidadania alimentar, pois os estudos ampliam a compreensão sobre como engajar mais pessoas em seus propósitos. Por fim, apresentando um panorama dos estudos e caminhos futuros, são delineados dois modelos unificados e apresentada uma agenda de pesquisa com 20 questões a serem estudadas, sob seis temas distintos.

Palavras-chave: cidadania alimentar; comportamento do consumidor; informação, motivação e habilidades comportamentais (IMB); Comunidade que Sustenta a Agricultura (CSA); Redes Alimentares Alternativas (RAA).

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Chapter 1

General Introduction

General Introduction

Challenges

Wendell Berry invites individuals to rethink their relationship with food by saying that "eating is an agricultural act" and that doing so with pleasure provides a connection with the world (Berry, 1990). With this emblematic proposition as background, this research addresses food citizenship from the consumer perspective.

The phenomenon of interest is the emergence of consumers that perform individual mobilization to access quality and healthy food (Gómez-Benito & Lozano, 2014). These consumers can be considered food citizens, being a small group of ethically informed and committed individuals (Lehner, 2013). As a simplified example concerning food choice, while the food citizens perform food-related behaviors conscientiously, many consumers acquire, prepare or consume food in an automatic, habitual, or subconscious way (Furst et al., 1996).

Also emphasizing food choice, a large European study shows that the main factors inherent to products that affect this behavior are quality, taste, price, and health (Lennernäs et al., 1997). With that in mind, many studies deepen the understanding of how product attributes, e.g., sensory properties and packaging information, contribute to a food choice (Hoppert et al., 2012).

This topic is important because people's consumption pattern and food choices influence the production systems (Furst et al., 1996). However, the existing body of literature still lacks an understanding of food citizenship-related consumer mobilization. Few publications aim to understand how consumers deal with more responsible food choices considering the complexity of the motivations and intentions regarding the individual's morals and their relation to consumption practices (de Tavernier, 2012).

In parallel to this research gap, the global market has increasingly developed alternative forms of food system arrangements (Fendrychová & Jehlička, 2018; Printezis & Grebitus, 2018). It is evidenced, for instance, by the existence of food activists (Stevens et al., 2018) and by the presence of food programs and documentaries aiming to change the way people perceive food (Bell et al., 2017) or the food chain (Mendes et al., 2017). In this context, some research proposals investigate how alternative food networks operate, succeed and understand responsible food consumption behavior (Lehner, 2013). This research is about the latter. It addresses the food citizenship concept since it can be considered a powerful concept to integrate concerns related to food that responsible consumers have.

Still, this approach is in line with some of the Sustainable Development Goals (SDG), mainly the SG2 (zero hunger), SG3 (food health and well-being), and SG12 (responsible production and consumption) (Food and Agriculture Organization, 2017), which provides further evidence of the importance of the theme. Caron et al. (2018) affirm that inclusive and sustainable food systems contribute to the SDG's agenda.

As it was said some decades ago, the major global food problem is that the "market-oriented, or laissez-faire food regime is unable to solve the world hunger problem" (Bergesen, 1995, p. 301), which means that the traditional way of provisioning food does not reduce food insecurity. Nevertheless, changing the system is more than challenging because the "power structure in the global food system operates to block any regime change contrary to the rich countries' interests" (Bergesen, 1995, p. 294).

From that perspective, which alternatives are available? A good example is that some food citizens are engaging with food movements. Two cases of major global movements are that of Slow Food and Community-Supported Agriculture (CSA) (Schnell, 2010), and the dimension of these movements indicates the importance of this phenomenon. The Slow Food movement has 1 million supporters, a network of around 100,000 members, and 2,400 food

communities “that practice small-scale and sustainable production of quality food worldwide” (Slow Food Worldwide, 2019). For CSA, the estimative is that 2,776 communities were operating in Europe in 2015, involving 472,055 people (Volz et al., 2016). In the United States, there were 6,500 communities in 2012, with 12,617 farms marketing through a CSA, according to the 2012 Census (Woods et al., 2017). In Brazil, 100 CSA were active in 2018 (Meireles, 2018), and this number reached more than 140 in 2022 (CSA Brasil, 2022). In Brazil, an important concentration is in its capital, Brasília, with 35 communities registered in 2020 (CSA Brasilia, 2022).

These numbers are relevant but modest compared to the world’s total population. The food citizens, who genuinely want to consume in fairly, sustainable, and healthy manner (Hoek et al., 2017), comprise a small part of the population due to numerous issues. Some barriers are the low use of information even among individuals who had access to it (Jacobs et al., 2011), the absence of moral concern or engagement (Arbit et al., 2017), the presence of asymmetric or confusing information (Parker & de Costa, 2016), and the low availability or accessibility of better food options (Chand et al., 2012).

The role of the individual mobilized by the concept of food citizenship is considered very pertinent, and, as it will be discussed throughout this research, many factors interfere with consumer behavior. Therefore, this work explores food citizenship, considering the consumer perspective to understand this phenomenon and create a basis to promote food-related movements. The Information-Motivation-Behavioral Skills (IMB) model is a relevant behavior change theory used to guide this research strategy. It assesses individual changes in different behavior types based on the increment of information, motivation, and behavioral skills that the individual presents (Bian et al., 2015; Ferrer et al., 2010; Fisher et al., 1994).

In this scenario, the central challenge that this research proposes to overcome is the systematization of food citizenship from the consumers' perspective. As it will be detailed later,

this involves unraveling food citizenship itself and the primary constructs that can influence this behavior.

Food Consumer Behavior

The study of consumer behavior regarding products and services has been long characterized by researchers and entities' concern in educating consumers about their choices (Schwartz, 1991). Processing choices, shopping, and deciding on products and services are recognized as complex tasks because consumers have to deal with a large volume of information received from different sources (Bettman et al., 1991). For this research, it is a premise that the food citizenship concept can be considered a consumer behavior regarding the pursuit of healthier and more sustainable food.

Food citizenship is a term that deals with the fact that some consumers are increasingly aware of the impact of their choices, committing themselves to achieving a pattern of food consumption compatible with their ideals. It is challenging to delimit this term, and Gómez-Benito and Lozano's (2014) work offers, perhaps, the first systematic attempt to define food citizenship. For them, food citizenship is related to acknowledging rights regarding food in terms of access and information, and it is also about obligations in political participation, justice, and cosmopolitanism (Gómez-Benito & Lozano, 2014).

With so many aspects to be considered in the study of consumer behavior, the area of consumer behavior was consolidated as a broad and promising field of research at least since the 1990s, using fundamentals of psychology and economics, among others, and advocating application in the managerial field (Bettman *et al*., 1991). Studies have demonstrated the importance of price in marketing values (Lichtenstein et al., 1993). However, it was verified that even this primary component (price) becomes complex from the consumer's point of view, presenting positive or negative roles, depending on the context (Lichtenstein *et al*., 1993).

Thus, models such as the half-end chain, which maps the consumer's relevant values when relating price, perceived quality, and perceived value, became relevant (Zeithaml, 1988).

Also preoccupied with consumer behavior's complexity, one of the names that gained importance in the 1990s was Icek Ajzen, author of Theory of Planned Behavior (TPB). The TPB model proposes the formation of the intention of behavior from a motivational background, called attitudes, subjective norms, and perceived control (Ajzen, 1987).

To date, traditional theories such as those of Zeithaml (1988) and Ajzen (1987) have evolved and continue to support consumer behavior research (Baumgartner, 2010; Yamoah et al., 2016). In the same way, studies that discuss emerging aspects of the consumer and that model constructs and variables in an innovative way are growing (Alfinito & Torres, 2012; Asioli, Næs, Øvrum, & Almli, 2016; Brandão, Otávio, Barcellos, Waquil, Oliveira, Gianezini, & Dias, 2015; Magnac, 2005; Natter & Feurstein, 2002).

The literature is rich for food-related consumer behavior studies. Thus, it is relevant to bring aspects raised by literature reviews that observed different aspects of food consumer behavior studies. Some aspects addressed by selected literature reviews on consumer food behavior are presented. This topic reviews the Brazilian literature on food consumers' behavior to guide this research. It is a review of reviews (Patterson, 1984), as it uses other reviews to obtain an overview of the field of study of food consumption behavior.

The search for articles was carried out in the Portal of Periodicals CAPES/MEC, as it brings together many international databases available to Brazilian universities (Mesquita et al., 2006). This search was part of the basis for defining the research problems of this research and was carried out at the beginning of March 2019 using the search terms: "food" and "consumer," and "review" in the subject. The search was refined by "Peer-Reviewed Journals" without delimitation of time.

The result involved relevant databases such as Scopus (Elsevier), OneFile (GALE), Web of Science, Taylor & Francis Online, SpringerLink, Emerald Insight, Wiley Online Library. The reading of abstracts allowed the identification and selection of 21 review papers dealing with the topic of food consumer. Table 1.1 summarizes the studies considered to further analysis.

Table 1.1

Review articles that address food consumer behavior and their object of interest

Reference [Author(s), (Year)]	Object under Review
Boyland and Christiansen (2015)	Experimental studies regarding preference, choice, or intake with food price manipulation
Brown et al. (2011)	Consumer awareness, understanding, and use related to food guides
Chandon and Wansink (2012)	Pricing and marketing and biased food consumption
Daniele Asioli et al. (2017)	Understandings, driven factors, and implications of the consumer demand for clean labels
Epstein et al. (2012)	Influence of organic food prices on consumer behavior
Feldmann and Hamm (2015)	Local food from the consumer's perspective
Fernqvist and Ekelund (2014)	Effect of credence cues on consumers' hedonic liking of food
Giles, Kuznesof, Clark, Hubbard, and Frewer, (2015)	Societal acceptance or rejection of nanotechnology applied to agri-food production
Grunert and Aachmann (2016)	Influence of quality labels on consumers
Hebrok and Boks (2017)	Consumer and socio-cultural drivers of food waste
Just and Gabrielyan (2016b)	Food consumption and behavioral economics as part of effective policy tools
McCluskey, Kalaitzandonakes, and Swinnen (2016)	Media coverage of new food technologies and the impact on perceptions and behavior
Milton and Mullan, (2010)	Effectiveness of food safety interventions
Mogendi, De Steur, Gellynck, and Makokha (2016)	Consumer evaluation of food with nutritional benefits
Moore (2018)	Family influences on children's food preferences and habits, and these effects into adulthood
Rana and Paul (2017)	Factors that change consumer behavior towards organic food
Steinhauser and Hamm (2018)	Characteristics influencing the effect of food claims on preferences and purchase behavior
Torrico et al. (2018)	Novel techniques to understand consumer responses toward food products
Verain et al. (2012)	Segments of consumers regarding sustainable food consumption
Wilcock, Pun, Khanona, and Aung (2004)	Consumers' attitudes towards food safety
Young et al. (2017)	Theories associated with consumers' safe food handling behavior

The first issue of interest was to verify information about the characteristics of consumers brought by reviews. The review performed by Wilcock et al. (2004) on food safety behavior showed that attitudes are linked to demographic and socio-economic status, culture, personal preferences, and experience. Moreover, a review on sustainable behavior found three consumer segments (greens, potential greens, and non-greens), indicating that the importance of price and health differed across the segments (Verain et al., 2012). According to it, personality characteristics, lifestyle, and behavior are determining aspects (Verain et al., 2012).

Examples of consumer behavior interventions were also sought in the reviews, and some illustrated the potentialities that interventions might present. Milton and Mullan (2010) observed that food safety interventions positively affected behavior change, attitudes, and knowledge. A study also observed experimental research related to price changes and suggested that those modifications influence food purchases (Epstein et al., 2012). Furthermore, a review of food consumption and behavioral economics' potentialities concluded that interventions could be used to create an effective food policy (Just & Gabrielyan, 2016a). Regarding the factors that can change consumer behavior towards organic food, Rana and Paul (2017) found, in their review, that health-conscious consumers prefer organic foods to improve their quality of life, mainly due to the rising incidence of lifestyle diseases.

Still somewhat related to interventions, another aspect of interest in the reviews was that consumer behaviors are considered positive in terms of health and sustainability. In this matter, a review article found that local food is not perceived as expensive, but consumers are willing to pay a premium for it (Feldmann & Hamm, 2015). Additionally, a review on food waste found that the topic is complex and involves socio-cultural and material factors (e.g., organization of the fridge and how leftovers are stored). The same study observed that the

literature generates considerable knowledge about the problem but poorly suggests solutions (Hebrok & Boks, 2017). Moore (2018) conducted a review that suggests that the early influence on children's food preferences and habits sometimes can help to guide their behavior in later years.

A review article drew attention for demonstrating the use of several theories. Young et al. (2017) found that the theories most used to study consumers' safe food handling behaviors were the Theory of Planned Behavior, present in 45% of the studies. However, they suggested that multiple behavior change theories can guide this behavior and contribute to developing interventions. Within methodological aspects, a study looked for novel techniques to understand consumer responses towards food products and proposed that qualitative methods and physiological responses can help, respectively, to obtain more holistic responses and to bring consumer emotions in a more truthful, unbiased way (Torrico et al., 2018).

Regarding price, a review of the studies that accessed the effect of organic food prices on consumer behavior showed that few studies investigate "price knowledge" and that "willingness-to-pay" studies had contradictory results due to weaknesses in the sampling techniques and the data collection methods (Rödiger & Hamm, 2015). Therefore, the review could not present conclusive findings on that matter.

Focusing on trust, Fernqvist and Ekelund (2014) observed that consumers do not adequately evaluate the selected credence cues (health, organic food, origin, brand, production methods, ethics, and descriptive food names and ingredients). However, those cues affect the perceived quality and sensory experiences. Also, trust-related, a review regarding acceptance or rejection of nanotechnology applied to agri-food production showed that this innovation is more readily accepted depending on the type of application. Consumers accept the nanotechnology easier if it is applied in the packaging and not directly in the food products (Giles et al., 2015).

Analogously to trust, the information also significantly influences the consumer behavior. A literature review discussed media information on new food technologies and consumer perceptions regarding the presented innovations. The article from McCluskey et al. (2016) showed that those interactions are exciting and complex: because consumers are attracted to negative news, the mass media deliberately bias the theme under coverage; then, when receiving media information, individuals anticipate that it is biased, but they only partially discount that expected bias from their understandings. Chandon and Wansink (2012) studied how food pricing strategies and marketing communication can bias food consumption. They conclude that the companies could make "win-win" adjustments to help consumers improve their diet and that television advertising is only one of many communication channels that influence consumers. They also argue that the researchers overestimated the relationship between deliberate food decision-making and nutrition information, health claims, and informational advertising. More specifically, Chandon and Wansink (2012) highlight the importance of mindless, habitual behavior to the product itself and to the place (eating environment).

Regarding food claims, a review found some aspects that shape consumer preference, as consumer nutrition knowledge, health motivation, familiarity, and socio-demographic characteristics. Steinhauser and Hamm (2018) also noticed that some product aspects that affect consumer preferences were the perceived food healthiness, the nutrient under claim, and the claim type. In the same context, Mogendi et al. (2016) found that the four determinants aspects of consumer evaluation of food with nutritional benefits are: (i) nutrition knowledge and information; (ii) attitudes, beliefs, perceptions, and behavioral determinants; (iii) price, process and product characteristics; and (iv) socio-demographics. Moreover, a review paper addressed the clean label topic. It showed that "health" is a significant consumer motive but that many

intrinsic or extrinsic product characteristics and socio-cultural factors affect consumer behavior (Daniele Asioli et al., 2017).

On the other hand, a paper reviewing how food quality labels affect consumers showed that results are conflicting and still inconclusive (Grunert & Aachmann, 2016). Likewise, regarding consumer awareness, understanding, and use of food guides, a study found that the quality of the assessments varied, with raw qualitative data and quantitative method details being often omitted (Brown et al., 2011). Finally, a systematic review of recent experimental studies with manipulated food brands showed that the results were not conclusive, with brand information affecting food-related behavior in only some studies (Boyland & Christiansen, 2015).

This overview of food consumer behavior shows that much has been pursued on the subject. However, there are research gaps and room to increase understanding, signaling the potential relevance of studying food citizenship. The main lessons learned from the review were that consumer characteristics are important variables; interventions can be promising; using innovative theories is valid; knowledge and information are critical aspects in shaping behavior and motivation.

These findings support the relevance of studying food citizenship considering the consumer perspective, intending to support possible interventions, using different theoretical approaches, and considering aspects that can model behavior (e.g., motivation and information). This research focuses on these aspects, directly or indirectly, bringing light to food citizenship from the consumer's perspective.

Brazilian Literature on Food Consumer Behavior

This subitem evaluates the landscape of the Brazilian literature on consumers' food behaviors. In order to perform this bibliometric analysis, choices were made regarding techniques, searches, and filter applications used to select the article sample.

The article selection followed Demo et al. (2015), which used the Qualis Capes classification to analyze Brazilian publications valid at the time. The focus was on the Brazilian scientific journals of the Administration area classified as B2 or higher by Qualis Capes. This classification involves journals of at least moderate importance, e.g., that have a Spell Index above 0.225 or present in Redalyc or the Scielo database (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, 2017). This criterion resulted in the selection of 32 journals.

Within each journal, the articles were selected. The term used to search the articles was "food," both in English and Portuguese ("alimentos"), available in any field of the article. All articles' titles and summaries were evaluated to identify empirical articles related to Brazilian consumer food behavior. This stage of article identification was carried out integrally and independently by the main researcher and a colleague to reduce the selection's subjective aspect. At the end of this screening process, there were 47 articles for evaluation from 2003 to 2018, according to Table 1.2. It is not a large number of articles, as they are in general management journals, and food is a relatively unexplored sub-topic in Brazil in the context of publications on consumer behavior.

Table 1.2

List of journals with selected articles.

International Standard Serial Number (ISSN)	Title of the Journal in the Original Language	Number of Articles
1807-7692	BAR. Brazilian Administration Review	1
1808-2386	BBR. Brazilian Business Review	1
2178-938X	RAE. Revista de Administração de Empresas	2
1984-6142	RAUSP. Revista de Administração (São Paulo)	1
1983-0807	Revista Brasileira de Gestão de Negócios	1
1984-8196	Base - Revista de Adm. e Cont. da Unisinos	1
0104-530X	Gestão & Produção (Ufscar. Impresso)	3
1809-2039	RAI: Revista de Administração e Inovação	1
1678-6971	RAM. Revista de Administração Mackenzie (Online)	1
1983-4659	REA. Revista de Administração da UFSM	6
1413-2311	READ. Revista Eletrônica de Administração	1
1809-2276	REGE. Revista de Gestão USP	1
2175-8077	Revista de Ciências da Administração	1
1677-2067	Revista Portuguesa e Brasileira de Gestão (RJ)	1
1984-6606	E&G - Revista Economia e Gestão	1
2178-8030	Gestão & Planejamento	1
1517-3879	Organizações Rurais e Agroindustriais (UFLA)	13
1679-5350	Revista de Administração da Unimep	2
1678-4855	Revista Desenvolvimento em Questão	1
1984-3372	Revista Eletrônica de Estratégia & Negócios	1
1982-8756	Revista Organizações em Contexto (Online)	2
1517-672X	Revista Pretexto	4

Next, a systematic classification of the articles was developed regarding their demographic characteristics, methodological typologies, and empirical aspects. These categories included: year of publication, approach, presentation of theory/model, variables (if a quantitative study), Brazilian federative unit, the sample of consumers, sample profile, and presentation of managerial, academic, and proposal contributions for future studies. This systematization was used in an electronic spreadsheet designed to support classification.

Regarding the periods of publication, the quadrennial of 2015-2018 returned a peak of 17 published articles, followed by 2011-2014 and 2007-2010, both with 13 papers. The years 2003-2006 retrieved only four articles, so it can be noticed that the production on the subject increased in the period.

The approach that we intend to delve into considers a behavioral change theory, so it was of interest to observe whether studies in the literature consider any consistent theoretical basis. Indeed, one of the most relevant aspects considered by the reviewers when analyzing an article submitted for publication is if the work develops a theory that supports the proposal of the studies (Straub, 2009). But among the papers analyzed, 29 did not present the theory or model based on the analyses.

The methodological approaches applied to access food consumer behavior varied. However, most of the studies (33) used surveys. The second most frequent data collection method was interviews, present in 15 articles. It is important to note that some articles (04) applied a mixed-methods approach. Other data collection methods were observational research, focus groups, and documentary investigation.

Regarding the nature of the articles and analytical techniques, quantitative articles mostly used descriptive analysis (18 articles), factor analysis/structural equation modeling (11 articles), correlation/regression analysis (eight articles), and cluster analysis (ten articles). Of the qualitative or multi-method studies, the most used technique was content analysis (ten articles), while some studies used the laddering or hierarchical map techniques.

The analysis of the dependent and independent variables performed for the 31 quantitative or multi-method articles that used multivariate statistical analysis techniques made it possible to observe that the behavior is studied under different aspects. Among the dependent variables, ‘choice’, ‘decision’, and ‘use’ had seven occurrences, while ‘perception’ had five, and ‘intention’ and ‘attitude’ appeared four times each.

Among the independent variables, the group of articles under investigation has considered demographic, socio-economic, and cultural determinants, as well as product or service characteristics and included, among others:

- Personal variables: sex, income, marital status, involvement, age, education, environmental awareness, lifestyle, culture, and belief.
- Product or service variables: quality, brand, origin, value, nutritional information, label/certification, variety, and food safety.

In general, the articles seek to draw a profile of food consumers from the various variables involved and not necessarily to model the behavior for a broader understanding. This is an important identified research gap, on which we intend to shed light. Variables such as culture and lifestyle are critical (Poulain, 2004), however, there is a lack of studies on these themes in the selected Brazilian literature since only three articles dealt with culture or lifestyle variables.

It is also essential to highlight the lack of studies with variables related to sustainability, such as environmental awareness, presented in only two articles. The food market has undergone significant changes, and aspects related to health and ecological preservation have increasingly influenced consumer decision-making (Guivant, 2003), a potential theme for future studies.

Considering the Brazilian federative units from which the consumer data were collected, among 44 articles where this information was available, the majority were held in Minas Gerais (10 articles), São Paulo (9 articles), Mato Grosso do Sul (9 articles), and the Rio Grande do Sul (6 articles). The other seven states were in up to three articles each. Brazil has 16 federative units out of 27 in the North and the Northeast of the country. However, the Northeast was subject to only four studies, and the North comprised none, signaling an opportunity to expand consumer research in these regions.

The number of respondents (sample) from the 37 quantitative or multi-method studies ranged from 50 to 1,600. The nine qualitative studies with this information available analyzed an average of 26 participants.

Concerning the respondents' characteristics, studies indicate specific profiles of consumers as part of the sample for convenience or interest. More than half of the articles sought a particular profile of consumers as being of interest to the research; however, they were of diverse profiles. Sixteen of the analyzed articles selected individuals who consumed the product specified in the research (e.g., organic, chicken) or purchased it at the place of interest studied by the research (e.g., street market, supermarket). Also, four articles focused on students and three on an age group.

Based on these findings, there is a research agenda. Firstly, the general agenda for food consumer behavior must consider presenting a theory or model that underlies the study, bringing support to the reader, strengthening the findings, and making the contributions more comprehensive. Several theories in the social sciences, psychology, and other areas can base consumer behavior research and theoretical models formed by carefully selected constructs and variables. In that matter, an international review recommends that theories are appropriately selected and adapted to meet the needs of the specific target population and context of interest (Young et al., 2017). This is particularly of great interest, and means that testing theories in different environments and approaches can consistently contribute to the literature.

It is also proposed as a research agenda for Brazil to expand the studies within the Brazilian territory more broadly. Due to its size, it is challenging and costly to carry out studies representing the Brazilian population—consequently, research usually concentrates on a small portion of the Units of the Federation (UF). Thus, studies in alternative areas would be pertinent for further Brazilian consumer behavior understanding. It would be interesting, for example, to replicate studies between UF to verify if the behavior varies by location. Moreover, according to international literature article reviews, more studies should be performed in emerging and developing countries (Daniele Asioli et al., 2017) and consider cross-national (cultural) comparisons (Feldmann & Hamm, 2015).

In general, the Brazilian studies were either qualitative or quantitative, so that a lack of multi-method studies was identified. Qualitative research may be used before quantitative to base decisions on chosen variables or applied afterward to understand better what statistical analyses have demonstrated. Bringing to the topic of the current research, a study that assessed the food citizens' motivations regarding buying local food highlighted the importance of including qualitative analysis in the studies (Carolan, 2017).

The suggestions for future studies also include the performance of more robust statistical analyzes when relevant. Many Brazilian articles only conducted a descriptive analysis. More studies must present the possibility of making inferences and testing hypotheses, robustly evaluating the relationship between constructs or variables. The literature review also found it necessary to improve sampling techniques, increase the comparability of results, and deepen the analyses recommended by Rödiger and Hamm (2015). There is a clear need for more high-quality, methodologically consistent research (Boyland & Christiansen, 2015), as, even outside Brazil, many studies have methodological flaws (Milton & Mullan, 2010).

Brazilian studies also should perform more innovative qualitative analyses. Content analysis is the dominant method in qualitative studies. Although it is a fundamental analysis for consumer behavior studies, many other qualitative analyses could be explored and considered in future studies, depending on the data and the objective. The triangulation of quantitative, qualitative, or mixed methods is also relevant.

The international literature indicates room for interdisciplinary research, integrating sensory sciences and psychology, to understand how values, social norms, identity, and personality affect choices (McCluskey et al., 2016). Along with personal and social norms (Feldmann & Hamm, 2015), many psychological aspects can affect the decision-making processes (Daniele Asioli et al., 2017).

Another important aspect to Brazilian studies is to define the characteristics of the consumer of interest. Many studies analyzed only had the consumption of a particular product or service as a filter that would be part of the questionnaire. We expected more studies looking at socio-demographic background factors as determinants for consumption behaviors in a robust and intentional way, allowing better targeting of the efforts by private companies or public policies related to that behavior. Therefore, gender and intergenerational differences still deserve further attention when understanding Brazilian food consumers.

An international literature review also suggested that future research was needed to explore the characteristics of different sustainable food consumer segments (Verain et al., 2012). And, still, ten years later, there are important research gaps, as the use of different theories to substantiate, e.g., green product design process (Marcon et al., 2022). When considering more sustainable and healthier products, it is also relevant to understand the behavior of people who are aware of beneficial products but cannot access them due to lower-income or family configuration (number of people in the household) (Chaudhury & Albinsson, 2015). It is important to develop more research with variables that respond to lifestyle and awareness, considering conscious-related behavior. The food consumer is increasingly conscious, demanding responsible products and services (Furst et al., 1996), and future studies could broaden the look on consumer characteristics and behaviors toward healthier or sustainable products, for example.

Regarding changing behavior, the international literature reviews highlight the importance of learning more about consumer attitudes and behaviors, creating awareness, promoting public trust and credible information sources, and educating consumers (Wilcock et al., 2004). The development of socially beneficial impacts must also be addressed (Giles et al., 2015). For example, further research should test new ideas and interventions to reduce food waste in households (Hebrok & Boks, 2017). Regarding behavioral interventions, it is crucial

to learn how to control the extent of behavioral effects and to determine which effects are durable (Just & Gabrielyan, 2016a). Broad understandings about the consumer can even guide food policy regarding better eating behavior (Epstein et al., 2012) and regulation of food quality labels (Grunert & Aachmann, 2016), after due consideration by interested parties.

The points raised here aim at contributing to the quality of future scientific production since those improvements can strengthen the research area and increase the understanding of consumer behavior. It is also worth observing that the bibliometric analysis that grounded these recommendations did not cover the literature produced on the subject. However, it was considered adequate to evaluate whether it can be considered relevant to studying food citizenship-related behavior. The conclusion is that it is a knowledge gap and a pertinent theme to advance on the topic.

Some other learnings from this review that can help guide the current research are that it may be necessary to consider the structural and contextual factors that favor, hinder, or make it impossible to perform some behaviors. Regarding food, for example, there is a lot to be learned about the links between agriculture, climate, food and nutrition security, ecosystem regeneration, and social justice (Caron et al., 2018). Therefore, it is relevant to study the factors that favor access to knowledge and food citizenship practices (Gómez-Benito & Lozano, 2014).

The review corroborates the idea that it may be of great interest to study healthy and sustainable consumer behavior, using mixed-method approaches (qualitative and quantitative) and considering different consumer profiles. As food consumer behavior may be determined and preceded by many different variables, prioritizing some aspects requiring further study may be relevant. The literature on food citizenship is undoubtedly an exciting starting point for this approach.

Food citizenship: origin, concept and relevance

Food citizenship is in line with other terms widely used in the literature. Therefore, in order to enlarge the understanding of food citizenship, we should mention the terms citizen-consumers, food justice, food democracy, food security, and food sovereignty. The first, citizen-consumer, consists of those people who perceive that they have a buying power that can develop transformation in social and political areas (de Tavernier, 2012). According to Gómez-Benito and Lozano (2014), food justice emphasizes the inequalities in the food system distribution, while food democracy considers that citizen participation is the key to reorienting the food system. Then, food security consists of a multidimensional concept that fights against hunger and is in favor of balanced nutrition. In turn, food sovereignty is a new and broader concept based on the concurrence of all efforts to satisfy food needs (FAO, 2013).

All these terms are aimed, in a way, at a strengthened food system. Moreover, in the midst of it all, a fact that draws attention to food citizenship is its ability to support alternatives to the current food system model (Escajedo San-Epifanio, 2015). Food citizens are crucial for implementing and maintaining alternative food-related practices. They urge a food supply scenario that involves corporate responsibility, improvement of market rules, and empowerment of agents throughout the food chain (Carolan, 2014).

Literature already indicates some characteristics of a possible food citizen. In general, consumers may engage in alternative food systems for individual interests (nutritional benefits, superior taste, and avoidance of synthetic pesticides) and collective motives (environmental and economic concerns) (Schrank & Running, 2016). Nevertheless, food citizens would go beyond and practice consumption aiming for the greater good (Chaudhury & Albinsson, 2015), contributing to humanitarian and prosocial objectives. More specifically, they may renounce individual wishes for the benefit of fairness, equity, sustainability, socio-economic development, the protection of cultural diversity, and the guarantee of a decent life for everyone

(Escajedo San-Epifanio, 2015). This is because food citizens would be aware that they have rights and responsibilities to society, other consumers and producers, the environment, and animals' welfare (Gómez-Benito & Lozano, 2014).

It is relevant to evaluate if the consumer's scenario favors responsible choices. There are structural and access problems that prevent conscientious people from putting into practice their goals in terms of access to food (Carolan, 2014). However, based on the assumption that, in any case, it is necessary to have conscious people, this research focuses on this consumer issue. Many works focus on structural and systemic problems, and it is precisely this complementary perspective that is sought here.

Furthermore, it is worth mentioning a particular inspiring study. It is a North American qualitative study that evaluated aspects related to food citizens. The authors propose a framework that shows that the life history influences (e.g., social relations and media) make consumers dissatisfied with the mainstream lifestyle and current food system. That is understood as "tensions in everyday naturalistic foodways" (Chaudhury & Albinsson, 2015), and individuals make efforts to diminish those tensions through awareness and some conscious practices (as growing their own food, buying sustainable food, participating in shared practices, and diffusing knowledge) (Chaudhury & Albinsson, 2015). In other words, people become aware and uncomfortable with the way things work and look for alternatives. At that moment, the individual ceases to be a typical consumer and becomes a food citizen, enabling projects, initiatives, and networks to transform the food system.

The food citizenship concept, according to the eight propositions of Lozano-Cabedo and Gómez-Benito (2017), is as follows: (i) based on the recognition of the social right to sufficient, healthy, and quality food; (ii) a question of justice, equality, and fairness; (iii) based on autonomy and the right to truthful, sufficient and comprehensible information; (iv) a matter of responsibilities to human beings, all other living beings, other actors of the agri-food system

and the environment; (v) considers that every citizen is a subject of food citizenship; (vi) manifests itself in both the individual and collective spheres, as well as in the private and public spaces; (vii) means the right and the obligation to participate in the governance of the food system, and (viii) has a cosmopolitan character.

Food citizenship is complex. Is it feasible to systematize it? This research proposes that it is possible to measure food citizenship and comprehend its precedents.

Information-Motivation-Behavioral Skills Model

The Information-Motivation-Behavioral Skills (IMB) model is the basis adopted to understand food citizenship here. The IMB is a behavior change theory that can transform consumer behavior towards well-being. Although this study is related to food consumer behavior, it is worth mentioning that the literature on behavior change theories has a robust background in the medical field and associated areas, aligned with the rigorous ethical issue of medical intervention studies (Thomson et al., 2004). Therefore, we introduce the IMB model from a new perspective, as food citizenship can benefit from this multidisciplinary contribution.

Davis et al. (2015) identified 83 theories and Gainforth, West and Michie (2015) evaluated them, using network analysis to investigate the explicit “contributing relations” among theories of behavior change regarding their out-degree centrality (theories that contributed to the development of other theories) and their in-degree centrality (theories based on other theories). Those authors found that the main behavioral change approaches are the Transtheoretical Model of Change, the Theory of Planned Behavior, the Social Cognitive Theory, and the Information-Motivation-Behavioral-Skills (IMB) model. Each study should choose one theory considering the specific target population and context of interest (Young et al., 2017).

From the 83 theories considered by Gainforth et al. (2015), 22 were identified as being part of a central and main group – the others were considered practically minor adaptations of these roughly two dozen theories. Then, of these 22 theories, three could be considered seminal because they presented 0% in-degree centrality, being: Self-Efficacy Theory, Social Cognitive Theory and Change Theory (Gainforth et al., 2015). In a second filter, those theories were then disregarded, taking into consideration that some recent research developments may not fit into seminal frameworks (Lagrosen & Svensson, 2006). In fact, those three theories have derived many others, and an adaptation of seminal theories can in principle be considered an evolution of the theme.

As a third filter, 12 theories that presented 0% out-degree were disregarded. This is because they correspond to theories that did not influence other theories and, as the area historically seeks increasing theoretical adaptations, this data may indicate that a theory has a lower degree of relevance, less adaptability or may be little empirically tested. After these cuts, seven theories remained for consideration.

During this process of selecting a framework, a question that arises is whether there is a perfect-fit theory. But one of the approaches of interest is the use a theory in a phenomenon still little explored, and one important signal that the theory fits to different contexts is its frequency of use. According to the study that originally identified the 82 theories, just four theories accounted for 174 (63%) of the analyzed articles: the Transtheoretical Model of Change, the Theory of Planned Behavior, the Social Cognitive Theory and the Information-Motivation-Behavioral-Skills Model (R. Davis et al., 2015). Information (including knowledge and awareness) is a variable of interest for studies related to food citizenship, and this was considered to select a theory. In view of this, it is considered strategic to select the Information-Motivation-Behavioral Skills (IMB) model to base our approach.

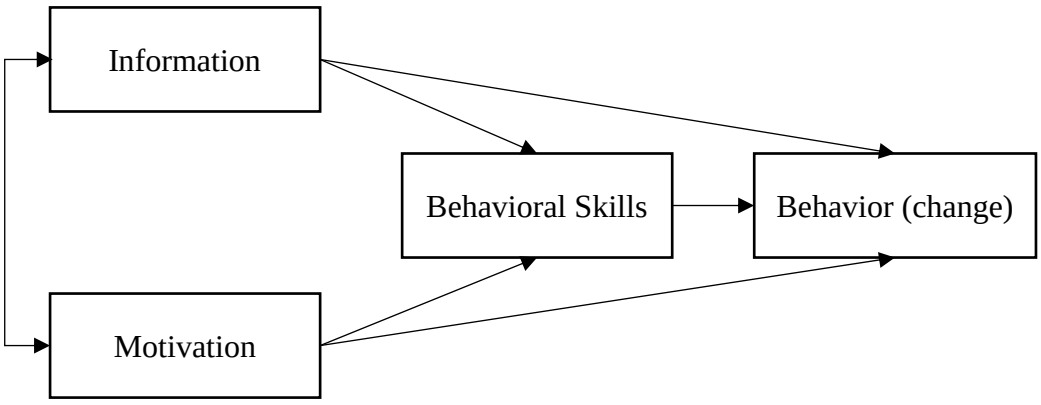
According to Fisher and Fisher (1992), the IMB model corresponds to a conceptually based model for promoting and evaluating behavior change in any interest population. The IMB model was initially proposed based on a critical review regarding interventions on acquired immunodeficiency syndrome (AIDS)-risk-reduction literature (J. D. Fisher & Fisher, 1992). It was intended to be highly generalizable, and the authors proposed that the AIDS-preventive behavior is a function of individuals' information about that prevention, their motivation to engage in the prevention, and their behavioral skills understood as necessary to conduct the acts involved in prevention (J. D. Fisher et al., 1994).

The IMB model is relevant because it elucidates that improving individuals' information, motivation, and behavioral skills can contribute to behavioral change and, therefore, helps to design and test interventions (Misovich, Fisher, & Fisher, 1999).

The elements of the IMB model and their expected relationships are indicated in Figure 1.1.

Figure 1.1

The Three Fundamental Elements of the Information-Motivation-Behavioral Skills (IMB) Model



Note. Adapted from "Changing AIDS - Risk Behavior Changing AIDS-Risk Behavior", by Fisher, J. D., & Fisher, W. A., 1992, *Psychological Bulletin*, *111*(3), p. 465.

In a broader application, the model indicates that risk reduction is a function of people's information and prevention, motivation, and behavioral skills for performing the behavior of interest. Therefore, the IMB model embraces relevant constructs for food citizenship-related studies.

One should note that the three constructs brought together by the IMB model are not sufficient to determine or explain effective behavior by themselves. A complete understanding of a conscious behavior would need to consider, e.g., social norms, values, habits, and even structural issues or other external conditions (Aydin & Yildirim, 2021; Shi et al., 2019). For instance, marginalized individuals may not have the same access to alternative food provisions due to financial or social reasons (Anguelovski, 2015).

Consequently, it is a framework that emphasizes what one can use to influence an individual, as many other variables are inherent to the individual and may not be changed. The model gained popularity due to its ability to fit different health-related approaches and non-health-related studies. This research uses this model as lens to understand food citizenship precedents.

Aims and scope of the research

The general question that guides this research is whether food citizenship can be systematized so that we understand the dimensions that compose this phenomenon and the constructs that precede it. Three research papers are developed to establish this understanding. The specific papers bring different but complementary views on what food citizenship involves and contribute to the construction of new knowledge about how we can promote it at the consumer level.

Many initiatives are emerging to improve the food system. Moreover, they need food citizens to succeed. The behaviors (e.g., attitudes and motivations) of these individuals, in turn,

are not yet comprehensively covered by the literature. This research addresses this specific gap. Three research questions guide this research, each one through developing a specific research paper (Table 1.3).

Table 1.3

Overview of the research questions

No.	Short title	Research question
RQ1.	Measuring food citizenship	How can we measure food citizenship at the consumer level?
RQ2.	Applying the IMB Model	What information, motivations, and behavioral skills do individuals need to present or develop to become food citizens?
RQ3.	Uncovering CSA precedents	What information, motivations, and behavioral skills are necessary for an individual to participate in a Community-Supported Agriculture?

The previous table elucidate, therefore, the scope of this research. It begins with an in-depth investigation of food citizenship and how we can measure it, considering it as an individual's behavioral attitude. Theoretically, the first research paper contributes by bringing the field's attention to the individual, based on factor analysis, to refine an initial proposal for a measure of food citizenship. From a practical point of view, if we want to promote responsible food-related initiatives, it is interesting that food citizenship is measurable. Therefore, this research includes some additional insights that can contribute to this theme using the proposed measure.

Then, the Information, Motivation, Behavioral Skills (IMB) model is employed as a guide to understand the prerequisites for an individual to be a food citizen. An interesting methodological approach is applied in this research paper, which is the projective technique. This allows IMB constructs to be detailed from the consumer's point of view.

Finally, through the same basis, but under another methodological proposal, the precedents of being part of a Community-Supported Agriculture (CSA) are identified, being

CSA an emblematic case of food citizenship. Through interviews with CSA members, the information, motivations, and behavioral skills this arrangement demands were mapped. Furthermore, the systematization of these inputs was possible using software that performs statistical analyses on the textual corpus.

Given the introduction above and as it will be exposed further, it is considered that the use of the IMB model can contribute to the study of consumer behavior related to the concept of food citizenship. Table 1. brings an overview of the three studies that comprise this research.

Table 1.4

The overview of the research papers that comprise this research

Research Paper	Study 1	Study 2	Study 3
Chapter (pages)	**2 (51 – 123)**	**3 (124 – 167)**	**4 (168 – 215)**
Title	Development and Evidence of Validity of a Food Citizenship Measure among Brazilian Consumers	Applying the Information-Motivation-Behavioral Skills Model to interpret food citizenship	Uncovering the Information, Motivations, and Behavioral Skills to Participate in a Community-Supported Agriculture (CSA)
Method	We proposed and tested a food citizenship measure among Brazilian consumers (n=329), using Exploratory factor analysis (EFA). Further insights were obtained via Structural Equation Modelling (SEM) and Generalized Estimating Equations (GEE).	We applied a projective technique with Brazilian consumers (n=207) to unravel the information, motivation, and behavioral skills needed to be a food citizen. Content analysis performed by three researchers and the counting of obtained terms delivered the final results.	We conducted 17 interviews with producers and consumers of CSAs. The results were analyzed with the Iramuteq software's aid, generating the Descending Hierarchical Classification (DHC) – one for each IMB construct and the content analysis.
Highlights	We have developed a scale with good psychometric properties that demonstrates the factors of food citizenship. It can be refined in future studies and obtain insights relevant to the topic.	We obtained the classes of information, motivation, and behavioral skills necessary to be a food citizen. It was possible to outline a theoretical framework for analyzing food citizenship determinants from the perspective of the IMB model.	We identified the information, motivation, and behavioral skills classes that favor participation in a CSA. The IMB model proved feasible to address this phenomenon and yielded a framework that summarizes the main classes obtained.

It is important to emphasize that all research papers are focused on the individual to increase understanding of food citizenship, and that theoretical, social, and managerial contributions may be expected from this approach. Regarding academic advances, this research contributes to understanding the phenomenon of consumer mobilization for healthier and more sustainable food. Also, it contributes by using the information-motivational-behavioral model (IMB model) (JD Fisher & Fisher, 1992) to study a food-related behavior.

Food citizenship may be favorable to production, trade, and consumption from a social perspective. Food citizens can reduce the negative externalities of the conventional food system on the environment and the population's health. Moreover, studying food citizenship may

generate knowledge that contributes to different production chain actors. This understanding can help food-related organizations deal with conscious consumers to tailor their strategies better from the managerial perspective. Moreover, government actors can rely on this understanding to develop public policies (including regulations and educational actions) related to responsible production and conscious consumption. Furthermore, food movements can profoundly benefit from the results to mobilize even more consumers around their purposes, favoring the promotion of food citizenship

Considering those contributions, in the final chapter, a general discussion integrates the findings of the three studies and presents suggestions for a research agenda so that this critical area can continue to advance.

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Chapter 2

Study 1 - Development and Evidence of Validity of a Food Citizenship Measure among Brazilian Consumers

Development and Evidence of Validity of a Food Citizenship Measure among Brazilian Consumers

Abstract

Consumer mobilization to access healthy and quality foods can positively impact the planet. This mobilization aligns with food citizenship, which recognizes practices, rights, and obligations related to accessing healthy and sustainable food by conscious, collaborative, and politically active individuals. Despite the growing relevance of these groups of individuals, few studies focus on these consumers' profiles, seeking ways to understand them systematically. In this scenario, the general objective of this study is the proposition of a food citizenship measure, along with empirical analyzes. The items related to the scale were raised through literature analysis and refined after an expert validation. Afterwards, an empirical application among Brazilian consumers (n=329) via an online survey tested the food citizenship measure. We obtained declared and intention data on 11 behaviors related to food citizenship. Exploratory factor analysis (EFA) verified the internal structure validity, allowing the identification of the dimensions of food citizenship. Still, we analyzed the insights via Structural Equation Modeling (SEM) and Generalized Estimating Equations (GEE). The research findings indicate the potential of this individual approach to the phenomenon, i.e., to access food citizenship as a behavior, using a measure. Also, they signal positive trends in individuals' behavior after the pandemic, which will need further studies. This first effort contains limitations and meaningful insights for this very complex area of research, contributing with new understandings.

Keywords: food citizenship, consumer awareness, alternative food networks, exploratory factorial analysis.

Introduction

Food is the constituent and fundamental social fact of every society. Humans employ a vital part of their economic resources and time in procuring, preparing, and consuming food (Gómez-Benito & Lozano, 2014). Because of that, fair and organic food production, food safety practices, the ecological footprint, and the kind of things we eat matter to citizens (De Tavernier, 2010).

This study illuminate the food citizenship behavior phenomenon and the emergence of consumers that perform individual mobilization to access quality and healthy food (Gómez-Benito & Lozano, 2014). These consumers can also be called food citizens. For them, not only food production practices matter, but also the impact of what they eat on who they are and the ecological footprint of the food they access (De Tavernier, 2010).

The food choices of regular consumers are mainly automatic, habitual, and subconscious (Furst et al., 1996), but, at some point, some of them may start to act more reflectively in their choices, which may or may not become a habit. And when those choices are predominantly more conscious, it is possible that this consumer is moving towards food citizenship. In a very simplified way, food citizens are concerned about the environmental impact of what they are eating (De Tavernier, 2010). According to Kokodey (2012), motivations such as time-saving and new flavors are accompanied by insufficient information on other aspects of the products, so they sometimes consumer overconsume products unaware of the potential bad effects on the planet and human health.

Besides the lack of information and the motivations above, part of the world population is still changing its food behavior. Renting et al. (2012) present that multiple countries, such as France, Italy, and Australia, were developing initiatives regarding access to healthier and sustainable food. In collaboration with producers, those 'citizen-consumers' reshape their relations with the food system and start revaluing the meanings of food (Renting et al., 2012).

One increasingly popular alternative that includes food citizens and producers is community-supported agriculture, or CSA (Schnell, 2010). At the CSA, local people invest in a farm or crop in advance and, in return, get a share of the harvest, often a vegetable box, but it could also be fruit, eggs, or meat (R. Cox et al., 2008). Therefore, CSA is one of a broader set of alternative agricultural movements that attempt to remake our food system into more economically and socially just, locally-based, and environmentally sustainable (Schnell, 2010). It is, therefore, an important food citizenship platform to consider.

The estimative is that in 2017 there were 12,617 CSA farms in the USA, a number that has been growing in the last decades (Samoggia et al., 2019). In Europe, there were 2,776 CSA farms in 2015, the vast majority in France, followed by Belgium and Italy (Samoggia et al., 2019). In Brazil, there were 100 CSA in 2018 (Meireles, 2018). Besides, other alternatives gaining strength are Community Gardens (Baker, 2010) and Farmers Markets (Lyson, 2014).

Despite the growing relevance of these groups of individuals, there are still few studies focusing on the profile of these consumers and seeking ways to understand them systematically. Therefore, there is an absence of a food citizenship measure instrument. In addition, there is a lack of literature regarding food citizenship in the Brazilian context. Because of that, the question this research aims to answer is how can we measure food citizenship at the consumer level?

The general objective of this study is the proposition of a food citizenship measure. This goal was pursued by developing items and assessing their content and face validity, constructing the instrument, and evaluating its internal structure's validity, and undertaking empirical application with insights into the measure's social relevance.

Theoretical Framework

Food Consumer Behavior Measurements

Scales or measures related to the behavior of food consumers have been developed over the last few decades. Among the most consolidated ones, the Food-Related Lifestyle (FRL) and the Food Choice Questionnaire (FCQ) stand out (Eertmans et al., 2006; Grunert et al., 2011; Reid et al., 2001; Steptoe et al., 2013)

FRL aims at finding segments of food markets, being lifestyle an intermediate-level construct, between life values (abstract) and product-related (concrete) cognitions (Grunert et al., 2011). The instrument includes ways of shopping, cooking methods, quality aspects, consumption situations, and purchasing motives. The authors found the following consumer segments in a European approach via clustering: uninvolved, careless, conservative, rational, and adventurous. With 69 items in 23 subdimensions, they propose that, besides the contribution to the literature, it can be a "useful input into the product development process in food processing companies" (Grunert et al., 2011, p. 227).

One example of the FRL application is the study of Pérez-Cueto et al. (2010), who tested the FRL instrument in five European countries. They identified that some FRL dimensions are potential predictors of obesity and suggested that most FRL are relevant for those consumers. When applied in China, Grunert et al. (2011) showed that the instrument could be adapted by inserting new items given the culture, which demonstrates the usefulness of measures for food consumers studies and the importance of considering contexts.

The FCQ is a multidimensional measure of motives related to food choices (Steptoe et al., 1995). It has nine subscales: health, mood, convenience, sensory appeal, natural content, price, weight control, familiarity, and ethics - some of them significantly intercorrelated. In its

original proposal, the scale had 36 items, which was considered adequate at its development by Steptoe et al. (1995).

A common form of application of FCQ is the study between different cultures, having been applied in more than 40 countries, with translation into more than 20 languages (Cunha et al., 2018). Some examples are its use in Brazil (Heitor et al., 2019) and Africa (Cabral et al., 2017). However, according to a systematic review, the researchers have used the instrument with different methodological procedures or made adaptations, causing any comparison to be difficult (Cunha et al., 2018). In this context, in 2011, a study proposed to verify if the FCQ still measured the same and concluded that the instrument's factorial structure is invariant concerning its factor configuration, having success in two parts of Europe and the Philippines (Januszewska et al., 2011).

It must be recognized that all food-related instruments, even the most consolidated ones, are subject to improvement. Fotopoulos et al. (2009), e.g., suggest that the original FCQ does not always support the nine-dimensional model and proposed an adaptation containing eight factors and only 24 items. Moreover, Onwezen et al. (2019) proceeded with a single-item FCQ proposal that could be used as a flexible and short substitute for the multi-item (original) one. Their instrument has 11 items, and the results were considered sufficient to obtain the same insights that the original FCQ presented (Onwezen et al., 2019). However, there is no information if these last authors carried out the factorial analysis.

Therefore, it is possible to notice that these two scales, widely recognized by the food consumer area, tend to evolve and consolidate even more. Nevertheless, they are not enough to address all patterns of food consumption behavior. Therefore, new authors have made proposals even more directed to certain phenomena (Cunningham et al., 2021; Fotopoulos et al., 2009; Stjernqvist et al., 2021). In a literature search, some interesting examples can be found.

One example is the food neophobia scale (FNS), corresponding to the reluctance to eat or that new foods are avoided, with an original measure proposed with ten items (Pliner & Hobden, 1992). The food technology neophobia scale was proposed on the same theme but focused on food processing, with 13 items organized into four factors (D. N. Cox & Evans, 2008). In turn, Ristic et al. (2016) proposed an adaptation of the original FNS to wine: the wine neophobia scale. More recently, there also the proposal of a willingness to try new foods: a measure in Spanish applied it among children and adolescents (Maiz et al., 2016). It was found to have ten items organized in two factors.

As another example, a scale about Food Literacy (FL) was proposed to address food education and cooking interventions, with five theoretical dimensions, which were confirmed: to know, to do, to sense, to care, and to want (Stjernqvist et al., 2021). The authors started with 105 items, and 37 were retained when applied among Danish teenagers. A similar proposal was of Rhea et al. (2020), who proposed a scale on eating and food literacy behaviors regarding planning, managing, selecting, preparing, and eating. The pilot testing was performed with university students, and the measure comprised of 19 items within five factors.

Another proposal accesses reasons individuals stop eating (RISE-Q) to explain food intake variability and susceptibility to overconsumption (Cunningham et al., 2021). The proposal comprised 47 reasons, and the final instrument retained 31, with five factors, after validation among adult consumers.

As they suggest, King et al. (2015) proposed a more commercial approach. They came up with the WellSense Profile^{TM}, which identifies consumer wellness associated with food and ingredients. The instrument has 45 items within five dimensions (emotional, intellectual, physical, social, and spiritual).

Finally, this literature analysis demonstrates examples of the use of measures in the food consumer behavior literature. Simultaneously, it illustrates that there is not, as far as the

authors know, a measure of food citizenship, which is the object of study of this work. The literature confirms precedents for more specific scales to be developed and tested.

Food Citizenship

First, consumer behavior is presented to understand the importance of studying food consumer behavior.

Consumer behavior is the study of individuals, or groups, and their processes to select, secure, use, and dispose of products, services, experiences, or ideas to satisfy needs (Puiu et al., 2010). When studying food consumer behavior, the focus is to understand how the behavior just described happens in practice when related to food.

Many factors are involved in food choices, such as taste, health, social status, and cost. Besides, the food choice process incorporates decisions based on conscious reflection and more automatic or habitual selections (Furst et al., 1996). Only some consumers would make decisions consciously, or thinking ethically, being motivated for organic food, and fair trade, production methods, and less-than-standard working conditions (Tavernier, 2010) – and those might be food citizens.

Food citizenship is characterized by integrating a wide variety of social actors committed to food systems' environmental and social sustainability (Lozano-Cabedo & Gómez-Benito, 2017). It eschews the passive and confining roles of "consumer" or "producer" or "worker" (Hassanein, 2003). It is not only about the consumption sphere but also through the defense of the common good and the participation in collective actions and the public sphere (Lozano-Cabedo & Gómez-Benito, 2017).

The outcomes of collective action are the product of strategic interactions between movements and their targets, a product of movement actors' negotiations with one another, and their integration of aims, beliefs, and strategic decisions (Hassanein, 2003).

This study proposes a way to measure possible changes in individuals' behavior towards food citizenship. The specific literature on food citizenship was extensively investigated. This investigation aimed to identify sentences about attitudes of food citizenship that could base possible items of a scale on this theme - since there was no previous instrument. This stage is an investigation of the literature and identified 73 sentences that help to represent food citizenship. Those phrases were initially in English, adapted for the first person singular. Appendix 2.A shows the sentences.

It is interesting to note the complexity of the food citizenship issue, which ranges from carrying values of care for the community and the environment (de Bakker & Dagevos, 2012) to international solidarity (Sage, 2014). It is a series of attitudes related to food that include self-care but goes far beyond that, since a citizen cares about society as a whole. With that, themes such as political awakening (Welsh & MacRae, 1998), lobbying (Renting et al., 2012), and food advocacy (Gómez-Benito & Lozano, 2014) are also part of this particular concept.

Then, from this initial screening, the study itself will be developed to obtain the food citizenship measure. The next item of this study, the method, details the development from the starting point of Appendix 2.A.

Food Consumer Behavior amid Covid-19

When talking about the impact of covid-19 on eating behavior, the literature points out three main aspects of analysis: in-person versus online purchase, the practice of stockpiling, and food waste. They were, therefore, changes in behavior that need to be contextualized.

Regarding the first issue, the pandemic, with social distancing and quarantine situations, impacted consumer behavior, favoring online activities (Novita et al., 2020). An Indonesian study found a positive relationship between time-saving orientation, prior online purchase experience, convenience motivation, and behavioral intention toward food delivery

(Novita et al., 2020). However, the same study did not find more people using this group of online services in the period studied (first months of 2020) (Novita et al., 2020).

A panel conducted in the United States in the first months of 2020 showed that spending on food dropped considerably (Ellison et al., 2021). This behavior was attributed to eating less outside. Furthermore, they observed that more people purchased grocery items online (Ellison et al., 2021).

In early 2020, a study signaled that the pandemic would alter consumer behavior, affecting marketing activities worldwide (Zwanka & Buff, 2021). It was already observed, for example, that more people were using online food deliveries, and this could continue (Zwanka & Buff, 2021). In Brazil, however, a study identified that the surveyed population preferred shopping in person, despite the more significant risks during the pandemic due to contact with people (Schmitt et al., 2021).

Another observation is that consumers may have reduced their shopping frequency (increasing food bought on each trip) (Ben Hassen, El Bilali, Allahyari, Karabašević, et al., 2021). Indeed, in two large US cities, consumers indicated purchasing more groceries than usual (Chenarides et al., 2021). Consumers attempted to avoid shopping in stores, relying heavily on grocery delivery and pick-up services (Chenarides et al., 2021). Also, there was a change in the acquiring food modality in Russia, with consumers reducing the number of shopping trips and buying more on each trip to minimize store visits (Ben Hassen, El Bilali, Allahyari, Berjan, et al., 2021).

Concerning stockpiling, a study from China found that females, high education levels, and high-income consumers were more likely to make more significant food reserves (Wang et al., 2020). According to the researchers, Chinese behavior could serve to estimate what would happen in other countries and learn for future crises (Wang et al., 2020). Interestingly, before the pandemic, people had a food reserve for 3.37 days at home; after the outbreak, this

estimation increased to 7.37 days (Wang et al., 2020), mainly they feared a lack of food and not so much a price increase. The study results represent a psychological motivation regarding the need to have some control over their own lives (Wang et al., 2020).

A Russian study also observed the surge in stockpiling of non-perishable food items (Ben Hassen, El Bilali, Allahyari, Berjan, et al., 2021). In the United States, over 40% of participants reported some level of stockpiling (Bender et al., 2021). It is important to notice that the researchers evaluated stockpiling as something negative for the food system's resilience as it could cause volatility in demand, affecting the functioning of the entire logic of the production chain (Bender et al., 2021).

A Brazilian study showed that consumers were more concerned with reducing this type of loss amid the food waste crisis. One of the effective practices was the management routine of leftovers or uneaten food (Schmitt et al., 2021). Consumers in Tunisia also demonstrate positive attitudes about reducing food waste: no less than 85% of respondents declared that nothing of what they bought would be discarded (Jribi et al., 2020). This behavior change appears to be driven by socio-economical aspects (e.g., isolation, income) and not so much by an environmental concern (Jribi et al., 2020)

A study also noticed the decrease in food waste carried out with Russian consumers (Ben Hassen, El Bilali, Allahyari, Berjan, et al., 2021). Consumers adopted preserving food by freezing it (Bolek, 2021).

Therefore, these three points widely discussed in the literature are interesting and unfolding behaviors for agents in the food chain. However, they do not cover in detail aspects of food citizenship. In this direction, a relevant author in food citizenship points out that Covid-19 can even serve as a scenario for a natural experiment in which food practices are changed (Carolan, 2021), although it is too early to assess whether profound changes have actually taken

place. Therefore, the present study, with its empirical insights, can be of outstanding contribution to the topic of food citizenship.

Method

Research Design Overview

The present study mainly proposes to develop a measure of food citizenship, which can illuminate future studies that want to assess how individuals behave concerning this phenomenon. The literature allowed refining sentences that could represent food citizenship behavior. Afterwards, experts evaluated the items, and then a first measure was reached. The collected data made available a database to assess the quality of the measure. More precisely, the validity evidence of the internal structure was evaluated through exploratory factor analysis (EFA) and adjacent outputs of psychometric quality (Hair et al., 2005). Still, empirical insights were obtained to understand some social implications of the theme.

This topic encompasses the following methodological aspects:

i. Instrument: sentences proposition (literature-based refinement), expert assessment (content and face validity), and the initial proposal of measure;
ii. Participants;
iii. Data collection;
iv. Data analysis (internal structure validity and empirical insights).

Instrument

The measure development followed a combination of steps described by Choi and Lotz (2016) to build an instrument regarding customer citizenship behavior in services and the ones proposed by Costa (2011). The first step of Choi and Lotz's (2016) research was to develop an

open-ended questionnaire to collect data through a web-based self-administrated survey, while Costa (2011) proposed a systemic literature review to define the scale items.

As the instrument intends to be assessed by Brazilian consumers, two independent researchers fluent in English and Portuguese as their first language translated and evaluated all 73 sentences (Appendix 2.A) about food citizenship found in the literature. The sentences were found in English, as the literature on food citizenship is mainly international. More specifically, each researcher translated the items into Portuguese and signaled suggestions for improvement to simplify the scale, given the possible redundancy. After a discussion, the obtained items were submitted to the following steps. It is relevant to notice that a reverse translation was not necessary for this study because the researchers did not start from a scale in English but from themes in English to be considered for constructing a scale in Portuguese.

Choi and Lotz (2016) had an initial list of 92 items for customer citizenship behavior in services in their study. Five trained experts sorted them into categories of similar items. This study performed the same: the obtained sentences in the previous step were submitted to five experts' analysis. These experts were invited based on the identification of their experiences as researchers in the consumer behavior field, working on food or sustainability issues. All of them were masters, doctoral candidates, or doctors in food engineering, administration, or another related field. This procedure allowed the scale purification by evaluating how well each item represents food citizenship and incorporating redundant items as a content and face validity step.

The proposed items were statements that involved the importance of prioritizing various food-related projects, indignation about food issues, empathy and awareness of the theme, and planning for engagement in selected practices. The experts in consumer behavior were briefed on the food citizenship concept through images of a dialogue between a mother

and her daughter. The daughter explained to her mother what food citizenship is, available within the evaluation form by the judges (Appendix 2.B).

The images that were chosen aimed to illustrate a dialogue, and not represent a food citizen. Therefore, in the dialogue, they do not identify themselves as food citizens (yet). The chosen photographs were freely available on the internet, with good quality, and there were few options under these conditions. However, it must be recognized that the people in the photos do not necessarily look like typical Brazilian women.

After reading the concept, the judges gave scores from 1 to 5 to all items (1=very bad and 5=very good), analyzing two aspects, following Costa (2011). The first one was to validate the content and how adequate each item is. In other words, how relevant and representative they were to food citizenship. The second one was a face validation, referring to how practical and straightforward each item was. Besides, they also could provide comments on each item.

Costa (2011) proposed excluding sentences with an average or median below three after experts' evaluation. In addition, the comments from the experts were also considered for deleting or rewriting items. Therefore, some items were excluded after the first analysis of the judges' grades and comments. The researchers divided the remaining items in two strands: items related to the attitude of food citizenship and items related to food citizenship behavior. The first group comprised the instrument itself, and the second contributed to obtaining empirical insights.

After this partition, items were resent to two of the experts for a final adequacy and clarity assessment. The evaluations provided in the first round were positive and similar enough to each other that it was not justified to send them back to all five experts. The instrument reached the first proposal with the rewritten items according to the experts' grades, comments, and opinions. Hereafter, the description of the sample is presented.

Participants

In this study, there were 329 participants. To participate, the individual had to be responsible or co-responsible for buying food for their homes, over 18 years old, and understand the presented food system concept. It was considered a minimum of five respondents per item (Hair et al., 2005). Choi and Lotz (2016), e.g., collected data from 332 customers to refine a scale with 14 items and examine their psychometric properties.

It was a non-probabilistic snowball sampling (Eldesouky et al., 2015), using email lists of universities, research groups, social networks, and personal databases. In the scope of this study, snowball sampling took place in social networks, in which a consumer could publicize the survey to other people who could also access it and participate. Social networks sampling is reasonable (Rife et al., 2016), allowing results similar to those reached by other snowball sampling ways. Also, a non-probability sample was considered appropriate for this type of research (Eldesouky et al., 2015; Kinnear & Taylor, 1993).

Consumers answered their sex and gender according to the two-step strategy (Reisner et al., 2014). Firstly, they provided their sex assignment (at birth) and then redirected to a section of the questionnaire yet not analyzed in this study. Secondly, they informed their gender identity. As shown in Table 2.1, 59.3% of the participants were women (and female), 36.3% were men (and male), and 4.6% chose the option “other/rather not answer”.

The age ranges followed a generational classification (Dimock, 2019). The largest group (38.5%) was of the consumers of 26-40 years old. The most representative Brazilian region was the Midwest (53.1%). As for the household income, 25.5% receive over R$ 15,676 (around U$ 3,073 as of August 2022), and most (33.6%) have a Master's or doctorate.

Table 2.1

Respondents' socioeconomic status (SES)

Variables SES		N	%
Sex/Gender	Man/Male	119	36.2%
	Woman/Female	195	59.3%
	Other/Rather not answer	15	4.6%
Age group	(Z) Up to 25 years	80	24.5%
	(Y) From 26 to 40 years	126	38.5%
	(Xennials) From 41 to 55 years	81	24.8%
	(Baby boomers) 56 or more years	40	12.2%
Brazilian region	South / Southeast	118	36.9%
	Midwest	170	53.1%
	North/Northeast	32	10.0%
Type of city	Capital	252	76.6%
	Up-country	77	23.4%
Familiar income group	Up to R$ 3.135	43	13.9%
	From R$ 3.136 to R$ 6.270	53	17.1%
	From R$ 6.271 to R$ 10.450	68	21.9%
	From R$ 10.451 to R$ 15.675	66	21.3%
	Over R$ 15.676	80	25.8%
Complete schooling	Up to High School	61	18.7%
	University Education	88	26.9%
	Post-graduation (Specialization lato sensu)	68	20.8%
	Master's or Doctorate	110	33.6%

Note. Household income group in Brazilian Real (R$). As of August 2022, US$ 1.00 is around R$ 5.10.

Data Collection

The food citizenship measure was submitted to empirical application among Brazilian consumers via an online survey, using a non-probabilistic and convenience sample, considering a minimum of five respondents per item. In Portuguese, all 329 Brazilian interviewees responded to a structured online questionnaire, designed using an online survey software, named Alchemer (formerly SurveyGizmo). The survey was available from May 05, 2020, to June 06, 2020. The researchers involved invited consumers to participate via e-mail and social networks.

In the first section, consumers had to understand the food system concept. Therefore, an image presented the food system concept visually (Appendix 2.B). A text says that this system "involves all the processes related to food - from the production, processing, and distribution of food, to its preparation and consumption". After that, they had to answer if the concept was clear by choosing "yes", "no" or "I do not know" – data from the last two cases were disregarded.

The second section presented the items of the food citizenship measure and informed participants to answer their level of agreement with each sentence, following a Likert Scale. Therefore, they had a scale from 1 ("strongly disagree") to 5 ("strongly agree"), and a sixth option ("I do not know") was also available.

Then, individuals received declared food citizenship-related behaviors, also shown in results as part of the instrument's development. In a Likert-type scale (1=never and 5=always), individuals had to evaluate and declare their behavior frequency for three different periods (before, during, and after the covid-19 pandemic).

The last section addressed SES questions: sex, gender (with "other" and "rather not tell" options) (Reisner et al., 2014), age, Brazilian region they live in, type of city (capital or up-country), home income and complete schooling.

Data Analysis

This study used exploratory factorial analysis (EFA) to obtain a measure of food citizenship – searching for internal structure validity evidence. Then, it also obtained some empirical insights.

Internal Structure Validity

Exploratory factor analysis (EFA) is a statistical tool often used to investigate the psychometric properties of an instrument or scale (Osborne et al., 2011). Therefore, it was the data analysis procedures for defining a measure in this study, being a stage of looking for internal structure validity evidence.

This data analysis was conducted through the software Factor, enabling appropriate and robust methodological choices (Ferrando & Lorenzo-Seva, 2018). The procedure for determining the number of dimensions was an optimal implementation of Parallel Analysis (PA) (Timmerman, & Lorenzo-Seva, 2011). We used bootstrap samples with 95% confidence intervals. The method for factor extraction was the Robust Diagonally Weighted Least Squares (RDWLS), with a rotation of robust promin (Lorenzo-Seva & Ferrando, 2019). All these EFA configuration choices were recommended by the authors who developed the Factor, Ferrando, and Lorenzo-Seva (2017), taking into account that it is a psychometric instrument answered by individuals based on a Likert scale.

To perform this analysis, it is vital to evaluate Bartlett's index and the Kaiser–Meyer–Olkin test (KMO) (Hair et al., 2005), followed by the parallel estimation (López-Cepero et al., 2018). After that, it is possible to proceed with the EFA itself. More than one round of EFA was carried out to refine the items, removing the items with loadings <0.45 and those with

communalities <0.5 (Hair et al., 2005). Those procedures are expected to retain the most relevant items to measure food citizenship.

Empirical Insights

The variables used for the analysis were the food citizenship attitude factors found via exploratory factor analysis (shown later in results) and the groups of behaviors obtained by thematically organizing the sentences. Each behavior group received a value, the sum of those values assigned to their respective behaviors. The groups are shown in the results section.

The normality of the variables' distribution was analyzed using the Kolmogorov-Smirnov, and Shapiro Wilk test (Field, 2009), and two main analyzes were performed from this dataset. First, the models (to be shown in results) were tested through a complete Structural Equation Modeling (SEM) using Weighted Least Square Mean and Variance Adjusted (WLSMV) as the estimation method (DiStefano & Morgan, 2014; Li, 2016).

According to Hair et al (2005), the SEM can be used to develop theories in exploratory research, testing specified relationships. The present study aimed to evaluate a relationship between the attitudes of food citizenship and the declared behaviors. The models relate the factors to the groups of behavior.

It is important to notice that there was no theoretical or empirical precedent on this theme and that this study aimed to build the instrument and find its factors. So, these models are exercises performed from the data obtained to carry out an empirical illustration. Thus, we took the liberty of carrying out these analyzes to contribute to the discussion of the topic, but it is not the only and certainly not a complete way to analyze these data. This work chose these models parsimoniously, based on the collected data, as they can provide great discussions of the phenomenon. The models have limitations that can be considered in future studies, as discussed later.

The adjustment adequacy of the tested models was carried out through the following indexes: χ^2; χ^2/df, *Comparative Fit Index* (CFI), *Tucker-Lewis Index* (TLI), and *Root Mean Square Error of Approximation* (RMSEA). According to the guidelines used (Brown, 2006), values of χ^2 should not be significant; the χ^2/df ratio should be $\leq$5 or, preferably, $\leq$3, and the CFI and TLI values should be above 0.90. RMSEA values should be below 0.08, and the upper limit of the confidence interval (90%) should not be above 0.10.

Then, Generalized Estimating Equations (GEE) analyzes were performed to compare the scores of the groups of food citizenship behaviors reported three times (before, during, and after the covid-19 pandemic). The proposal was to assess whether food citizenship-related behaviors groups were impacted by the covid-19 pandemic (declared in the past and the present) and if they could change after the pandemic (intention in the future). No date or reference was stipulated to determine when the end of the pandemic was, but it was asked what the behaviors would be.

A Gamma distribution was used since it is continuous data with non-normal distribution, as follows: Collectives for food access: Kolmogorov-Smirnov = 0.162, $p < 0.001$; Shapiro-Wilk = 0.909, $p < 0.001$; Movements: Kolmogorov-Smirnov = 0.110, $p < 0.001$; Shapiro-Wilk = 0.954, $p < 0.001$; Political matters: Kolmogorov-Smirnov = 0.086, $p < 0.001$; Shapiro-Wilk = 0.978, $p < 0.001$; and, Consumption: Kolmogorov-Smirnov = 0.127, $p <$ 0,001; Shapiro-Wilk = 0.944, $p < 0.001$.

Pairwise contrasts were performed using Bonferroni correction. Analyzes were performed using SPSS for Windows version 23 and Mplus v. 7.11.

Results

Instrument

Two independent researchers evaluated 73 sentences (Appendix 2.A) about food citizenship found in the literature, translated them into Portuguese, and signaled suggestions for improvement. After a discussion together, we obtained 51 items. Then, the items were submitted to five judges' analysis. In this step, six sentences were excluded for refinement based mainly on the judges' comments, but they also had a lower median. The judges gave scores from 1 to 5 to all items (1=very bad and 5=very good) to adequacy and clarity, as shown in Appendix 2.C.

The 45 remaining items were dismembered by the researchers in two groups: 30 items related to the attitude of food citizenship and 15 related to food citizenship behavior (declared or intention). After this partition, those items were resent for two of the judges so they could assess, once more, the adequacy and clarity. According to their grades, comments, and the researchers' opinions, the 15-items were refined into 11, and the 30 attitudinal items were refined into 25. Initially, the 15 behavior items were designed to be asked for intent after six months. However, with the pandemic advent, researchers (aligned with two judges) decided to break the response into three times: before, during, and after the pandemic.

Table 2.2 brings the final items for the attitudinal part of the instrument to be tested among individuals.

Table 2.2

Attitudinal items for instrument

Item	Description in Portuguese	Free translation to English
1	Projetos focados em soluções para os problemas alimentares deveriam ser uma prioridade para todos	Projects focused on solutions to food problems should be a priority for everyone
2	Movimentos sociais globais sobre as questões alimentares deveriam ser uma prioridade para todos	Global social movements on food issues should be a priority for all
3	É inaceitável que pessoas tenham mais acesso a alimentos em alguns países do que em outros	It is unacceptable that people have more access to food in some countries than in others
4	A melhoria da rotulagem dos alimentos deveria ser uma prioridade para todos	Improving food labeling should be a priority for all
5	É inaceitável que a cultura (tradições, crenças e costumes) de alguns dos atores da cadeia de alimentos prejudique o sistema alimentar	It is unacceptable that the culture (traditions, beliefs, and customs) of some of the actors in the food chain harms the food system
6	É inaceitável que o sistema alimentar seja prejudicado pelo controle corporativo (das grandes empresas sobre os mercados)	It is unacceptable that the food system is undermined by corporate control (of large companies over markets)
7	A melhoria do sistema alimentar local deveria ser uma prioridade para todos	Improving the local food system should be a priority for all
8	Campanhas que combatam o desperdício de alimentos pelo consumidor deveriam ser uma prioridade para todos	Campaigns to combat food waste by consumers should be a priority for everyone
9	A sustentação de um sistema alimentar justo e ambientalmente equilibrado deveria ser uma prioridade para todos	Sustaining a fair and environmentally balanced food system should be a priority for all
10	A união de esforços para a elaboração de políticas públicas sobre alimentos deveria ser uma prioridade para todos	Joining efforts to develop public food policies should be a priority for all
11	Eu me solidarizo com problemas internacionais relacionados aos alimentos, tendo ou não contato direto com estes	I sympathize with international food-related problems, whether or not I have direct contact with them
12	É inaceitável que algumas pessoas tenham menos acesso a uma alimentação adequada do que outras	It is unacceptable that some people have less access to adequate food than others
13	Eu conheço os direitos civis relacionados à alimentação	I know the civil rights related to food
14	Eu conheço meus direitos e deveres enquanto ator do sistema alimentar	I know my rights and duties as an actor in the food system
15	É inaceitável que algumas pessoas tenham mais acesso a informações sobre alimentos do que outras	It is unacceptable that some people have more access to information about food than others

Item	Description in Portuguese	Free translation to English
16	Eu conheço sobre o funcionamento do sistema alimentar, que envolve materiais, processos e infraestruturas desde a agricultura até o consumo de alimentos	I know about the functioning of the food system, which involves materials, processes, and infrastructure from agriculture to food consumption
17	Políticas públicas acerca de alimentos deveriam ser uma prioridade do governo	Public food policies should be a government priority
18	A garantia da oferta de alimentos de qualidade deveria ser uma prioridade para todos	Ensuring the supply of quality food should be a priority for all
19	Eu tomo decisões que favorecem um interesse coletivo, abrindo mão, se necessário, de um interesse individual	I make decisions that favor a collective interest, giving up, if necessary, an individual interest
20	Eu não aguardo que outras pessoas acessem alimentos por mim, ou que me solicitem para acessá-los, pois atuo de maneira proativa	I do not wait for other people to access food for me, or to ask me to access it, as I act proactively
21	Eu converso com outras pessoas sobre temas que podem mudar a realidade relacionada aos alimentos	I talk to other people about topics that can change the reality related to food
22	Eu cuido do meu próprio corpo por meio das minhas escolhas alimentares	I take care of my own body through my food choices
23	Eu cuido do planeta por meio das minhas escolhas alimentares	I take care of the planet through my food choices
24	Eu me solidarizo com a possibilidade de mudar práticas insustentáveis relacionadas aos alimentos	I sympathize with the possibility of changing unsustainable practices related to food
25	Com relação a alimentos, meu comportamento está de acordo com minhas preferências, interesses e preocupações	Regarding food, my behavior is in line with my preferences, interests, and concerns

The 11 items related to food citizenship behavior (declared or intention) are presented in Table 2.3.

Table 2.3

Food citizenship-related behavior items for instrument

Item	Description in Portuguese	Free translation to English
1	Existem movimentos para comprar deliberadamente de empresas de alimentos que agem com responsabilidade. Sobre você fazer parte desse tipo de movimento nos três momentos distintos	There are movements to deliberately buy from food companies that act responsibly. About you being part of this type of movement at three different times
2	Sobre você participar de discussões sobre alimentos nos três momentos distintos	About participating in food discussions at three different times
3	Sobre você consumir alimentos disponíveis em feiras de produtores nos três momentos distintos	About consuming food available at farmers' market at three different times
4	Sobre você consumir alimentos sazonais (da época) nos três momentos distintos	About you consuming seasonal foods at three different times
5	Sobre você participar de horta(s) comunitária(s) nos três momentos distintos	About participating in community gardens at three different times
6	Sobre você consumir alimentos produzidos por pequenos produtores locais nos três momentos distintos	About you consuming food produced by small local producers at three different times
7	Sobre você consumir alimentos orgânicos nos três momentos distintos	About you consuming organic food at three different times
8	Sobre você se envolver em ações políticas que visem mudar a realidade do consumo de alimentos nos três momentos distintos	About getting involved in political actions aimed at changing the reality of food consumption at three different times
9	Na Comunidade que Sustenta a Agricultura (CSA), o consumidor financia a produção de alimentos de produtores familiares locais e recebe uma cesta de hortifrutis orgânicos por semana, conforme a estação. Sobre você participar de uma CSA nos três momentos distintos	In the Community Supported Agriculture (CSA), the consumer finances the food production from local family producers and receives a basket of organic vegetables per week, depending on the season. About you participating in a CSA at three different times:
10	O Slow Food é um movimento que defende a alimentação baseada em produtos locais, sustentáveis e de qualidade. Sobre você participar do Slow Food nos três momentos distintos	Slow Food is a movement that defends food based on local, sustainable, and quality products. About participating in Slow Food at three different times
11	Existem movimentos para boicotar empresas de alimentos que agem de forma irresponsável. Sobre você participar desse tipo de movimento nos três momentos distintos	There are movements to boycott food companies that act irresponsibly. About you participating in this type of movement at three different times

Thus, these two previous tables correspond to the first delivery of results of this work: an initial instrument, with two parts (25 attitudinal and 11 behavioral items), to be submitted to the evaluation with consumers.

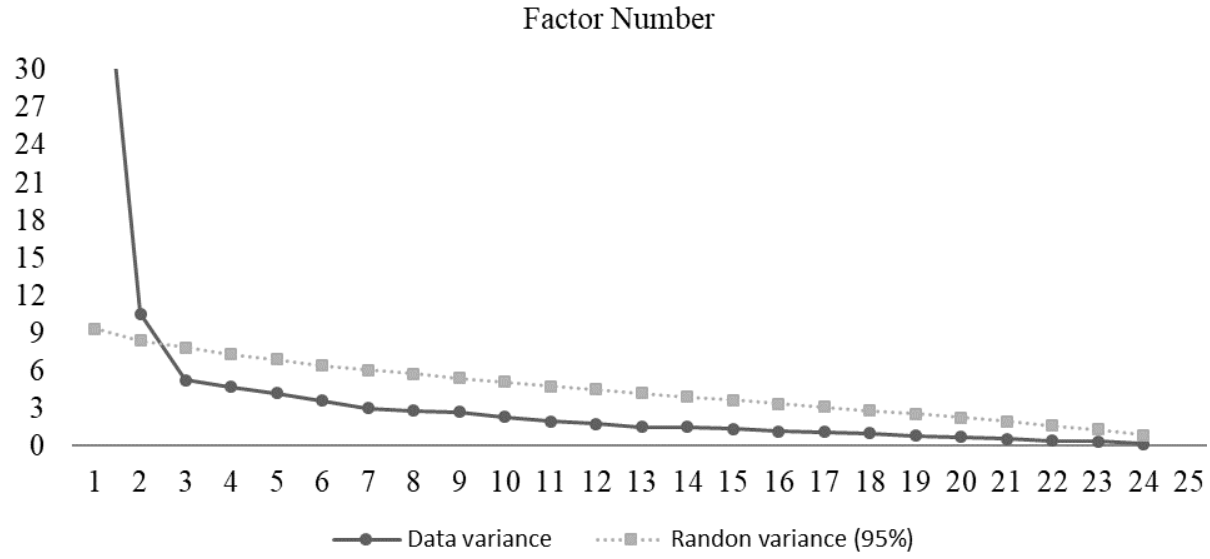
Data Analysis - EFA

The exploratory factor analysis (EFA) allowed the identification of the dimensions of food citizenship. This data presented a Kaiser–Meyer–Olkin test (KMO) equal to 0.82691, showing a suitable fit for the factorial analysis (Hair et al., 2005). The Bartlett's index is 2887.8 (df = 300; P < 0.0001), also representing an adequate criteria (López-Cepero et al., 2018).

The goal of the parallel estimation method, or parallel analysis, is to determine the number of recommended factors (López-Cepero et al., 2018) and is among the most recommended methods for assessing the number of factors in empirical practice (Timmerman & Lorenzo-Seva, 2011). In this study, the parallel analysis suggested two dimensions for factor analysis (Figure 2.1).

Figure 2.1

Parallel analysis



The EFA was conducted three times. In the first one, the two dimensions did not retain four items (5, 19, 22, and 25) as they had loadings < 0.45 (Hair et al., 2005). Without those four items, the EFA was conducted for the second time. This time, six items with low communality (values <0.5) (3, 6, 11, 15, 21, and 23) were excluded (Hair et al., 2005).

The EFA was submitted for analysis for the third time, including only the 15 remaining items. The results showed that the first factor has eleven items (Cronbach's alpha = 0.907) while the second has four (Cronbach's alpha = 0.771). The overview of the results is below, in Table 2.4. It is worth mentioning that Cronbach's alpha for the second factor is better with item 12 (0.771) than without it (0.696). The same happened with item 18, and the overall result is adequate. Therefore, removing any of those items would weaken the second factor.

Table 2.4

Results from the exploratory factor analysis

	Description in Portuguese	Free translation to English	F1 Beliefs	F2 Actions	Communality
1	Movimentos sociais globais sobre as questões alimentares deveriam ser uma prioridade para todos	Global social movements on food issues should be a priority for all	**0.832**	0.024	0.717
2	É inaceitável que algumas pessoas tenham menos acesso a uma alimentação adequada do que outras	It is unacceptable that some people have less access to adequate food than others	**0.873**	-0.238	0.575
4	Projetos focados em soluções para os problemas alimentares deveriam ser uma prioridade para todos	Projects focused on solutions to food problems should be a priority for everyone	**0.830**	0.070	0.762
7	A melhoria do sistema alimentar local deveria ser uma prioridade para todos	Improving the local food system should be a priority for all	**0.797**	0.074	0.711
8	Campanhas que combatam o desperdício de alimentos pelo consumidor deveriam ser uma prioridade para todos	Campaigns to combat food waste by consumers should be a priority for everyone	**0.787**	0.032	0.651

	Description in Portuguese	Free translation to English	F1 Beliefs	F2 Actions	Communality
9	A sustentação de um sistema alimentar justo e ambientalmente equilibrado deveria ser uma prioridade para todos	Sustaining a fair and environmentally balanced food system should be a priority for all	**0.838**	0.071	0.777
10	A união de esforços para a elaboração de políticas públicas sobre alimentos deveria ser uma prioridade para todos	Joining efforts to develop public food policies should be a priority for all	**0.845**	0.037	0.751
12	Eu conheço os direitos civis relacionados à alimentação	I know the civil rights related to food	-0.425	**1.057**	0.769
13	Eu conheço meus direitos e deveres enquanto ator do sistema alimentar	I know my rights and duties as an actor in the food system	-0.266	**0.908**	0.610
14	É inaceitável que algumas pessoas tenham mais acesso a informações sobre alimentos do que outras	It is unacceptable that some people have more access to information about food than others	**0.731**	-0.007	0.528
16	Políticas públicas acerca de alimentos deveriam ser uma prioridade do governo	Public food policies should be a government priority	**0.755**	-0.028	0.546
17	A garantia da oferta de alimentos de qualidade deveria ser uma prioridade para todos	Ensuring the supply of quality food should be a priority for all	**0.854**	-0.102	0.637
18	Eu tomo decisões que favorecem um interesse coletivo, abrindo mão, se necessário, de um interesse individual	I make decisions that favor a collective interest, giving up, if necessary, an individual interest	0.264	**0.517**	0.498
20	Eu atuo de maneira consciente em relação aos alimentos, pensando no meu impacto sobre o sistema alimentar	I act consciously in relation to food, thinking about my impact on the food system	0.162	**0.648**	0.570
24	Eu me solidarizo com a possibilidade de mudar práticas insustentáveis relacionadas aos alimentos	I sympathize with the possibility of changing unsustainable practices related to food	**0.647**	0.136	0.541
		Cronbach's alpha	0.907	0.771	

Therefore, after refining the items, two factors were defined, with fifteen items. All items have significant factor scores, demonstrating that they all correlate well with the factors. Factor 1 has items related mainly to three topics. The first is beliefs, including priorities to food citizens, such as social movements (1), projects on food problems (4), and waste (8). The second is unacceptable for these consumers, such as some people having more access to food than others (2). The third is empathy, englobing solidarity with the possibility of changing current food practices (24). In this study, this factor is denominated as Beliefs. The second factor includes items specific to each individual, covering general knowledge about civil rights (12), rights and duties related to food (13), focusing on collective interest (18), and thinking about their impact on the food system (20). This factor is denominated as Actions.

Empirical Insights – SEM and GEE

We performed a semantic categorization of the 11 food-related behaviors, and thus the behaviors were assigned to the groups according to the equivalent themes (Bardin, 2016), as shown in Table 2.5. Thus, the 11 items were organized into four groups of behaviors, which supported the analysis of this topic.

Table 2.5

The four group of behaviors and their respective food citizenship-related behaviors used in the study

Group of behavior	Short descriptor	Full-sentence
Collectives for food access	CSA	In the Community-Supported Agriculture (CSA), the consumer finances the food production of local family producers and receives a basket of organic produce per week, depending on the season. About participating in a CSA at three different times.
	Slow Food	Slow Food is a movement that defends food based on local, sustainable, and quality products. About participating in Slow Food at three different times.
	Community gardens	About participating in community gardens at three different times.
Movements	Buycott	There are movements to buy from food companies that act responsibly deliberately. About you being part of this type of movement at three different times.
	Boycott	There are movements to boycott food companies that act irresponsibly. About participating in this type of movement at three different times.
Political matters	Food discussions	About participating in food discussions at three different times.
	Political actions	About getting involved in political actions to change the reality of food consumption at three different times.
Consumption	Farmers' market	About consuming food available at farmers' market at three different times.
	Seasonal food	About you consuming seasonal foods at three different times.
	Local producers	About consuming food produced by small local producers at three different times.
	Organic food	About you consuming organic food at three different times.

The four groups (Collectives for food access, Movements, Political matters, and Consumption) were then considered in two Structural Equation Modeling (SEM). According to the researcher's expertise based on the food citizenship literature, this was done considering possible relationships with the two factors obtained in the AFE. Regarding Models 1 and 2, their fit indices were satisfactory and presented in Table 2.6. Model 1 relates the Factor 1 of food citizenship (Beliefs) to three groups of behaviors: Collectives for food access, Movements, and Political matters. Model 2 relates the Factor 2 of food citizenship (Actions)

to the following groups of behaviors: Collectives for food access, Movements, and Consumption.

Table 2.6

Fit indices of Models 1 and 2

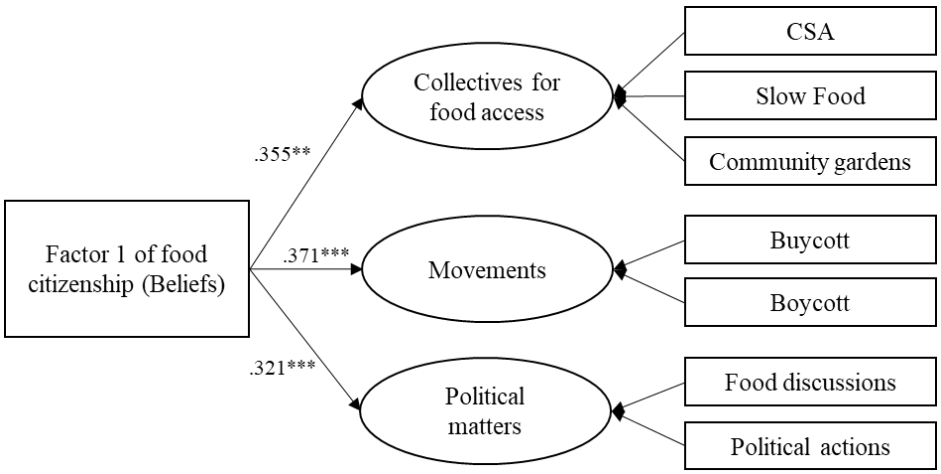
Model	χ2 (df)	χ2/df	RMSEA (95% C.I)	CFI	TLI
Model 1	29.269 (15)	2.47	0.062 (0.028 - 0.095)	0.979	0.961
Model 2	68.136 (30)	4.29	0.071 (0.049 - 0.093)	0.959	0.938

Note. χ^2 = *chi-square*; df = *degrees of freedom*; RMSEA = *Root Mean Square Error of Approximation*; C.I = *Confidence Interval*; CFI = *Comparative Fix Index*, TLI = *Tucke-Lewis Index*.

Model 1 is presented in Figure 2.2.

Figure 2.2

Significant regression coefficients for Model 1.



Note. **p≤0.01; ***p<0.001.

In Model 1, all relationships were significant and positive. Therefore, it was possible to find paths from the Beliefs factor to the categories Collectives for food access, Movements, and Political matters. Furthermore, these relationships are positive, signaling that the higher the score of the food citizenship attitude called Beliefs, the greater will be these behaviors modeled in the SEM in question. Thus, it is possible to indicate that, to some extent, increasing

consumers' beliefs about the positive impacts of food citizenship initiatives can favor their participation in collectives, movements, and political issues. In Table 2.7, the parameters for Model 1 are available.

Table 2.7

SEM Standardized Estimates for Model 1

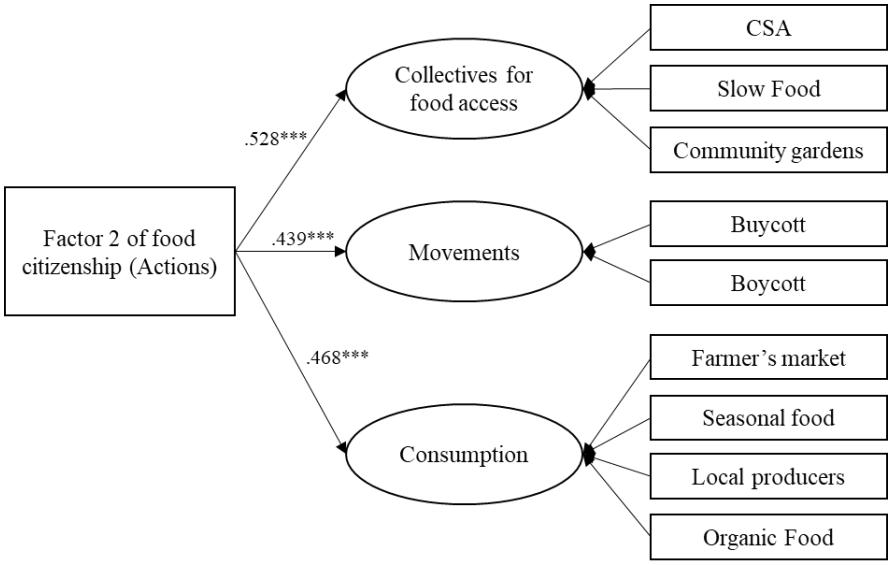
Independent variable → Dependent variable		R^2	B	SE	*p*
Factor 1→	Collectives for food access	0.126	**0.355**	**0.011**	**.001**
	Movements	0.138	**0.371**	**0.008**	**.000**
	Political matters	0.103	**0.321**	**0.009**	**.000**
Collectives for food access ↔ Movements			**0.782**	**0.053**	**.000**
Collectives for food access ↔ Political matters			**0.776**	**0.055**	**.000**
Movements ↔ Political matters			**0.747**	**0.045**	**.000**

Note. SE = *Standard Error*.

Three other relationships were evaluated regarding Model 2, available in Figure 2.3. More precisely, Factor 2 of the attitudinal measure of food citizenship (Actions) was positively related to the three tested behavior groups. For one of them, Collectives for food access, the coefficient was even above 0.5, which is considered a good index for SEM relationships. Despite having slightly lower coefficients, the other two also signal a positive relationship, providing insights into this. Based on these findings, it is possible to expect that individuals who have more favorable attitudes about the aspects of food citizenship present in Factor 2 can also become more engaged in collectives, movements, and consumption situations aligned with the theme.

Figure 2.3

Significant regression coefficients for Model 2.



Note. ***p<0.000.

Table 2.8 brings the parameters for Model 2.

Table 2.8

SEM Standardized Estimates for Model 2

Independent variable → Dependent variable		R^2	B	SE	*p*
Factor 2→	Collectives for food access	0.279	**0.528**	**0.020**	**.000**
	Movements	0.193	**0.439**	**0.015**	**.000**
	Consumption	0.219	**0.468**	**0.016**	**.000**
Collective for food access ↔ Movements			**0.746**	**0.054**	**.000**
Collective for food access ↔ Consumption			**0.829**	**0.051**	**.000**
Movements ↔ Consumption			**0.562**	**0.040**	**.000**

Note. SE = *Standard Error*.

The SEM performed for both Model 1 and Model 2 showed that the three groups of behaviors had positive relationships with the respective dependent variables, as would be expected according to the literature. In both models, the ratios did not have, for the most part, a factor loading above 0.4 or 0.5 (Damasio & Borsa, 2017). Nevertheless, according to the

guideline of Brown (2006), we can focus on the fit model (which was satisfactory) to obtain insights.

Thus, these results are insightful in illustrating possible significant paths between food citizenship factors and behaviors related to this theme. Some other models were designed and tested, and it was decided to bring two with stunning results and good fit indices that also had a theoretical basis on their configuration. It is worth noting that the regression coefficients do not attribute meanings of a more significant relationship of the factor with one or another group of behavior since the associations had a similar value within the scope of each of the two models.

Finally, four GEE were carried out to compare the scores of the four groups of food citizenship-related behaviors reported (declared) at three times (before, during, and after the covid-19 pandemic) using a Gamma distribution as it is the sum of behaviors (Ziegler, 2011). These tests aimed to demonstrate whether the individuals surveyed show signs of positive behavior about food citizenship initiatives. Moreover, due to the pandemic scenario, we sought to assess whether the future behavior (intention) differed from the declared ones. Furthermore, as shown in Table 2.9, all behavior groups differed significantly.

Table 2.9

Results of GEE analyses and pairwise comparisons in the four food citizenship behaviors categories

Groups	**Wald**	**df**	***p***	**Comparisons**	***B***	***p***
Collectives for food access	407.492	2	.000	T1 – T2	0.013	.400
				T1 – T3	**-0.465**	**.000**
				T2 – T3	**-0.451**	**.000**
Movements	226.036	2	.000	T1 – T2	0.012	.191
				T1 – T3	**-0.250**	**.000**
				T2 – T3	**0.169**	**.000**
Political matters	212.195	2	.000	**T1 – T2**	**-0.054**	**.000**
				T1 – T3	**-0.096**	**.000**
				T2 – T3	**-0.150**	**.000**
Consumption	250.985	2	.000	T1 – T2	-0.015	.287
				T1 – T3	**0.230**	**.000**
				T2 – T3	**-0.245**	**.000**

Note. df = *degree of freedom*; T1 = *before*; T2 = *during*; T3 = *after*.

It is interesting to note that the pandemic may favor behaviors related to food citizenship. In three groups of behaviors (Collectives for food access, Movements, and Consumption), the average intention to perform the behavior after the covid-19 pandemic is higher than the behavior declared before or during the pandemic. There was also a difference between behavior before and during the pandemic for the Political Matters group, suggesting individuals could be more engaged even during the pandemic and not just after that moment.

These are valuable insights into the potential that a crisis of this magnitude can have on people to behave more positively about their food citizenship behaviors. Of course, it is not possible to attribute these results solely to the pandemic, but it did not prevent a more positive intention from being placed. However, a point of attention arises. The intent is most favorable for three behaviors only "after" the pandemic (not during). However, at least when finishing this work, the most likely scenario is that covid-19 will be a virus that we live with and not

something to be overcome entirely. However, this "after" can generally be considered when the public health situation is not called a pandemic. Thus, one of the possible interpretations is that the effectiveness of these behaviors aligned with food citizenship may be more likely to the extent that people feel safe again to participate in initiatives that involve groups of people, for example.

Appendix 2.D shows the graphs corresponding to the four comparisons made through the GEE.

Discussion

This study has two main parts, the first being about the measure of food citizenship, from the perspective of the attitude of individuals. The measure developed comprised two factors, based on sentences obtained and refined from the food citizenship literature and submitted to the exploratory factor analysis (EFA).

The sentences present in each factor illuminate what each one represents. Factor 1 was called Beliefs, as it brought together mainly collective issues related to aspects people believe. The individuals evaluated how much they agree, for example, that certain aspects should be a priority or how specific unacceptable scenarios are.

At Factor 1, some phrases with collocations that should be priorities for everyone included: global social movements on food issues (Sage, 2014); projects focused on solutions to food problems (Phillips, 2006); improving the local food system (de Bakker & Dagevos, 2012); campaigns to combat food waste by consumers (O'Kane, 2016); sustaining a fair and environmentally balanced food system (Campbell, 2004; Wilkins, 2005); joining efforts to develop public food policies (Renting et al., 2012); and ensuring the supply of quality food (Lozano-Cabedo & Gómez-Benito, 2017). Also, two points about unacceptance and one about sympathizing were part of the measure in Factor 1: it is unacceptable that some people have

less access to adequate food than others (de Bakker & Dagevos, 2012); it is unacceptable that some people have more access to information about food than others (Welsh & MacRae, 1998); and I sympathize with the possibility of changing unsustainable practices related to food (Hassanein, 2008; Wilkins, 2005).

Therefore, according to the literature, food citizens are expected to have senses of justice, equality, and fairness (Lozano-Cabedo & Gómez-Benito, 2017). They believe it is unacceptable that some people have less access to adequate food (Carolan, 2014) and information about food (Welsh & MacRae, 1998b). Besides the priority mentioned above, according to the instrument, food citizens believe it should also be prioritized, among others, projects that find solutions to food problems (Phillips, 2006), improving the local food system (Sage, 2014), and campaigns to combat food waste (Pearson et al., 2014).

Therefore, the instrument demonstrates that food citizens join efforts to develop public food policies to make those changes possible. As in alternative buying possibilities, the consumer directly interacts with all the stakeholders. The results are more information exchange, strong relationships, and more trust between buyer and producer (Kushwah et al., 2019). As a result, when all those actors join efforts, they can exponentially reduce the barriers to consuming organic food.

Besides, being food citizens have established a commitment to the food system and advancing sustainability (Hatanaka, 2020). Therefore, the instrument presents that they must perform empathy as they sympathize with the possibility of changing unsustainable practices related to food (de Bakker & Dagevos, 2012). Consequently, providing information about the environmental impact of food production could be a starting point to create awareness in consumers (Funk et al., 2021).

The literature also presents that it is challenging to practice food citizenship in a context dominated by the sizeable agro food corporations and in an unsustainable, oligopolistic

framework that generates deep injustices (Gómez-Benito & Lozano, 2014). The instrument confirms that food citizens believe that joining efforts to develop public food policies should be a priority for all. In addition, public food policies should be a government priority. Both items are necessary to change how the food system works.

In Factor 2, named Beliefs, the sentences were about personal or individual aspects related to the topic. The sentences were about the following: knowing the civil rights related to food (Lockie, 2009; Lozano-Cabedo & Gómez-Benito, 2017; Sage, 2014); knowing individual's rights and duties as an actor in the food system (Lozano-Cabedo & Gómez-Benito, 2017); making decisions that favor a collective interest, giving up, if necessary, an individual interest (Escajedo San-Epifanio, 2015); and acting consciously concerning food, thinking about individual's impact on the food system (Wilkins, 2005).

Factor 2 shows that food citizens must know about the civil rights related to food. It is essential to notice that ethically-minded consumer behavior occurs in social and cultural environments governed by complex and different laws, policies, rules and regulations, values, and norms (Scholtens & Dam, 2007). Therefore, the knowledge of food rights is important to take action to claim for those civil rights (Lockie, 2009; Lozano-Cabedo & Gómez-Benito, 2017; Sage, 2014). It is significant to notice that this item (12) was the one with the higher number of "I do not know" answers, showing that it might be interesting to rewrite it in a subsequent study.

Besides, food citizens must know their rights and duties as actors in the food system due to the responsibilities with the society, other consumers and producers, the environment, and animals' welfare (Gómez-Benito & Lozano, 2014). However, the availability and layout of this information form an obstacle that the consumer must overcome (Calderon-Monge et al., 2020).

Those responsibilities with the community also make it critical for food citizens to make decisions that favor a collective interest, giving up, if necessary, an individual interest, mainly because they aim for the greater good (Chaudhury & Albinsson, 2015). Therefore, they act consciously concerning food, thinking about the impact of their choices on the food system, particularly because consumers can generate change by expressing their values and political commitments through what they purchase (Hatanaka, 2020).

The measure brings the relevant attitudes for a person to be considered aligned with the precepts of food citizenship. Food citizenship is about political participation (Escajedo San-Epifanio, 2015); and the consumption sphere, the claim for civil rights, international solidarity actions to the defense of the common good, and the participation in collectivity (Lockie, 2009; Lozano-Cabedo & Gómez-Benito, 2017; Sage, 2014). Therefore, the construct fits well by those two dimensions.

The most important contribution of this study is the development of a scale to measure food citizenship at the individual level, which in the future can be used in conjunction with other approaches to understand food citizenship even more broadly. Understanding which issues are priorities for food citizens, general knowledge they need to have, what they consider intolerable and points about their behavior is favorable for several actors in the food system. However, considering it is the first attempt at developing a food citizenship measure, further research should be conducted to test the measure in other contexts.

The study's second (and exciting) contribution was about empirical insights. The findings illuminated some critical considerations, although they do not exhaust the analysis possibilities and cannot be generalized. The first was related to the relationship between the scores of the food citizenship measures (Factor 1 - Beliefs and Factor 2 - Actions) to groups of behaviors.

We tested if the factor Beliefs was associated with Collectives for food access, Movements, and Political matters and if the factor Actions was related to Collectives for food access, Movements, and Consumption – and both were.

Among the Collectives for food access, one important example is the Community-Supported Agriculture (CSA). In it, the consumer finances the food production of local family producers and receives a basket of organic produce per week, depending on the season. Many studies affirm that consumers who engage in a CSA are practicing food citizenship (Carolan, 2017; Hassanein, 2008; T. A. Lyson, 2005; O'Kane, 2016). Also, Slow Food is a relevant collective, a movement that defends food based on local, sustainable, and quality products (Chaudhury & Albinsson, 2015). At last, another great collective is the community garden (Baker, 2010; M. C. Lyson, 2014; O'Kane, 2016).

Participation in movements is also deeply associated with food citizenship, regarding individuals' engagement (O'Kane, 2016), cooperation (de Bakker & Dagevos, 2012; T. A. Lyson, 2005), doing partnerships, (de Bakker & Dagevos, 2012), making alliances (Phillips, 2006), and having a strong sense of commitment (Carolan, 2017; de Bakker & Dagevos, 2012; Lozano-Cabedo & Gómez-Benito, 2017; T. A. Lyson, 2005; Phillips, 2006). Hoffmann et al. (2018) say that two relevant movements are buycott (to deliberately buy from companies that act responsibly) and boycott (companies that act irresponsibly).

As for political matters, the behaviors at focus were performing political participation (Escajedo San-Epifanio, 2015) and getting involved in political actions aimed at changing the reality of food consumption. Practicing communication, lobbying, and political activism around food is a form of food citizenship (Renting et al., 2012).

Moreover, another group of behavior of great interest is Consumption. The considered forms were about consuming food in the healthiest, most sustainable, and economically fair way possible. These aspects involve, in practice, purchasing and consuming food that is

organic, locally sourced, and available in farmers markets (Campbell, 2004; T. A. Lyson, 2005; O'Kane, 2016; Phillips, 2006; Renting et al., 2012), and favoring seasonal foods (Renting et al., 2012). Thus, all tested relationships find support in the literature and illustrate ways of making food citizenship occur in practice and on the part of individuals themselves.

Finally, the results indicate a positive direction of food citizenship behaviors after the covid-19 pandemic. It is possible to learn from this scenario by thinking about consumption in crises. The covid-19 pandemic impacted people's relationship with food. It may have given visibility to social and environmental issues related to food not always perceived by people before, as discussed below.

Many studies indicate a change in eating behavior in this scenario. In general, the pandemic has resulted in more personal isolation than previously and less food sharing (Zwanka & Buff, 2021). These are aspects that seem to be able to leave marks on consumers, shaping future behavior. In the United States, based on 2020 data, essential issues about consumer behavior that impact the agri-food system's resilience was analyzed when most participants reported a partially restricted environment (Bender et al., 2021).

The present study, which signals the possibility of change, is in line with another that has already been published on this topic (change amid covid-19). A study from Romania showed that consumer behavior has changed, catalyzed by a few vectors: quality and efficiency, local production, and capacity to adapt to new retail technologies (Stanciu et al., 2020). It was therefore also a positive change. Another country that evaluated changes in eating behavior was Serbia. There, consumers changed food-related habits due to the pandemic. One of the aspects was that people avoid going to many different physical stores to do their shopping (Marinković & Lazarević, 2021). This last is a more practical change rather than normative motivation, but it signals an important shift.

The first result was increasing people's intention to participate in collectives for access to food after the pandemic. This result can be attributed to the interest in having greater food involvement, one of which is cooking at home. The data from an American panel showed that 60% of respondents cooked more at home (Bender et al., 2021). Before the pandemic, eating outside the home was on the rise, and with the virus, many people had to learn to cook. Then, it was observed that the ability to cook and prepare your own meals at home could become the new practice - and not something to be abandoned after the pandemic (Zwanka & Buff, 2021).

Regarding the evaluated movements, boycott (to deliberately do not buy) and buycott (to deliberately buy), few studies specifically address this in the food context about the pandemic. Our results showed that people showed more intention to participate in these movements after the pandemic. However, it should be considered that these activities carry significant consideration for the information that reaches the consumer. Furthermore, on that, yes, some studies deal specifically.

A study analyzed these two points (buycott and boycott) within the construct of expectation of citizenship practice – that is, well-aligned with the present work, although not focused only on food (Echegaray, 2021). The author observed these behaviors within the "back to normal" scenario, which is the model that seeks a balance and returns to the previous pattern (Echegaray, 2021). According to him, in more "aggressive" scenarios, citizenship would go towards behaviors of even greater involvement and individual initiative to enlist effective changes with greater impact (Echegaray, 2021).

A critical study on this theme also reveals that these movements, which are forms of activism, can be controversial. In a context of political polarization, the proposal to boycott a brand by a consumer base can make the other portion of consumers (who are against certain political ideals) buycott it in a compensatory way (Neureiter & Bhattacharya, 2021). Thus, this

brief discussion contributes to the results to show that, although important, such movements are complex and deserve further studies.

Information is a crucial aspect of the pandemic. A study from the United States found that people responsible for food in households declare that they trust public health information and official recommendations from that country and consider information from social media to be misleading (Thomas & Feng, 2021).Therefore, having official information available from reliable sources is essential, and has implications for possible findings of this study regarding information.

An analysis of the impact of the media during the pandemic on Brazilian consumer behavior brought a point of attention and reflection (Rodrigues et al., 2021). According to the authors, the food industry, including those that produce unhealthy products, adopted communication strategies that involved messages of empathy and unity. They were directed at leisure moments (e.g., online concerts with artists) (Rodrigues et al., 2021). As a result, consumers may have consumed more processed products from these big brands (Rodrigues et al., 2021). This demonstrates some interesting aspects that influence the consumer, still related to information.

In Denmark, a study evaluated how the media can influence consumer food sustainability issues in the context of covid-19 (Hansen, 2022). 271 newspaper articles were analyzed, and meaningful suggestions for public policies were found (Hansen, 2022). One of the main findings is that consumers have become less reluctant to sustainability information (Hansen, 2022). This can, therefore, favor necessary actions to increase consumer awareness by policymakers and food companies (Hansen, 2022). By putting these communication opportunities into practice, buycott and buycott movements can therefore gain strength after the pandemic.

The third outcome of this part of the present study was increased concern about political food-related issues during and after the pandemic. There was a concern in Brazil regarding public food policies, as a worsening of health and nutrition indicators was observed (Mendes et al., 2021). According to an analysis, the scenario made it difficult for individuals to access healthy foods in the first year of the pandemic (Mendes et al., 2021). It is critical to notice that most issues can be easily politicized. For example, the covid-19 outbreak, e.g., is a health-risk-related issue a major political problem (Kim & Chung, 2021).

On political issues outside the food context, a study evaluated how covid-19 may have favored these motivations to change reality through practices of this nature (Lee et al., 2022). The authors evaluated that a process of racial injustice and xenophobia began on Asians who lived in the United States. These mistreated people began to carry out practical actions and communications to resolve conflicts and improve this highly politicized environment (Lee et al., 2022). Also, about motivators, a Chinese study evaluated how rumors play a vital role in favoring the environment of political involvement on the part of people (Liu & Lo, 2022). They show that rumors make citizens less trusting of the government and start protests or other forms of political activism because they have received information that takes them out of their comfort zone (Liu & Lo, 2022).

Looking specifically at possible changes after the covid-19 outbreak, an article by Carolan (2021) surveyed and interviewed people about ethical food consumption and activism. From the data analysis, the author arrived at four groups of people, which are differentiated by the pattern of answers provided. They are the collectivists, more-than-individualistic, individualists, and non-reflexives. As the groups focus more on collectivity, the more examples they can provide of practices carried out in the periods studied related to ethics or activism (Carolan, 2021). It was interesting to observe that many practices changed with the pandemic, making covid-19, in fact, a natural experiment.

Finally, the empirical insights of this study also showed that there is an intention to increase consumption practices aligned with food citizenship after the pandemic. This mainly concerns purchase modalities that favor access to sustainable, healthy, local, and ethical foods.

However, this study did not look at the other side (e.g., whether people are also consuming more unhealthy products). Thus, the literature can contribute to counterbalancing these aspects. A study on eating behavior was conducted in Brazil in two phases: mid-2020 and early 2021 (De Aro et al., 2021). The authors identified that individuals increased their body weight gain and had greater consumption of unhealthy processed foods (De Aro et al., 2021). One of the arguments is that, for emotional reasons, there was an increase in impulse consumption (De Aro et al., 2021). Another North American study found that many consumers started to eat more snacks since the beginning of the pandemic (Chenarides et al., 2021).

On the other hand, Russian authors observed a shift toward healthier diets (Ben Hassen, El Bilali, Allahyari, Berjan, et al., 2021). Also, looking at changes throughout the pandemic, a study from Turkey had significant findings (Bolek, 2021). Between March of 2020 and December of 2020, most consumers have tried to consume more food that boosts the immune system and have been more willing to buy fresh products (Bolek, 2021).

More towards the end of 2020, that is, after several months of the pandemic, the food behavior observed in Bosnia and Herzegovina proved interesting (Ben Hassen, El Bilali, Allahyari, Karabašević, et al., 2021). According to the study, covid-19 may have favored sustainable food consumption and lifestyles (Ben Hassen, El Bilali, Allahyari, Karabašević, et al., 2021). The authors found an increase in the consumption of local food items, a decrease in food waste, and more people interested in healthier diets (Ben Hassen, El Bilali, Allahyari, Karabašević, et al., 2021).

At last, an analysis carried out on the impact of the pandemic on Brazilians and Portuguese suggested that the pandemic could have been a vector of behavioral change (Severo

et al., 2021). In terms of sustainability, it was observed that the pandemic had a strong influence on sustainable consumption and environmental awareness and also, to a lesser extent, on social responsibility (Severo et al., 2021).

As Malter (2020) noticed, "the COVID-19 pandemic is still unfolding, but we already see that it will have a major impact on every aspect of life" (p. 147). Therefore, researchers have the task of studying the consequences of this acute episode for the current generation. The present study left evidence that these changes deserve to be deeply explored.

Conclusion

This study contributes to the food citizenship literature by illuminating a way of capturing the individual's attitude on this topic. More precisely, it develops a measure and, in addition to seeking validation evidence, brings empirical insights.

Since there is no instrument to measure food citizenship at the individual (consumer) level, this study proposed a food citizenship measurement through exploratory factorial analysis. The results bring up a feasible measurement of food citizenship and the development of a scale in Portuguese, suitable to explore food citizenship in the individual level, although not without opportunities for improvement.

After refining the scale, two factors were obtained, with fifteen items total. The first factor, Beliefs, has items related to priorities, what is unacceptable, and empathy. The second factor, Actions, covers general knowledge about civil rights, rights, and duties related to food, focusing on collective interest and thinking about their impact on the food system.

Testing the relationship between the two factors of food citizenship and some groups of selected behaviors, we observed a positive relationship, indicating that these measures can continue to be explored for future explanatory approaches. Thus, despite not being the primary purpose of this work, it contributes even more with possible paths to be illuminated. We also

obtained empirical insights that provided evidence of a trend towards new behaviors after the pandemic, which will need to be confirmed in future studies—seeing that people sigh for more positive behaviors (aligned with food citizenship) after the pandemic.

Therefore, this study encourages new studies to continue evaluating food citizenship to understand this behavior at the individual level better and test and validate the scale.

Considering the limitations of this study, some ideas for future research can be presented. One is using a convenience sample that does not represent the Brazilian population. Besides, the proportion of the respondents with high levels of education and high family income did not represent the Brazilian reality. Therefore, we can anticipate that the scale should be tested among a different audience, including Brazilian with different income and education levels.

In addition, it is recommended that the instrument is evaluated in a confirmatory factor analysis (CFA) and different cultures, after specific cross-cultural procedures and idiom adaptation. After specific cross-cultural procedures and adaptation, applying the scale in other cultural contexts is encouraged and would allow further understanding of the food citizenship phenomenon in different countries. Besides, a future analysis could introduce a dependent variable to analyze how it will influence food citizenship, and multivariate analyzes, in general, can be performed.

As an academic contribution, the present study adds to the literature by proposing the first instrument to measure food citizenship at the individual level. From a managerial perspective, this understanding can contribute to the definition of marketing and consumer relationship strategies by global and local food organizations. The findings can also be used by government actors to develop public policies, including educational regulations, responsible production, and conscious consumption. Moreover, food movements can benefit from the

results to mobilize more consumers around their purposes, favoring the food citizenship promotion, since understanding the individuals helps to bring them closer to food causes.

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Appendix 2.A

Sentences in the literature related to food citizenship

Sentences and references
• I reinvent identities and practices as a food consumer, developing behaviors that are considered different from the mainstream (Lockie, 2009)
• Instead of buying common foods in traditional supermarkets, I purchase and consume food that is organic, locally sourced, and available in farmers markets (Campbell, 2004; T. A. Lyson, 2005; O'Kane, 2016; Phillips, 2006; Renting et al., 2012)
• I purchase from specialty food producers and small-scale processors (T. A. Lyson, 2005)
• I support social movements (Phillips, 2006)
• I engage in alternative mechanisms for food marketing and social arrangements (Lockie, 2009; T. A. Lyson, 2005; Phillips, 2006)
• I, someway, directly participate in rural production (Baker, 2010; Campbell, 2004; Hassanein, 2008; T. A. Lyson, 2005; O'Kane, 2016; Renting et al., 2012; Sage, 2014)
• I perform political participation (Escajedo San-Epifanio, 2015)
• I claim for civil rights and international solidarity (Lockie, 2009; Lozano-Cabedo & Gómez-Benito, 2017; Sage, 2014)
• I introduce innovative ways of consumption (de Bakker & Dagevos, 2012)
• I make small decisions consistently and insistently (Wilkins, 2005)
• I have a sense of my right to produce and consume food, and I exercise these acquired rights (Sonnino et al., 2016)
• I have a sense of my duty to participate in the governance of the food system (Lozano-Cabedo & Gómez-Benito, 2017)
• I engage in community gardens (Baker, 2010; M. C. Lyson, 2014; O'Kane, 2016)
• I engage in civic food networks (Renting et al., 2012)
• I engage in alternative food systems (Campbell, 2004)
• I engage in civic agriculture (T. A. Lyson, 2005)
• I engage in community-supported agriculture (CSA) (Carolan, 2017; Hassanein, 2008; T. A. Lyson, 2005; O'Kane, 2016)
• I buy from farmers' markets (Carolan, 2017; T. A. Lyson, 2005; O'Kane, 2016)
• I support food banks (Hassanein, 2008)
• I promote ecology and/or agroecology (Renting et al., 2012).
• I favor local and seasonal foods (Renting et al., 2012).
• I have a passion for food and plants (de Bakker & Dagevos, 2012)
• I considered myself connected to the planet and other people (O'Kane, 2016)
• I have a high degree of empathy for the other (Carolan, 2017)
• I carry values of care for the community and the environment (de Bakker & Dagevos, 2012)
• I act reflexively and proactively (Lockie, 2009)
• I behave as guided by my preferences, interests, and concerns (Gómez-Benito & Lozano, 2014)
• I have coherent behaviors concerning food choices, food habits, and food advocacy among the government (Gómez-Benito & Lozano, 2014)
• I renounce an individual interest in favor of a collective one (Escajedo San-Epifanio, 2015)
• I have an orientation towards the community good (Hassanein, 2008)

Sentences and references
• Authentic relationships are important to me (Welsh & MacRae, 1998).
• I am guided by the senses of justice, equality, and fairness (Lozano-Cabedo & Gómez-Benito, 2017)
• I take care of my own body and the Planet (de Tavernier, 2012)
• I am concerned about the access to healthy and fair-priced foods, aiming at promoting transformations in the pattern of consumption (de Bakker & Dagevos, 2012)
• I consider it important to build policies and coalitions around food (Phillips, 2006)
• I consider it important to broaden the debate on the rights and duties of citizens regarding food and to encourage the participation of all actors in the governance of the agri-food system (Lozano-Cabedo & Gómez-Benito, 2017)
• I consider it important to promote forums around food (T. A. Lyson, 2005).
• I consider it important to provide local answers to global problems (Renting et al., 2012)
• I consider it important to combat the reduction of fossil fuel stocks and climate change (Sage, 2014)
• I consider it important to develop the local economy in a way that maintains the diversity and quality of the products (T. A. Lyson, 2005)
• I think about the impact that the way I eat causes on the food system (Wilkins, 2005)
• I have autonomy and know my right to reliable, enough, and understandable information (Lozano-Cabedo & Gómez-Benito, 2017)
• I am familiar with food and the food system (Hassanein, 2008)
• I recognize my responsibility towards other human beings, other living beings, other actors in the agri-food system and the Planet (Lozano-Cabedo & Gómez-Benito, 2017)
• I recognize the right of people to have enough healthy and quality food (Lozano-Cabedo & Gómez-Benito, 2017)
• I take action to change a food-related reality (Hassanein, 2008; Wilkins, 2005).
• I share ideas about the food system with others (Hassanein, 2008)
• I practice communication, lobbying, and political activism around food (Renting et al., 2012)
• I perform solidarity and coordinated movements around food (Lockie, 2009)
• I deeply engage myself in food movements (O'Kane, 2016)
• I cooperate in food movements (de Bakker & Dagevos, 2012; T. A. Lyson, 2005)
• I partnership in food movements (de Bakker & Dagevos, 2012)
• I make alliances in food movements (Phillips, 2006)
• I have a strong sense of commitment regarding food movements (Carolan, 2017; de Bakker & Dagevos, 2012; Lozano-Cabedo & Gómez-Benito, 2017; T. A. Lyson, 2005; Phillips, 2006)
• I believe it is important to conduct a transformation of food system governance (Escajedo San-Epifanio, 2015)
• I believe it is important to develop synergies at higher policy-making levels regarding food (Campbell, 2004)
• I believe it is important to standardize and rationalize the production and transaction costs along the food chain (T. A. Lyson, 2005)
• I believe it is important to improve the food labeling (de Tavernier, 2012; Escajedo San-Epifanio, 2015; O'Kane, 2016)
• I believe it is important to create global social movements around food (Sage, 2014)

Sentences and references
• I believe it is important to perform campaigns that favor the consumption of "ugly" fruits and vegetables (O'Kane, 2016)
• I believe it is important to carry out actions that obtain consumers' attention in the direction of healthier and sustainable consumption in a gradual way (de Bakker & Dagevos, 2012)
• I believe that the food and agriculture policies and the culture of some actors are unfavorable to the food system (Wilkins, 2005)
• I believe that the globalized food chains, which disconnects consumers from where, how, and by whom food is grown, is unfavorable to the food system (O'Kane, 2016)
• The corporate control of the food system (formed by vertical and horizontal integration), the insufficient information available to consumers about the products, the actions that supermarkets take to increase sales, and the proliferation of convenience foods are unfavorable to the food system (Welsh & MacRae, 1998).
• The narrow and stereotypical constructions of the more responsible consumer, that is, unrealistically treating this type of consumer, is unfavorable to the food system (Lockie, 2009)
• I look forward to a renewal of the local food system (de Bakker & Dagevos, 2012)
• I look forward to sustaining a just, equitable, and environmentally regenerative food system (Campbell, 2004; Wilkins, 2005)
• I look forward to projects focused on productions that respond to food problems (Phillips, 2006)
• I look forward to projects aiming at transforming the existing food system (Sage, 2014)
• I look forward to shaping public opinion, culture, institutions, and policies (Renting et al., 2012)
• I look forward to building international solidarity in defense of food sovereignty (Sage, 2014)
• I look forward to a political awakening (Welsh & MacRae, 1998)
• I look forward to a moralized food economy (Renting et al., 2012)

Appendix 2.B

Evaluation form for experts (in Portuguese)

Prezado(a),

Gostaríamos de convidá-lo a colaborar com o desenvolvimento de um estudo sobre cidadania alimentar que faz parte da iniciação científica da Camilla Zorzi e do doutorado da Mayra Viana, sob orientação da Profa. Dra. Solange Alfinito (UnB).

A proposta é criar uma escala que mensure a cidadania alimentar. Tenha em mente a seguinte definição: "cidadania alimentar é o reconhecimento e a prática de direitos e deveres relacionados ao acesso a alimentos saudáveis e sustentáveis por parte de indivíduos conscientes, colaborativos e politicamente ativos".

Veja, ainda, uma discussão lúdica sobre esse conceito:


Também! O cidadão alimentar se preocupa com a origem do que consome, sustentabilidade e iniciativas públicas e privadas que favorecem o sistema alimentar, **desde a produção até o descarte**.


Como acompanhar e se manifestar sobre regulamentações de rotulagem de alimentos e liberação de agrotóxicos?
Sim, são ótimos exemplos!


Então os cidadãos alimentares são indivíduos **conscientes**, **colaborativos** e **politicamente ativos**, que praticam seus direitos e deveres acerca da **origem e acesso aos alimentos**?
Isso! É onde eu quero chegar!

A geração de itens para a escala se deu a partir da literatura internacional de cidadania alimentar. Os itens propostos são afirmações que incluem: priorização de questões/projetos, indignação com questões, empatia/consciência e engajamento (dentro de 6 meses). Posteriormente, serão avaliados por respondentes em uma escala Likert, ou seja, conforme o grau de concordância.

Na presente etapa, solicitamos sua avaliação em relação à validade de conteúdo e de face dos itens da escala.

A validação de conteúdo relaciona-se ao grau em que os itens são adequados, ou seja, relevantes e representativos da cidadania alimentar. A validação de face refere-se ao grau de praticidade e clareza do enunciado de cada item.

A avaliação dos itens deverá ser realizada de acordo com os critérios abaixo:

Adequação do item (à definição de cidadania alimentar)				
1 - Inadequado	2 – Pouco Adequado	3 - Adequado	4 - Bem Adequado	5 – Adequação Perfeita
Clareza do enunciado				
1- Muito Ruim	2 - Ruim	3 - Razoável	4 - Boa	5 – Muito Boa

As suas sugestões serão analisadas juntamente com as dos demais juízes, visando garantir que o instrumento final seja o mais simples e objetivo possível. Tenha em mente que os itens precisarão ser compreendidos pela população em geral (não acadêmica).

Agradecemos a sua valiosa colaboração, se possível, até 13/12/19.

Ao final, contamos com a sua colaboração para deletar o instrumento de seu computador e reforçamos a necessidade de total sigilo dos itens avaliados.

Sinceros agradecimentos,

Mayra Viana

E-mail para contato e devolução do arquivo: mayraviana2@gmail.com

Appendix 2.C

Initially proposed items for the instrument with the experts' scores

Item	Description in Portuguese	Free translation to English	Criteria	Average	Median
1	Projetos focados em soluções para os problemas alimentares deveriam ser uma prioridade.	Projects focused on solutions to food problems should be a priority.	Adequacy	5	5
			Clarity	4	4
2	Projetos que visam transformar esse atual sistema deveriam ser uma prioridade	Projects that aim to transform the current system should be a priority	Adequacy	5	5
			Clarity	3	3
3	A transformação da governança do sistema alimentar deveria ser uma prioridade	Transforming the food system governance should be a priority	Adequacy	5	5
			Clarity	3	3
4	Movimentos sociais globais sobre as questões alimentares deveriam ser uma prioridade	Global social movements on food issues should be a priority	Adequacy	5	5
			Clarity	5	5
5	É inaceitável que pessoas tenham mais acesso a alimentos em alguns países do que em outros	It is unacceptable that people have more access to food in some countries than in others	Adequacy	5	5
			Clarity	5	5
6	A melhoria da rotulagem dos alimentos deveria ser uma prioridade	Improving food labeling should be a priority	Adequacy	5	5
			Clarity	5	5
7	É inaceitável que o sistema alimentar seja prejudicado pela cultura de alguns atores da cadeia	It is unacceptable that the food system is harmed by the culture of some actors in the chain	Adequacy	5	5
			Clarity	4	4
8	É inaceitável que o crescimento da oferta de alimentos processados impacte negativamente o sistema alimentar	It is unacceptable that the growth in the supply of processed foods negatively impacts the food system	Adequacy	5	5
			Clarity	3	3
9	É inaceitável que o sistema alimentar seja prejudicado pela forma de operação das cadeias globalizadas	It is unacceptable that the food system is hampered by the way globalized chains operate	Adequacy	5	5
			Clarity	3	3
10	É inaceitável que o sistema alimentar seja prejudicado pelo controle corporativo	It is unacceptable that the food system is undermined by corporate control	Adequacy	5	5
			Clarity	5	5
11	A renovação do sistema alimentar local deveria ser uma prioridade	Renovating the local food system should be a priority	Adequacy	5	5
			Clarity	5	5
12	Campanhas que combatam o desperdício de alimentos pelo consumidor deveriam ser uma prioridade para todos	Campaigns that fight against food waste by consumers should be a priority for everyone	Adequacy	5	5
			Clarity	5	5

Item	Description in Portuguese	Free translation to English	Criteria	Average	Median
13	A sustentação de um sistema alimentar justo e ambientalmente equilibrado deveria ser uma prioridade	Sustaining a fair and environmentally balanced food system should be a priority	Adequacy	5	5
			Clarity	4,2	5
14	A união de esforços para a elaboração de políticas públicas sobre alimentos deveria ser uma prioridade	Joining efforts to develop public food policies should be a priority	Adequacy	5	5
			Clarity	4.4	5
15	Eu me solidarizo com problemas internacionais relacionadas aos alimentos	I sympathize with international food-related problems	Adequacy	4.8	5
			Clarity	4.4	5
16	É inaceitável que algumas pessoas consigam acessar menos alimentos do que outras	It is unacceptable that some people are able to access less food than others	Adequacy	4.4	5
			Clarity	4.4	5
17	É inaceitável que algumas pessoas precisem pagar mais por alimentos do que outras	It is unacceptable that some people need to pay more for food than others	Adequacy	4.4	5
			Clarity	5	5
18	É inaceitável que algumas pessoas consigam acessar menos alimentos saudáveis do que outras	It is unacceptable that some people are able to access less healthy food than others	Adequacy	5	5
			Clarity	4.5	5
19	Eu conheço os direitos civis relacionados a alimentos	I know the civil rights related to food	Adequacy	5	5
			Clarity	4.6	5
20	Eu conheço meus direitos e deveres enquanto ator do sistema de alimentos	I know my rights and duties as an actor in the food system	Adequacy	5	5
			Clarity	4.2	4
21	É inaceitável que algumas pessoas tenham mais acesso a informações sobre alimentos do que outras	It is unacceptable that some people have more access to information about food than others	Adequacy	5	5
			Clarity	4.8	5
22	Eu conheço sobre o funcionamento do sistema alimentar	I know about the functioning of the food system	Adequacy	4.8	5
			Clarity	4.5	4.5
23	Eu conheço sobre os alimentos de uma forma geral	I know about food in general	Adequacy	3.8	3
			Clarity	4.25	4.5
24	Políticas em torno dos alimentos deveriam ser uma prioridade	Food policies should be a priority	Adequacy	5	5
			Clarity	4.6	5
25	A garantia da diversidade dos alimentos deveria ser uma prioridade	Ensuring food diversity should be a priority	Adequacy	5	5
			Clarity	4.6	5
26	A garantia da qualidade dos alimentos deveria ser uma prioridade	Ensuring food quality should be a priority	Adequacy	5	5
			Clarity	4.6	5
27			Adequacy	4.8	5

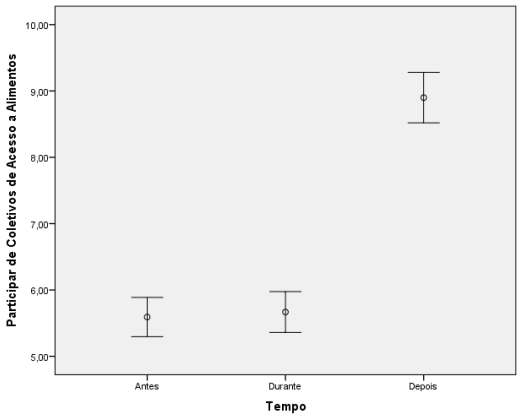
Item	Description in Portuguese	Free translation to English	Criteria	Average	Median
	Eu pretendo participar de fóruns de discussão sobre alimentos nos próximos seis meses	I plan to participate in food discussion forums in the next six months	Clarity	4.8	5
28	Eu pretendo acessar alimentos de produtores de pequeno porte nos próximos seis meses	I plan to access food from small farmers in the next six months	Adequacy	5	5
			Clarity	4.8	5
29	Eu pretendo acessar alimentos disponíveis em feiras dos produtores nos próximos seis meses	I plan to access food available at farmers' fairs in the next six months	Adequacy	5	5
			Clarity	4.8	5
30	Eu pretendo acessar alimentos fornecidos localmente nos próximos seis meses	I plan to access locally sourced food in the next six months	Adequacy	5	5
			Clarity	4.4	5
31	Eu pretendo acessar alimentos orgânicos nos próximos seis meses	I plan to access organic food in the next six months	Adequacy	5	5
			Clarity	4.8	5
32	Eu pretendo acessar alimentos sazonais (da época) nos próximos seis meses	I plan to access seasonal (seasonal) food in the next six months	Adequacy	5	5
			Clarity	4.8	5
33	Eu pretendo me envolver em ações políticas que visem mudar uma realidade relacionada aos alimentos nos próximos seis meses	I intend to get involved in political actions that aim to change a reality related to food in the next six months	Adequacy	5	5
			Clarity	5	5
34	Eu pretendo realizar alianças e parcerias em torno de movimentos alimentares nos próximos seis meses	I intend to form alliances and partnerships around food movements in the next six months	Adequacy	5	5
			Clarity	4.8	5
35	Arranjos sociais de alimentos são comunidades que garantem determinados alimentos para seus membros. Eu pretendo participar de um arranjo desse tipo nos próximos seis meses	Social food arrangements are communities that guarantee certain foods for their members. I plan to participate in such an arrangement in the next six months	Adequacy	5	5
			Clarity	5	5
36	Eu pretendo participar de horta(s) comunitária(s) nos próximos seis meses	I plan to participate in community garden (s) in the next six months	Adequacy	5	5
			Clarity	5	5
37	Ao invés de comprar apenas em comércio convencional, eu pretendo participar de mecanismos alternativos para acessar alimentos nos próximos seis meses	Instead of buying only in conventional stores, I intend to participate in alternative mechanisms to access food in the next six months	Adequacy	5	5
			Clarity	4.8	5
38			Adequacy	5	5

Item	Description in Portuguese	Free translation to English	Criteria	Average	Median
	Na Comunidade que Sustenta a Agricultura (CSA), o consumidor financia e participa da produção de alimentos. Eu pretendo participar de uma CSA nos próximos seis meses	In the Community that Supports Agriculture (CSA), the consumer finances and participates in food production. I plan to participate in a CSA in the next six months	Clarity	5	5
39	O Slow Food é um movimento que defende a alimentação baseada em produtos locais, sustentáveis e de qualidade. Eu pretendo participar do Slow Food nos próximos seis meses	Slow Food is a movement that advocates food based on local, sustainable, and quality products. I plan to participate in Slow Food in the next six months	Adequacy	5	5
			Clarity	5	5
40	Eu favoreço um interesse coletivo em relação aos alimentos em detrimento de um interesse individual	I favor a collective interest concerning food over an individual interest	Adequacy	5	5
			Clarity	4	4
41	Eu pretendo assumir compromissos com movimentos alimentares nos próximos seis meses	I plan to make commitments to food movements in the next six months	Adequacy	5	5
			Clarity	4.4	5
42	Eu atuo de maneira proativa para acessar alimentos, ou seja, não aguardo que outras pessoas ajam por mim ou que me solicitem	I act proactively to access food, that is, I do not wait for other people to act for me or to ask me	Adequacy	4.8	5
			Clarity	3.6	4
43	Eu atuo de maneira reflexiva em relação aos alimentos, pensando no meu impacto sobre o sistema alimentar	I act reflexively about food, thinking about my impact on the food system	Adequacy	5	5
			Clarity	4.8	5
44	Eu comunico com outras pessoas sobre temas que podem mudar uma realidade relacionada aos alimentos	I communicate with others on topics that can change a reality related to food	Adequacy	4.8	5
			Clarity	4.6	5
45	Eu cuido do meu próprio corpo através das minhas escolhas alimentares	I take care of my own body through my food choices	Adequacy	4.8	5
			Clarity	5	5
46	Eu cuido do planeta através das minhas escolhas alimentares	I care for the planet through my food choices	Adequacy	5	5
			Clarity	5	5
47	Existem movimentos para comprar deliberadamente de empresas de alimentos que agem com responsabilidade. Eu pretendo me juntar a esse tipo de movimento nos próximos seis meses	There are movements to buy deliberately from food companies that act responsibly. I plan to join this kind of movement in the next six months	Adequacy	5	5
			Clarity	5	5

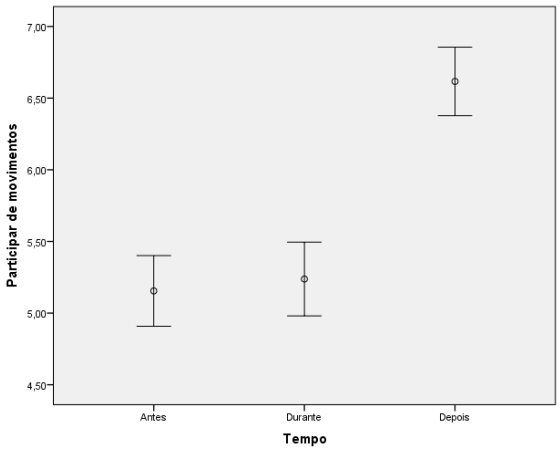
Item	Description in Portuguese	Free translation to English	Criteria	Average	Median
48	Existem movimentos para boicotar empresas de alimentos que agem de forma irresponsável. Eu pretendo me juntar a esse tipo de movimento nos próximos seis meses	There are movements to boycott food companies that act irresponsibly. I plan to join this kind of movement in the next six months	Adequacy	4.6	5
			Clarity	5	5
49	Eu me solidarizo com a possibilidade de mudar uma realidade relacionada aos alimentos	I sympathize with the possibility of changing a reality related to food	Adequacy	4.8	5
			Clarity	4.2	5
50	Eu realizo comportamentos relacionados a alimentos coerentes com minhas preferências, interesses e preocupações	I perform food-related behaviors consistent with my preferences, interests and concerns	Adequacy	4.4	5
			Clarity	4.2	4
51	Eu tomo pequenas decisões relacionadas a alimentos de forma consistente	I consistently make small food-related decisions	Adequacy	4.8	5
			Clarity	3.4	3

Appendix 2.D

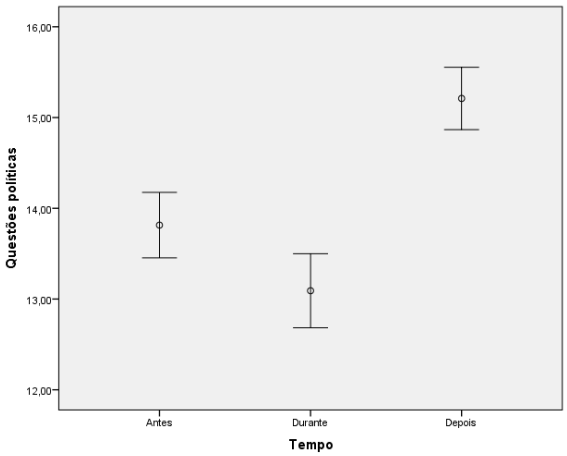
Graphs corresponding to the four comparisons of GEE



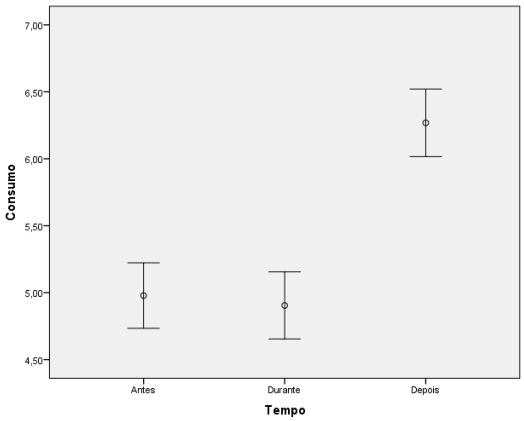
Difference in Means of Food Citizenship Category 1 (Collectives for food access) reported three times.



Difference in Means of Food Citizenship Category 2 (Movements) reported three times.



Difference in Means of Food Citizenship Category 3 (Political Matters) reported three times.



Difference in Means of Food Citizenship Category 4 (Consumption) reported three times.

Chapter 3

Study 2 - Applying the Information-Motivation-Behavioral Skills Model to interpret food citizenship

Applying the Information-Motivation-Behavioral Skills Model to interpret food citizenship

Abstract

Food citizens care about the impact of their eating habits. They mobilize themselves to access healthy and quality food and participate in collective actions related to the food system. This study is based on the Information-Motivation-Behavioral Skills (IMB) model to explore these three constructs as predictors of food citizenship in an emerging economy - Brazil. The categories were collected through an online questionnaire with 207 Brazilian consumers, using the projective technique of sentence completion test. Before answering, the participants were acquainted with the concept of food citizenship and received examples of information, motivation, and behavioral skills. The main methodological procedures were content analysis performed by three researchers and the counting of obtained terms. Results show 12 classes of information, ten of motivation, and 12 behavioral skills necessary to be a food citizen. The first includes the relevance of having information on the production chain, forms of production/preparation, and sustainability, while the motivation categories involve health/well-being, sustainability, and positive impacts of food citizenship for society. As for behavioral skills, food citizens need, e.g., to be curious, proactive, and willing to perform citizenship. With this data, it was possible to outline a theoretical framework for analyzing food citizenship determinants from the perspective of the IMB model. The study is innovative for applying the IMB model for food citizenship, and it contributes to future research and initiatives related to this rising topic. Furthermore, it addresses the phenomenon in an emerging economy, making it possible to compare and contrast the findings with the reality of developed countries.

Keywords: food citizenship, information, motivation, behavioral skills, projective technique, IMB model.

Introduction

Eating provides a connection with the world (Berry, 1990). People employ a vital part of their economic resources and time to procure, prepare, and consume food (Gómez-Benito & Lozano, 2014). Therefore, it is comprehensible why we should care about what we eat (de Tavernier, 2010). Nevertheless, some consumers perform an additional effort to access ethical, sustainable, and healthy food (Gómez-Benito & Lozano, 2014), trying not to make food choices in automatic, habitual, and subconscious ways (Furst et al., 1996). Those are the so-called food citizens (de Tavernier, 2010).

Food citizens believe that food production practices matter and make choices considering the impact of what they eat (de Tavernier, 2010). Due to these characteristics, this segment of consumers sustains food-related initiatives (e.g., consumer cooperation, organic food, and local food) in numerous countries and regions, i.e., Europe, North and South America, Australia, and Far East (Renting et al., 2012). Furthermore, the collaboration between consumers and producers reshapes their relations with the food system, revaluing food's meanings (Renting et al., 2012).

How does food citizenship happen from the consumer's point of view? There are already studies related to the concept of food citizenship (de Tavernier, 2012; Eli et al., 2016), but little knowledge about aligning more consumers to it. Consequently, it becomes promising to rely on a behavioral change theory (Gielen & Sleet, 2003; Spahn et al., 2010) to outline an understanding of the phenomenon. Thus, this study builds on the Information-Motivation-Behavioral Skills (IMB) model proposed by Fisher and Fisher (1992) for this matter.

The IMB model conceptualizes psychological determinants of the behaviors' performance based on the increment of information, motivation, and behavioral skills that the individual presents (W. A. Fisher et al., 2009). Studies using the context of food citizenship did not apply this theory yet. Still, it proved to be valuable for behaviors such as adherence to

antiretroviral therapy (J. D. Fisher et al., 2006), recycling (Seacat & Northrup, 2010), the usage of condoms (Zhang et al., 2011), and financial caution (Limbu, 2017).

Despite the IMB model being unprecedented for food citizenship, this proposal can be very pertinent. According to de Tavernier (2010), consumers do not always possess all the relevant information they need to act consciously and according to the food citizenship principles. For Kokodey (2012), one should consider motivations such as time-saving and pursuit of organoleptic novelty. Moreover, a food citizen needs to possess or develop skills that make this behavior possible, e.g., acting on behalf of the food chain (Gómez-Benito & Lozano, 2014).

Therefore, the research question is what information, motivations, and behavioral skills individuals need to present or develop to become food citizens. We propose that understanding these three constructs can be a differential for promoting food citizenship. The question seeks to contribute to a better understanding of food citizenship and its predictors. However, despite the growth of initiatives aligned with food citizenship that effectively depend on individual involvement, there is still a shortage of studies about the theme. The literature deeply studies food citizenship as a system, but consumer-oriented aspects are practically not covered.

Thereby, this study explores food citizenship in light of the Information-Motivation-Behavioral Skills (IMB) model. This goal is pursued through a descriptive qualitative approach, using the projective technique of sentence completion test with Brazilian consumers, separately considering each construct: information, motivation, and behavioral skills. We also present a framework to guide future approaches.

Theoretical Foundation

An Overview of Food Citizenship

Food citizenship integrates various social actors committed to environmental and social sustainability food systems' (Lozano-Cabedo & Gómez-Benito, 2017). Food citizenship avoids the passive and confining roles of "consumer" or "producer" or "worker" (Hassanein, 2003). Instead, the consumers participate in collective actions that require strategic interactions between actors to achieve their targets, such as negotiations and the integration of aims, beliefs, and strategic decisions (Hassanein, 2003).

Firstly, it is relevant to place food citizenship as consumer behavior, i.e., at the individual level. Moreover, many factors are involved in food choices, such as taste, health, social status, and cost. Thus, the food choice process incorporates decisions based on conscious reflections and automatic, habitual, and subconscious manifestations (Furst et al., 1996).

In this sense, some consumers who make decisions consciously (e.g., thinking ethically) may already prefer organic and fair trade food and worry about the food system's working conditions (de Tavernier, 2010). Those are sustainability-oriented or conscious consumers (De Barcellos et al., 2014; Hamza et al., 2018; Thøgersen & Alfinito, 2020). Nevertheless, when the consciousness evolves to the defense of the common good and participation in collective actions and the public sphere (Lozano-Cabedo & Gómez-Benito, 2017), among other issues, the consumer might be a food citizen.

The central importance of food citizenship is related to its potential to sustain and support alternatives to the current food system model (Escajedo San-Epifanio, 2015). Those alternatives are gaining strength to ensure corporate responsibility, improve market rules, and empower agents in the food supply scenario (Carolan, 2014). Furthermore, in principle, they depend on engaged individuals, i.e., food citizens. Food citizenship also shapes public opinion,

culture, institutions, and policies (Renting et al., 2012), build international solidarity in defense of food sovereignty (Sage, 2014), and allows for political awakening (Welsh & MacRae, 1998). All this, ultimately, moralizes the food economy (Renting et al., 2012).

As a classic example of food citizenship, consumers engage in alternative food systems for individual interests (nutritional benefits, superior taste, and avoidance of synthetic pesticides) and collective motives (environmental and economic concerns) (Schrank & Running, 2016). However, food citizens go beyond and practice consumption aiming for the greater good (Chaudhury & Albinsson, 2015), contributing to humanitarian and prosocial objectives. Therefore, food citizens know that they have rights and responsibilities with society, other consumers and producers, the environment, and animals' welfare (Gómez-Benito & Lozano, 2014).

We should recognize that the individual's consciousness level is insufficient to favor food citizenship. For example, lower-income households may face real challenges accessing nutritious and affordable food (Carolan, 2014). Nevertheless, some individuals have those access and may renounce individual wishes to benefit fairness, equity, sustainability, socioeconomic development, the protection of cultural diversity, and the guarantee of a decent life for everyone (Escajedo San-Epifanio, 2015).

Food citizenship can be understood as the reinvention of identities and practices as food consumers, developing behaviors considered different from the mainstream (Lockie, 2009). In this sense, food citizens may purchase and consume organic food in farmers' markets instead of buying common foods in traditional supermarkets (Campbell, 2004; Lyson, 2005; O'Kane, 2016). They may also, e.g., participate in movements such as the Community-Supported Agriculture (CSA) (Baker, 2010; Carolan, 2014; Renting et al., 2012; Sage, 2014), since participating in movements is one of the ways to exercise food citizenship.

As a matter of principle, food citizens renounce an individual interest in favor of a collective one (Escajedo San-Epifanio, 2015). They have a high degree of empathy for the other (Carolan, 2017) and care for the community and the environment (de Bakker & Dagevos, 2012). Regularly, they act reflexively and proactively (Lockie, 2009), guided by their concerns (Gómez-Benito & Lozano, 2014), making small decisions consistently (Wilkins, 2005).

The phenomenon under study also includes political participation (Escajedo San-Epifanio, 2015) and an expression of global or cosmopolitan concerns. For food citizens, the preoccupations are not just at the local sphere but include the claim for civil rights and international solidarity (Lockie, 2009; Lozano-Cabedo & Gómez-Benito, 2017; Sage, 2014). Therefore, studying and promoting food citizenship contributes to the renewal of the local scene (de Bakker & Dagevos, 2012), sustaining a just, equitable, and environmentally regenerative food system (Campbell, 2004; Wilkins, 2005).

The present study aims to support filling the gap that even a consumer behavior perspective can access food citizenship. That is because, in general, the studies deal with food citizenship broadly, addressing aspects of this phenomenon and basing its importance in the context of the agri-food system. Although, there is a lack of studies that characterize and evaluate individual behaviors that shape food citizenship and address how to favor these practices. Pinard et at. (2016) states that “for the largest impact, consumers, storeowners, and producers need to be represented in the research more, compared to existing literature that focuses on characterizing the food environment” (p. 331). Because of the identified shortcomings, the present study helps understanding food citizens, supported by the Information-Motivation-Behavioral Skills model, discussed below.

Information-Motivation-Behavioral Skills Model

The Information-Motivation-Behavioral Skills (IMB) model is a behavior change theory with background in the medical field (Thomson et al., 2004), being one of the main behavioral change approaches mapped by Gainforth, West, and Michie (2015) and Davis et al. (2015). According to Fisher and Fisher (1992), the IMB model corresponds to a conceptually based, highly generalizable model for promoting and evaluating behavior change in any interest population. The model understand the behavior as a function of individuals' information, their motivation, and the behavioral skills necessary to conduct the behavior of interest (J. D. Fisher et al., 1994).

As initially proposed, the first study that used the referred model in an experiment to change behavior aimed to reduce AIDS risk behavior in a college student population. As a result, the intervention increased information, motivation, and behavioral skills and sustained the preventive behavior increase (W. A. Fisher et al., 1996).

Later, going from prevention to treatment, a study tested the IMB Model concerning adherence to antiretroviral therapy. The authors concluded that the model confirmed all the expected relations and mediation effects (Starace et al., 2006). That opened the possibilities, and the prediction of breast self-examination was also tested under the IMB model, having as results that the predicted relationships were also supported (Catapano et al., 2006).

Nevertheless, a relevant study did not confirm all the IMB model relationships. The intention was to use the framework to analyze diet and exercise behavior in a population with diabetes (Osborn et al., 2010). Significant paths were obtained from motivation to behavioral skills and behavioral skills to behavior, with the mediation of behavioral skills in the relationship between motivation and behavior. Also, information covaried with motivation. However, the authors found no significant relationship between information and behavior or behavioral skills. In the study discussion, Osborn et al. (2010) suggested that additional studies

were needed to understand if the information construct was not crucial in the context of interest or if the used measure was not ideal.

Another health-related study regarding rational drug use behavior among hospital outpatients applies the IMB model, and the authors confirmed all the expected relationships of the framework. They also contribute to the field by finding that age significantly affected behavior and that gender and educational level predicted more behavioral skills (Bian et al., 2015).

The literature also brings some non-health-related approaches using the IMB model. Research from Glasford (2008), for instance, examined the utility of the IMB model to predict voting behavior among young adults. The author found initial evidence of the predictive validity of the IMB constructs to explain voter turnout and suggested that the model may change behavior via intervention in non-health-related actions (Glasford, 2008).

A sustainability-related study tested curbside recycling predictors (i.e., selective collection) behavior via the IMB model. The authors obtained results that the individuals lacked appropriate knowledge about recycling (Seacat & Northrup, 2010). In that study, the IMB Model explained most of the expected relation, but not the direct relationship between motivation and behavior – this relationship only occurred as mediated by behavioral skills (Seacat & Northrup, 2010). Thus, while the study by Osborn et al. (2010), previously presented in this work, did not confirm the expected relationship between information and behavior related to physical exercises, the study of Seacat and Northrup (2010) did not ultimately establish the predicted relationship between motivation and recycling. These aspects illustrate that there is still room for a greater understanding of applying the IMB model in different behaviors.

Another approach was using the IMB model to develop a theoretical foundation over security and privacy behavior, considering, e.g., personal digital data exposure (Crossler &

Bélanger, 2017). Still, a proposed framework entirely based on the IMB model was suggested for future research to explore factors that can lead individuals to behave positively regarding information security and privacy protection (Crossler & Bélanger, 2017).

Moreover, a study analyzed credit card knowledge, social motivation, and credit card misuse among college students under the model (Limbu, 2017). As theoretically proposed, its results showed that credit card knowledge, directly and indirectly, influences credit card misuse. Also, self-efficacy mediated the effect of social motivation on credit card misuse (Limbu, 2017). Limbu (2017) then suggested that interventions enhance knowledge, promote social motivation, and sustain self-efficacy.

Given the above, studies that used the IMB model for understanding behavior and behavioral interventions allow us to envision the potential to apply, in an unprecedented way, the IMB model to promote changes in consumer behavior related to food citizenship. Thus, it informs the present study, which presents the methodological procedures next.

Method

Research Design Overview

The study comprises online research with food consumers to explore which information, motivation, and behavioral skills someone needs to be a food citizen. The projective technique used allowed us to collect consumer data indirectly. This approach makes it possible to collect consumers' conscious and unconscious opinions that would not be obtained if asked directly (Fiszman et al., 2015).

The questionnaire introduced the concept of food citizenship to potential participants. The sample consisted of individuals who claimed to have understood this concept and were also responsible or co-responsible for purchasing food at home.

The stimuli were questions that referred to the IMB constructs. Through an illustrated and engaging questionnaire, the respondents completed some dialogues. Each task yielded inputs for gathering information, motivations, and behavioral skills to be a food citizen. We then considered the obtained responses to perform content analysis (Bardin, 2011). Finally, the analysis made it possible to build a framework based on the IMB model.

Participants

Participants were from a convenience sampling method with a snowball strategy. From 237 respondents, we obtained a total of 207 valid participants. Of those 30 excluded respondents, one did not understand the concept of food citizenship. Six were unsure if they had understood it, 21 were not responsible for buying food for the residence, and two were individuals that left blank two of the projective tests.

The study's participants were from Brazil, an emerging economy with significant growth potential for more conscious initiatives related to food (Barone et al., 2019; Hamza et al., 2018). It is relevant to mention that sustainable behaviors can be considered country-specific (Baldi et al., 2021; Sánchez-Bravo et al., 2021), so there is room for more studies on emerging economies. However, the sample did not intend to represent the Brazilian population, but it is compatible with the data collection strategy and has an adequate number of consumers for studies using the projective technique (Eldesouky et al., 2015; Viana et al., 2014, 2016; Vidal et al., 2013).

As shown in Table 3.1, most (67.1%) participants were women, and individuals were from different Brazilian regions. Considering the age range, 34.8% of the individuals were from 26 to 40 years old. In total, most respondents did not have kids at home but lived with two or more people. Concerning monthly household income, 30.8% had above R$ 14,971 (US$ 2,940 as of June 2021).

Table 3.1

Respondents' socioeconomic status (SES)

Variables SES		Frequency (N)	Percentage within variable (%)
Gender	Man	68	32.9
	Woman	139	67.1
Generations / Age range	(Z) Up to 25 years	25	12.1
	(Y) From 26 to 40 years	72	34.8
	(Xennials) From 41 to 55 years	65	31.4
	(Baby boomers) 56 or more years	45	21.7
Number of people in the residence	01 person	25	12.1
	02 people	61	29.5
	03 people	55	26.6
	04 people	46	22.2
	05 people or more	20	9.7
Number of kids in the residence	None	154	74.4
	01 or more	53	25.6
Brazilian region	South / Southeast	99	48.5
	Midwest	92	45.1
	North/Northeast	13	6.4
Household income	Up to R$ 2,994	20	10.0
	From R$ 2,995 to R$ 5,988	31	15.4
	From R$ 5,989 to R$ 9,980	45	22.4
	From R$ 9,980 to R$ 14,971	43	21.4
	Over R$ 14,971	62	30.8

Instrument and Procedures

The online data collection via Microsoft Forms respected the study's rationale, aiming to obtain the information, motivations, and behavioral skills to be a food citizen. The questionnaire was made available online from December 2019 to January 2020. We used email lists of universities, research groups, social networks, and personal databases to reach respondents, as the non-probability sample was considered appropriate for this study (Eldesouky et al., 2015).

The instrument consisted of four parts: the presentation of the study and participating acceptance, an explanation of the concept of food citizenship, the projective technique task, the socioeconomic status (SES) questions, and control variables over the participant's profile.

Explaining the food citizenship concept was part of the study because the premise was that consumers needed to understand what food citizenship is to respond to the stimuli usefully. In practice, it is possible to say that the respondents were briefly "trained" and guided to provide relevant data for the research. The "training" had images intended to make the task more pleasant, chosen on a royalty-free basis, and photographic quality. It was a set of dialogues, originally in Brazilian Portuguese, between a daughter and a mother, based on the concept of food citizenship (de Tavernier, 2012; Escajedo San-Epifanio, 2015; Wilkins, 2005) to make respondents familiar with this term. Figure 3.1 illustrates the dialogue.

Figure 3.1

Example of the dialogue

After being presented with the concept, we asked the respondent if he/she understood the term of food citizenship (Yes, No, I do not know). Only individuals that answered "yes"

were considered valid respondents. The second filter was that respondents should be responsible or co-responsible for buying food for the residence.

Next, we invited the respondents to complete some dialogues as part of the projective technique assessment (Eldesouky et al., 2015) concerning each IMB model construct, e.g., motivation (Figure 3.2). Finally, through randomization, respondents participated in the projective test in one of the following different orders concerning the information (I), motivation (M), and behavioral skills (B) stimuli: I-M-B, I-B-M, B-I-M, B-M-I, M-B-I, and M-I-B.

The instrument showed the definitions and examples of information, motivation, and behavioral skills before completing each set. Those examples were from different contexts and not about the present research object. As stated previously, the images (stimuli) were from the same daughter and mother talking about food citizenship. The selected pictures in this study represented a family with a table full of breakfast food, which may or may not have caused bias. To avoid this possible bias, consumers did not answer in the first person and not about the women illustrated in the stimuli - they were talking about food citizens in general. Future studies could assess the influence of different images (i.e., profiles of illustrated people) on responses.

The speech bubble “A” contained a question from one person to another in the task. We asked participants to fill in the speech bubble “B” with the answer they thought was adequate. Following the photograph-based stimulus, there was the guideline: “Please fill in the speech bubble (B) with the possible answer the person would provide. Feel comfortable to express yourself freely; there is no right or wrong answer.” There was, then, a blank space where the respondent could fill in. Figure 3.2 brings an example of the motivation stimuli.

Figure 3.2

Example of the stimuli concerning motivation

After that, consumers answered the socioeconomic status (SES) questions, such as gender, age, number of people in residence, number of kids at home, Brazilian region they live in, and household income. Still, there were two control variables over the participant's profile: if they considered themselves to be a food citizen (from 1 to 5) and if they were part of a Community-Supported Agriculture (CSA) (No, and I do not know what a CSA is; No, but I know what a CSA is; Yes). Being part of a CSA is an example of food citizenship practice (Bernard et al., 2020; Perez et al., 2003). The idea was to verify the comparability of subsidies provided by people who consider themselves more adherent to food citizenship with those who are perhaps more distant from this concept.

Data analysis

The data analysis procedures for identifying key purchasing attributes were based on Vidal et al. (2013). We encoded the phrases and words mentioned from the completion test by

triangulation for this task. Three researchers grouped the recurring terms into categories individually, and their assessments were combined to arrive at the final categories.

The study obtained the categories of information, motivation, and behavioral skills. Then, we calculated the frequency of citations for each one by counting the number of consumers who used the equivalent words or terms. It is worth mentioning that most participants provided subsidies for more than one category in each construct.

We separated respondents into clusters via descending hierarchical classification (DHC) to analyze whether consumers with different food citizenship levels would provide different terms. The answers used in the DHC were about "considering yourself a food citizen" and "being part of a CSA." The programs used were Microsoft Office Excel and SPSS, with Ward Method and quadratic Euclidean distance for the clustering analysis, with comparisons between pairs (chi-square test) using the Bonferroni correction (Hair et al., 2005).

At last, a framework was proposed by placing the found categories into the IMB model, respecting the original relationships between constructs proposed by Fisher and Fisher (1992).

Results

We summarize the findings on the sample control variables, which indicate that the training on the concept of citizenship was successful. The control variables over the participant's profile considered themselves food citizens and their level of involvement or knowledge about CSA.

Based on those answers, we divided the consumers into three clusters. The first one, encompassing 23.2% of the participants, is the "least food citizens." The second, with 46.4%, is the "somewhat food citizens." With 30.4% of the consumers, the third group covered the "most food citizens." Those groups were submitted to the chi-square test concerning their SES.

The results show that the three types of consumers are different only in one of the age ranges. In other words, there was mainly no difference in SES between consumers in different clusters.

Besides, the statistical analysis performed by SPSS demonstrated no significant difference in each cluster's consumers' responses. Therefore, the data can be analyzed as one consistent group, indicating that consumers who do not consider themselves food citizens or do not know what a CSA is also provided helpful answers, possibly through concept training. Thus, we can are results on the entire sample, separately for information, motivation, and skills, on what is necessary to be a food citizen.

In practice, the constructs of the IMB model that we accessed via projective technique considered consumers' inputs about the information, motivation, and behavioral skills that are necessary to be a food citizen. Each aspect raised after the content analysis is a category or class. The valid categories were those mentioned by at least 5% of the consumers, and they are presented from the highest to the lowest frequency, considering all consumers (Vidal et al., 2013).

Information

Information was one of the three accessed constructs of the IMB model via projective technique, and we found 12 valid categories considering consumers' subsidies (Table 3.2). The class "Knowing how the food production chain works" was mentioned by 74.9% of the participants. To be a food citizen, it suggests that one must know where the food came from, its production model, and what happened throughout the chain until it was available to consumers.

Table 3.2

Information categories

Category	Description	N	%
Production chain	Knowing how the food production chain works	155	74.9%
Forms of production and preparation	Knowing different forms of production and preparation of food	80	38.6%
Sustainability	Knowing about the sustainability of the food chain	67	32.4%
Packaging and labeling	Knowing and understanding food packaging and labeling	60	29.0%
Concepts and similar	Knowing concepts and having access to information that raises questions and guides behavior	57	27.5%
Regulations and laws	Knowing regulations and laws related to food and the rights of the citizens in the food chain	52	25.1%
Food and similar	Knowing how to make healthy food choices	40	19.3%
Citizenship and awareness	Knowing what food citizenship is and what citizens stand for	23	11.1%
Social impact	Knowing the social impact of food choices	22	10.6%
Food safety	Knowing about food safety	15	7.2%
Where to buy	Knowing where to buy sustainable food	14	7.8%
Benefits	Knowing the benefits of being a food citizen	12	5.8%

Other information that one may have is about the different ways of producing and preparing food, mentioned by 38.6% of the consumers. Some of the specific mentions that consumers brought up within this category were “knowing if the production has followed sustainability criteria, organic, free of transgenic, and pesticides,” “how to prepare your food,” and “knowledge about ways of producing healthy food.”

The third most mentioned information that one should have is about the sustainability of the food chain. Some mentions in this category were “notions of sustainability,” “the sustainable impact of food on human life and agribusiness.” Knowing and understanding about food packaging and labeling, in fourth, was mentioned by 29.0% of the consumers.

As shown in Table 3.2, consumers also mentioned the need to know concepts (27.5%) and regulations (25.1%). Food citizens then need to know the terms this concept involves and become familiar with food-related laws. Other critical points raised were learning how to make

healthier (19.3%) food choices, which is aligned with the need to know where to buy sustainable food (7.3%) and about food safety (7.2%).

Regarding food citizenship itself, participants mentioned that it is relevant to know what food citizenship is and what "citizens" stand for (11.1%), the social impact of food choices (10.6%), and, finally, learning the benefits of being a food citizen (5.8%).

Motivation

Consumers' subsidies about what motivation is necessary to be a food citizen are presented within ten classes, as shown in Table 3.3. For 61.4% of the consumers, we found that the willingness to be healthier and to live with well-being is the primary motivation to become a food citizen. Therefore, it is an aspect remembered by many consumers about what could motivate more individuals to be food citizens. In the sequence, 54.6% of the consumers mentioned the willingness to have a more sustainable world.

Table 3.3

Motivation categories

Category	Description	N	%
Health and wellness	Willing to be healthier and with well-being	127	61.4%
Sustainability	Willing to have a more sustainable world	113	54.6%
Citizenship and awareness	Willing to be a citizen and enjoy the benefits	76	36.7%
Responsibility and social impact	Willing to be more responsible and have a positive social impact due to food choices	51	24.6%
Food and Labeling	Willing to have healthier food choices and better labels	45	21.7%
Quality and origin	Willing to have access to better quality food, knowing the origin of it	43	20.8%
Information and knowledge	Willing to have more information and knowledge related to food	34	16.6%
Productive chain	Willing to have a better and clearer productive chain	26	12.6%
Responsible production	Willing that food production is responsible for everyone and everything that is part of the productive chain	26	12.6%
Support for local production	Willing to support local production and economy	15	7.2%

The third most cited category was the willingness to exercise citizenship, which 36.7% of the participants mentioned. Some mentions in this category were “believing that exercising this citizenship can make a real difference,” “immediate and long-term benefits to being a citizen, whether in health, financial or personal satisfaction.” Placing these first three classes together, one can notice that food citizenship motivations are related to personal benefits, sustainable impact, and community awareness.

In addition to the three categories described, seven more were obtained and considered relevant to the motivation context, as shown in Table 3.3. Three of them refer to benefits to society (24.6%), the willingness of better food labels (21.7%), and wanting to have more food-related information (16.6%). The other four were mainly related to food production, being about accessing better quality food (20.8%), having a better and more transparent productive chain (12.6%), guaranteeing a responsible food chain (12.6%), and supporting local production and economy (7.2%). The last motivation, related to support for the local economy,

was the lowest percentage of mention. Although it is a relevant aspect for CSA members, it was mentioned less than knowing the origin of food, for example.

Behavioral Skills

Behavioral skills are the skills understood as necessary to conduct the acts involved in the behavior of interest (J. D. Fisher et al., 1994). This means that the intention was to map the skills that people need to be food citizens: the "know-how". This topic presents the 12 classes of behavioral skills necessary to be a food citizen, gathered in Table 3.4. For 64.3% of the consumers, a food citizen must be curious and always search for more knowledge. As 50.2% of the participants mentioned, proactivity is also relevant, so food citizens need to have or develop an attitude to go after the existing practices and required information to perform those activities.

Table 3.4

Behavioral skills categories

Category	Description	N	%
Knowledge and curiosity	Being curious and always searching for more knowledge	133	64.3%
Proactivity	Being proactive	104	50.2%
Awareness and citizenship	Being able to perform citizenship	91	44.0%
Detailed-oriented and critical	Being critical and detail-oriented	64	30.9%
General, food or, financial organization	Being generally organized, financially, and with food habits	43	20.8%
Relationship and network	Being able to work with groups and different networks	37	17.9%
Good interaction with electronic devices and the internet	Being able to interact with electronic devices and the internet	33	15.9%
Understand packaging labels	Being able to read and understand packaging labels	29	14.0%
Ecology and sustainability	Being interested and focused on ecology and sustainability	23	11.1%
Flexibility	Being flexible and adaptable	16	7.7%
Eat healthily	Being able to prioritize healthy food choices	16	7.7%

Culinary domain	Being able to cook	12	5.8%

"Awareness and citizenship" was the third most mentioned class, cited by 44.0% of consumers. Some quotes were about knowing how to be aware and conscientious regarding choices and habits.

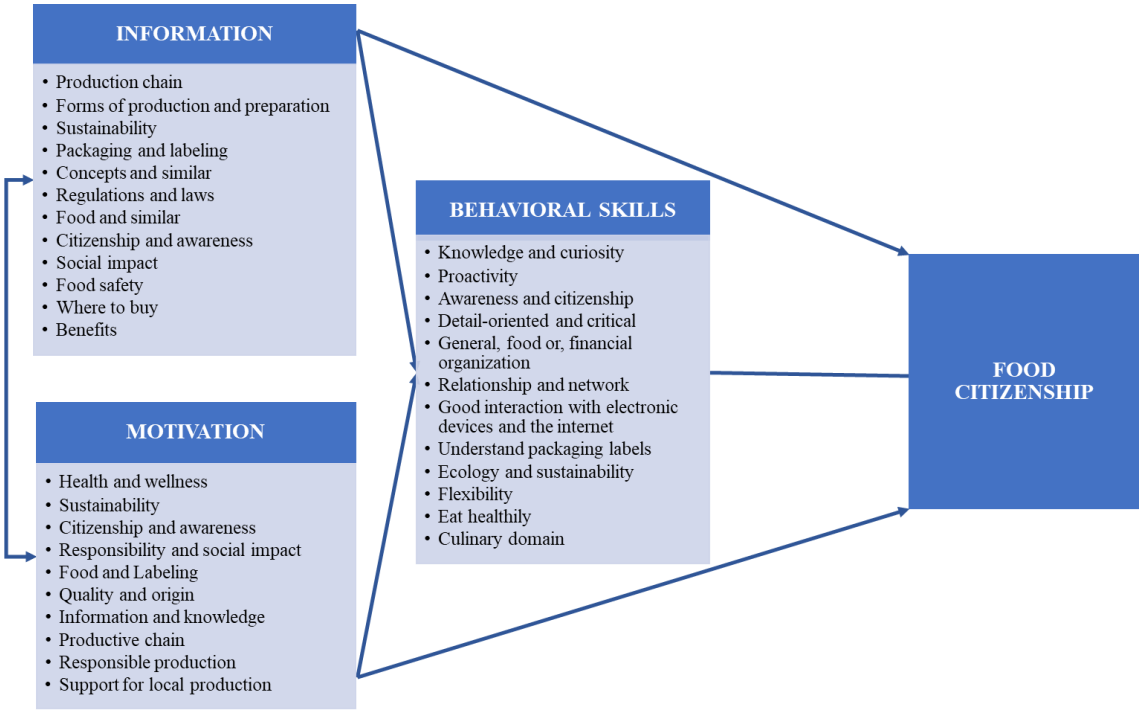
Regarding some "soft" behavioral skills, the classes were being able to work with groups and different networks (17.9%) and being flexible and adaptable (7.7%). Some "hard" skills were also mentioned, as being critical (30.9%) and being organized (20.8%). Moreover, food-related skills included understanding labels (14.0%) and cooking (5.8%). Still, consumers mentioned being interested in ecology (11.1%) and prioritizing healthy food choices (7.7%).

Discussion

As stated previously, the projective technique results brought 12 categories of information, ten motivations, and 12 behavioral skills necessary to be a food citizen. This exploratory survey took place directly with food consumers who were acquainted with the concept of food citizenship before responding. The categories emphasize, among other aspects, the importance of the production chain, sustainability, general and systemic aspects (laws), impacts, and how or why to get involved with the theme. This strategy allowed the construction of an initial framework proposal centered on the IMB model (Figure 3.3), based on which the present work focuses its discussion.

Figure 3.3

IMB Framework concerning Food Citizenship



First, it is relevant to mention that individual variables were not considered in the framework, following what the original authors of the IMB model propose. Besides, the 207 individuals presented SES variables that varied regardless of whether they considered themselves food citizens or whether they are part of or know the CSA movement - or not.

In any case, it is essential to recognize that it would be interesting if future surveys based on the present framework could check whether individual variables impact food citizenship. Studies point out that personal characteristics or traits influence behavior (Kollmuss & Agyeman, 2002). Considering physical characteristics, e.g., people with health issues, as those suffering from chronic illness, allergies, or following a specific diet, may behave more consciously regarding food (Barbieri et al., 2012; Hassan & Dimassi, 2017).

Concerning demographics and Socioeconomic Status (SES), many studies have shown that variables such as gender, age, income, education, and family size may affect different forms of food consumer behavior (Furst et al., 1996; Hough & Sosa, 2015; Mullan et al., 2015;

Vecchio et al., 2016). Nevertheless, the empirical results regarding the degree of importance of those variables are not consistent, and the present work did not address this issue.

Among social and psychological characteristics, the literature is rich and complex. For example, a review on consumer behavior and intent to purchase organic foods recommended considering cultural traditions and heritage values (Rana & Paul, 2017). As an example, one study found that consumers with more pronounced "self-enhancement," "conservation," and "hedonism" values are more likely to pay little attention to sustainability in a food sector (Caracciolo et al., 2016). This is essential to note, as sustainability and food citizenship tend to be complementary concerns.

It is also worth emphasizing that theoretical relationships between the three constructs and the behavior (food citizenship) were not tested by the present study because it focused on exploring those aspects. Verifying the possible relationships in a future quantitative framework application would be remarkable. As previously mentioned, according to the model, information may correlate to motivation, influence behavioral skills, and influence behavior (Starace et al., 2006).

In the IMB model, the consumer's information on a topic can be antecedents of their behavior. For example, among the studies that elucidate the importance of information, one tested the relationship between food labels' use and nutrition knowledge of people with diabetes. The conclusion was that what is needed is an educational program that teaches people how to use labeling information to make healthy choices (Kessler & Wunderlich, 1999). Also, along with attitudes and age, a study obtained that knowledge significantly predicts behaviors that favor the prevention of food-related diseases (Nasreddine et al., 2014).

Moreover, US American research found that having information about food safety standards affected consumers' purchase intention toward safety-labeled dairy products (Bozoglu et al., 2014). Moreover, when asked, consumers say that they wanted to see

information regarding ingredients and nutrition on menu items in UK food services (Mackison et al., 2009).

It is relevant to notice is that consumers, in general, do not know or do not care about how and by whom food was grown, processed, packaged, transported, and how it ended up in the shopping cart (Wilkins, 2005). However, citizens are informed about food and environmental issues in the food system (Hassanein, 2008). Therefore, providing information about the environmental impact of food production could be a starting point for creating awareness in consumers and showing the current pro-environmental consumers that it is worth it to continue with their behavior (Funk et al., 2021).

In practice, food citizens should be provided with information to make their food choices consciously (Gómez-Benito & Lozano, 2014). For example, while visiting farmers to collect their food, citizens also learn more about food and cooking (O'Kane, 2016). Perez et al. (2003) found that when consumers became CSA members, their eating habits changed - they were eating more vegetables, cooking more creatively, and enjoying cooking. It is essential to know different forms of production and preparation of food for that to happen. Also, a Brazilian study found that individuals who perceive higher health and sustainability benefits may be more prone to buy organic vegetables, so those benefits should be better communicated (Dorce et al., 2021).

Motivation is also a critical factor in the IMB model. A study from the USA illustrates how motivation is vital in the food citizen behavior context. It evaluated motivational factors related to buying local food and found that, in general, people started doing so for qualities related to taste and health (Carolan, 2017). Interestingly, people recognized that the motivational factors became denser after connecting to the local buying process and started to involve helping the local economy and sustainability (Carolan, 2017). It is a remarkable example of how motivational factors can shape food citizens.

To understand the motivation and role of this construct in consumer behavior, there are specific approaches that can elucidate some aspects. And a distinctive approach to consider the motivational factors is the perspective of goal-framing theory (Chakraborty et al., 2017; Kowald & Raumplanung, 2010). The goal-framing theory considers goal systems as part of the consumer behavior process. It is recognized for pro-environmental and prosocial behavior (Lindenberg, 2006), and presents three different goals as determinants of behavior, hedonic, gain, and normative.

Thus, the hedonic goal evidences individual's concern in the short term, such as pleasure and sensorial attributes. The gain goal aims to preserve or increase an individual´s resources, such as saving money and time. The normative goal is about taking the appropriate action and doing the right thing, considering social norms, moral obligations, and other people's opinions (Lindenberg, 2006).

Beyond the three goals proposed by the goal-framing theory, Loebnitz and Grunert (2018) propose a long-term utilitarian goal to food-related behaviors that concern well-being, but more studies about it are needed.

Among all the goals, studies focused on environmental behavior highlight the importance of the normative one. The argument is that environmentally friendly behavior can be promoted in two ways: strengthening the normative goals or making gains and hedonic goals less inconsistent with normative motivations (Lindenberg & Steg, 2007; Thøgersen & Alfinito, 2020). Therefore, we expected that the projective technique on food citizenship would raise normative and long-term utilitarian goals, which indeed occurred. Motivations related to the gain goal were not observed among the present study's results, and the hedonic goal was a minor aspect, mainly associated with the product quality. Therefore, some crucial hedonic elements for food, e.g., taste and appearance, were not raised as relevant food citizenship motivations.

Concerning goal-framing theory, a goal activation is an appealing approach to influence behavior. Hence, a consumer study in Brazil and Denmark successfully activated normative goals, favoring sustainable food choices and suggesting that this approach is promising (Thøgersen & Alfinito, 2020). Therefore, it is an example of an intervention to promote the behavior of interest. This is relevant to the present study as it demonstrates the potential for behavioral change favored by understanding and influencing individuals' motivations.

For the IMB model, the behavior's performance is explained by the individual's motivation for this behavior, both directly and indirectly (mediated by behavioral skills). Many studies based on the model confirm that expected influence (Bian et al., 2015; Scott-Sheldon et al., 2010). Although, some found it differently. For example, one observed that the motivation to practice preventive behavior was directly related to behavioral skills, which mediate preventive behavior. Still, there was no direct relationship between motivation and behavior (Zheng et al., 2013). Thus, future studies are relevant to evaluate these relationships concerning food citizenship.

Regardless of those relationships, motivation proves to be relevant, and it is informational-dependent, as the IMB model suggests. To bring one example, the systematic review of Kushwah et al. (2019) showed that personal health is a concern that favors the consumption of organic products. Moreover, for this motivation to be present, there is a necessity to improve the knowledge about organic production and consumption's health and environmental benefits (Feil et al., 2020). These points raised are in line with the present research and with the approach of the IMB model, about the need to expand information so that motivation also increases.

Going deeper into the possible motivations, in general, food citizens are concerned about the environment and health impacts of food choices, aiming to transition to a more sustainable food system (Feil et al., 2020). This motivation is related to the fact that some things

have to change, as food production and consumption considerably impact the environment and people's health (Hansmann et al., 2020). The present study encompasses those aspects. Nevertheless, it is relevant to mention that consumers may not be fully aware of all the elements of sustainability (environment, society, and economy), usually associating this term only with organic farming and high quality (Sánchez-Bravo et al., 2021). Therefore, there is room to raise motivation over other aspects.

As mentioned in the results section, it is interesting to notice that the first and most mentioned category is related to personal benefits. The second covers benefits to the world, and the third one, the community. These three aspects corroborate that food citizenship tends to be a more collective approach focused on the public good (Hatanaka, 2020). Accordingly, Lozano-Cabedo et al. (2017) argue that the right to food is fundamental, as it is necessary for human survival and quality of life. Because of that, the author affirms that for food citizens, thinking and fighting for rights come before obligations and duties.

Notwithstanding, having information and motivation is not enough to change a behavior, according to the IMB model. It is necessary to know how to perform specific processes, so-called behavioral skills. The behavioral skills assess the individuals' ability to "use" their information and "activate" their motivations to perform a behavior. It can be a self-efficacy theory perspective, already used in food studies as the personal sense of performing a specific task with no difficulty, since individuals need to know how to perform a behavior and also have the perception that they are able to perform them (Wang et al., 2016). As an example, Cerin, Barnett, and Baranowski (2009) tested theories of dietary behavior change in youth and showed that self-efficacy was a mechanism consistently associated with dietary behavior change.

The present study identified 12 behavioral skills, some "soft" skills, and some "hard" skills. Regardless of their characteristics, the premise is that individuals can learn and develop

skills, contributing to effective behavior that were relevant for Food Citizenship. For instance, among the main ones, we found curiosity and proactivity.

As demonstrated by Gómez-Benito & Lozano (2014), a food citizen must have an active interest in being informed about healthy, sufficient food and the conditions of the food chain. Still, there is a lack of transparency in food production and a growing distance between consumers and producers. Therefore, it is necessary to be curious and search for more knowledge to perform food citizenship. However, the information's availability and presentation layout form an obstacle that the consumer must overcome (Calderon-Monge et al., 2020), as it may be necessary to seek additional information from other sources. That is one of the reasons why a food citizen must be proactive.

Some of the behavioral skills are important because some initiatives require citizens to mobilize land, financial capital, and other key resources to support the development of local and organic food production in their localities (Renting et al., 2012). Therefore, being critical and organized were among the participants' suggestions in this study. It is also of relevant to mention the need to relate with other people. We also raised aspects of using technology and knowing how to cook - thinking about business models aligned with food citizenship that provide food to consumer householders, as the CSA.

With this discussion, we realized that the projective technique's findings yielded rich elements of food citizenship. After knowing the concept in question, it was possible to concatenate the information, motivations, and behavioral skills that consumers recognize. Also, the literature corroborates the categories obtained. Therefore, the suggested framework (Figure 3.3) can guide future studies and provide greater recognition and usability of the IMB model, especially in the food context.

Conclusion

This study proposed to uncover the constructs of information, motivation, behavioral skills related to food citizenship through projective analyses, using the IMB model. In this study, the model guided a qualitative assessment that identifies each construct's main categories. This strategy fulfilled the proposal of obtaining, directly from consumers, the desired information (I), motivations (M), and behavioral skills (B) to be a food citizen, comparing consumers' opinions with previous literature studies and proposing a framework with the main aspects among the dimensions of the IMB model.

By analyzing the survey results with 207 consumers, it was possible to reveal the most relevant information about food production chain functioning, the different production and food preparation forms, and sustainability. Information on labels and packaging, concepts, laws, and regulations are crucial for changing behavior.

As motivations, food citizens care about health and well-being, sustainability, and ensuring that society benefits from food citizens' actions. It was possible to perceive that there were individual concerns and collective ones. The leading behavioral skills are curiosity and proactivity to seek information, look for alternative ways of producing food, and fight for the common good.

The present work brings insights for future studies. First, this study is exploratory despite the adequate sample of consumers for the technique used. Therefore, it is a primary effort to raise the IMB model's constructs related to food citizenship, supporting other approaches. It can guide, for instance, discussions for the formulation of public policies related to food. Also, it can enlighten more in-depth interviews (e.g., in specific categories) and quantitative surveys.

More specifically, the proposed framework can guide future research to perform in-depth, quantitative surveys or even design possible interventions to promote food citizenship

among regular consumers. It would be helpful, e.g., for public organizations, private business activities, and alternative models that depend on food citizens' existence. Some examples are public participation in regulatory processes, food acquisition directly from the rural producer, and be part of community gardens.

This study's possible shortcoming (bias) is the image used as a projective stimulus. Therefore, it would also be valuable to check the influence of different photos on responses, e.g., by showing a man talking to or people with other socioeconomic and cultural characteristics. Moreover, we accessed consumers from a relevant emerging economy (Brazil), and it would be desirable to compare the findings with the reality of developed countries.

Finally, we contribute innovatively to food citizenship and consumer behavior. Methodologically, by delivering a study that used the projective technique in a complex and abstract food context. Theoretically, by bringing the IMB model closer to the food consumer research field. Furthermore, empirically, by raising valuable aspects for evaluations, interventions, and movements that bring people closer to food citizenship.

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Chapter 4

Study 3 - Uncovering the Information, Motivations, and Behavioral Skills to Participate in a Community-Supported Agriculture (CSA)

Uncovering the Information, Motivations, and Behavioral Skills to Participate in a Community-Supported Agriculture (CSA)

Abstract

A Community-Supported Agriculture (CSA) is an alternative food network (AFN) based on the direct relationship between rural producers and household consumers. Members of a CSA are food citizens, engaging in more conscious and sustainable food provisions. How to engage more members into a CSA? This study aims to explore the Information (I), Motivations (M), and Behavioral skills (B) that characterize the participation in a Community-Supported Agriculture (CSA). To this end, we conducted 17 interviews with producers and consumers of CSAs in Brasilia (Federal District), Brazil. The results were analyzed using the Iramuteq software, generating the Descending Hierarchical Classification (DHC) – one for each IMB construct – along with content analysis. The DHC identified the relevant classes to favor the participation in a CSA, being: four classes of Information (e.g., knowing the process and learning by experiencing the practice), six of Motivation (e.g., wanting to invest in the quality of life and perceiving advantages as superior to the barriers), and five of behavioral skills (e.g., assessments about relationships and communication). The IMB model proved feasible to address this phenomenon and yielded a framework that summarizes the main classes obtained, serving as a basis for future approaches. Hence, the present study contributes to the alternative food network and food citizenship literature and brings the IMB model to this phenomenon in an innovative way. The proposed theoretical framework can support future research and interventions related to the CSA movement. Complementary qualitative and quantitative studies are suggested as part of the research agenda.

Keywords: food citizenship; consumer behavior; Community Supported Agriculture (CSA); alternative food network (AFN)

Introduction

Some food-related movements rely on conscious consumers to succeed (Carolan, 2017; Schnell, 2010). The Slow Food and The Community-Supported Agriculture (CSA) are well-known movements of alternative food networks (AFN) that shift the current food system towards a "more economically and socially just, locally-based, and environmentally sustainable" one (Schnell, 2010, p. 551). Due to its characteristics, an AFN depends on closer relationships between producers and consumers and contributes to the emergence of food citizenship (Stevenson, 1998).

Food citizens can be understood as household consumers who make decisions consciously (e.g., thinking ethically) and defend the common good (de Tavernier, 2010). They act by participating in collective actions and the public sphere (Lozano-Cabedo & Gómez-Benito, 2017), as in alternative food networks (Cox et al., 2008; Ding et al., 2018). The present study assumes that enhancing food citizenship can strengthen food-related movements in this context.

CSA is a food initiative that may face challenges related to maintaining consumers engaged in the movement in the long term (Kato, 2013). In a CSA, growers distribute their products with consumers who pay a monthly monetary contribution (Kato, 2013; Schnell, 2010). Consumers are the co-producers (or co-growers) in this system, as they play a more active role, not with production itself, but with rural planning and management. In practice, consumers sustain rural production and are subject to possible risks, e.g., crop reduction (Kato, 2013; Schnell, 2010).

We find some research patterns and agenda opportunities in the CSA literature. In general, the study discusses this system's functioning (as an organization) and leaves room to understand specific consumer behavior factors, which is in line with other authors (Rossi et al., 2017; Samoggia et al., 2019). Lehner (2013), e.g., suggests that understanding consumers'

motivations and enabling contexts would help develop possible solutions to the existing food system's challenges. Moreover, Rossi et al. (2017) assessed that some financial incentives could attract consumers to participate in a CSA. However, what specific factors drive the individual's engagement in this movement?

With that in mind, Lehner (2013, p. 51) suggests that it is important to gain more understanding of why individual consumers participate in food collective efforts. In this sense, the author points out two questions that literature still does not have enough inputs to answer: "what makes an individual participate in sustainable food niches such as FC?" and "how can citizen-consumership be preserved over time?". Citizen-consumership is a term that Lehner (2013) suggests englobing the individual as citizen and consumer at the same time.

One potential strategy to answer those questions is using a behavioral change theory. Among those theories, the Information-Motivation-Behavioral Skill (IMB) model, proposed by Fisher and Fisher (1992), could serve as an outline to explore what is needed for a specific behavior to occur (J. D. Fisher & Fisher, 1992). The IMB model has its origin in the health literature and suggests that information, motivations, and behavioral skills are key factors to promote a behavior transformation (Jeffrey D. Fisher et al., 1994, 2006). It has already been applied for other types of responsible behavior (Osborn et al., 2010; Seacat & Northrup, 2010), but not for food citizenship.

The question guiding this study is "what information, motivations, and behavioral skills are necessary for an individual to take part in a Community-Supported Agriculture?" Thus, the research question contributes to understanding how food citizenship occurs from the consumer's point of view.

In this context, the present study aims to uncover the needed Information (I), Motivations (M), and Behavioral Skills (B) for a consumer to be part of a Community-Supported Agriculture (CSA). Firstly, this goal is pursued by interviews with growers and

consumers (co-producers) of different CSAs, aiming to obtain the I, M, and B necessary for a consumer to be part of this movement. Then, the proposition consists of a framework based on the IMB model, containing each explored factor's elements.

Theoretical Foundation

Community-Supported Agriculture and Food Citizenship

Community-Supported Agriculture is a global movement for access to healthy food, directly between consumers and rural growers (Samoggia et al., 2019; Volz et al., 2016). A similar system started in Japan in the 1960s, named *teikei*, and spread to Europe and the United States. As CSA, the movement was consolidated in England in the 1990s and has gained strength worldwide (Volz et al., 2016).

Reports show that 6,500 CSA were operating in the United States in 2012 (Woods et al., 2017) and 2,776 in 2015 in Europe (Volz et al., 2016). These data illustrate the movement's size, which, in developing countries, has grown primarily in more recent years. In Brazil, for instance, the CSA arrived in 2011, and the reach of 100 communities occurred in 2018 (Meireles, 2018). In Brazil as a developing country, one "city" that became a reference is Brasilia, the Capital, where the two first CSA started activities in 2015. In 2020, there were already 35 established groups (CSA-Brasilia, 2020), concentrating one-third of the CSAs of Brazil. However, Brasilia represents just 1,5% of the country´s population (IBGE, 2021), showing the relevance of the movement in the region.

In some countries, there are similar systems, which use other terms. One example is an Italian movement based on a more sustainable economy, named the Solidarity Purchasing Group (*Gruppi di Acquisto Solidale*, GAS). They consist of groups of householders that cooperate to buy from a local producer (Fonte, 2013).

These systems are alternative food networks (AFN), which promote food access different from the current commercial pattern (Cox et al., 2008; Lopes et al., 2020). The structure of accessing food, in turn, can vary. A CSA proposes that the members control the production of family origin and, typically, of organic fruits and vegetables (Carolan, 2017; Volz et al., 2016). In this system, consumers assume the role of co-producers, in which they dedicate themselves to the operation of the network and finance provision (Schnell, 2010; Volz et al., 2016).

Each group of consumers that unites around one or more rural producer families is one CSA. For its functioning, usually, there is a commitment to remain in the group for a period (e.g., six months or a year) upon payment (e.g., monthly). The harvest (e.g., a weekly basket of fresh food) is provided to the co-producers on an agreed date at a meeting place (Peterson et al., 2015; Volz et al., 2016).

For the grower, CSA is a means of guaranteeing income - without depending on an intermediary and without being subject to market price fluctuations (Volz et al., 2016). Furthermore, for the consumer, it is a way of accessing safe, healthy, sustainable, and well-known foods, also with fair prices (Schnell, 2010; Volz et al., 2016).

Nevertheless, CSA goes far beyond that. Although its members are self-organizing around food, there are also principles based on relationships, collaboration, respect for nature, and transparency (Samoggia et al., 2019; Volz et al., 2016). Those principles are directly related to the food citizenship concept. As mentioned in the introduction, a food citizen is a person who has an active role in perceiving quality food and considers sustainable food system production as an essential feature when buying from them (Gómez-Benito & Lozano, 2014).

In this sense, O'Kane (2016) showed that the CSA members were aware of the implications of their food choices, valuing the seasonal, local, and ethically produced food. However, there was room for improving the relationship between growers and co-producers in

the locus she studied (i.e., Australia) because the CSA members had no contact with the farm activities (O'Kane, 2016). Thus, in the author's analysis, only some food citizenship's aspects were exercised. For food citizenship to be more fully exercised, consumer involvement with production (visits, planning) would be important.

Therefore, the CSA is an excellent action for food citizenship, and promoting this movement is a way to change the reality of the food system on a regional basis. As mentioned by Lehner (2013, p. 50), "their (food citizens) existence and growth in numbers are described as a reaction to an unsustainable agricultural system and the decreasing influence of elected politicians," and it shows that alternative food systems could change the actual food production structure. As citizens, the consumers could develop a new social agency and political action field using their purchasing power (Gómez-Benito & Lozano, 2014).

Lehner (2013) mentions that engaged and committed consumers must be part of alternative food systems. Studying this food consumption pattern is also relevant to the government because empowering food citizen behavior is a way to improve quality of life and reduce public health issues, such as obesity (de Tavernier, 2010). Beyond that, active food citizens can generate sustainable, fair, and healthy food models and systems that attend to people's needs (Gómez-Benito & Lozano, 2014).

In this sense, the present study focuses on CSA but contributes to the food citizenship and alternative food networks literature more broadly: the lessons learned from CSA can serve as a reference for other models and initiatives.

The Information-Motivation-Behavioral Skills (IMB) Model

Fisher and Fisher (1992) proposed the Information-Motivation-Behavioral Skill (IMB) model, a helpful behavior change theory for analyzing essential factors that can determine behaviors. Essentially, the model involves information (knowledge about the theme),

motivations (personal attitudes towards a defined action), and behavioral skills (tasks one needs to know how to conduct). Fisher and Fisher (1992) focus on factors that people can change upon interventions and not all aspects that may influence behavior – some of which are inherent in the person and cannot be easily changed (e.g., values, socioeconomic variables).

According to this behavior change theory, in its original health context, AIDS-risk reduction depends on people's information about AIDS transmission and prevention, motivation to reduce AIDS risk, and behavioral skills to take specific acts involved in risk reduction (J. D. Fisher & Fisher, 1992). After demonstrating success in health interventions, other behavioral contexts also applied the IMB model. The literature shows its usage to study behaviors related to curbside recycling (Seacat & Northrup, 2010), mobile privacy security (Crossler & Bélanger, 2017), credit cards (Limbu, 2017), and diet and exercise (Osborn et al., 2010), for instance.

In general, the IMB model has proven to be suitable for understanding behaviors, designing, and testing interventions as improving individuals' information, motivation, and behavioral skills might promote behavior change (Misovich et al., 1997). This study suggests a qualitative assessment using the IMB model among individuals' participation in a CSA, expecting that the versatility and suitability of the model will confirm.

Therefore, the present study brings this theory to the context of participating in a CSA. Its purpose is to guide future studies and interventions by exploring which Information, Motivations, and Behavioral skills promote this example of food citizenship behavior. Therefore, it uncovers each of the IMB constructs regarding the CSA setting. Next, we present the methodological procedures.

Method

Research Design Overview

This study is qualitative and exploratory. It intends to gain insights into individuals' participation in the Community-Supported Agriculture (CSA) movement. The supported theory to target exploration is the Information-Motivation-Behavioral Skills (IMB) model. We accessed which behaviors consumers need to perform to participate in a CSA, considering each one of the three IMB factors.

The strategy involved collecting semi-structured primary data among current CSA members, directed to each model's factors, and analyzed separately (Information, Motivation, and Behavioral Skills). We analyzed the collected data with the support of the qualitative data analysis software Iramuteq (Camargo & Justo, 2013; Chaves et al., 2017) and content analysis (Bardin, 2016). The following topics elucidate the procedures adopted.

Participants

Qualitative studies often include a researcher's involvement with the object (Bardin, 2016). In this case, the primary researcher had experienced the phenomenon of interest via engagement in a CSA. A possible bias was mitigated by the participation of other interviewers (assistant researchers) in this process. The approach was to understand with other members of different communities the process of being part of a CSA in a broad and self-declared way. Thus, the researcher's position was as a non-participant.

Participants were 17 members from six different Community-Supported Agriculture (CSA) in Brasília (Federal District), Brazil. Eight members were growers, and nine members were co-producers (consumers). Nine were female regarding their socioeconomic status (SES),

and ages varied from 23 to 69. The levels of education and income varied among growers versus co-producers. Table 4.1 presents the participants' profiles.

Table 4.1

Participants' socioeconomic status (SES)

ID	Role	Age	Gender	Level of education	Family income range	Number of people in the residence
A	Co-producer	37	Male	Post-graduation	More than R$ 9,980	4 or more
B	Co-producer	63	Male	Post-graduation	More than R$ 9,980	1
C	Co-producer	54	Female	Post-graduation	R$ 2,994 - R$ 5,988	3
D	Co-producer	41	Female	Post-graduation	More than R$ 9,980	3
E	Co-producer	39	Male	Post-graduation	More than R$ 9,980	2
F	Co-producer	58	Male	High school	More than R$ 9,980	2
G	Co-producer	23	Female	High school	More than R$ 9,980	4 or more
H	Co-producer	39	Female	Post-graduation	More than R$ 9,980	3
I	Co-producer	36	Female	Post-graduation	R$ 5,988 - R$ 9,980	1
J	Grower	50	Female	Post-graduation	More than R$ 9,980	2
K	Grower	40	Male	High school	R$ 1,996 - R$ 2,994	2
L	Grower	50	Male	Lower secondary	R$ 2,994 - R$ 5,988	4 or more
M	Grower	69	Female	Higher education	R$ 2,994 - R$ 5,988	3
N	Grower	48	Male	Lower secondary	Less than R$ 1,996	4 or more
O	Grower	61	Female	Preprimary	R$ 1,996 - R$ 2,994	3
P	Grower	60	Female	High school	R$ 5,988 - R$ 9,980	2
Q	Grower	33	Male	Higher education	R$ 5,988 - R$ 9,980	4 or more

Note. By the time of the data collection, the Brazilian minimum wage was R$ 998 (US$ 187.61 on average 2021).

Either in-person or by telephone, the researchers briefly presented the study to potential respondents, inviting them to participate in the face-to-face interview at a time and place of their choice. Participation was voluntary, as detailed in an informed consent form, which was eventually signed by all participants. Also, each of them also authorized the audio recording of the interview.

Therefore, we scheduled each interview and met participants in a location designated by them. Most interviews were held at the CSA meeting point when the member delivers or collects their food basket. The invitations and interviews continued until we reached theoretical saturation (Bardin, 2016), with 17 responses, and that was identified at a time when additional interviews no longer added new information.

Instrument and Procedures

Data collection was performed via semi-structured interviews between November 2019 and Mach 2020 (Appendix 4.A). There was a full engagement of the participants, which concentrated on the interview during its occurrence. The interviews lasted an average of 28 minutes, totaling 7 hours and 56 minutes of recording.

The protocol was originated by combining CSA's aspects with the factors of the IMB model. The protocols were different for growers and co-producers, but both focused on understanding consumers' participation in a CSA.

The instrument was divided into three parts. Thus, interviewees were asked about 1) information, 2) motivations, and 3) behavioral skills people need to be part of a CSA. In general, questions aimed to explore each dimension's important aspects and get suggestions from the participants. Those suggestions were on how each topic could attract more co-producers to CSA.

We pursued an understanding of how a consumer can be informed to become part of a CSA for the information dimension. Therefore, we asked how he/she heard about the existence of the CSA movement and how information regarding CSA should be presented to society to promote it. For motivation, we asked what motivated him/her to join and continue in CSA and how new consumers can be motivated to join the community. Regarding behavioral skills, we briefly explained that skills were the ability to do something with the following example: teachers need skills on didactics and oratory. Then, we asked what skills are important for a person to be part of a CSA, which skills could be learned, and how that could happen.

Data Analysis

The interviews were fully transcribed. According to the interview questions, three text corpora were built based on the IMB model's dimensions: one corpus for information, the second for motivation, and the last for behavioral skills. Each corpus is the textual data, codified, organized, and submitted to a qualitative data analysis software (Camargo & Justo, 2013; Chaves et al., 2017).

This study used the software Iramuteq (*Interface de R pour les Analyses Multidimensionnelles de Textes et de Questionnaires*), version 3.6.2. Iramuteq is software connected to the statistical R software, and the former offers qualitative data analysis. It presents paths to be interpreted by the researcher, as the Descending Hierarchical Classification (DHC) and the Similitude Analysis outputs (Souza et al., 2018).

Each corpus was edited in Libre Office, and the texts were standardized as UTF-8 (8-bit Unicode Transformation Format). The editing went through the following procedures: withdrawal of punctuation marks; formatting of plain text, without changing the line; capitalization only for proper names; a union of compound words using the underline; standardization of spellings in the appropriate terms and acronyms; grammatical review of the Portuguese language; removal of unnecessary linguistic expressions (Camargo & Justo, 2013; Souza et al., 2018).

Within each corpus, command lines separated the texts of each interviewee. This line informs the interviewee's identification number and socioeconomic status (SES) variables. As part of preparing the corpus to run the program, four asterisks introduced the texts (****) followed by variables, with an asterisk (*) and separated by a space (Camargo & Justo, 2013; Souza et al., 2018).

The analysis conducted on Iramuteq was Descending Hierarchical Classification (DHC). DHC consists of grouping words into classes according to the similarity of themes and

vocabulary differences (Camargo & Justo, 2013). Itamuteq organized the responses into classes according to textual similarity (Camargo & Justo, 2013). The software also generates a text mosaic with the phrases that originated the classes, called the colored corpus. This resource also enabled illustrating the content analysis considering each participants' terms and phrases.

The Iramuteq's outputs supported the content analysis, allowing qualitative data interpretation within the information, motivations, and behavioral skills classes. Those classes can be considered the thematic classification of results (Bardin, 2016; Camargo & Justo, 2013).

As a survey carried out in Brazil, the Iramuteq analyses were all conducted in Portuguese. However, we translated the main results into English in the present study.

Results

For each construct (Information, Motivation, and Behavioral Skill), we sought to explore the main categories needed to be part of a CSA based on interviews with members and with the support of Iramuteq. Iramuteq generated classes for each of the three analyzed corpora by performing the Descending Hierarchical Classification (DHC). The Information resulted in four classes, The Motivation yielded six, and The Behavioral Skills generated five categories.

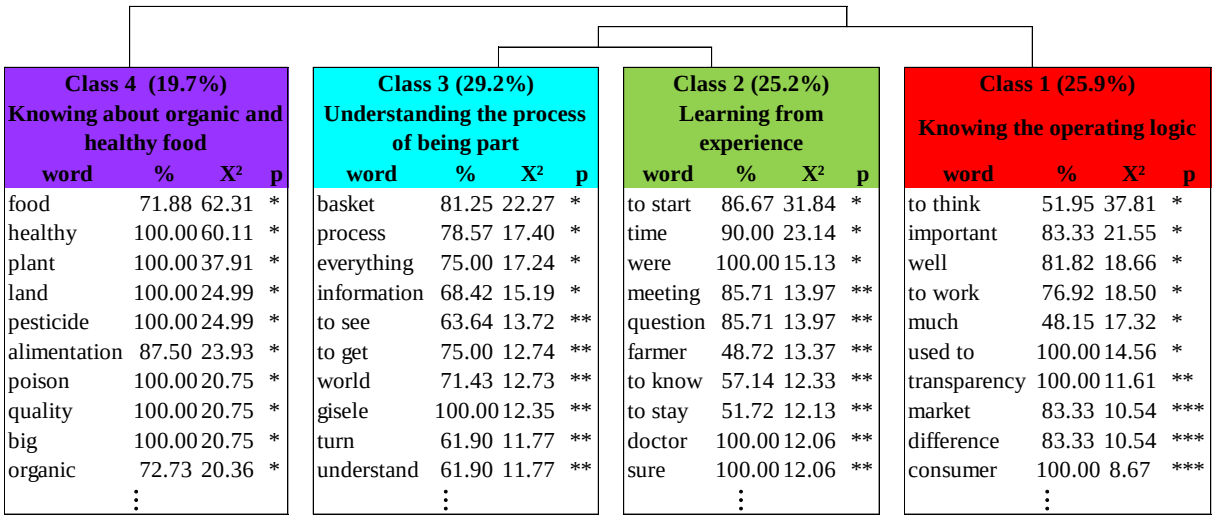
This session presents each construct's results based on the respective DHC and content analysis. Regarding the DHC, the figures' percentage refers to how many of that word was retained by the class. The chi-square and the p-value demonstrate that the allocation provided by Itamuteq was significant. The dendrogram above each class indicates the proximity between the categories obtained. From each category, it is possible to evaluate the meanings (content analysis), which follows.

Information

The classes related to the needed information to be part of a CSA were named "Knowing the operating logic (1)," "Learning from experience (2)," "Understanding the process of being part (3)," and "Knowing about organic and healthy food (4)." Figure 4.1 illustrates some of the terms mentioned by the interviewees (significantly attributed to each class).

Figure 4.1

Descending hierarchical classification of information



Class 4 (19.7%) Knowing about organic and healthy food			
word	%	X²	p
food	71.88	62.31	*
healthy	100.00	60.11	*
plant	100.00	37.91	*
land	100.00	24.99	*
pesticide	100.00	24.99	*
alimentation	87.50	23.93	*
poison	100.00	20.75	*
quality	100.00	20.75	*
big	100.00	20.75	*
organic	72.73	20.36	*
⋮			

Class 3 (29.2%) Understanding the process of being part			
word	%	X²	p
basket	81.25	22.27	*
process	78.57	17.40	*
everything	75.00	17.24	*
information	68.42	15.19	*
to see	63.64	13.72	**
to get	75.00	12.74	**
world	71.43	12.73	**
gisele	100.00	12.35	**
turn	61.90	11.77	**
understand	61.90	11.77	**
⋮			

Class 2 (25.2%) Learning from experience			
word	%	X²	p
to start	86.67	31.84	*
time	90.00	23.14	*
were	100.00	15.13	*
meeting	85.71	13.97	**
question	85.71	13.97	**
farmer	48.72	13.37	**
to know	57.14	12.33	**
to stay	51.72	12.13	**
doctor	100.00	12.06	**
sure	100.00	12.06	**
⋮			

Class 1 (25.9%) Knowing the operating logic			
word	%	X²	p
to think	51.95	37.81	*
important	83.33	21.55	*
well	81.82	18.66	*
to work	76.92	18.50	*
much	48.15	17.32	*
used to	100.00	14.56	*
transparency	100.00	11.61	**
market	83.33	10.54	***
difference	83.33	10.54	***
consumer	100.00	8.67	***
⋮			

Note. *p≤ .0001, **.0001<p≤ .001, ***.001<p≤ .01

Class 1: knowing the operating logic (red box)

A CSA operation is different from a conventional food system. Informing potential and current members about the operating dynamics was a critical aspect raised. Most participants (15) provide elements in that regard.

As reinforced by respondent D, the consumer who engages in a CSA takes a co-producer role. This part carries with it new opportunities and responsibilities. Participant E reported that the logic is simple, but informing about it deserves special attention because its

functioning is very different from what people are used to. Interviewee Q mentioned that "(in the market) we are very used to choosing what we are going to eat," but, in a CSA, "you do not have 'the right' to choose food," meaning the harvest is seasonally dependent. CSA members cannot choose their food the same way they do in conventional supermarkets, and it may cause doubts and apprehension if not well informed.

Class 2: learning from experience (green box)

The second category of information that resulted from the analysis concerns members having an experience with the process. Interviewee M, e.g., said that people "arrive without knowing how it works, and they learn by acquaintanceship." So, in general, according to participants who contributed to this class, reporting on how a CSA works (Class 1) is not enough - it is the day-to-day experience of being part that will educate the member about the process

Participant C illustrates this aspect by saying that a group she was part of went to visit CSA production and that "everyone who was there practically fell in love with the properties, with the people, with the producers." This process was essential for this member to learn about the CSA and decide to join. Respondent H also mentioned how visiting the property was necessary for her involvement when she said that "this thing about going to the farm, getting to know them, we like this part a lot. It was when they presented these things that we fell in love". In this sense, this class suggests that gathering and promoting experiences, especially in the rural proprieties, may inform people and bring them to a CSA.

Class 3: understand the process of being part (blue box)

This class brings together contributions that specify that information about the dynamics of participating in a CSA (i.e., the tasks involved) is needed. The process is not so

ordinary and requires a family agreement. Participant G, who mentioned in the interview that she is a student who lives with her parents, said she needed to inform her family about what it would be like to be part of a CSA. Therefore, after she understood the CSA and decided that it would be suitable for her family, it was essential to "understand what the dynamics would be like, who would be responsible for getting the basket." Also, the decision of joining a CSA demanded a conviction of the "(other) people who were going to cook."

Since "the weight of the tasks" is difficult to be perceived before being part of the process, interviewee I commented that she sometimes donates her basket to an acquaintance interested in understanding the CSA. She comprehends that "this is very interesting, about the person proposing to go there to get a basket and see if that makes sense, to understand the movement." After all, picking up the basket every week is a task that requires some effort from the member.

Reflecting on the tasks that members have, a producer, respondent Q, said that "the ideal would be that everyone would harvest there in the field" with him, but that "(bringing food) here in the park, on the run, is the way it can be done." He recognizes that "one cannot demand too much, because everyone is a little lost, wanting to find themselves in their things," referring to the fact that people are already overwhelmed by their everyday activities.

Thus, this class shows that it is vital that members understand how a CSA works, its dynamics, and the commitment to take the basket (and cook it).

Class 4: learning about organic and healthy food (purple box)

The fourth class raises aspects of the food itself: attracting people to a CSA depends on informing them about organic products and how a CSA can contribute to a healthier diet.

Participant D, for example, reports that the basket's cost may not be so cheap, but it has good cost-benefit because "the person will get rid of a series of other expenses, such as with

medicine.” For being an organic food, respondent F also recalls that “above all, nature wins, as it is not destroyed.” In agreement, for one of the producers (respondent O) who took part in the study, “people have to be aware that CSA allows receiving food without pesticides,” “natural and agroecological food,” “taking care of health” and also “the well-being of the Earth, mother nature.”

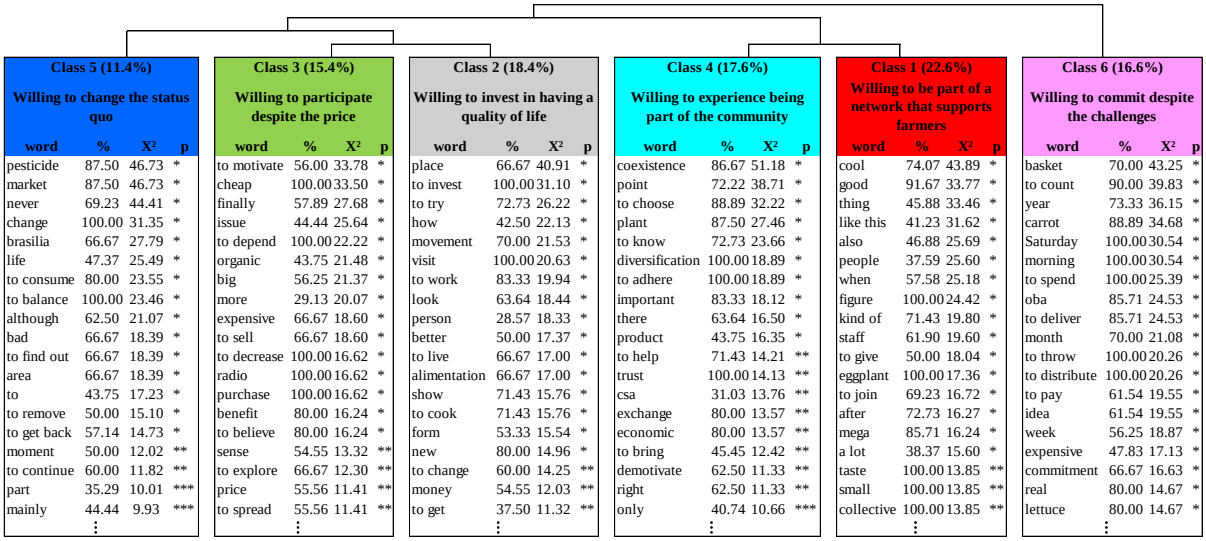
Nevertheless, according to participant G, informing about those benefits can be a challenge, as the products that compose a CSA basket vary and, in general, “people only eat lettuce and tomatoes.” This is a very personal opinion of this individual and is only meant to illustrate that not all people see the CSA's wide variety of fruits and vegetables as a benefit as it involves cultural consumption challenges. Participant B counterbalances this challenge by saying that “to the extent that people decide to adopt a healthier and organic consumption model, they already make a big contribution.” Therefore, informing about the aspects raised by this class can help to attract members to a CSA.

Motivation

The classes related to the needed motivation to be part of a CSA were named “Willing to be part of a network that supports farmers (1),” “Willing to invest in having a quality of life (2),” “Willing to experience being part of the community (4),” and “Willing to change the status quo (5).” The other two can also be perceived as barriers, being “Willing to participate despite the price (3)” and “Willing to commit despite the challenges (6).” Figure 4.2 shows examples of terms brought by the interviewees, which illustrates each class.

Figure 4.2

Descending hierarchical classification of motivation



Class 5 (11.4%) — Willing to change the status quo

word	%	X²	p
pesticide	87.50	46.73	*
market	87.50	46.73	*
never	69.23	44.41	*
change	100.00	31.35	*
brasilia	66.67	27.79	*
life	47.37	25.49	*
to consume	80.00	23.55	*
to balance	100.00	23.46	*
although	62.50	21.07	*
bad	66.67	18.39	*
to find out	66.67	18.39	*
area	66.67	18.39	*
to	43.75	17.23	*
to remove	50.00	15.10	*
to get back	57.14	14.73	*
moment	50.00	12.02	**
to continue	60.00	11.82	**
part	35.29	10.01	***
mainly	44.44	9.93	***

Class 3 (15.4%) — Willing to participate despite the price

word	%	X²	p
to motivate	56.00	33.78	*
cheap	100.00	33.50	*
finally	57.89	27.68	*
issue	44.44	25.64	*
to depend	100.00	22.22	*
organic	43.75	21.48	*
big	56.25	21.37	*
more	29.13	20.07	*
expensive	66.67	18.60	*
to sell	66.67	18.60	*
to decrease	100.00	16.62	*
radio	100.00	16.62	*
purchase	100.00	16.62	*
benefit	80.00	16.24	*
to believe	80.00	16.24	*
sense	54.55	13.32	**
to explore	66.67	12.30	**
price	55.56	11.41	**
to spread	55.56	11.41	**

Class 2 (18.4%) — Willing to invest in having a quality of life

word	%	X²	p
place	66.67	40.91	*
to invest	100.00	31.10	*
to try	72.73	26.22	*
how	42.50	22.13	*
movement	70.00	21.53	*
visit	100.00	20.63	*
to work	83.33	19.94	*
look	63.64	18.44	*
person	28.57	18.33	*
better	50.00	17.37	*
to live	66.67	17.00	*
alimentation	66.67	17.00	*
show	71.43	15.76	*
to cook	71.43	15.76	*
form	53.33	15.54	*
new	80.00	14.96	*
to change	60.00	14.25	**
money	54.55	12.03	**
to get	37.50	11.32	**

Class 4 (17.6%) — Willing to experience being part of the community

word	%	X²	p
coexistence	86.67	51.18	*
point	72.22	38.71	*
to choose	88.89	32.22	*
plant	87.50	27.46	*
to know	72.73	23.66	*
diversification	100.00	18.89	*
to adhere	100.00	18.89	*
important	83.33	18.12	*
there	63.64	16.50	*
product	43.75	16.35	*
to help	71.43	14.21	**
trust	100.00	14.13	**
csa	31.03	13.76	**
exchange	80.00	13.57	**
economic	80.00	13.57	**
to bring	45.45	12.42	**
demotivate	62.50	11.33	**
right	62.50	11.33	**
only	40.74	10.66	***

Class 1 (22.6%) — Willing to be part of a network that supports farmers

word	%	X²	p
cool	74.07	43.89	*
good	91.67	33.77	*
thing	45.88	33.46	*
like this	41.23	31.62	*
also	46.88	25.69	*
people	37.59	25.60	*
when	57.58	25.18	*
figure	100.00	24.42	*
kind of	71.43	19.80	*
staff	61.90	19.60	*
to give	50.00	18.04	*
eggplant	100.00	17.36	*
to join	69.23	16.72	*
after	72.73	16.27	*
mega	85.71	16.24	*
a lot	38.37	15.60	*
taste	100.00	13.85	**
small	100.00	13.85	**
collective	100.00	13.85	**

Class 6 (16.6%) — Willing to commit despite the challenges

word	%	X²	p
basket	70.00	43.25	*
to count	90.00	39.83	*
year	73.33	36.15	*
carrot	88.89	34.68	*
Saturday	100.00	30.54	*
morning	100.00	30.54	*
to spend	100.00	25.39	*
oba	85.71	24.53	*
to deliver	85.71	24.53	*
month	70.00	21.08	*
to throw	100.00	20.26	*
to distribute	100.00	20.26	*
to pay	61.54	19.55	*
idea	61.54	19.55	*
week	56.25	18.87	*
expensive	47.83	17.13	*
commitment	66.67	16.63	*
real	80.00	14.67	*
lettuce	80.00	14.67	*

Note. *p≤ .0001, **.0001<p≤ .001, ***.001<p≤ .01

Class 1: willing to be part of a network that supports farmers (red box)

The mentions related to this class elucidate that the union between people to make a mechanism like CSA work is, in itself, a great motivator. Being part of a supportive network, with a producer as a central element, motivates members to join the community.

For participant F, the CSA he is part of "is a space for socializing, where we can be there with the neighbor, with the person who lives in the same city, fighting for good things for the city in a collective perspective." For him, the motivation is that "you will feel it when you are participating" that you are helping a more significant process. participation generates meaning for those who are part of the respective CSA!

Respondent J was quickly motivated to participate in a CSA, as she says: "When I saw their proposal, I saw that I had an affinity, you know, I identified with their proposal," meaning belongingness through identity formation. She decided to "participate in a movement like this" to "support agroecology and environmental preservation," being both a purpose and a meaning for her. Producers also see the return of co-producers with their work. For respondent L, "when

we unite, we become much stronger," and, for participant O, "it is very gratifying for us to come here and see the happiness of the members and the affection they have with us."

Some interviewees clarified that, in the beginning, the motivation was different - after the experience of coexisting, that changed. For respondent H, the supermarket products do not have the same quality, so the product itself was a great motive to join a CSA. However, she now recognizes a "respect for the staff," referring to the rural producers. For participant I, the initial "intention was, really, health" and that, afterward, she began to perceive herself more focused "on the sense of community" of "being able to help family farming." A producer, in turn, participant M, recognized that the motivation, in the beginning, was "the stability of remuneration for sure" and that, later, "things were evolving," as she discovered "great people, and that makes a big difference at CSA, you can live with people without censorship."

Thus, this class shows that one motivation is to unite with other people in favor of the movement. This motivation is not always the initial one (which brings people to a CSA), but it gains strength over time and becomes essential for staying in the process.

Class 2: willing to invest in having a quality of life (gray box)

This class proposes that one of the motivations is the quality of life for both producers and co-producers. Moreover, the participation in a CSA may demand the co-producer to perceive this process as an investment.

These elements are evident in the statements with interviewees. For example, Participant B mentions that his motivation was "the search for a better quality of life, the search for preventive health." Initially, participating in a CSA may seem to involve a high expense. However, when doing family accounts, it is possible that one "realizes that he or she has plenty of money to be able to invest in this better quality of life, with healthier products." Perhaps,

“the money one is going to invest in the food will be saved later on, as in medication, other things,” according to respondent D.

Regarding the quality of life, the positive impacts and life change also motivate. By engaging in a CSA, “you can better understand how the farmers are living,” as said by participant G. Indeed, interviewee H reports that producers share some of their accomplishments: “look, this is what we are investing in.” For this reason, one of the participants (I) mentions the motivation to “understand how the economy turns when we invest in the community producers.”

It should be noted that the CSA model is not for everyone. Interviewee J understands that “there are people who do not fit, just as there are people who do fit.” This differentiated profile also stood out for respondent M within this class. For her, the people who are part of the CSA “are better than in other environments, from the point of view of the character, information, joy, determination, willingness to live well, happy, without suffering, without crisis, neurosis”.

These perceptions guide ways to understand and motivate people to be part of a CSA. Furthermore, as producer Q recalls, “everyone has to eat.” So, if people “buy food in an environmentally better and economically fairer way, everything will be better.” By “everything”, he means, also, the quality of life of those producers and consumers involved in a CSA.

Class 3: willing to participate despite the price (green box)

The previous class has already pointed out that the financial issue must be counterbalanced to the perceived gain in quality of life. The current category reinforces that participating in a CSA might not be accessible and can even be a motivational barrier.

Participant E points out that the lower social classes may find it challenging to adhere to the financial commitment of a CSA: this occurs “as much as we say it will be cheaper for ‘you’ to have organic if ‘you’ join a CSA.” As a result, the potential members include people who already buy organics and can afford the CSA baskets. Participant D is one example of individual that has financial motivation and was “motivated by (...) buying organic cheaper than at the supermarket”. It is possible to notice, then, that some members consider the CSA basket more expensive, while others consider it cheaper than in other food channels, as fresh organic foods in supermarkets are sometimes perceived as expensive. Also, the volume of products that comes in a CSA basket aims to present good value for money - as a proposal of the movement. Respondent F also mentions that the question involves “not having knowledge, not having a conscience and sometimes not having the resource.” However, for him, “it proves to be cheaper” to finance a CSA than to buy the same food elsewhere. Participant D said, “the main taboo that has to be broken is that organic is expensive.”

For respondent I, “most people are still unaware that organic makes a difference; that it is expensive, but in the long run, their health is gaining.” For her, “sometimes educated people do not understand this dimension that you pay a little more to be healthy further ahead.”

Participant E also appeared among the mentions of this class that “each one will have a different motivation.”. In this context, for producer K, a question that could help is to disclose “the production process, which is very difficult, and the people do not know it.” For him, the food may seem expensive, but only on the part of those who “think it is easy for ‘you’ to plant.” Producer O mentions that “it is priceless” to participate in a CSA. According to him, “at CSA, we say that appreciation is worth more than the price.”

Therefore, the motivation needs to be present despite the price, assuming that the organic delivered by CSA producers has adequate cost-benefit. Overcoming those understandings can make a difference in the involvement of co-producers with a CSA.

Class 4: willing to experience being part of the community (light blue box)

This class demonstrates that one of the motivating factors is to experience CSA, both in production and consumption, and to feel a sense of community. For instance, one of the aspects raised was the opportunity to experience the countryside. For participant B, “on a field day, people are invited to go there to the farm, to the garden, to not only get to know but to (...) plant, help clean, help harvest.” Respondent I corroborates, saying that what motivates is “the person to know the day-to-day of the production,” "to understand the processes, (...) how is the plantation". Participant J reiterates that she thinks "it is cool to work together, take them to the farms for them to see." At her CSA, this used to be done on holidays. For farmers, this also seems to be a relevant point. Respondent J says: "look, there is nothing better than going to the farm."

Therefore, going to the field is an engaging issue. For participant K, it is essential "this issue of having a community in which ‘you’ can go there to find the farmer and interact with him; go there and put ‘your’ hands on the ground in the joint efforts." On the community matter, participant D brings the relevance of the "sense of community, there, from the region where you live; you find people who have similar interests to help each other." Respondent J states that he was also motivated by the fact that "we exchange, we talk," "we care about community issues, (...) now we are running a green campaign (...) that is helping to plant a million trees in the cerrado (biome). "

Given the importance of experiencing being part of a community to motivate other people, participant C brings the idea that "‘you’ reach the person, ‘you’ offer this product for free: look, try it." Thus, with the experiences mentioned by this class, a more practical aspect (of participating in field activities and living with other people) is among the motivations.

Class 5: willing to change the status quo (dark blue box)

"Change" is the word for this class. The interviewees' motivation involves modifying values and how to deal with food and the food system. Deciding to become involved in a CSA is a change that can cause further subsequent changes. Respondent B reports that he heard "people giving testimony, talking about the changes in the transformations that occur in individual life, in family life." For him, "one of the first revolutions that a person can make in life is to consume less food, a more rational and more qualified consumption.". This can be recognized as a spillover effect, as one main behavior has a causal effect on a second behavior (or more).

Participant E was motivated by "running away from the logic of the market, eating things that ‘you’ do not have to think about if it does more harm or more good." In comparison to the traditional market, he mentioned another positive change: " ‘you’ remove the middleman, who is the only person who wins in the relationship of trade," in his opinion. It is also relevant to realize that changes can occur beyond food. Participant B articulates that CSA "is an open door for other perspectives of change to happen in people's lives." It is a spillover effect in which changes "aimed at other areas of life arise naturally," as B says.

Some participants have already noticed profound changes that go beyond food, such as respondent J did. She says: "I noticed the change, and it made me want to continue." This respondent was a co-producer and is now married to a CSA producer. However, in general, people may still not have mobilized themselves, even though they are aware. Producer P points out that, "nowadays, in the face of such urgent issues, concerning pesticides, I do not know why people have not yet discovered this path." Moreover, grower Q mentions that "since we were born we already knew that the petroleum would end, (...) it is a moment that we need to change values, principles and everyday things".

As a result, this class contains arguments that show that it is necessary to be motivated to change, which can go far beyond modifications in the personal food purchase process.

Class 6: willing to commit despite the challenges (pink box)

Participating in a CSA involves a monthly financial commitment in exchange for a food basket. This class shows that there are difficulties with this commitment, not (only) financially, but especially regarding picking up the basket every week at the defined place and time. It also involves preparing a type of food that is sometimes unfamiliar to individuals.

"Not having time" is at the heart of the challenges of this class, while the process of participating in a CSA has a scheduled date and time. For this reason, the expectation that the co-producers get involved in other CSA processes (such as meetings) is often low. Participant H says: "if the guy is paying his monthly fee and coming to get it, it is enough for us," demonstrating an example of a producer who is already resigned to the low need to belong that some consumers have.

When talking about commitment, one factor that discourages people, according to participant E, is having "to participate for a year." For him, the "commitment to get up on Saturday morning (...) and be there to get the basket" is serious for some individuals. Participant D reports that "here in the case it is Saturday from 9 am to 11 am, so if I cannot that day and that time, and I did not get anyone to get the basket for me, I am going to lose the basket". Likewise, she says, "when you take a vacation, you will pay, and you will not use all the baskets," and "you will pay the same."

Respondent E exemplifies that it would be much more convenient to buy vegetables in a famous store in the city, which has excellent products but is considered expensive. For him, in this case, the "commitment is to work more because you will spend more money in there." Alternatively, the participant I recalls that one option would be to go to a street fair, which was

very common before. However, according to her, "on Saturdays and Sundays, ‘you’ had to wake up at six to go to the fair to be able to buy something of quality." Compared to this process, then, CSA becomes less of a challenge.

Regarding this dedication process, respondent B raises the question of "organization of time," saying that "we are prisoners of the ‘I do not have time’ story." For him, with "the hustle and bustle that daily life imposes on us," we "erase solutions from our minds, as simple ideas to increase the time we can dedicate to ourselves." In other words, there are different ways to optimize time, and it is not the CSA that would "hinder" daily life. Respondent G reports that, indeed, she "got used to it" and that she "ends up creating a routine at home." Nevertheless, she points out that "treating all those foods (...) will take more time".

Besides receiving much food in one day, this last mention is related to not controlling what comes in the basket. "Sometimes I have no idea how to prepare something, and I will have to learn how to make the recipe," respondent E reports.

Despite so many challenges, the commitment, per se, ends up being a motivation for participant F. Because he knows that he can count on that producer and vice versa. He said, "I will receive that basket every week, and the farmer knows that he will count on my contribution and that he will not waste food." In this context, producer O recognizes that this commitment is a good thing, as "you have the guarantee of that monthly salary," and producers do not "go a month without receiving."

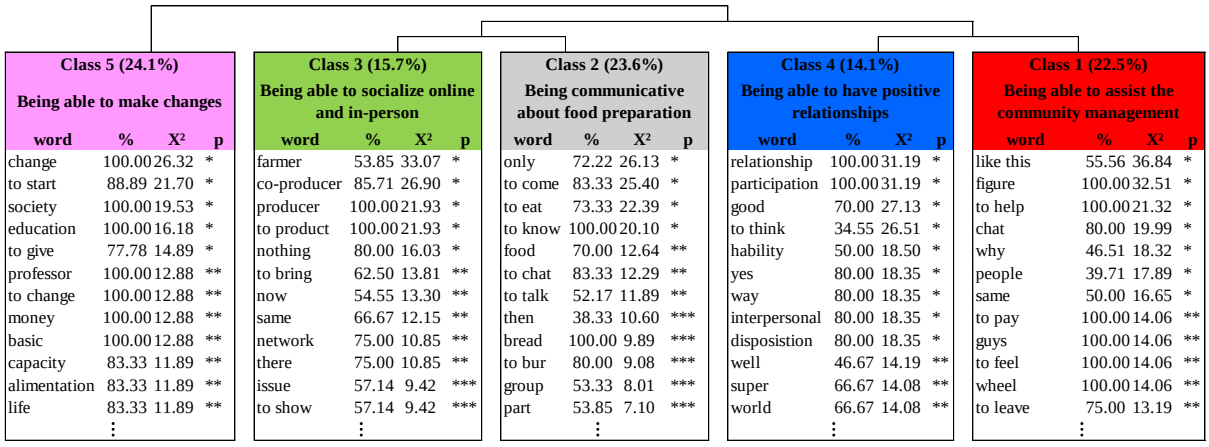
Considering all these contributions mentioned, this class becomes very relevant. Because commitment is not only a determining factor for entering a CSA, it can result in dropouts. Thus, for the CSA movement's sustainability, it would be relevant to constantly motivate people about the commitments involved, despite the challenges.

Behavioral Skills

The DHC yielded five classes for the desired behavioral skills to be a member of a CSA. They are: “Being able to assist the community management (1),” ‘Being communicative about food preparation (2),” “Being able to socialize online and in-person (3),” “Being able to have positive relationships (4),” and “Being able to make changes (5)”. Figure 4.3 shows those five classes, accompanied by examples of terms used by the participants.

Figure 4.3

Descending hierarchical classification of behavioral skills



Note. *p≤ .0001, **.0001<p≤ .001, ***.001<p≤ .01

Class 1: being able to assist the community management (red box)

The first class indicates that an important skill involves managing members, contributing to the administration, and dealing with political issues.

In this class, it was evidenced that some CSAs may have a management problem. Participant H said the members still "struggle a lot in this administrative part, first because ‘we’ count on the collective effort." The CSA he is part of has four commissions to manage the CSA and he understands that "sometimes there is a lack of a figure that centralizes this." Still, people

are not always in commissions. Producer Q reports that, even though they have 40 participating families, "there are like three people who help" and that they "need (more) people to help with commissions." Participant H reports that, in the beginning, she “thought the person had to be more engaged, (…) willing to donate time to the CSA". Indeed, a CSA proposes this involvement, but there may be a lack of stimulus in this regard. But a question is whether, after a consumer joins the CSA, there is some stimulus that makes some people want to get involved more than others, e.g., being part of a committee that takes care of management.

In parallel, some people may not participate in those administrative activities due to a lack of management expertise. Respondent I defends the importance of "understanding that it is a democracy, and we live in a community to help each other." This understanding also involves the management of the people who are there. Participant H mentions, e.g., that critical management themes to be introduced would be "conflict resolution" and "non-violent communication."

Still, respondent H mentions the lack of tolerance that can sometimes gain space in collaborative environments, e.g., political intolerance. She brought cases of people who said: "I do not want to talk about politics, I am leaving." Participant E ponders that making politics is essential, but "not ‘party’ politics," "not talking about politics because it scares people." It is about having people with management-related political skills for them to contribute.

Moreover, on working on this theme, participant H recalls that CSA "is an educational space" and that "conversation circles" can be helpful. Respondent F brings the same contribution: "conversation circle, (…) a day for you to take ‘your’ children and ‘your’ family."

Therefore, the present class mentions the importance of presenting management skills, in different aspects, for the community's functioning.

Class 2: being communicative about food preparation (grey box)

According to this second class, communication must be present in a CSA to overcome problems such as difficulty dealing with some foods. The lack of communication can appear "because people are so overloaded, (...) airtight, that they close up, they accommodate themselves", according to participant C. Respondent H says that possible exchanges do not happen between all members of a CSA. According to her, "who participates, they are always the same people."

On the practical side, communication can help to deal with food. For respondent D, "there is this thing, too, of knowing how to deal with the seasonality thing, so many times you will have to be creative, there will come a food that you never ate." For example, producer K says that "if you arrive with an unconventional food plant, the person already comes with prejudgment." So that CSA is "thinking about doing a workshop (…) on the preparation and nutritional value of food." Furthermore, participant E reports that if he does not "try hard to make the food (...), it becomes waste."

As a suggestion, first, there could be a process of "explaining to the persons which products they will receive, which food," according to producer M. After that, "go for technical knowledge." It would be an initial barrier-breaking, or a foot-in-the-door effect. According to her, "some co-producers did not know how to make cheese bread," which is a popular product in Brazil. Moreover, for this change to happen, according to participant N, we return to the first point raised by this class, that it is necessary to "open up to communicate more."

Class 3: being able to socialize online and in-person (green box)

The third class highlighted the importance of the network. In the social network (online), there were mentions related to its proper use. Concerning in-person network, lines

were about having an attitude and knowing how to conduct group socialization moments. This class is also greatly intertwined with class 4 of motivation - demonstrating how the categories complement and interact.

Participant C pointed out that sometimes it is necessary to draw attention "within WhatsApp: 'people, please do not do it, do not bring certain discussions here; it is an administrative group." Respondent J mentioned that "social network is important to divulge the CSA." Therefore, these mentions deal with knowing how to use these digital tools.

Regarding socialization, a suggestion raised by participant E was "this direct relationship" between producer and consumer. Moreover, there were also mentions about how the interaction can happen. "If there were a regularity for people to gather at the producers' house, on the farm, to make small banquets with specific themes," according to respondent E, it would be valuable to promote this skill. Similarly, some people lack "having pleasure in going to the meeting point," according to respondent F. Therefore, "coexisting is the key, now how to make people be together?" – asks producer Q. He would suggest "coffee with cake, 'June parties', with an event that involves us all" – the June parties being typical Brazilian popular events, named "Festa Junina" in Portuguese.

At last, for participant D, an essential ability is "autonomy, this thing of being hands-on, the person goes there and does (what is necessary)." Therefore, an interpretation of this class is about interacting, which depends on attitude and common sense, as it involves good socialization skills. The need for autonomy is, therefore, an aspect that appears prominently for a group of respondents.

Class 4: being able to have positive relationships (blue)

The class in question stresses that members of a CSA must have the ability to relate and interact in a community. This category brings together elements already seen indirectly in other

classes. It shows how important it is to deal with other people and have healthy and genuine relationships.

For participant C, this would be the main issue to be addressed, as he states that "the main skill is availability to live together." Respondent G claims that a fundamental skill is "willingness, I think, (for) a good interpersonal relationship." It involves "being used to sharing," according to producer M. Still, participant P need to "learn new relationship skills, be open up to the new," showing curiosity as a trait for food citizens.

The importance of this skill, for respondent K, is that "in fact, the CSA is made of the people participation," and participant E claims that "the problems that should really concern people are the problems that are collective."

According to participant G, about how to develop this skill, "it is an innate human ability, (...) that must be remembered". For respondent C, " the person has to be put in a situation of experience." Therefore, "it is (developed) in practice, and there must be a lot of communication (…), as the more we live together, the more we understand each other," according to producer Q.

Class 5: being able to make changes (pink box)

The fifth class is the first shown in Figure 4.3. It is the largest in the number of terms that DHC has retained. The main word that concerns this ability is "change." So, to be part of a CSA, people need to have the necessary skills to make these changes happen: perceive them, be open, and make them happen.

For respondent B, this involves "having already developed an analytical capacity," as it is necessary to understand the scenario around him or her to perceive the necessity to change. Furthermore, according to him, when people get involved, "people start to notice the changes," to "permanently abandon old habits of consumer society." In a way, for participant C, this is

"the ability to take responsibility for things," that is, not to expect things to change on their own. Therefore, for respondent E, "some willingness to eventually leave the comfort zone" is necessary.

Participant K brought an example of a person (a nutritionist) who is making a change via Embrapa (Brazilian Agricultural Research Corporation): "a researcher who is popularizing unconventional food plants and showing their nutritional value". Members of a CSA would also have this profile of wanting to change a reality.

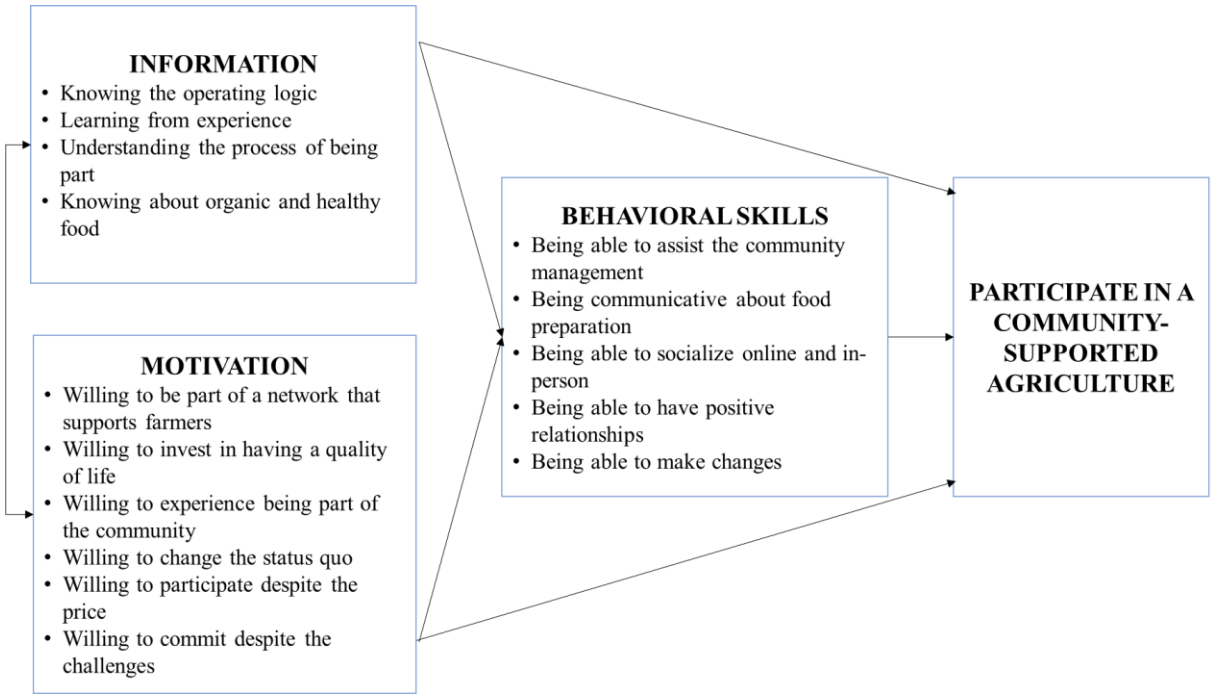
Besides, there is the most internal change. For respondent L, the member "has to be open because it will be a change in the person's life, a radical change in food." The skill would then be "this ability to be open to something new, to know how to participate in something different," according to producer Q. Thus, it is a class that brought together and explored aspects of essential changes in the context of a CSA.

Discussion

The present study gathered the information, motivations, and behavioral skills necessary for individuals to be part of a Community-Supported Agriculture (CSA). Once exploring the elements of these constructs, it was possible to propose a framework based on the Information-Motivation-Behavioral Skills (IMB) model, shown in Figure 4.4.

Figure 4.4

An Information-Motivation-Behavioral Skills (IMB) framework of participation in a Community-Supported Agriculture.



According to the IMB model, if we increase people's information, motivation, and behavioral skills on a defined subject, we can promote behavior (J. D. Fisher & Fisher, 1992). This model became popular because of its adaptability to different health-related approaches and, more recently, to non-health-related issues. We contributed by raising the pertinent classes to each model's factors for the CSA context.

Glasford (2008) was one of the authors that suggested applying the IMB model for behavioral change in non-health-related areas. As shown in Figure 4.4, the model expects Information and Motivation to influence behavior directly and mediated by Behavioral Skills, and that Information correlates to Motivation (Starace et al., 2006). The evaluation of relationships was not the target of the present study, but it can support future studies. That is, concerning a possible quantitative application, the categories raised can be used to base a measure to be developed. That instrument could access the factors, how they relate to each other, and how they increase the CSA participation.

Many studies have already tested the IMB model's relationships, and although most health-related studies based on the IMB confirm the model (Ferrer et al., 2010; W. A. Fisher et al., 2009; Smith et al., 2012; Zhang et al., 2011), there is a lot to learn about the application in other contexts (Glasford, 2008).

Osborn et al. (2010) applied the IMB model in the diet context and concluded that the model partially explained exercise behavior. In an application regarding curbside recycling behavior by Seacat and Northrup (2010), motivation did not directly affect the behavior, only when mediated by behavioral skills. In these last two studies, the authors raised the importance of having the factors well-constructed before proceeding to the intervention and analysis since not all expected relationships have been confirmed. Simultaneously, it opens the opportunity for new studies not in the health area to assess the model's relevance.

Thus, the present study proposes focusing on the IMB model's factors concerning participation in a CSA. The first one is Information. We assume that having a specific range of information may favor people's entrance into (and maintenance in) a CSA. Our results showed that it is crucial to learn about organic and healthy food, understand the process of being part of a CSA and its operating logic, and learn from experience. A study about labeling suggests that including more actionable information such as the health and societal benefits of products can increase behavioral intention (Aitken et al., 2020). The Besides that, consumers may migrate to more ethical products when they become aware of food-related scandals and learn about food security crises (Jin et al., 2020). findings of the present study and the literature reinforce how much working with information is a relevant topic for shaping behaviors.

Regarding knowing the operating logic, one aspect that drew attention is that CSA members cannot expect that the functioning is the same as within traditional markets. Therefore, they need to know how it works not to be disappointed. In general, they will have only seasonal food, which helps to increase the variety of vegetables they consume (Izumi et

al., 2018). It means that participants might also have to learn about agriculture and the production process, especially from the farmer's view (Opitz et al., 2017).

As for learning from experience, promoting meetings and occasions in the field contributes to understanding the system – a suggestion is in line with a study about the effects of consumer-producer interactions in alternative food networks. That work shows that consumers learn about food and agriculture while co-working – a learn-by-doing process (Opitz et al., 2017). In this way, it is necessary to inform people and let citizen awareness grow via consumer practices (Dubuisson-Quellier et al., 2011). The present study shows that the growers do not necessarily care about providing these opportunities. However, perhaps it is something that the consumers of a CSA themselves can provide to other members, to keep the community active in the rural production and management aspects.

Understanding the process of being part is also critical. It is vital to know what participating in a CSA will demand from the member: its dynamics and the commitment to seek the basket. Goland (2002) suggests that to bring more consumers to a CSA, we should seek those concerned about and committed to social and environmental topics. In general, the system is not so flexible as traditional markets. Still, it can evolve as more consumers get involved in the activities or pay more (Liceul et al., 2013). Thus, in particular, co-producers need to be clear about their role in a CSA.

If present, another class of information that can contribute to a CSA's involvement is to know about organic and healthy food. Participation occurs around nutrition, and individuals need to know the positive impact they generate. This idea is in line with a Brazilian article that showed that consumer concerns about health and socio-environmental responsibilities are among the main drivers regarding organic food (Feil et al., 2020). Moreover, a paper that focused on labeling information showed that providing actionable information to consumers, such as the health, environmental and societal benefits, increased their intentions to purchase

organic food (Aitken et al., 2020). Therefore, it is positive to have people well-informed about the benefits of organic food for individual health and the environment to participate in a CSA.

The exploration of information, then, generated many inputs for participation in a CSA. According to the IMB model, motivation is also of great relevance. In the context of this study, motivating consumers with CSA-related aspects should also favor people to join a CSA. Findings show that CSA members are motivated to have a better quality of life, change the status quo, and be part of a network supporting farmers. In general, providing quality products is a driver of participation in alternative food networks (Mastronardi et al., 2019). We also found that new consumers could be motivated by letting them experience being part of the community. However, two barriers are the lack of accessibility to lower-income classes and not being willing to commit financially.

One motivation is the willingness to be part of a network that supports farmers. Indeed, consumers' proximity helps them learn more about the food system's problems and commit themselves more to participate (Hashem et al., 2018). Regarding the willingness to have a quality of life, the concerns stem from the motivation to improve one’s individual health and support a dignified life for the farmer. Accordingly, an Italian study points out quality products and comfort as motivations in alternative food networks (Mastronardi et al., 2019). Moreover, these findings corroborate with one Brazilian study about organic food, which showed that the main motivations to buy this type of food are of health concerns, as it may have higher nutrient content and flavor (Andrade & Bertoldi, 2012).

Some motivations encounter some barriers, as the concerns that CSA is not accessible. A study performed in New England shows that the producers share risks with consumers, affecting the price (Sproul et al., 2015), which lower-income families could not afford to undertake. In the United States, a study about CSA also found that the price is a barrier,

primarily because participants thought that the box for two adults was not enough for the week by itself (Kato, 2013).

Being part of the community was also associated to motivation - as long as there is an experiential aspect involved. Therefore, one of the motives to participate in alternative food networks is "the connection to nature and gardening for the spiritual experience" (Zoll et al., 2018). Regarding consumption, experiencing CSA should also be positive. A study that offered a voucher to first-time shareholders to join a CSA found that this incentive motivated people unfamiliar with it or intimidated by it for trying it (Rossi et al., 2017), although it does not necessarily guarantee long-term commitment.

A fifth motivation is about change, both in personal food-related activities and, more broadly, community arrangement. A study performed in the UK found that one reason to join alternative food systems is to help change the existing food systems with issues caused by globalization and the industry (Hashem et al., 2018). Likewise, joining those systems reflects changes in the lifestyle (Opitz et al., 2017).

Commitment also involves challenges and may be considered a barrier – not everyone is willing to commit. One of the difficulties is regarding picking up food products without many conveniences. Indeed, a study in the United States and France about CSA found the pickup times and locations are limiting factors, which have to be counterbalanced, e.g., with an assurance of quality food (Peterson et al., 2015). This aspect may partially explain why two of the main reasons for disengagement in a CSA are required time and commitment (Kato, 2013).

Finally, the ability to perform some behavioral skills might influence CSA engagement. We found that teaching and learning, having relationships, and communicating are relevant topics. These skills can be essential to help consumers deal with unfamiliar food or previously tried but not liked ones (Izumi et al., 2018), as joining a CSA sometimes involves receiving less conventional products. Moreover, acting synergistically and engaging in a change may

help the community's long-term sustainability as long as individuals' attitudes, motivations, and behaviors related to this subject align with organizations (Aitken et al., 2020).

One expected skill is about assisting community management. Like any other organization, CSA activities involve management practices, and management skills may include marketing, interpersonal relations, and network management (Samoggia et al., 2019). However, who carries out these activities? In general, producers assimilate many functions (Samoggia et al., 2019). On the other hand, the expectation is that the co-producers undertake roles in this regard. A study from Barcelona showed that 91.2% of the CSAs have voluntary members to do management-related tasks (Espelt, 2020), an equal share. Nevertheless, it is necessary to know the quality of this function's performance, a commitment based on professional values, personal values, and skills (Samoggia et al., 2019). According to a study from California that raised why some people left their CSA, doing management well is fundamental. The authors showed that 79% of people left the network due to management decisions (e.g., product mix, price, the quantity of food) (Galt et al., 2019). Thus, a CSA could adjust the decisions to the co-producers' preferences via management (Samoggia et al., 2019).

Communicating about food preparation is also an asset. CSA participation provides learning skills about preparing and conserving previously unknown food (Rossi et al., 2017). In general, transferring knowledge directly from producers to consumers (and between consumers) plays a central role in alternative food networks (Opitz et al., 2017). Thus, communicating within the community helps, among everything else, to get used to less known food and cook it (Liceul et al., 2013). Besides skills that co-producers share, a study about adult learning in alternative food systems found that, besides their primary responsibility, farmers are also informal educators to their network (Etmanski & Kajzer Mitchell, 2017).

Socializing is also a demanded skill. Therefore, members most likely to stay in the CSA are not just buying a particular product; they are concerned about social and environmental

concerns (Goland, 2002). These findings sustain that long-term sustainability requires synergistic relationships aligned with the organization's sustainable objectives and desires (Aitken et al., 2020).

Regarding relationships, facilitation occurs when a person knows how to conduct them positively. A study about Solidarity Purchasing Groups (GAS) in Italy brings that a world change starts with social relations groups (Fonte, 2013). Engaged people are valued because people develop fewer interpersonal relationships when focusing on “just” buying healthy and tasty products (Dubuisson-Quellier et al., 2011).

Another skill is related to being proactive in change-making. One fact is that a CSA structure may not fit everyone’s lifestyle (Rossi et al., 2017). So the person has to be open to changes, willing to be part of a remodeling of the existing food production infrastructure (Fonte, 2013).

In general, it is crucial to highlight that each community (i.e., CSA) has an actual set, but the sustainability precepts are always present. The present study's information, motivation, and behavioral skills are directly related to the sustainability tripod and contribute indirectly to this process. Indeed, an Italian study identified that the CSA phenomenon delivers sustainability goals despite differences between communities in terms of consumer involvement, environmental and social impact, and economic viability (Medici et al., 2021).

Furthermore, the study highlights that CSA projects contribute to local resilience, which is especially important in the process in which the planet finds itself in an economic and health crisis due to the coronavirus (Cristiano, 2021; Lopes et al., 2020).

By analyzing information, motivation, and behavioral skills, we presented an IMB model framework focused on CSA. These contributions clarify what can favor the entry and maintenance of co-producers in a CSA or what needs to be valued not to become a barrier. It is an essential piece of contribution to the topic at hand.

Final Considerations

This study explored the factors related to individuals' participation in the Community-Supported Agriculture (CSA), based on the Information-Motivation-Behavioral Skills (IMB) model. Through the adopted approach (interviews, Descending Hierarchical Classification, and content analysis), this study explored the factors of the IMB model regarding individuals' participation in a CSA. Moreover, we presented and discussed a framework with the obtained classes.

The study identified four classes of information, six motivations, and five behavioral skills relevant to favor participation in a CSA. The model proved to address this phenomenon and yielded a framework that summarizes the main classes obtained and serves as a basis for future approaches.

As empirical findings, knowing the process and learning by experiencing the practice were examples of information. Among motivations, wanting to invest in the quality of life and perceiving advantages as superior to the barriers were some highlights. For skills, the participants often mentioned assessments about relationships and communication. Thus, the proposed IMB model framework presented ways to attract or retain members to a CSA.

It is worth highlighting this study’s theoretical contributions. It was probably the first attempt to embrace this phenomenon (CSA participation) within the IMB model, consisting of an academic contribution with two main strands. Firstly, it corroborates with the IMB model applications outside a medical context. The model proved to be satisfactory to the phenomenon and brought together factors to understand and change an individual’s behavior. Second, it contributes to food citizenship and alternative food networks (AFN) research fields, fostering theoretical consolidations and opening new paths.

Regarding managerial implications, the suggestions that may favor the participation of members in a CSA are evident. CSA promotes social well-being, e.g., with gains for health and

environmental sustainability. Therefore, the results obtained on this movement may be of interest to different actors: producers interested in organizing a new CSA, current CSA members, private organizations related to alternative food networks, or public bodies that intend to carry out policies that favor these systems. Each of the factors explored contains insights for management actions to be taken, and they can also deepen more specific views (e.g., within a class).

This research recognizes some limitations. We collected data in only one Brazilian Federative Unit (Brasilia – DF). However, given the exploratory character of the study, it does not make the results less noteworthy. Besides, the locus chosen corresponds to Brazil's central city, today, in the number of CSAs. Moreover, the present study does not describe statistically how the IMB model constructs relate, but it brings fundamental elements, previously unknown, that precede a measurement of the relations themselves.

As agenda, other studies could identify the factors determining participation in a CSA, exploring different territories and cultures for comparison. Also, studying other AFN could complement the understanding of the phenomenon (e.g., the strengths and weaknesses of a CSA compared to "competing" systems).

Based on the findings, another possibility for a future study is to deepen each identified class. Once identifying that the price may be a barrier to motivation, how can this aspect be improved? Maybe through the perception of cost-benefit, the willingness to pay, and other assessments that the specific literature can suggest.

In parallel, we recommend intervention proposals structures based on the findings. The IMB model focuses on aspects that can be modified (a behavioral change theory). Thus, future studies can develop programs for attracting or retaining members to a CSA.

Besides the proposed framework, the main suggestion is the quantitative application of the model. First, with the classes already obtained, it is possible to develop and test (e.g., via

factor analysis) an instrument for measuring the IMB constructs. Therefore, it would confirm the relationships between the factors (e.g., via structural equations modeling). In this regard, it is also interesting to evaluate whether a possible developed and applied intervention can affect the behavior (of participating in a CSA).

In summary, this study is a pioneer for disseminating the IMB model to the food citizenship and AFN literature. The model proved to be a valuable framework for obtaining elements within each construct and yielded insights on stimulating this behavior. This area is in deep development, so this study may have contributed by systematizing some critical aspects.

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Appendix 4.A

Semi-structured interview script (in Portuguese)

Roteiro de entrevista semi-estruturada

- Bom dia / Boa tarde, tudo bem? Você é membro desta CSA?
- Se sim: Você é produtor ou co-agricultor?
- Se for co-agricultor: Estamos realizando em uma pesquisa científica vinculada à UnB sobre alimentos. Hoje, estamos fazendo uma entrevista para entender como a CSA funciona para os diferentes membros e como ela poderia ser mais atrativa para os novos co-agricultores e também para os atuais. Para isso, gostaríamos de coletar algumas opiniões e sugestões suas. Nada do que você disser vai ser reportado utilizando seu nome. Você aceita colaborar conosco?
- Se aceita: Podemos gravar a entrevista para não perdermos informações levantadas?
- Antes de começarmos, por favor, assine ste termo de consentimento livre e esclarecido, que é uma exigência para pesquisas acadêmicas, e me avise caso tenha alguma dúvida.

Quebra-Gelo / Introdução

- Você é de Brasília? Se não: de onde você é? Mora aqui há quanto tempo?
- Há quanto tempo você participa da CSA?
- Em poucas palavras, o que significa para você fazer parte de uma CSA?

Nossa pesquisa está organizada em três frentes principais: informação, motivação e habilidades que as pessoas precisam ter para fazer parte de uma CSA.

Informação

Com relação à informação:

- Como você ficou sabendo da existência do movimento CSA?
- Se um grupo for fazer uma campanha para informar a população sobre o movimento CSA, quais informações precisam ser passadas, na sua opinião?
    - Por que você considera essas informações importantes?
    - Onde você sugere que o grupo divulgue este conteúdo?
    - Como essa divulgação pode ser feita?
    - Por que você sugere divulgar dessa forma?
- Se o mesmo grupo for informar melhor os coagricultores atuais sobre a CSA, quais informações precisam ser passadas?
    - Por que você considera essas informações importantes?
    - Onde você sugere que o grupo divulgue este conteúdo?
    - Como essa divulgação pode ser feita?
    - Por que você sugere divulgar dessa forma?

Motivação

Agora com relação à motivação:

- No início, o que te motivou a entrar em uma CSA? Por que?
- Hoje, o que te motiva a continuar em uma CSA? Por que?
- Se um grupo for realizar ações para motivar a população a aderir a uma CSA, o que pode ser feito?
    - Como isso pode ser feito?
        - Por que você sugere fazer desta forma?

- Se o mesmo grupo for realizar ações para motivar os co-agricultores atuais a continuarem ativos em uma CSA, o que pode ser feito?
    - Como isso pode ser feito?
    - Por que você sugere fazer desta forma?
- De uma forma geral, o que você percebe que desmotiva as pessoas a participarem de uma CSA? Por que?

Habilidades

Para fazer parte de uma CSA as pessoas enfrentam alguns desafios, que podem ser maiores ou menores, dependendo das habilidades que as pessoas conseguem desenvolver.

- Por exemplo, algumas habilidades importantes para um professor são: Oratória, Relacionamento interpessoal, Didática.
- Gostaríamos de saber quais habilidades você considera importante para uma pessoa que deseje fazer parte de uma CSA.
- Sobre a primeira habilidade que você falou (repetir qual), por que você considera essa habilidade importante?
    - Se um grupo for ensinar essa habilidade (repetir qual) a um co-agricultor, como você sugere que seja feito?
    - Por que você sugere que a habilidade (repetir qual) seja ensinada dessa forma?
    - Essa habilidade (repetir qual) também é importante de ser desenvlvida entre os co-agricultores atuais da CSA?
- Repetir o ciclo de perguntas para outras habilidades / perguntar se tem mais alguma habilidade importante a ser mencionada.
-

Agora, por favor, preencha essa breve ficha com o seu perfil, que será utilizada para caracterizar quem são os participantes da pesquisa. Lembrando que seus dados individuais serão preservados.

Perfil

- Idade
- Sexo
    - Feminino
    - Masculino
    - Prefiro não informar
- Escolaridade
    - Sem ensino formal
    - Ensino básico
    - Ensino fundamental
    - Ensino médio
    - Ensino superior
    - Especialização lato sensu

Chapter 5

General Discussion

General Discussion

Overview

This thesis relies on three research papers to address its core question: whether food citizenship can be systematized (observed and organized) from an individual perspective. Henceforward, the focus is on the main aspects of the three research papers to position how this thesis integrates into the current literature. At this point, the main findings of the three developed research papers are retaken. Then, an exercise to integrate these findings is presented, in terms of constructs and variables, into unified framework proposals. Finally, the contributions and limitations are delineated, culminating in a suggestion for a future agenda.

The **first research paper** proposed a feasible food citizenship measure in Portuguese, along with empirical analyzes. The scale has two factors (Beliefs and Actions), with fifteen items in total, being considered an attitudinal scale, because it does not measure an effective behavior, but antecedents of a possible behavior. The items retained by the factors navigate through some crucial points that delimit the concept of food citizenship. We observed the individuals' priorities, what they consider unacceptable, and their responsiveness. The scale has covered civil rights, duties, collective interests, and impacts on the food system. Therefore, it is considered that there was a necessary theoretical foundation for this more pragmatic advance. Furthermore, the insights were interesting, demonstrating a rich field of empirical research.

The **second research paper** is based on the Information-Motivation-Behavioral Skills (IMB) model to explore these three constructs as predictors of food citizenship, using the projective technique of sentence completion test. Findings showed 12 classes of information, ten of motivation, and 12 behavioral skills required to be a food citizen. Those classes ranged from being curious to aiming for positive impacts on society, including, e.g., sustainability and having information on forms of production/preparation. With those items, it was possible to

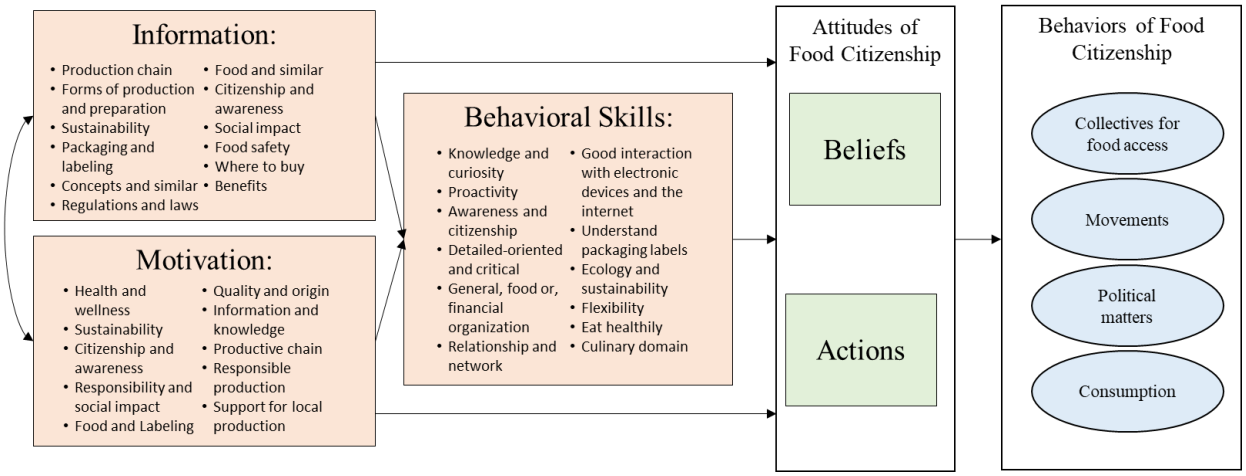
outline a theoretical framework for analyzing food citizenship determinants from the perspective of the IMB model.

The **third research paper** explored the information, motivation, and behavioral skills that characterize Community-Supported Agriculture (CSA) participation with the aid of Iramuteq software. We identified four classes of information, six of motivation, and five of behavioral skills, which included, e.g., learning by experiencing the practice, communicating, and wanting to invest in the quality of life. This study also culminated in a proposal for a framework-specific to studies focusing on CSA.

Combining the first and second studies, we have a framework that brings the precedents of food citizenship with its occurrence at the individual level from the perspective of the IMB Model. It is a simplified view, but it can guide future studies on this phenomenon, taking advantage of the paths explored here. Figure 5.1 shows the IMB integrated framework.

Figure 0.1

Integrated framework of information, motivation, and behavioral skills related to food citizenship along with its attitudes and behaviors.



In Figure 0.1, there is a framework that combines findings from study 1 with study 2. In study 1, only some relationships between the two factors of food citizenship (attitudes) with their respective groups of initiatives related to this phenomenon (behaviors) were tested.

However, it is worth the unified look for a future qualitative or quantitative approach that integrates these points.

Combining the second and third studies, Figure 0.2 combines the categories identified under the IMB constructs.

Figure 0.2

Integrated framework of information, motivation, and behavioral skills related to food citizenship and CSA.

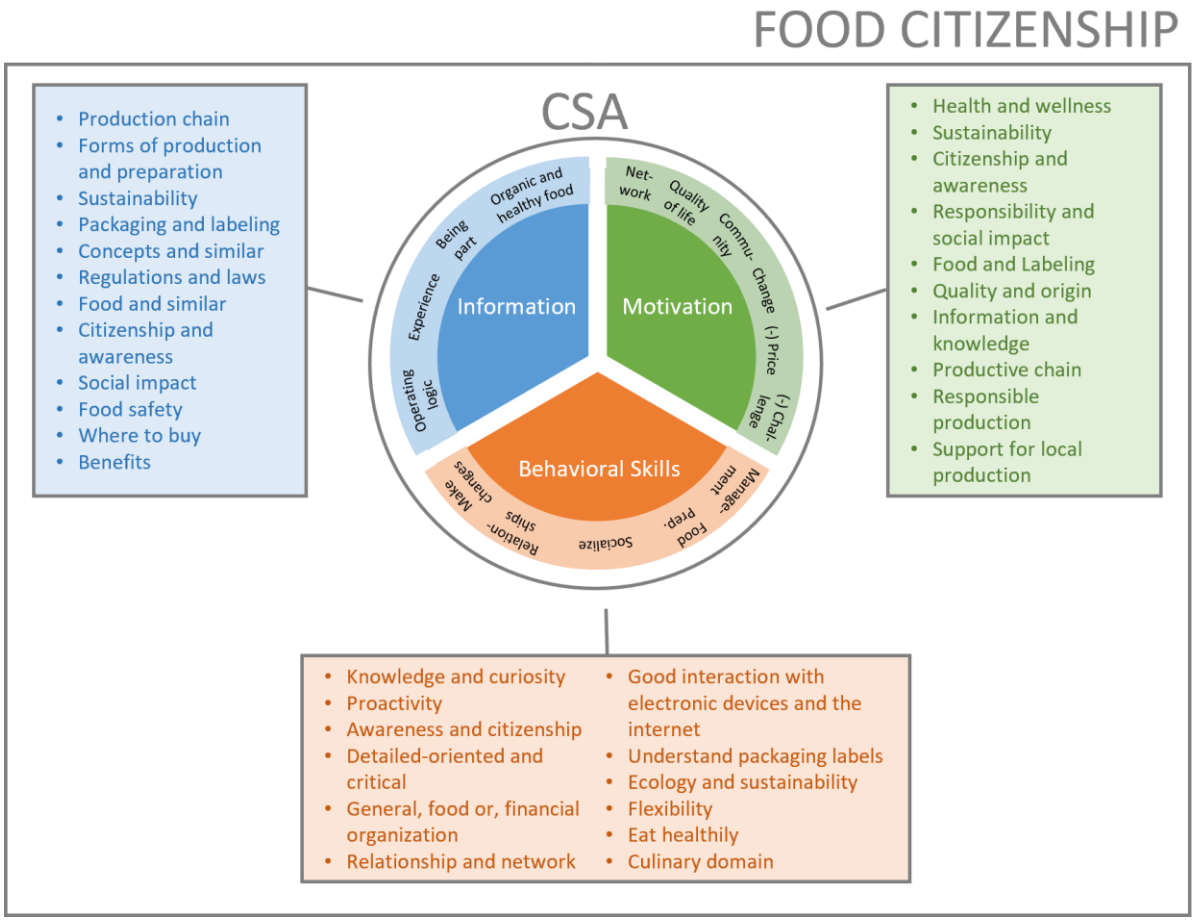


Figure 0.2 combines the information, motivation, and behavioral skills findings from studies 2 and 3. In the circle, there are aspects related to IMB constructs as precedents for the participation of individuals in a CSA. In the squares, the variables found to predict food citizenship, in general, are listed.

In a closer analysis, one can see many similarities between the findings of the two studies, which was expected since participating in a CSA expresses food citizenship in practice. However, food citizenship, as expected, is a broader concept, and therefore involves points not necessarily listed as relevant to support the individual's participation in a CSA. On the other hand, more specific aspects inherent to the way a CSA operates do not appear in the items on food citizenship in general.

It should be noted that the methods for analyzing the qualitative data of both studies are different, making the combination of studies richer but not necessarily comparable in terms of the number of variables surveyed. Maybe, this phenomenon is because the projective technique applied in study 2 (food citizenship) tends to retain more categories than the analysis performed via Itamuteq in study 3 (CSA). Therefore, due to the nature of the two different methods.

Information reveals categories that deserve the attention of communicators. In a CSA, understanding how it works and the experience of being part of it already involves a good part of the information needed. Added to this is information about organic foods. To raise awareness about food citizenship, broader issues of regulation, sustainability, and impacts also deserve to be addressed and informed to individuals.

Regarding motivation, it is possible to observe that the CSA carries a negative weight in terms of price and challenge to participate, aspects that were not found in the study on food citizenship. In turn, the community aspect is emphasized for either being part of a CSA or practicing food citizenship. Therefore, a practice as the CSA may face challenges to be a broader exercise of food citizenship across the country and possibly in many other countries. In addition, food citizenship adds to the analysis questions about sustainability, labeling, and awareness, for example.

Management, socialization, and food preparation are among the behavioral skills required for an individual to be part of a CSA. Food citizenship also raises questions about the

use of technology, proactivity, and being critical and flexible. At first, the studies aim to identify aspects that can be taught to people and, therefore, serve as a basis for surveys and future interventions on this phenomenon. Culinary mastery, for example, can be taught and would contribute to individuals being more successful in their involvement in alternative ways of accessing fresh and natural foods.

This subtopic, therefore, closes the overview of what the three studies brought to the thematic area of food citizenship.

Research contributions and limitations

The studies aimed to assess food citizenship understanding at the individual level. In this sense, they explored the phenomenon under different methods with complementary purposes. The results of the three studies provided academic, methodological, practical, and social contributions. They contribute with themes that mainly aim at rural development, consumer awareness, social well-being, and food security. Also, some shortcomings are underlined, primarily related to aspects for future studies. An analysis of these points was made in each study, individually, so this subtopic brings an overview.

The first relevant contribution is a proposal for measuring food citizenship at the individual level. It is an advance in consumer behavior research, which uses psychometric instruments for quantitative studies as one of the approaches. The measure can be tested academically or in managerial practices, aiming to get to know users or attract new food citizens for their initiatives, for example.

The measure provides some insights into how attitudinal factors of food citizenship relate to food citizenship practices. It opens up a range of opportunities for studies, especially quantitative ones, so that the proposed measure continues to be used, tested, and improved to carry out other approaches, especially with multivariate statistics. Still, these empirical insights

contribute so that organizations related to food citizenship can develop, taking into account the attitude and behavior of individuals. The results also reinforce the importance of the phenomenon under study, which leads to the social relevance of the topic and the importance of it being a political agenda for rural and urban development.

The second main set of contributions concerns information, motivations, and behavioral skills related to food citizenship and being part of a Community-Supported Agriculture (CSA). The proposed frameworks (one from study 2, one from study 3, and the two combined frameworks in this final chapter) can guide future research. It becomes imperative when considering that there are few approaches to food citizenship from the consumer's point of view. Starting from an explored path makes future research more promising. It should be noted that the contribution can guide numerous researches, as studies can be developed on each of the aspects raised. That is, each category identified in one or another study deserves attention, as many are or involve complex and exciting variables.

One of the great motivators of the studies was that food citizenship could be promoted. Therefore, another significant contribution is that the last two studies mainly list points to be developed with individuals so that they engage in initiatives related to food citizenship. It would be helpful to sustain models that rely on food citizens. Moreover, this is directly related to the following critical academic contribution. The last two studies are based on the Information, Motivation, Behavioral Skills (IMB) model to raise these precedents of food citizenship and CSA. This model's use in food citizenship is innovative and has shown to be quite promising. This behavioral change theory focuses on what can be promoted among individuals, so the findings discussed in the studies bring relevant ways to impact society. Therefore, it contributes to behavioral change theories and food consumer behavior studies by exploring and systematizing the model's constructs with elements of food citizenship and CSA.

Limitations are also valuable to recognize, although they have already been pointed out within each study. An important issue is that all the studies used convenient samples and did not represent the entire Brazilian population. Furthermore, due to the sampling methods' characteristics, the socioeconomic profiles achieved also do not represent, for example, all social classes. Another point is that the developed food citizenship measure was submitted only to exploratory factor analysis (EFA), not to confirmatory one. Nevertheless, the multivariate analyses did not consider all the complexities of the topic, bringing only insights.

A limitation is also the stimuli used in the studies containing projective techniques. We questioned whether the images used to obtain consumer responses affected the inputs. Therefore, although the findings were very rich and aligned with the theme, perhaps if the images brought people from different age groups or social classes, the results would be different. So, it seems to be a relevant methodological discussion that the present work contributes, but without being able to answer whether it interferes.

The next sub-item, with the research agenda, is developed based on the shortcomings and the findings of the studies.

Research Agenda

The research agenda is vital to concluding this document, as it brings propositions for future study themes. Therefore, it is expected that the following 20 questions in Figure 0.3 would be used as a guideline to apply this research with practical intervention possibilities.

Figure 0.3

Directions for future research of food citizenship based on the findings.

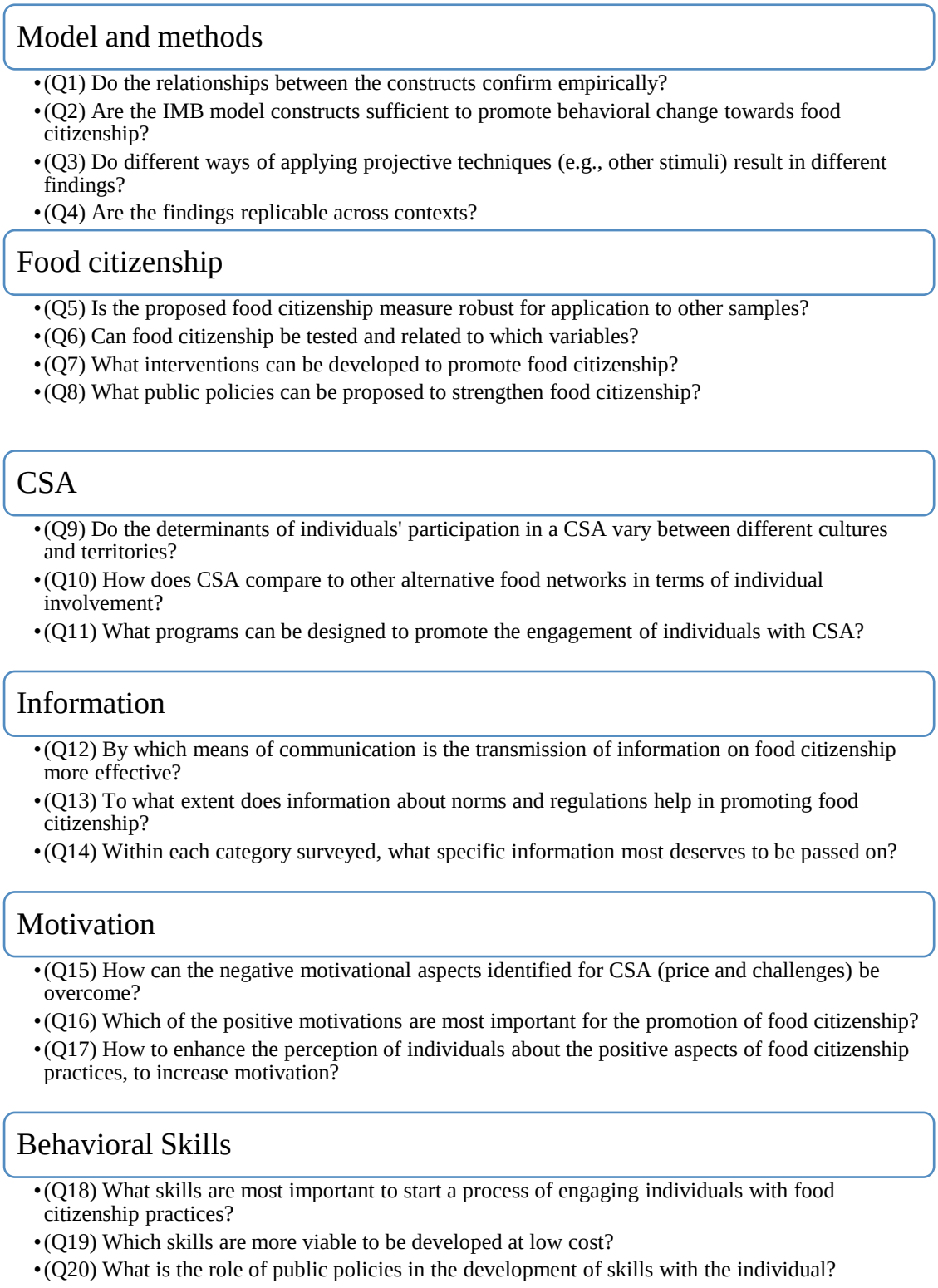


Figure 0.3 summarizes some propositions for future approaches to the subject matters explored in the three studies. In addition, it is worth mentioning that the COVID-19 pandemic context increased the urgency of enhancing food citizenship since the initiatives favor the weak productive link and benefit society in terms, e.g., of food security. There is an expressive demand for insights and recommendations that favor food citizenship practices among consumers and the functioning of these models to generate value for the entire agrifood chain, in times considered challenging for society.