

THE IMPACT OF SERVING PRACTICES ON CHILDREN'S FOOD INTAKE IN SCHOOLS

Jelena Filipović*, Saša Veljković

University of Belgrade, Faculty of Economics, Belgrade, Serbia

Abstract

The purpose of this study was to investigate the ambience factors which affect children's consumption of school meals, in order to provide policy makers and school canteen managers with practical recommendations on how to improve children's food intake in the future. The study was conducted in four schools in Belgrade, over a period of two weeks, adopting the techniques of in-field observation and content analysis. Overall, forty visits to school restaurants were performed and 205 pictures were gathered on those occasions. The results show that all three investigated aspects (i.e. kitchenscape, tablescape and platescape) affect children's food consumption, as well as their willingness to eat specific food items. The avenues of further research as regards this topic are also addressed.

Key words: children, ambience, serving, canteens, food

УТИЦАЈ ПРАКСЕ ПОСЛУЖИВАЊА НА ДЕЧЈУ ИСХРАНУ У ШКОЛАМА

Апстракт

Сврха ове студије била је да се истраже амбијентални фактори који утичу на исхрану деце у школама, како би се креаторима политике и менаџерима школских кантина пружиле практичне препоруке како у будућности да побољшају дечји унос хране за школске оброке. Студија је спроведена у четири школе у Београду, у периоду од две недеље, користећи технике посматрања на терену и анализе садржаја. Укупно је обављено четрдесет посета школским ресторанима и том приликом је прикупљено 205 фотографија које су потом анализирани. Резултати показују да сва три испитивана аспекта (тј. кухињско уређење, стона декорација и посуђе на ком се храна сервира) утичу на дечју потрошњу хране, као и на њихову спремност да једу одређене намирнице. У том смислу, у раду се такође разматрају начини даљих истраживања на овом пољу.

Кључне речи: деца, амбијент, сервирање, кантина, храна

* Corresponding author: Jelena Filipović, Faculty of Economics, University of Belgrade, Kamenička б, 11000 Belgrade, Serbia, jelena.filipovic@ekof.bg.ac.rs

INTRODUCTION

The majority of research that addresses children's eating behavior examines meal sizes, types of food, and other nutritional aspects of eating habits. The importance of the decoration of the meals provided for children is recognized in several studies (Boschini, Falasconi, Cicatiello & Franco, 2020; Klanjsek & Pajnkihar, 2016; Kaiser et al., 2015; Storcksdieck et al., 2014; Hu et al., 2010; Salazar, Feenstra & Ohmart, 2008; Guang-Jun, 1995) conducted in different settings. However, studies investigating the relevance of the food serving context – serving practices and environment, especially in Serbia, are still few.

Sobal & Wansink (2007) argue that re-designing the eating landscape, which is often an unrecognized aspect of eating behavior, can affect food intake. They list four pervasive environments and their assumed influences:

- Kitchenscapes may moderate the quantity of food consumed through the availability, diversity, and visibility of foods;
- Tablescales affect variety, abundance, and accessibility;
- Platescapes influence portion and/or package size, arrangement, and utensil type;
- Foodscapes are related to food-item forms and landmarks.

Policymakers from several countries of the EU understood the positive impact of child-friendly décor in facilities for school meals provision. They introduced it into legal acts, stating that:

“Dining facilities should support the educational experience related to food, hygiene and health and provide opportunities for social interaction and development [...] and giving children enough time to eat (20-30 min). Recipes are included in 47% of school food policies, and around 40% address kitchen facilities/equipment (41%), procurement practices (38%), and food arrangement/presentation (38%)“ (Storcksdieck et al., 2014).

Some policymakers define certain aspects of dining arrangements more precisely. For instance, Germany suggests that every child should have an eating space of 1.4-1.7 square meters, while the dining room should be colorful, full of light and decorated with appealing arrangements (e.g., plants, pictures, table decoration). Maltese policy recommends bright murals with a food theme, new tables and chairs, and background music. Moreover, they also advocate for posters promoting healthy eating with pictures of fruit and vegetables to be displayed on the walls, as well as new menu boards with clear information and prices. Austria prescribes that a minimum of 10 pieces of fruit (of at least three different types) are on display in every break.

Besides the exposure to food items and portion size, food decoration is also relevant, as observed by one health worker:

"It is evident that children prefer to eat food that is better looking or decorated. Smaller children like it when parents serve them food on plates and in glasses painted with cartoon motives." (Klanjsek & Pajnikihar, 2016)

Moreover, other arrangement elements, such as the proximity of a particular type of food on the table (Musher-Eizenman et al., 2010) and food appearance (Kildegaard et al., 2011), strongly affect children's eating decisions.

Finally, food decoration is correlated with children's food intake in some settings other than schools, such as: hospitals (José, de Castro, & Canella, 2021), camps (Condrasky, Quinn, & Cason, 2007), or day care centers (Hall & Holmberg, 1974), to name a few.

To better understand the influence of serving practices on children's food intake in Serbia, we conducted in-field observations and content analysis of the visual materials related to food serving in schools, considering the fact that this place has a crucial impact on children's diets. This study is exploratory in its nature, given that this is one of the first attempts to investigate the cited correlation in the domestic market.

LITERATURE REVIEW

Kitchenscapes represent the environment in which the food is prepared and consumed. Many elements within cooking and dining facilities, such as their size, furniture arrangement, lighting, temperature, sound, and ambient conditions, affect food intake (Baskentli, Block, & Morrin, 2021; Sobal & Wansink, 2007). Moreover, Musher-Eizenman et al. (2010) and Wansink, Painter & Lee (2006) argue that the proximity of the food in the room or on the table significantly influences the quantity of food intake. Finally, if food is stored in bigger containers, it is assumed that storage costs would be higher; therefore, people tend to decrease these costs by eating more food (Chandon & Wansink, 2002).

Tablescapes are related to the way the tables where food is served and eaten look (Sobal & Wansink, 2007). Many parameters, such as size, surface material, tableware arrangement and size and the number of people participating in the meal, should be considered when assessing food intake related to the table setting. In addition, some ambient features, like music, smell, lighting, food temperature, and color, can affect food consumption (Stroebele & De Castro, 2004) too.

The body of literature shows that, in the school context, it is especially relevant whether food is served on trays or on the table. In their experiment, García-Segovia, Harrington and Seo (2015) established that the hedonic ratings for food appearance were much higher for food served on the table than on the tray. The proximity of the food to the served person significantly impacts the intake quantity (Musher-Eizenman et al., 2010;

Wansink, Painter & Lee, 2006). Similarly, when the same quantity of food is separated into different bowls, people serve themselves more (Kahn & Wansink, 2004). Furthermore, Fagerberg et al. (2019) established that the number of food additions significantly influences food intake. Their model showed that each food addition resulted in approximately 50g of extra food intake. Food intake will also depend on the social interaction during the meal – the duration of the meal is longer and the amounts consumed are higher when people eat together with others than when they eat by themselves (Bell & Pliner, 2003; Stroebele & De Castro, 2004).

Platescapes represent the sum of the visible attributes of a particular plate or a similar food container (Sobal & Wansink, 2007). More specifically, they include all types of tableware, such as: plates, cups, glasses, bowls, boxes, jars, cans, and similar dishware. Their designs, in terms of size, materials and colors, are vital for the food intake, as was posited in many previous research (summary provided in Hollands et al., 2015).

Besides, the tableware's color and materials also represent relevant parameters for estimating food intake (Shankar, Levitan & Spence, 2010; Piqueras-Fiszman & Spence, 2011). Color influences an individual's perception of flavor intensity, sweetness, pleasantness and acceptability (Clydesdale, 2009). For instance, respondents in two studies (Genschow, Reutner & Wänke, 2012) consumed less food and beverages served in red plate/cup than in blue/white dishware. Another study (Piqueras-Fiszman et al., 2012) revealed that people perceived strawberry mousse to be much sweeter when it was served on a white plate, as compared to it being served on a black plate.

Finally, previous research (Kuo & Lin, 2019; Wansink & Kim, 2005; García-Segovia, Harrington & Seo, 2015) demonstrates that dishware size largely influences food intake. Namely, a larger container increases the amount consumed. Even though this notion has been investigated at length with adults, it has been recently proven to be true with children (Reale et al., 2019). Surprisingly, in the case of cutlery size, it was revealed that the use of a smaller fork led to a larger food intake when compared to food intake with a big fork (Zainol, Ariffin & Rozali, 2018).

METHODS

The analytical tools used when conducting research with children usually differ to those employed in investigation with adult subjects (Harvey & Lareau, 2020); the ethnographic approach demonstrated to be one of the most suitable methods with younger subjects (Eder & Corsaro, 1999). As an ethnographic research method, observation has been used in social studies for a long time. Its main advantage is that it provides the

possibility for researchers to examine individuals in their natural surroundings in order to understand the investigated subject from their perspective (Baker, 2006). Watson (2011, p. 204) concludes that the operations of some organizations can be understood only by close-observational research, which is in the heart of the ethnographic method. The same notion is echoed by further studies (e.g. Bass & Milosevic, 2016), which cite that the observation of practices, coupled with interviews and archival data, provide powerful insights into practice-based and interaction-based behavior.

Observation and visual research methods have advantages over other methods in investigating food behavior (Ocampo, Marshall, Wellton & Jonsson, 2021), particularly regarding children's food consumption (Boschini et al., 2020; Bilstoft-Jensen, Holmgaard Nielsen, Hess Ygil, Christensen, & Fagt, 2018; Salazar, Feenstra & Ohmart, 2008). This study adopts the protocol of K ng s & M att  (2021), specifically designed for the performance of ethnographic studies with children, consisting of four stages: 1) acquiring the material, 2) assuming the role of a researcher, 3) reaching the child's voice, and 4) describing the results to open up the world of children.

In order to conduct the first phase, we visited four schools in Belgrade over a period of two weeks (one week in autumn, and the other in spring). The investigated schools are:

- Dositej Obradovi  (municipality of Vo dovac);
- Ljuba Nenadovi  (municipality of  ukarica);
- Pavle Savi  (municipality of Zvezdara);
- Gavriilo Princip (municipality of Zemun).

Data collection consisted of taking detailed photos of the serving environment during visits. Any required, additional images were collected after these visits. Overall, we took and classified 205 pictures. Moreover, semi-structured interviews were performed with cooks and serving staff, in order to better understand certain practices. Due to the general ethical directives of performing research with children, they have not been addressed directly by the investigators.

Subsequent steps consisted of analyzing the visual materials and drawing pertinent conclusions. In order to comprehend the observed phenomenon and analyze the corresponding results, we followed the directions developed by Sobal & Wansink (2007) and Salazar, Feenstra & Ohmart (2008). The aspects considered are provided in Table 1.

Table 1. Selected Microscale - Scapes Influencing Food Intake

Scale	Scape Example	Definition
Room	Kitchenscape	View and/or appearance of a room or bounded setting where food is consumed
Furniture	Tablescape	View and/or appearance of a piece of furniture or surface from which food is consumed
Container	Platescape	View and/or appearance of a container from which food is consumed
Object	Foodscape	View and/or appearance of an edible item that will be consumed

Source: Sobal, J., & Wansink, B. (2007). Kitchenscapes, tablescales, platescapes, and foodscales: Influences of microscale built environments on food intake. *Environment and Behavior*, 39(1), 124-142.

Given that the foodscape is mostly beyond the control of schools, it was not investigated in this study.

RESULTS AND DISCUSSION

Descriptions of the Eating Environment and Serving Practices in Schools

In the primary school (PS) Dositej Obradović, lunch is prepared for 80 children every day, no matter how many children come to lunch. Meal portions are standardized by content and quantity. Two days a week, children can choose alternative dish components - for example, if a child does not like potato salad, an alternative is rice, or if a child does not like macaroni with cheese, he/she can eat sweet macaroni. Lunch is served on trays, with the exception of soup, which is placed on the tables at the beginning of the meal. After eating the soup, the children go to a stand where they can pick up the main course. They carry the course to the table and eat it. If someone wants more food, he/she can come to the cooks and ask for another portion of the course. Children usually form habits at home, and if they do not eat soup at home, they will not eat it in school either.

PS Ljuba Nenadović applies a somewhat different practice. Lunch is prepared for a registered number of children. The cook prepares a large quantity of food, and divides this quantity into approximately equal portions for all children present. There is no alternative meal. Special meals are prepared for two children with diabetes and a rare blood disease. The process of serving lunch consists of first setting the soup on the tables (if soup is on the menu), together with bread and salad. On each table, bread and salad are served in small baskets for several children to share. The children usually do not eat a lot of the bread or the salad. The children often do not like soup, so they immediately return it or eat only half of their

portion of soup. After the soup, the children go to a large table where they can pick up the main course. They carry the course to the table and eat it. If someone wants more food, he/she can come to the cooks and ask for another portion of the course. After the main course, they go to a large table again to pick up dessert.

In PS Pavle Savić, the cooks have a precise norm per portion (for example, 200 g of macaroni are served per portion). Thus, they multiply the number of children registered for lunch on a given day by portion size to calculate the total quantity of food that should be prepared. There is only one dish for lunch; hence, the children cannot choose an alternative dish. The entire meal is served by the cooks. Soup is served first, after which the cooks serve the main course with bread and salad. At the end of lunch, they provide the children with dessert (cake or fruit).

In PS Gavriilo Princip, lunch is prepared daily for 142 children. Meal portions are standardized by content and quantity. There is only one dish for lunch; therefore, the children cannot choose an alternative dish. However, one child has diabetes, so his portion of the meal is adjusted (he does not get cake for dessert, he gets fruit). Also, if someone fasts for religious reasons, they are served a different type of meal. The serving practice consists of the cooks setting the soup (if it is on the menu) and the main course, with bread and salad, on the tables before the beginning of lunch. Dessert (cookies or fruit) is served on standard plates, placed separately, so one plate belongs to one class.

Observed Microscale Scapes

The first determinant considered was the kitchenscape, representing the location in which the food is made and ingested. It can be observed in picture no. 1 that the eating facilities in PS Gavriilo Princip are much more child-friendly than those in PS Ljuba Nenadović. In the former, the tables are covered with colorful, cartoon-inspired tablecloths, while the latter has brown, uncovered and unappealing tables. Even though the furniture size in both schools is adjusted to accommodate chil-



Picture 1: PS Gavriilo Princip vs. PS Ljuba Nenadović - dining rooms

dren, the furnishings look more attractive in the case of Gavriilo Princip. The walls are not decorated with healthy food murals or posters in either school, although, in Gavriilo Princip, the pictures on the wall have children-related themes. For hygienic reasons and the children's safety, the floors are better in Ljuba Nenadović, because laminate can be quickly and efficiently cleaned up. Moreover, the dining room in Ljuba Nenadović is quite spacious, with large passages between the rows of tables, which enable the children to easily navigate the space with food. Still, it can influence their smaller food intake.

Exhibits 2 and 3 demonstrate two opposing storage strategies, reflecting two different types of procurement. While the cooks in PS Pavle Savić order the food needed from their suppliers every day, in PS Gavriilo Princip, the deliveries are less frequent. This practice is observable because both fresh and frozen vegetables are present in Gavriilo Princip. However, a large amount of vegetables in jars (pickle) in PS Pavle Savić probably implies that it is more convenient for the cooks to serve pre-prepared salad than to prepare fresh salad themselves. In accordance with the observation in literature (Chandon & Wansink, 2002), PS Gavriilo Princip, with a larger quantity of stored items, prepares the same number of meals every day (142), no matter how many children are expected to attend lunch. PS Pavle Savić, with a more modest quantity of stored items, prepares a limited number of meals meant only for those children who registered for lunch on a given day.



Picture 2. PS Pavle Savić - storage facilities



Picture 3. PS Gavriilo Princip - storage facilities

In the following stage of our analysis, we turn our attention to tables, or the appearance of the tables on which the food is served and consumed. As previously cited, in the school context, it is especially relevant whether the food is served on trays or whether it is served on the tables. Even though the soup is served on the tables in PS Dositej Obradović (picture 4), according to the cooks, children usually do not like this type of food, and 10-15% of them immediately return it and go and stand in line to get the main course on a tray. This finding contradicts the results of García-Segovia, Harrington and Seo (2015).



Picture 4. Tray with a main course and soup set on the table in PS Dositej Obradović

Another factor affecting intake quantity is the proximity of food to the served person (Musher-Eizenman et al., 2010; Wansink, Painter & Lee, 2006). In picture no. 5, we can observe a similar distance between the seats and all food types in the upper two cases, while in the bottom two cases, bread and salad are not equally distant from all children around



Picture 5. Table settings in four schools

the table. It can be assumed that more bread will be consumed by the children closer to the bread trays, and that more salad will be consumed by the children closer to the salad bowls.

In all examples, we can see wooden chairs and tables, mostly in unattractive shades of brown. While this helps make surface cleaning easier and stains less visible, it does not improve the children's enjoyment and comfort in the ambient.

As explained in the descriptive analysis, three out of the four investigated schools (all but Pavle Savić) use buffet arrangements to serve some meal parts, usually dessert. Previous experiments revealed that, when food is clearly organized into recognizable patterns in a tablescape, people take less for themselves than when food is presented in a disorganized fashion (Kahn & Wansink, 2004; Fagerberg et al. 2019).

In picture no. 6, a dessert arrangement in PS Ljuba Nenadović is depicted. It should be noted that the cakes are accompanied by juice-boxes which are arranged behind the tray with the cakes and are, thus, less accessible to the children (red circle in the left-hand picture). In contrast, fruit (bananas) is served with water, poured into plastic cups and made readily available to the children (red circle in the right-hand picture). The middle picture shows that the dining ambient is enriched with healthy food-related posters containing written recommendations for food consumption (red circle in the middle picture), such as: a lot of water should be drunk, each meal should be followed by a brief 10-15 min walk, food should be enjoyed and eaten in a relaxed atmosphere, etc.



Picture 6. Dessert serving in PS Ljuba Nenadović

Unlike the Ljuba Nenadović School's motivating ambiance, a less appealing dessert arrangement can be found in PS Gavriilo Princip (picture 7). Cookies are simply placed on plates and the floor of the dining room is colored in grey. Given that it was Christmas time when the study was conducted, the surface was decorated with some winter-themed greeting cards. Thus, it can be concluded that dessert can be served in a more attractive manner.



Picture 7. Dessert serving in PS Gavriilo Princip

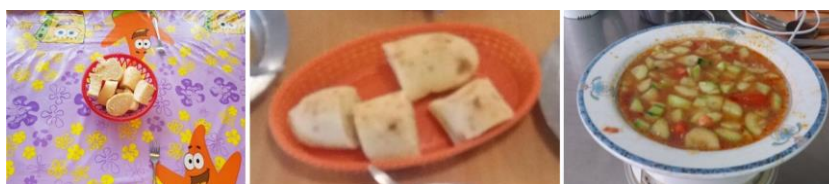
Food intake is also dependent on the social interaction during the meal. In picture no. 5, it can be observed that all schools stimulate children's interactions during meals. This practice is essential for food intake since the ratings of overall acceptability for foods are at the lowest level for children – i.e., acceptability increases with age (King et al., 2007), but a group can influence an individual to try a new type of food or eat something that he/she does not particularly like (Bell & Pliner, 2003).

The final element that needed to be examined was the platescape, embodying the aggregation of the perceptible attributes of a particular plate or similar food container. Studies consistently indicate that people tend to eat almost a whole meal when they determine the portion size by themselves – i.e. they eat the entire portion that they put on their plates (Sobal & Wansink, 2007). However, this strategy cannot be applied to children's consumption of food, given that it is questionable whether they would serve themselves all available food items, and in the quantities necessary for their balanced diet and healthy growth. It is more likely that they would exaggerate with the foods they prefer while avoiding the foods they do not like. The evidence for such a conclusion is provided in picture no. 8, showing the leftovers of two types of food that the children could take freely. In relation to the cakes, there is almost no waste, while the apples and pears are mostly half eaten and thrown away without being consumed fully.



Picture 8. Food waste of fruits (apples and pears) and cakes

Furthermore, the color and materials of the crockery are also significant parameters for assessing food consumption (Shankar, Levitan & Spence, 2010; Piqueras-Fizman & Spence, 2011). In pictures 6 and 8, it can be observed that fruit in PS Ljuba Nenadović is served in green and blue baskets, which are associated with healthiness. Moreover, it is the only school which serves food on the more appealing white plates (picture no. 5), rather than on metal dishware.



Picture 9. The examples of good practices with dishware in Serbian schools

Concerning materials, Piqueras-Fizman and Spence (2011) revealed that respondents perceived yoghurt to be of a higher quality and to taste better when tasted with a stainless steel spoon than with a metallic plastic spoon. Zainol, Ariffin and Rozali (2018) support the relevance of plateware materials too. Even though schools cannot significantly affect the plateware color and material on a large scale (e.g., for all plates and cups), some larger dishware pieces can be purchased to enhance the children's school meal experience (picture 9). It is also interesting to note that the only food served in paper containers (cups) throughout our ten day visit to the schools was vanilla pudding in PS Ljuba Nenadović. The pudding waste (picture 10) was the greatest dessert waste in that school that week, compared to the leftovers of cakes and fruits that were served on other weekdays.



Picture 10. Leftovers of pudding served in paper cups

The pictures provided show that all schools serve food in plates whose size is adjusted to children (smaller than usually used in households) and provide cutlery of a regular size. In addition, the shape of dishware has an impact on food intake. For instance, in one study (Clicer et al., 2018), consumers drank less and more slowly from short and wide glasses than from tall and slender ones. This observation contrasts with the findings of other studies (Lawless et al., 2003; Wansink & Van Ittersum, 2005), which concluded that wider glasses led to greater consumption. Moreover, round plates are preferred to square ones (Zainol, Ariffin & Rozali, 2018), and can thus lead to a higher food intake.

CONCLUSIONS AND LIMITATIONS

This study aimed to investigate the environmental attributes in schools that might affect children's food intake. Keeping in mind the economic and human resources, time and other limitations, we have prepared a set of recommendations we assume would be feasible in existing circumstances. Adopting some of them should improve children's experience with food, and lead to healthier habits in food consumption and a more balanced food intake. With the intensification of the competitive struggle between public and private schools in Belgrade and Serbia, satisfaction with serving practices and its effects on children's eating habits and perception of food quality could be elements of differentiation in the market of educational institutions. This has become a crucial point since children up to the age of ten spend more and more time in school, using extended stays. Our study draws several conclusions pertinent to policy makers and school managers, as explained in the forthcoming paragraphs.

Our research revealed that kitchen staff should insist on the freshness of the food, and avoid storing vast quantities of some food items while encouraging more frequent supply deliveries. Accordingly, there are benefits of purchasing food in smaller packages (e.g., in bottles rather than in gallons; in bags of 1 kg rather than bags of 5 kg) related to storing, freshness, costs and waste.

In terms of decoration, the use of carpets in the dining room should be avoided, while laminate is preferred. If possible, furniture should be re-arranged, allowing children to sit at the table in groups of four, so they can easily interact with each other, and so all four of them are equally distant from every food item served at the table. Moreover, it is highly important to decorate dining spaces in schools with posters that promote children's healthy diets. Children can draw these pictures in classrooms and discuss the various aspects of healthy eating with teachers. The drawings should be exhibited in the dining room during one semester.

The procurement of children-friendly table covers should be conducted. Alternatively, each class can buy one oilcloth and decorate it with

colorful food elements during art classes, before donating it to the kitchen to have lunch on it. In that way, the dining room will become more cheerful and enjoyable for the children, with minimum investment. Also, cooks should dedicate more time to food decoration when it comes to the foods that children do not like. In order to make them more attractive, these food items may be garnished with some sort of food that children prefer.

Food in buffets should be organized into recognizable patterns, enabling children to mix and match different sorts of food, and to express their creativity and adventurous spirit. Children should not be constantly scolded for spilling food, given that this occurs due to their still developing motor abilities. Food buffets should be avoided when serving desserts, but should be used as salad and/or soup bars. New bowls, in cheerful colors and of a smaller size, should be purchased to make soup more appealing. In fact, all types of food identified as the least preferred by children (e.g., lentils) should be served in these new bowls to encourage children to eat more of these food items. Glasses of water should be available and easily accessible throughout the meal. They should be of an appropriate size for children – about 1 deciliter.

The presented research has several limitations. First of all, it was conducted in only four schools and in only one city (Belgrade). The verification of these findings requires the observation of a larger number of schools throughout Serbia. In addition, all of the schools visited during this research belong to the public sector. Private schools, which are becoming more widespread, especially in larger cities in Serbia, should also be investigated. Satisfaction with the way food is served was measured by indirect methods (analysis of children's behavior, reviewing photographs, visual representations of leftover food, etc.), while future studies should adopt more direct measures, such as interviewing children and parents, employees in school restaurants and the management of the observed schools. Additional factors that affect school-age children's satisfaction, and the decisions regarding the choice of school and the selection of all-day school options should be addressed by further research too. Finally, the cultural context should be accounted for, given that research in multinational and multicultural environments would give a better insight into children's behavior when it comes to nutrition in school restaurants and satisfaction with food preparation and serving.

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УТИЦАЈ ПРАКСЕ ПОСЛУЖИВАЊА НА ДЕЧЈУ ИСХРАНУ У ШКОЛАМА

Јелена Филиповић, Саша Вељковић

Универзитет у Београду, Економски факултет, Београд, Србија

Резиме

Већина истраживања која се баве исхраном деце узимају у обзир величину оброка, врсту хране и друге нутритивне аспекте. Важност декорације оброка за децу препозната је у неколико студија, али још увек постоји недостатак студија које истражују релевантност контекста послуживања хране - праксе и окружења, посебно на српском тржишту. Дизајнирање „пејзажа сервирања“ може утицати на унос хране, а његови главни амбијентални делови су: кухињски пејзаж, који утиче на унос количине хране путем доступности, разноврсности и видљивости хране, стони пејзаж, који утиче на разноликост, обиље и приступачност, и пејзажи посуђа на којима се сервира, који утичу на величину порција и/или паковања, распоред

и тип прибора. Креатори политике из неколико земаља ЕУ разумели су позитиван утицај уређених објеката прилагођених деци за сервирање школског оброка на њихове здравије одабире хране и конзумацију.

Циљ овог рада био је да испита факторе окружења у школским кантинама који утичу на дечији унос хране током школских оброка. Истраживање је спроведено у четири београдске основне школе: Доситеј Обрадовић (општина Вождовац), Љуба Ненадовић (општина Чукарица), Павле Савић (општина Звездара) и Гаврило Принцип (општина Земун). Коришћен је метод теренских посета током две недеље служења ручкова у школским кантинама, као и анализа садржаја слика прикупљених том приликом. Анализом 205 фотографија, извучени су релевантни закључци.

Резултати студије показали су да распоред столова, уређење мензи, начин сервирања хране, величина порција и декорација посуђа у ком се деци сервира храна имају утицај на дечију спремност да неку храну пробају, као и на количину хране коју ће конзумирати. Имајући у виду економска, кадровска, временска и друга ограничења, на крају рада изложен је низ препорука за које аутори сматрају да би их било изводљиво увести у постојећим околностима. Усвајање неких од ових препорука требало би да побољша дечије искуство са храном у школи и да доведе до формирања здравијих навика у њиховој исхрани и балансираном уносу хране. Услед заоштравања конкурентске борбе између јавних и приватних школа у Београду и Србији, задовољство услуживањем и ефекти праксе услуживања на навике у исхрани деце и перцепцију квалитета хране могли би бити елементи диференцијације на тржишту образовних установа. То постаје кључна тачка јер деца до 10 година старости проводе све више времена у школи користећи продужени боравак.