

Middle Schoolers Defy Food Consumer Socialization

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Abstract

Global and national policies aim to shape consumer socialization towards healthy approaches. Special interest is given, in order to sensitize early age consumers to the long-term benefits of distinct dietary options and physical exercise. We therefore studied whether middle schoolers embrace such habits, as we well as the drivers of their conduct. Parental advisory remains the critical component of dietary patterns. Although no parent relies on positive food-related behaviour, restriction practices apply. At any age, children do integrate time and variety values. The parental choices are not well adopted, especially when not linked to equilibrated choices. Social interventions and marketing approaches are rarely reflected in children preferences. At the age of 7, individual decisions are hardly made, even when specific needs are not met. At the age of 10, resistance to proposed meals or snacks is greater, as early adolescents insist on enhanced caloric input. Consumer identity, across the transition to puberty, is built to satisfy developmental needs, while parallel qualitative criteria are defined by prior experience to complex stimuli. Nominal categorical perception of food values is not mature. Sensory cues, especially visual, are the prerequisite for any acquisitive action, and product tasting is further validating the integration of choice. Therefore, a prospective adoption of health-oriented dietary habits would count on middle schoolers' anticipation for novelty.

Keywords: children, adolescents, nutrition, diet, consumer socialization

JEL classifications: I12, I14, I15, I31, I32

Managing food over-consumption

Any human being is characterized as a consumer, as he relies on external food resources to fulfil energy and nutritive requirements during life cycle. Most contemporary habitats offer a variety of edible choices that can be reached at early age. However, the plethora has led populations to literally "take stock" of supply, even in absence of a famine. WHO raised the alarm about a global epidemic of obesity and its health implications, since 1990s (WHO, 2013). As of 2008, 35% of adults aged 20 and over were found overweight, and 11% obese. The condition is affecting children as well. As of 2011, more than 40 million children under the age of five were overweight. Most international and national authorities adopted subsequent actions, regarding population screening and consultation (Lachat, et al., 2005). Unsubstantiated evidence led to interventions regarding health care decisions (e.g. increase of prescription of hypolipidemic drugs and bariatric surgery), and even the acrimonious application of Pigovian taxation. The Danish fat taxation attempt failed (Stafford,

2012). Most producers complained about the immediate dropping sales, and consumers benefitted from cross-border shopping (Economist, 2012). The neighbour country Norway, which has a strong record of public action regarding health and nutritional issues since 1976, does not consider imposing taxation (Mackenbach & McKee, 2013), and individual goals for single dietary components are still to be met. Several arguments also repelled the legislation against oversized sugary drinks in New York city, but Mexico recently approved one peso (0.055 €) tax for every litre of sugary drink sold (Guthrie, 2014). Part of the scientific community adheres to a tax of 20% or greater (Briggs, et al., 2013), in order for the obesity epidemic to subside.

Whatever the efforts of health care professionals and nutritionals, it is necessary to understand the mechanisms that underlie over-consumption, prior to the adoption of any course of action. It is also important to note, that adherence to caloric excess is not equivalent of nutrient sufficiency (WHO, 2013). Considering current global trends and stakeholders' active involvement in addressing the quantitative and qualitative aspects of daily diet, we investigated early age (7 & 10 years) consumers, regarding their dietary perceptions, values and habits.

Middle schooler's profile

Middle schoolers behaviour according to the psychologist and philosopher J.Piaget functions at the Concrete Operations Stage that usually appertains ages 7 to 11 years old (Piaget, 1963;Elkind, 1976). Elementary-age and pre-adolescent children demonstrate logical, concrete reasoning, less egocentric than pre-schoolers, and are increasingly aware of external events. They begin to realize that one's own thoughts and feelings are unique and may not be shared by others or may not even be part of reality. Concrete operational thinking includes also the ability to perform reversible mental actions. At this age, children can recognize that some properties of an object will persevere through change (conservation). This idea is applied first to number, then to weight, and later to volume. Simultaneously, children gain the ability to organize objects hierarchically (classification) or with respect to a common property (seriation), to compare to a third party (transitive inference) and most importantly to numerate. Concrete problem-solving involves categorical labels such as "number" or "animal" and inductive logic is easily applied. However, deductive logic is not mature.

During this stage, most children still are not able to handle a problem with several variables in a systematic way. Middle schoolers are able to reason logically as long as the reasoning can be applied to concrete and specific examples. At this age, they are also able to observe and understand the idea of conservation, and organize thoughts coherently. However, they can only think about actual physical objects. Handling abstract reasoning is implausible, hence abstract or hypothetical concepts are not probable to be communicated, and object-related logical thought requires object's physical presence. Mid-school children's mental representations also remain concretely linked to things-places-people they have seen and touched throughout the middle childhood period. As their representations are limited to the tangible, touchable and concrete, their appreciation of the consequences of events is similarly limited, local and concrete in scope. Abstract concepts, such as liberty, freedom or divinity are not comprehensible until adolescence. On the other hand, during the

concrete operational stage, animism and egocentrism wane. However, limitations are still present, as:

- 1 all operations are present-oriented
- 2 physical objects' parameters (mass, weight, volume) are usually separated
- 3 classification does not involve super-imposed categories and an integrated system of thought.

Considering the above limitations, we investigated a group of 116 middle schoolers, age 7-8 (n=56) and 10-11 (n=60), regarding their dietary habits, using close- and open-ended inquiries, and forced-choice sensory evaluation. Students' parents were offered their consent and provided us with a detailed family dietary record.

Perception of food categories

At the age of 7-11, children are expected to perceive and communicate nominal food categories, and comment on some of their choices. Our research group, despite the wide age range, show uniform classification abilities of food items. Every edible substance, either solid or liquid, from animal or plant origin, raw or prepared, was recognized as food. Further classification was occasionally applied, when food consumption was context-dependent. When meal content was described, solid nutriment were mostly referred to as "food", and liquids, such as juice or refreshments were omitted. In the latter case, specific inquiries about a drink were addressed. Milk was chosen by the majority of children, more than once per day.

Although children were not able to distinguish verbally between "snack" and "meal", they used time-frame to suggest distinct qualitative choices. It was apparent that children understood the variations of the food consumed within a day. Time-oriented choices were made over cooked or fresh options. In addition, calorie intake, as the amount of desiring aliment along the day, was well balanced, with minimal load at late hours. Salty options were dominant for main meals, while sweet preferences permeated snack time and could be adjunct to the "food" course.

In general, vegetables and pulses were often ascribed to parental choices. Individual plate ingredients were mentioned, as well as the preference for a preparation procedure. Vegetables, in form of a salad, were designated as an essential component of meal mostly at late age (10-11), by 16% of them. Similar percentage of cooked vegetables and pulses was selected mostly by young ones. Surprisingly, raw fruit integration to daily menu was 54% for the young ones and 60% for the older ones, while in half of the cases fruit was specified. However, children did not performed well in a knowledge task of displayed fruits and vegetables. Further testing for conformity, revealed that many aware children have not been exposed to the actual product, or they have had a negative episode to recall. It is important to note that one third of the participants in the study admitted to cultivate their own vegetables, and parents concurred.

Middle schoolers showed awareness of natural food additives, and 5th grade students enumerated both spices and fresh herbs (60%). However, food perception was rather minimalistic. Regarding milk consumption, 56.3% of young and 34.5% of senior middle schoolers preferred to add some sugar, honey and/or branded cocoa flavoured powder. Specific information was offered upon request, though all types of milk

(skimmed or full fat, with or without additives) were sometimes summated. Similar minimalistic approach was observed when meal contents were discussed. The "combo" concept, as a 'soda, fries, and burger' plate, is introduced to children by age three or four (Schlosser, 2001). In another study, Cornwell & McAlister (2013) found that soft drink pairing with calorie dense food is regarded enthusiastically by young preschoolers, while the pairing of soft drinks with vegetables is not. There is a possibility that in some cultures middle schoolers perceive the consumed food as a predetermined quantity of combined items, and preconditioning to past parental choices is interpreted as non-permutable assortments.

Perception of food qualities

Concrete operation relies on the recognition and evaluation of conceptual cues. At this stage, elementary school students are able to perceive food qualities and verbally describe a relevant sensory experience. Despite a few studies that showed increased sensitivity to the classical chemical insults (Oram, et al., 2001; Overberg, et al., 2012) our study group performed very poorly in taste assessment. Students though cooperated extremely well during the assay and anticipated with pleasure their participation. Interpretation of their facial expression and body language confirmed low sensitivity to most tastes, bitter included, and showed no fair correlation with verbal valence. To our understanding, participants were scarcely exposed to food sensory evaluation. Such limited experience was reflected also in open-ended questions about naming sweet, salty, bitter, sour and umami foods. Perception of food taste was found monovalent, as the majority insisted that the presented stimuli, when apperceived disparate to water, did not correspond to familiar food tastes. Sweet and salty tastes were the easier to recognize, thus the most prevalent in children's diet. Familiarity with complex stimuli was further confirmed by assessing odour perception. Children performed fairly in the sniff test and recognized both food-related and environmental complex cues. Visual cues are probably the most trusted drivers for categorization, and vision was selected among the essential senses to mediate food consumption. It is important to note that elementary schoolers are able to define food servings, as equivalent of pieces and volume, and proportional to their envisioned needs. Exaggerated consumption of savoury drinks or foods was stated and specified, but not initially included in an acquisitive daily plan.

Analytical nutritional aspects

Middle schoolers are gradually acquiring reasoning skills to associate concrete choices within reach, lacking though perspective. Therefore, associations are present-oriented, as well as needs and intended actions. Our findings are consistent with the conception of food consumption as part of daily ritual to fulfil hunger. Water is a routine and welcome choice, associated with thirst, and is not consciously included in the daily plan. Specific food items were associated with meal time settings. Satisfaction from food consumption is the major factor for accepting a parental choice. Children expressed very strongly pleasantness towards specific nutriments, and their decisions were persistent. Agreeability rating was based on food savouriness or appearance, as compared to previous experience, and consistent with grading taste and vision as dominant senses. Nevertheless, only 38% of young and 25% of senior elementary schoolers decided to integrate extremely pleasant items in their diet. When

children were asked to form a dietary plan through a parents' perspective, dislike was not an excluding factor. It is obvious that at this stage, children are able to understand the notion of excess, to apply restraint and recognize discrepancies with parental choices. Differential pairing of food items or food preparation could overcome child avoidance. Our finding could help overcoming disapproval or hesitation to parental interference.

Abstract ideas, such as the "healthiness" factor of food, or food-related digestive upset, were not communicated. "Proper" dietary patterns have been discussed with parents or teachers, but no implication was made upon youth choices. Sensory experience, but not wellness, was determined as the major behavioural driver. Finally, no association of food with compensation or reward was expressed or observed, the reverse relationship neither.

Middle schooler's consumer identity

The term 'consumer culture' conceptualizes an interconnected system of commercially produced images, texts, and objects that people use to make collective sense of their environments and orient their experiences and lives (Kozinets, 2001). Individual consumers embody or negotiate these values, in particular social situations, roles and relationships (Arnould & Thompson, 2005). Gradually, children acquire skills to assimilate environmental information, which later on is accommodated to their own structures. Young children's actions are based on perceptual skills. According to Roedder John (1999), it is not plausible for them to understand basic economic concepts or the implicit messages contained in advertising. Abstract reasoning at adolescence allows the realization of market complexity. The nature of the social environment in which the child is involved, and the type of reinforcement or feedback provided by the environment facilitate children's participation in joint consumption activities (de la Ville & Tartas, 2010). Child consumer activities at the social level are mediated by various cultural tools such as the language, the social standards called upon, the rhetoric evoked, and the purchased products. Through everyday activities, the child gradually assimilates a conventional language particular to consumption, such as concepts of brand, price, quality, comparisons of products, and a set of social standards relating to consumption in a given cultural context, that are mastered as references. Lev Vygotsky introduced the concept of 'psychological' or 'semiotic' tools to account for the relationship between the individual and the external world (Wertsch, 1985).

Food consumption barriers and facilitators

In order for a child to develop to an economic actor, several barriers and facilitators interfere. Similar barriers and facilitators apply to the emergence of a mature food consumer. In a multistate study, across six US sites, the core barriers for 5th grade students (321 children) were competing foods (e.g. soda, junk foods, sugary foods against whole grains, milk, fruit and vegetables), health concerns (e.g. milk allergy, upset stomach), taste/flavour/smell, forgetfulness (especially against vegetables and fruit), and difficulty to consume or specify the recommended amount (against milk and fruit) (Nicklas, et al., 2013). In our case, children 7-11 years old were mostly oriented towards the flavour experience of the consumed food. Health concerns were not mentioned, and no parent stated food intolerance or allergy. As previously reported, understanding of the relationship

between foods or nutrients and health was only occasionally evident, as was the idea of moderation or balance (Noble, et al., 2000). Ross & Wu (1995) found that, while children viewed foods as 'healthy' or 'unhealthy', the concept of balance was present. The children associated 'healthy' foods with homemade foods, foods eaten at home and with 'proper meals' which were perceived as traditional, having more than one course, meeting with adult approval and meals which were shared. In our case, though smell and texture were not initially advocated for food pleasantness, the majority of children in both age groups preferred consuming meals when warm. Freshly prepared food is more likely to dissipate odour stimuli, and present a more discernible and tender texture. Noble et al. also found a preference over freshly prepared food, rather than for pre-cooked and reheated food (Noble, et al., 2000).

Taste-oriented choices are the major index of food consumer evolution. Distasteful food aliments are not embraced, and potential solutions are devised. Children are primarily exposed to the standard food flavour enhancers, salt and sugar/honey. Coulson, et al. (1996) found that the awareness of additives in food increased with age, and that they were generally perceived as a good thing. Our study group was overall familiarized with milk additives, since early age, but students of 10-11 ages rather preferred plain milk. A recent retrospective study of children 11-13 years old discouraged the consumption of flavoured milk when evidence of overweight/obesity is apparent (Noel, et al., 2013). On the other hand, increased age correlated with expanded knowledge of spices and herbs. Condiments, dressings or sauces were not included in the intended daily plan, and a few children enumerate them in the category of spices. Parental awareness of child cravings for sweet did not account for sugar added in milk. On the contrary, parents were concerned with extra salt added in meals. Increased consumption of salt was well correlated with the propensity for palatable food, especially when these types of foods were sought outside home settings. Pursuit of enhanced food palatability in conjunction with animal protein was greater in pre-adolescents.

Servispaces

Food consumer identity towards a food product or product group is occasionally affected by the surroundings. Product context can facilitate product initiation, but also associate product consumption with people, places and events. Accommodation and adaptation processes allow children and even adults to follow certain attitudes. We first investigated children choices regarding snack purchase at school settings: 24% of young vs 16% of older middle schoolers were intended to buy their morning snack from the school cafeteria, while the rest would prefer to bring their own from home or with parental approval. Regarding their meal choices, 10% of both group ages entrusted siblings to prepare their food, instead of parents, and 34% of young and 14% of senior mid-schoolers would prefer to dine off home. To our understanding, younger pupils exhibit an exploratory behaviour towards food choices, in contrast to older ones, that have accommodated to their physical environment, established some social network or succeeded to impose their appetite.

We further tested whether food consumption can be related to a memory, especially an olfactive one. Though smell has not been selected as of great importance as related to food consumption, most children had

made positive associations. Younger children were more likely to associate food smell with feast/holidays, while older ones with a physical place. Our data support the socialization of children regarding food consumption outside the family settings over time. Overall, foul-smelling places were considered not appropriate for food consumption. Inadequate odours related to food preparation or preservation or food market places were listed.

Middle schoolers' socialization

Consumer behaviour is always expressed in a social environment, under the reciprocal influence of family, peers and media. Consumer socialization agents initiate children and adolescents into their roles as consumers, by helping them acquire the skills, knowledge and attitudes, in order to function in the market place (Ward, 1974). Close environment could have variable effect, as family could comprise both parents and adjacent siblings (Cotte & Wood, 2004), even parents with conflicting approaches (Erel & Burman, 1995). Relative social influences (social learning) would shape further cognitive developmental process towards the evaluation of commercial stimuli (Moschis & Churchill, 1978). Contemporary research emphasizes on the mutual role of consumer and commercial approaches, based on individual needs, as defined by culture, ethics, authenticity, even the tendency for reverie (Arnould & Thompson, 2005). Such concepts are not expected to be conscientious or pursued by children of mid-school age, as they operate in a preconceived world. However, intellectual exchange on market values, consumer strategies and actual possessions, may have a stimulating effect on their development into young adolescent consumers, able to implement choice and restrain (Drenten, 2013).

Parental influence on children socialization

Parents are the primary influence on children to inculcate consumer beliefs and habits (Gunter & Furnham, 1998; Ward, et al., 1977). As children age, parental control over children's consumerism is likely to diminish. The level of psychosocial or emotional development defines the social conflicts they undergo, hence the primary social agents involved in resolving these (Bachmann, et al., 1993). Although parent-child frequency of interaction may decline (Moschis, 1987), the nature of the influence remains firm (Gunter & Furnham, 1998). Consumer behaviour is apparent in every aspect of our daily life. Parental influence is first transmitted through discrete patterns of behaviour that are automatically followed by their pupils. Mimicry since infancy allows the repetition and integration of parental choices (van Schaik, et al., 2013). Rationalization of parents' behaviour allows children, to further use or avoid similar approaches, and sentimental bonding consolidates positive reflections. The picture though is more complicated, as children's food-related behaviours were found associated with parental choices, as early as during pregnancy (Symonds, et al., 2013), due mostly to biomolecular and genetic mechanisms.

Cognitive development on the other hand, allows also a conscious and targeted training towards consumerism. Parents are intended to guide and question children choices, and later allow some degrees of freedom. Mother-child interaction variables provide positive support for the child's performance on consumer skills at the preoperational stage. Later, middle schoolers are influenced by more subtle aspects of parent-child interaction, such as family communication and peers or

market input (Moschis, 1987). At this age, children are provided with a variety of consumption opportunities, and beneficial training would rely on parent's supervision and socialization. Unsupervised children choices are subjected to trial and error processes, and preconditioned by structured skill learning. Successful choices further facilitate the establishment of consumption autonomy, and the application of selection criteria.

Peers influence on children socialization

Peers influence, though underestimated (Roedder John, 1999), is a significant source of influence upon children's consumer behaviour. Under the age of 5, susceptibility to a reference group is minimal, due to lack of acknowledging and following someone else's perspective. Middle schoolers are likely to be influenced by their peers, as they recognise individuality. They may even either dismiss or accept a friends' opinion, due to sentimental reasons, despite the type of product. They can also anticipate other's reactions to their opinions and behaviour, and consider their own preferences in conjunction with others' opinions. Strongest susceptibility and sophisticated sensitivity to a reference group is due when psychological impressions are linked to consumption preferences and choices, especially at adolescence (Bachmann, et al., 1993). Peer-dependency is associated with an increase of time spent away from family and home and a potential involvement in household consumer decision making (Hall, et al., 1995). Although parental mediation is often preventing actual product purchase, consumer attitudes and habits are communicated.

Media influence on children socialization

The majority of intervention market policies, addressed to a large public, aim to structure product character and instruct a directional choice. Television is the main consumer socialization media, through which children are exposed to product awareness and advertising (Coon & Tucker, 2002). The relative degree of such influence, as compared to parents and peers, is disputable, and criticism usually considers television exploiting cognitive ineptitude in acquiring motives and desires, rather than satisfy primary needs. On the other hand, advertising often cashes in on what children and adolescents consider popular products and trends rather than creating such trends (Goldstein, 1999).

Television programs and advertising's influence on children and adolescents is indeed limited due to their developing cognitive abilities. A differential impact has been reported (Uusitalo & Takala, 1993), as children are only able to recall information peripheral to the product, and the youngest ones in particular can recall very little product-relevant information (Sanft, 1986). Perceptual product characteristics can affect learning, as they provide a logical network of cues and qualities, and could channel analytical thinking. Though, product acquaintance is mediated by proximity, hence through parental actual choices. In addition, middle schoolers are able to memorize phrases without understanding their meaning, insinuation or personal impact. Messages, that draw their attention through perceptual cues of affective value, are void of advertisement encoding. Non-strategic memory of product attributes is rather semantic. Elementary school children failed to identify stores from their advertising slogans (Reece, 1984), even when slogan recall was successful.

The importance of marketed values in children is extremely low, unless a distinct preference is presented or imposed by their physical environment. Consumer symbolism, as the act of adoption, adaptation and assignment to a specific branded choice is apparent for pre-existing possessions, extremely biased upon gender, but void of cultural context (Nairn, et al., 2008). A recent study on 63 preschool children from low-income families in San Mateo County, California, showed increased preference for food items (McDonald's nuggets and fries, and carrots and milk purchased at a local store) wrapped in McDonald's packaging instead of plain paper (Robinson, et al., 2007). A similar study on 65 preschoolers of all income brackets in Alberta, Canada, showed increased preference for a colourful packaging, rather than for branded or plain (Elliott, et al., 2013). These findings clearly indicate that children are motivated by food presentation, and depending on cultural context, food branding may influence children's taste perceptions.

On the other hand, iconic presentation can stimulate attention to commodities. "Branded celebrities", such as David Beckham and Britney Spears, are well recognised by English children as trendsetters, instead of the represented brands (Croghan, et al., 2006). This finding may elucidate the greater importance of clothes and trainers amongst older age groups. At this point, children fixation to role models may reflect their elaborated ability to function outside family rules, appreciate opinion diversity and develop affectionate alliances.

Permutation of children choices

According to Piaget, middle schoolers are gradually shifting to a more flexible code of action, as they appreciate intention of behaviour and justify choices. At this point, parental rules are likely to be rejected or incorporated in life as part of an array of potential approaches. Parental advice is perceived literally, as child's own viewpoint emerges, and subsequent options materialize.

Research shows that a parent's level of education can have a significant influence over this environment. Various studies have identified a relationship between parental education and a range of factors including the amount of time parents spend with their children in general, the amount of time they spend talking with their children and the range of vocabulary used, and the frequency at which they read to their children and the number of books they make available to them (Bradley & Corwyn, 2002; Tucker-Drob, et al., 2011). Approximately 88% of the parents of our study group have completed the mandatory secondary education, of which 35% received a higher education degree, while one parent holds a master degree. Most of the participants reported an average disposable income lower than the OECD average. A 12.6% reported a wage below the national minimum standard, and 21%, though above the limit, they reported a maximum salary of 10000€. One family highlighted their incompetence to meet expenses and children nutritional needs. Overall, parental interference with children food choices was reflected in applying restraint against sweets (53%) and salty snacks (50%), and to a lesser extent against pre-cooked food (20%). Obviously, excluded food choices are the core issue in consumer-socialization. O'Dougherty et al. (2006) reported that half of parent-child negotiations in retail environments involve a child receiving a sweet food or snack. To our surprise, 24% of young mid-schoolers parents and 31% of the senior mid-schoolers parents, stated

that encourage their child to consume food *ad libitum*. It is unclear if parents do trust youth attitudes or if child has no access to food selection or purchase. Exercising restraint resulted in child fixation in 25% of young and 39% of old mid-schoolers, thus it is possible that some parents are aware of this outcome and adopt other approaches.

Children rated potato chips, as the top choice of the pleasant advertised foods that do not often consume, but few listed the item in the category of desired unlimited consumption or included such choice in a daily meal plan. On the other hand, elementary students reported fruits as the most accommodated food choice, as seen in TV. Visually appealing presentations have a strong effect on fruit consumption (Krolner, et al., 2011), and children may extrapolate their ordinary experience to the media. The only reported accommodated marketed product was fortified cocoa milk flavorant. Youth consumers discriminated it from sweet or cocoa additives. This finding supports a diminished skill in associating ingredients with taste, and the application of a rather inductive than deductive reasoning. Overall, no association between branding and food choice was established.

Children and parents exhibited a uniform tendency to taste new foods, while only 5-10% was found hesitant, especially parents. Our youth study group showed an increased congeniality towards novelty, probably due to a "safe learned" exposure (Birch, et al., 1987). No statistical correlation among parent-child neophobic response was found. Repeated exposure to unpalatable or undesirable food items may facilitate consumption (Birch, 1999), though the introduction of new materials or preparations would be cherished.

Children screen time

For nutritionists, the most important aspect of television impact on children's health is related to the time spent in front of the apparatus. Increased television watching has been primarily associated with a sedentary life style (Swinburn & Shelly, 2008). Overall, all students affirmed that they spend some time during the day watching TV. However, 57% of young mid-schoolers and 79% of senior mid-schoolers are satisfied from this experience and would rather not prolong this activity. It is also suspected that this activity is not entirely intentional, as only 11% of 7-8 years old and 7% of 10-11 years old would sacrifice their leisure time in front of the TV set. We further investigated if children enjoy their meal in front of the TV, instead of socializing with peers and family, as such conditions have been implicated in unhealthy choices, regarding meal content, pace and frequency (Fiates, et al., 2008). Both age groups were found to consume their meals while watching TV, by 70%. Correlation analysis between TV watching during meal and sufficient TV exposure, showed absolutely no relationship (Pearson's correlation 0.05 and -0.03 for 2nd and 5th grade respectively). Our findings further support that the majority of our subjects would be willing to alternate to other activities while dining.

Concluding remarks

Food preferences in childhood have been long established to affect dietary habits over lifespan and have both short- and long-term health consequences (Kemmm, 1987). Marketing of nutritional policies to disseminate attitudes, related to a healthy nutritional behaviour, should consider that children can classify objects and marginally

consider cause and effect, filtered through their own experience, at a short-term impact (Lytle, et al., July 1993). When long-term consequences are discussed, no association is made (Natapoff, 1982). Parents could stimulate their children's learning by creating an environment which centres on play, engaging in their children's activities and providing materials and resources (Canadian Council on Learning, 2006). Media could expedite habituation with many products and their visual and audible characteristics, and potentially promote learning by comparison to familiar values (Mazzonetto & Fiates, 2014). As the major attributes of food, such as taste and smell, are not communicable, experience-based learning would be necessary prior to any media intervention. UK efforts have emphasized on making school meals attractive and appetising as well as nutritionally balanced, recognising that 'unless children like that food they will not eat it' (Strong, 2002).

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