Food, design, users: how to design food interaction modes

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London Metropolitan University, with the International Food Design Society, is pleased to introduce the proceedings of the *International Conference on Designing Food and Designing For Food*. The conference aimed at providing a forum for the presentation and discussion of research on fundamental aspects of Food Design across all domains of application.

The conference encouraged researchers and academics to submit abstracts for a 30 minutes Paper presentations, and students to submit abstracts to display Posters summarizing their work. The conference also proposed a special session for designers and researchers to exhibit a model or prototype of their Projects and present their work in a 15 minute presentations.

The *International Conference on Designing Food and Designing for Food* follows the *1st International Symposium on Food Experience Design* held on November 9th, 2010 at London Metropolitan University. The symposium was a representation of the multidisciplinarity, transdisciplinarity and interdisciplinarity of design, food and experiential knowledge. Through six presentations from very different disciplines, the symposium created a panorama of the variety of disciplines that all contribute to Food Design. The *International Conference on Designing Food and Designing for Food* instead wanted to expand this concept to academics, researchers, professionals and research students from around the world. What are the disciplines influencing Food Design? How are these many disciplines influencing Food Design and how do these influence each other? Is Food Design now a discipline in its own right?

The conference call accepted papers from a range of different topics: Food Product Design, Design With Food, Food Packaging, Interior Design For Food, Food Events Design, Food Science, Food and Five Senses, Emotional Food Design, Food System Design, Experiential Knowledge, Food Service/Management, Food Design History, Food Styling. About 100 submissions were made among the three sessions: Papers, Projects and Posters. A double-blind peer review process selected 29 papers, 12 projects and 7 posters. Authors of Papers had to submit an abstract first and a full paper later, authors of Posters submitted an abstract, and authors of Projects submitted an abstract but were given the possibility to submit a short paper too, to be considered for publication. The following proceedings present the 29 papers presented at the conference and 4 short papers from the Projects session.

We consider this proceedings a good representation of the variety of disciplines involved in Food Design, and an accurate portrait of the current panorama of research and design applied to this discipline.

Francesca Zampollo and Chris Smith

Conference Chairs

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Food, design, users: how to design food interaction modes

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Abstract

Food is becoming a design material: its use and consumption along with the entire related scenario have changed. Food, in particular, is no longer of interest only to cooks and pastry chefs but also to designers, of food and otherwise. The design of the new "material-food" creates new sensory worlds: as a result, the taste is analysed as a new and unexpected experience.

At the same time, food handling is another crucial aspect that has acquired growing importance: what is the consumer's behaviour like when handling the food product? In other words, what are the ways and places of interaction between "this material" and the consumer?

It is clear that interaction modes with food are changing according to its "usage context" and its presentation form (extruded, expanded, sandwich, mesh, granules, etc.). These presentation forms are directly linked to food ingredients and are often mediated by the presence of a packaging, which determines the user's first interaction with the food.

An example is given by a study of a chocolate bar that is illustrated in this paper.

The chocolate can be eaten at home as a dessert or on a ski slope as an energising snack, but at the same time it can appear in different ways: as a multilayer when joined with cookies, as a moulded material in the case of cream chocolate or as a composite material when the chocolate bar contains nuts.

Starting from the mode of interaction and consumption that should be satisfied, a classification of the possible presentation forms of a chocolate bar can be carried out. Consequently, on the basis of this classification, innovative interactions modes of the food with its packaging and the final user should be devised.

As a result, according to the different interaction modes that should be achieved, the chocolate bar can become the object of the design process and therefore its design can be approached by following the design process usually adopted for a product.

Moreover, on these assumptions, should the real or virtual material libraries, generally considered by designers as a useful research and knowledge tool in relation to material innovations, enlarge the field of action with the inclusion of a section dedicated to food? Should the material libraries include a cabinet as a section dedicated to food and its presentation forms? The paper aims at describing the results collected so far by this research focused on "food as a design material".

Keywords: Food Design, Chocolate bars, Methodological Approach to Design, Interaction analysis, User interaction modes Sensory perceptions, Materials, Packaging

Introduction

The research field is food design, where the food is considered as material for the project, by means of which chefs and food designers experiment and search for new tasting journeys, while enhancing the sensorial perceptions of the user-consumer.

The paper illustrates a specific case-study, chocolate, documenting new design approach for the material-chocolate, capable not only of enhancing its taste, but also of simplifying its handling and consumption. Chocolate can be identified as one of the typical products of the Piedmont region and has been the subject of several design researches at the Politecnico di Torino.

The analysis of the different types of chocolate available on the market (chocolates, bars, eggs etc.) has led to the choice of a specific product category, the chocolate bars, often undervalued, being very common, but today very widespread and growing in the market (new tastes, new formats, new colours).

A further study into the world of chocolate bars and their variants has enabled the investigation of the existing relationships and reciprocities between types, tastes, ingredients, dimensions, formats, production processes. In this way it has been possible to define, for each type of chocolate bar, the most suitable consumption modalities for a planned interaction, which, however, not only considers the food and the consumer, but also takes into account the packaging, which is made of structure and materials that wrap the food product and for this reason, should be considered as an ingredient of the food product.

The research goal, through the analysis of all the protagonists involved in the interaction, is to define an innovative design system for the creation of a chocolate bar that can be savoured and tasted at its best.

Background analysis

Before going into the details of this research, it is necessary to make a brief digression into the world of chocolate starting with its production process.

It involves a very long and delicate process, starting with the harvesting of the pods containing the cocoa beans, this stage takes place in countries situated in the equatorial zones. Once harvested, the beans will undergo numerous production processes before becoming chocolate.

The chocolate is available in three basic tastes: white, milk and dark to which additional ingredients may be added thus obtaining new flavours and fillings.

The formats available are bars, chocolates, creams, snacks and other sizes such as ice creams, puddings, etc. Among these the bar is the most purchased, both dark and milk, representing the sector of the chocolate universe experiencing the greatest growth, both in volume and value, with a sales percentage of 50% (Amadori, 2002) in Italy.

And yet, the chocolate bar is often undervalued nowadays. Indeed, it is not considered a gift item, as happens in the case of chocolates, creams, Easter eggs, since it is often associated with individual consumption or for cooking.

However, it is important to underline how the new tastes developed have led to the planning of new shapes and formats of the bars, which, seen from a different perspective, may be compared to a box of chocolates. It is sufficient to think of any filled bar: at the moment when the individual squares are broken off and thus shared, many little chocolates are obtained, each with its own filling.

On these assumptions the chocolate bars are the objects of the research and consequently the research has been started from a detailed analysis of 40 bars available on the market (Fig. 1). From this analysis, firstly it is possible to identify different classifications or methods of interpreting a chocolate bar, based on:

- format, relating to the dimensions of the bar, distinguishable in mini, standard and maxi.
- portion, subdivided into single and multi-portion.
- form, distinguishable into simple and complex. The first type present in the collective imagination is composed of typical squares, easily broken off (through “invitations”), while in the second type more space is awarded to creativity and design.
- breaking off, which can be regular or irregular according to the presence or not of invitations-grooves.
- taste, that determines the classification of the bars into classic, flavoured, with filled pieces; the latter ones are further subdivided into liquid, soft and hard fillings.

Fig. 1 - The analyzed sample of 40 chocolate bars (Bruno S., Stabellini B., 2011)

Methodological approach: analysis of interaction

Once the subject of the study, the chocolate bar, was identified, the research then moved on the analysis of the interactions that involve this product, by examining, firstly, the protagonists, that are: the user, the packaging and the chocolate bar itself and then by identifying the relationships that can be determined between these protagonists.

The protagonists of the interaction

Entering into further details, it is possible to identify three principal players that come into play in the investigated interaction: that is, the chocolate bar, the consumer and the packaging (Fig. 2).

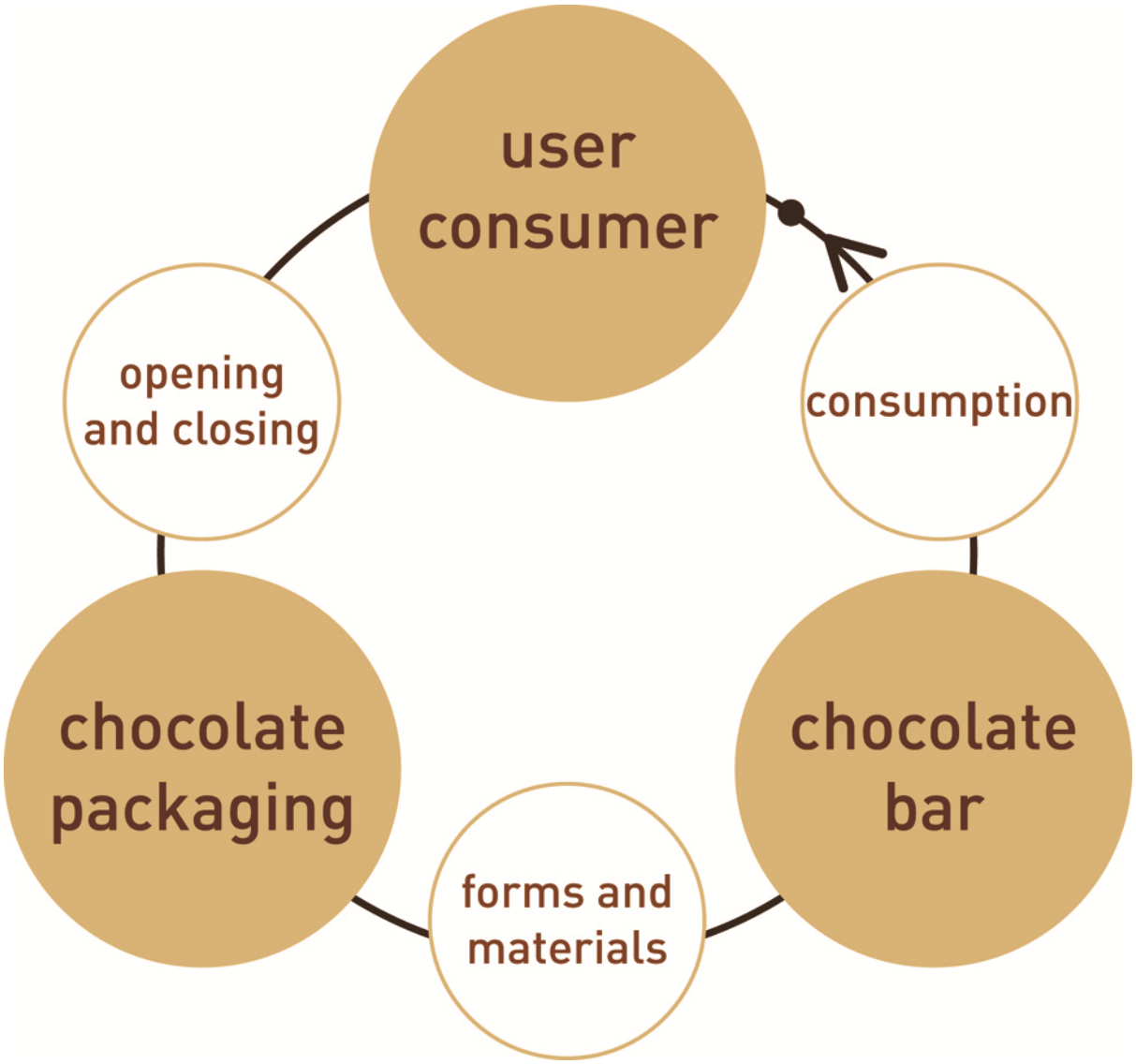

Fig. 2 - *Analysis of interaction scheme (Bruno S., Stabellini B., 2011)*

User-Consumer

The user chooses to consume the chocolate for different reasons: physiological and psychological (Langham, 2003). From the physiological perspective the chocolate is capable of stimulating the production of serotonin, while determining an improvement in humour; on the other hand, from the psychological viewpoint, chocolate consumption can be associated with particular situations, such as festivities, anniversaries, moments of self-gratification or consolation, thereby assuming a positive value. Four types of consumers can be distinguished:

- the tasters, that is, those who look at chocolate with a scientific approach, not governed by instinct, but by rationality; they know how to consider the food in all its parts and choose the

right chocolate for the appropriate moment. Consumption is often connected with a tasting and a training course.
- the cultured ones, for whom consumption is associated with a social and affectionate exchange, as with an evening among friends or in an the privacy of his home, after a meal, a dessert, as self-gratification.
- the passionate ones, that is, those with a sort of primary defined passion, not organised into codes and legitimate reasons. There is no rational explanation to the consumption, but it is regulated by impulses that are associated with gluttony and whim, and are therefore not associable with any particular time of the day.
- the sporty ones, that is, those involved in jobs with high energy demands. Chocolate is seen as a food supplement and is consumed when it is considered that energy to burn is needed or to restore energy after physical activity.

Based on all of this, it emerges that the different individual consumers of chocolate attribute various significances to chocolate, not classifiable definitively as correct or incorrect.

Packaging

The chocolate bars are contained in packaging that above all satisfies a series of functional requirements including: keeping the product in the best way possible by protecting it from light, humidity and heat (that could compromise its organoleptic or aesthetic qualities with phenomena of blossoming of the sugars and cocoa butter) and facilitating its consumption through straightforward packaging, easily open and possibly resealable.

In addition to the indispensable functional requirements, packaging should also satisfy a series of informative requirements (sales classification, cocoa content, name and location of the producer, ingredients, best-before date, weight, cocoa provenance, nutritional values and conservation methods) to increase the user's knowledge of the product and its environmental requirements (minimisation of resources and disposal of packaging, also of topical interest nowadays in the food packaging context (Allione, C., De Giorgi, C., & Lerma, B., 2011).

In the specific case of chocolate bars as a result of analyses carried out on 40 different products on the market, it is possible to identify three main packaging types, which are characterised by different forms and materials:

- box, generally made of cardboard and easily resealable in the majority of cases.
- flow pack, a packaging, made of plastic film or multilayers, that is sealed at the two ends. This airtight packaging in general, cannot be resealed.
- wrapper, packaging obtained by means of a sheet of paper, which, by using folds, wraps the chocolate bar, without resealing it in an airtight manner. In certain cases the wrapper can be the primary packaging (in aluminium, polypropylene or paper) of the box or other types, or may be a double wrapper, that is, with a second layer generally made of paper (Bucchietti, V., & Ciravegna, E., 2009).

The bar

From the analysis carried on the bars easily found on the market (Fig. 1) and, in addition to their classification based on form, portion, breaking up and taste, it is possible to outline an additional and innovative method of classification based on their various presentation forms.

Classification that is not limited to the simple distinction between simple and complex form (composed of the typical squares easily divisible and separable or left to the creativity of the creator), but which was extended by comparing the different structures of the bars with the presentation forms of traditional materials (metals, woods, composites, etc.) and the related production processes, such as fusions, mixes (composite, sandwich boards, mouldings and foams).

Each presentation form is determined firstly by the component ingredients, and on many occasions it will be determined by a combination of two or more of these (Fig. 3).

Fusion

Fusion is a process that allows melted material to be cast inside a mould. In this context it can be compared to the chocolate tempered in the basic tastes (white, milk and plain) and subsequently cast into moulds in the complex or less complex form.

Composite

The composite is a material composed of various elements joined by means of a binding substance. In the world of chocolate the binder is composed of the three base tastes (white, milk and dark), to which are then added the elements, which, depending on size, will define four different granulometries of the mix:

- very fine, characterised by the insertion into the matrix of elements that are so fine as not to be detected in a tactile manner by the palate or only to a minimal degree. These ingredients can be: aniseed, coffee, cinnamon, cardamom, liquorice, mint, nutmeg, paprika, white pepper, black pepper, pink pepper, chilli pepper, vanilla, ginger, etc.;
- fine, presents fine elements detectable, if only to a minimal degree, by the palate, such as for example: orange salt, tealeaves, bean grains, cane sugar, caster sugar, etc.;
- medium, composed of elements of a dimension such as to require chewing, even if minimal: caramel, cereals, nuts (cashew nuts, peanuts, almonds, hazelnut, walnuts, pine nuts, pistachios), biscuit chips, fruit peel, etc.;
- large, distinguishable by the presence of large elements, such as to require a chewing, by necessity: biscuit, candied fruit, caramel, cereals, nuts (cashew nuts, peanuts, almonds, hazelnuts, walnuts, pine nuts, pistachios) etc.;

As a result, by the addition of the elements, the obtained pastry will be blended and subsequently poured into the special moulds.

Sandwich board

By sandwich board is intended a material consisting of two skins or sides separated by a core. In the world of chocolate bars this presentation form is distinguishable each time by the presence of a layer within the chocolate.

The skins are created through the fusion process in the three base chocolates (white, milk and dark), while the internal layer (the core) may have a different consistency depending on the component ingredients: biscuit, milk, marzipan, stracciatella, wafer, yogurt, etc.

Moulding

Moulding is a process that enables plastic material to be injected inside a mould. The parallel with the world of chocolate bars is possible thanks to those bars with a structure such as to appear as many chocolates combined. In this case the mould is represented by frames created through the fusion process of the base tastes (white, milk and plain), into which the filling will be injected, which may be distinguished as follows:

- liquid, such as, for example, coffee, liqueurs and wines;
- semi-solid, such as jams and mousses.

Foam

Foam is defined as a material, which is composed for the most part of its volume of air. It is possible to draw a parallel with the world of chocolate bars by identifying a new addition to the sector, that is an aerated chocolate, such as a foam. This type of chocolate is obtained by means of a physical process requiring the use of certain gases. Current production is limited to white, milk and plain tastes.

By adopting this methods of classification (Fig. 3), in addition to identifying new design approach, is the definition of a potential method of classification of the chocolate-material that could be used within a cupboard section of the material library, as we will see in subsequent paragraphs.

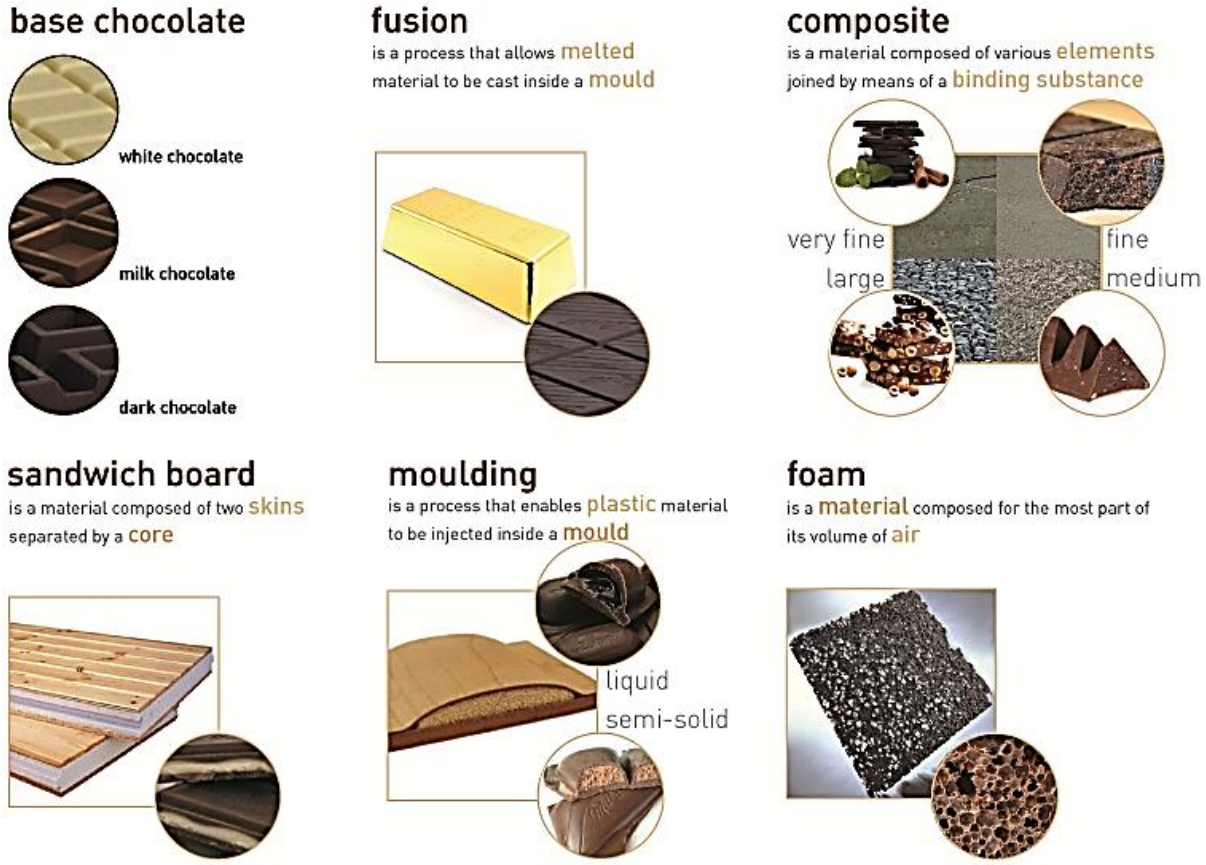

Fig. 3 - Classification of chocolate bar presentation forms (Bruno S., Stabellini B., 2011)

Interactions between the protagonists

Once the protagonists of the interaction were investigated, the study moved on to the analysis of the real interaction that takes places between the three involved players (Fig. 2).

A first action is identified in the opening and/or closing of the bar's packaging, focusing on the user-packaging relationship. A second action is identifiable in the consumption of the bar, highlighting the bar-user relationship, by a sensory-tasting experience. Interactions triggered by the structures and materials that make up the packaging, which carries out the function of mediator between consumer and bar.

Opening and closing

The first interaction between the user and the chocolate bar is the opening of the packaging and eventually its closing.

This occurs thanks to the concept of affordance (Norman, 1997), or rather, that combination of actions that an object "invites" to be carried out on itself. This concept neither belongs to the subject itself nor to its consumer, but is created by the relationship that is established between them. Therefore, the affordance will be higher, the use of an object, in this case of a packaging, will be more automatic and intuitive.

Opening

By an objective analysis of the opening action (Fig. 4), it is possible to identify two opening ways with the use of an instrument, as in the case of some flow packs that are strongly sealed and can be open only by using scissor, or without an instrument.

In the second case, when the use of a utensil is not required, it is possible to identify a further distinction between: opening in the presence of invitations or without, dictated by the consumer's experience.

Specifically, in the case of opening with invitations (Fig. 4), we can observe that generally there are four types of invitations:

- invitations to remove, there is a type of "place" on the packaging in which it is possible to place the thumb and through the use of the remaining fingers, you can get to the opening to remove the flap;
- invitations to tear off, the packaging presents places-tabs with broken lines that suggest to the user/consumer to open the bar by means of the removal by tearing these parts;
- graphical invitation, in certain cases, on the packaging there is writing or arrows or, in general, graphical indications suggesting to the user the exact point at which to complete the opening;
- invitations to "release", in this case, the packaging is closed by means of the physical connection of its two ends, having a structure such as to allow them to be joined.

In the second case, of opening without invitations (Fig. 4), it is possible to identify five modalities of opening:

- unsoldering: this opening method is used in packaging with a flow park structure, in which closing is created by a welding of the material;
- removing the tab: this type of opening is very similar to a method of opening with invitations (invitations to remove) and is present in packaging with a box structure. In this case, unlike the opening mentioned above, there is no place for the finger, but, thanks to his own experience, the user will manage to guess the method of opening;

- peeling off, involves a very simple opening regarding packaging with a wrapper structure;
- tearing off, involves a very simple opening that occurs with aluminium packaging;
- unwrapping: is a very rare type of opening, consisting of unwrapping the bar almost like a gift.

Finally we can detect that the opening action can take place on the front, side or back of the packaging itself, requiring the presence of an aid or not.

Fig. 4 - Opening systems (Bruno S., Stabellini B., 2011)

Closing

In the same way, by analysing the opposite action of opening, the closing (Fig. 5), it is possible to recognise three different modalities of resealability:

- induced: the structure itself of the packaging suggests the method of closing the packaging to the user/consumer, and is generally present in packaging made of cases and boxes.
- indicated: some packaging presents graphical indications, such as writing or drawings, that indicate and explain the method of closing.
- do-it-yourself, involves a type of resealability that is born of the experience of the user-consumer and may require the input or not of new material.

Despite the bars being rarely single portion, the resealability of their packaging often tends not to be a widespread characteristic, and if present, it is not always so easy and immediate. Furthermore, in many cases, if an incorrect opening occurs, the closing, even if provided in the packaging design, may fail.

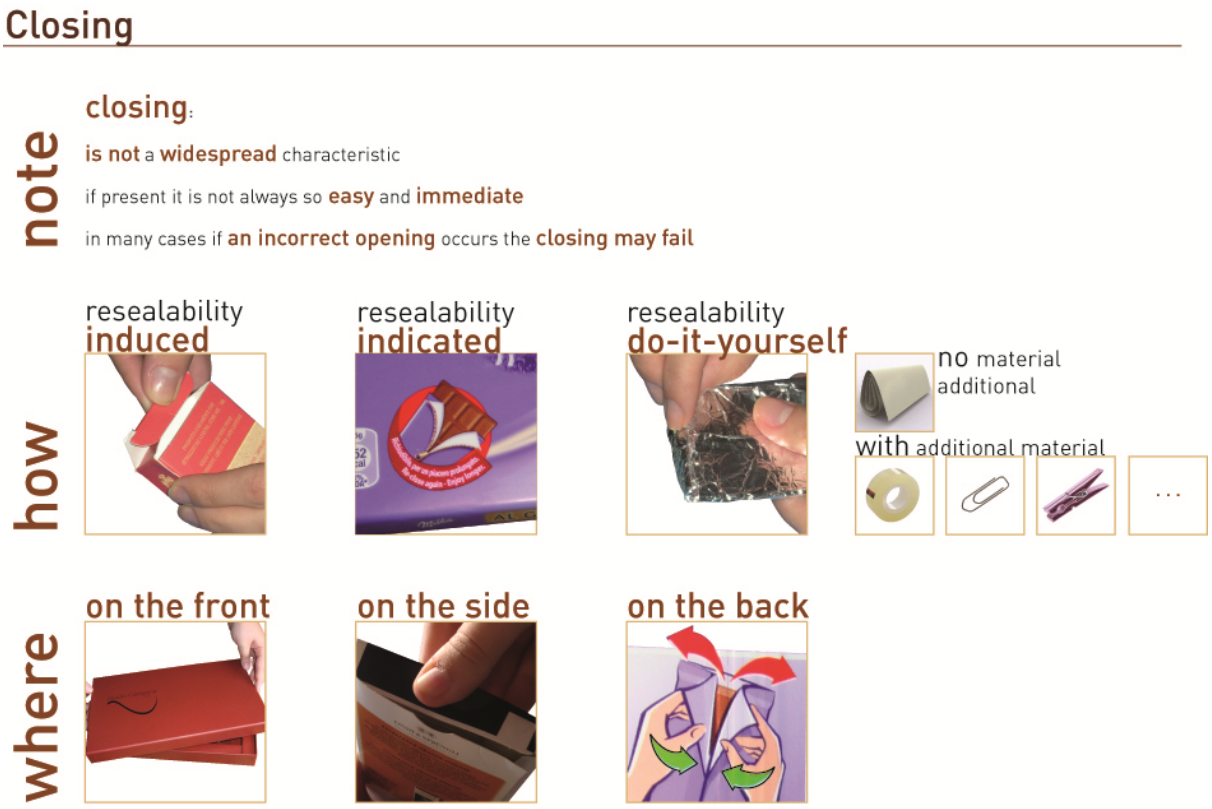

Fig. 5 - Closing systems (Bruno S., Stabellini B., 2011)

Consumption

The second analysed action is the moment of consumption during which the interaction between consumer and chocolate bar occurs and the user's real tasting-sensory exploration starts.

It is possible to identify three sequential interactions that may occur during consumption and are dictated both by the characteristics of the chocolate itself and by the choice of the user-consumer, while influencing the sensory perception of the food being consumed.

The first interaction consists of the first approach to the bar, when the user-consumer prepares to consume it, to eat it, and concludes with an action of choice between breaking off or biting, according to determined characteristics.

The second interaction follows the first one by necessity and may lead the user to choosing to bite the piece of chocolate or melt it in the mouth.

Although the first two are necessary to start and eat the bar, the third interaction, which consists of licking the fingers may not be carried out by all user-consumers, since is not pleasing to the consumer or simply not necessary. Whatever the choice of the user-consumer, this will substantially influence the perception of the chocolate bar product being enjoyed.

Fig. 6 - First Interaction: breaking off and biting (*Bruno S., Stabellini B., 2011)*

First interaction: breaking off

Breaking off (Fig. 6) is an interaction that the consumer usually adopts at the moment in which he approaches a multi-portion bar.

Indeed, the user can choose *how* to break off the bar, by using a utensil or by using his hands. In the first case the user-consumer will not soil himself, while, in the second case there is the possibility that the body heat will melt the outer layer of the chocolate, which will therefore soil the consumer's fingers. As regards breaking off by means of the use of a utensil, the action may be carried out both with a bar that possesses invitations and with one characterized by a more refined form, and therefore without invitations. In the case of breaking off with the hands, two types of breaking off may occur, regular and irregular.

The first possibility will take place in the presence of a bar with invitations, which will be conceived in an appropriate way to the type of chocolate; the second, on the other hand, results from the approach to bars without invitations.

Breaking off is an action that may be carried out not only with multi-portion bars, but also with single portion bars, in the case in which the consumer wishes to share or simply taste the chocolate bar: indeed, in the most common cases, the biting interaction takes place.

First interaction: biting

Biting (Fig. 6), is an activity that takes place in the presence of a single portion bar, in so far as the user/consumer will proceed with difficulty to bite a multi-portion bar that can be shared or keep for brief periods and subsequent tastings. In this case also the user can choose how to break off the bar, while soiling the hands or not.

Indeed, the consumer may avail the possibility, offered by certain types of packaging, of eating the chocolate without having direct contact with the hands. The user may bite any type of bar with or without invitations. In the first case it is imagined that the consumer is helped or better directed towards a determined point, the point at which to carry out the breaking off. In the second case, on the other hand, the user himself will decide the point at which to bite.

As regards the biting interaction, it can be stated that in certain cases this action can follow the breaking off. Sometimes, indeed, it is possible that, by breaking off a multi-portion bar, a piece too big to be completely inserted in the mouth is obtained; therefore, in this case, the user-consumer will proceed to bite the chocolate.

Second interaction: chewing

The chewing interaction (Fig. 7) represents an action that usually follows that of biting.

The user-consumer, indeed, having bitten the chocolate, will continue the interaction by chewing; in certain cases, it involves a journey almost completely unconscious. The consumer carries out this type of activity with any type of chocolate, from chocolate in pieces to the classic one, from the liquid filling to the soft filling, perceiving, however, different sensations.

It is important to underline that, once chewing the chocolate is finished, the melting action comes into play, since, in general, traces of the "food of the gods" remain on the tongue and in the mouth and are "removed" through melting.

Second interaction: melting in the mouth

Melting in the mouth (Fig. 7) is the action that the user-consumer carries out at the moment when he wants the chocolate to have itself eaten.

The chocolate has a melting temperature much less than the one encountered inside our mouth therefore it is possible to state that in the melting in the mouth it is the chocolate having itself eaten, without any effort by the consumer (such as biting) rather than the user-consumer eating it. Usually, it is though that this action is dedicated to a classic chocolate only, but there are users that also choose to melt in the mouth types of chocolate with pieces, in this way, leading to the isolation of the elements added to the chocolate, such as hazelnuts, chocolate chips, puffed rice, which must be

chewed.

Fig. 7 - Second Interaction: chewing and melting in the mouth (Bruno S., Stabellini B., 2011)

Third interaction: licking the fingers

It is the activity that enables the completion of the initiated journey. It involves an action the user-consumer can carry out to clean the hands or out of gluttony.

The user-consumers decide on one type of approach rather than the other also based on their gluttony, indeed, as a famous advertisement states “if you don’t lick your fingers you only enjoy by half”.

Designing starting with the interaction

Once the analysis of the interaction with the chocolate bar is completed it is possible to make certain observations. The design process, currently used by the food designer, generally has as the initial point the taste of the chocolate bar to be created.

From the analysis carried out, in parallel with the search for a new taste, the design journey that leads to the creation of a new chocolate bar could also take into consideration the user-bar interactions, thus outlining a new design approach. Indeed, from the parallel study of the consumption ways (breaking off and biting for the first interaction, chewing and melting in the mouth for the second, and licking the fingers for the third interaction), and from the analysis of the presentation forms of the chocolate bars (fusions, mixes, sandwich boards, mouldings, foams), it may be noted how it is possible, by means of an overlapping of the results obtained, to develop an innovative design methodology, that allows to created bars that are capable of improving the sensory sensation when they are tasted.

This new design method, which should be adopted as an instrument for the food designer and planners, is aimed at starting the design process from the desired interaction that the user will develop with the bar. This would enable chocolate bars with characteristics (presentation forms, ingredients, and packaging) that are more consistent for the specific consumption modalities. The system consists of three large areas that correspond to the consumption modalities, the bar presentation form and the packaging (Fig. 8).

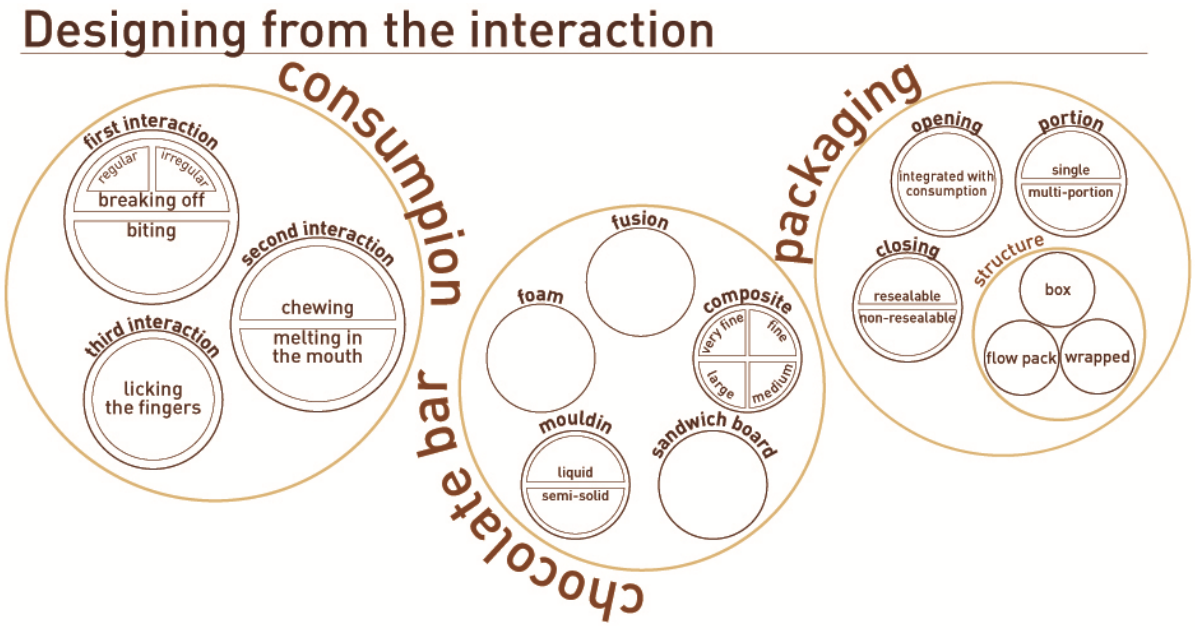

Fig. 8 - Methodological approach to the food designing by using the interaction analysis (Bruno S., Stabellini B., 2011)

The first element, starting point of the new design system, is given by the consumption methods (first interaction: regular or irregular breaking off and biting; second interaction: chewing and melting in the mouth; third interaction: licking the fingers) that individually come into play. The presentation forms (fusions, mixes, sandwich boards, mouldings and foams), constitute the second element, closely connected to the consumption methods, in how it is composed. The third element, the packaging, refers to the portion of the bar (single or multi-portion, to the opening (integrated with consumption)

and closing (resalable or non-resealable) and to the packaging structures (box, flow pack and wrapper).

The areas related to the presentation forms and the packagings are strongly influenced by the consumption methods, particularly by the first interaction, which determines, specifically, the principal characteristics of the packaging. In the moment when the attention is focused on the second and third interaction, the third element (packaging) will be abandoned, in so far as it is like a zoom were created inside the mouth of the consumer. Currently, the design methods have the taste of the bar as their starting point, and it leads the designer to creating formats and presentation forms that, often, pay little attention to the methods with which the end user will approach the bar.

Despite to these, the presented system (Fig. 9 - 10) is put forward as an instrument for designers who, in addition to searching for the taste of the product, consider the interaction with the user-consumer to be central: the user-consumer is at the centre of the project (Germak, 2008), keystone of design choices, aimed at the creation of a new chocolate design, a new bar.

For example (Fig. 9), by adopting this new approach, if the designer wants to project a chocolate bar that should be biting, he can chose between different presentation forms (fusion, foam, composite, etc.); moreover he can aim the project of the packaging into the selection for a single portion packaging, not resealability, whose structure should be a flow a pack or a wrapped packaging. On the other side (Fig. 10), if the designer choose to start from the second interaction, such as chewing, he can chooses the chocolate presentation form that should not be fusion or with a composite very fine and the packaging should follow these choices

As a result, by adopting this innovative design way, the user-consumer should be guided into the several consumption modes, that are before carefully planned by the food designers, in order to satisfy and improve its sensory perception.

The next steps of the research, which is work in progress, is to put into practice this methodological approach in a case-study which will be focused on conceiving a new bar that will be, for example, representative of the Piedmont Region characteristics and of its chocolate values. The adoption of this design method in a case-study will get the chance to test this methodology and then to evaluate its potential adaptability for the designing of other food products.

Conclusions

The planner-food designer, by adopting the proposed design methodology, will be able to analyse in an optimal manner all the parameters that should be involved in the chosen consumption modalities (biting or breaking off? chewing or melting in the mouth? licking the fingers?), while considering various factors, such as for example the times and places of consumption, the dimensions of the mouth, etc. in order to define portions, thicknesses, of the “good” bar, obtained from the optimal mix of ingredients, format, taste and packaging. Therefore, this methodology (Fig. 9 -10) brings about an innovation of the chocolate design, extendable hypothetically to other food products designed by designers.

Furthermore, the information necessary for the use of the instrument, related to the presentation forms of the material-chocolate, to the consumption methods and most suitable packaging types, could be useful to planners, food designers who wish to design not only the food, but “for” the food (from the packaging to the instruments for consuming the food).

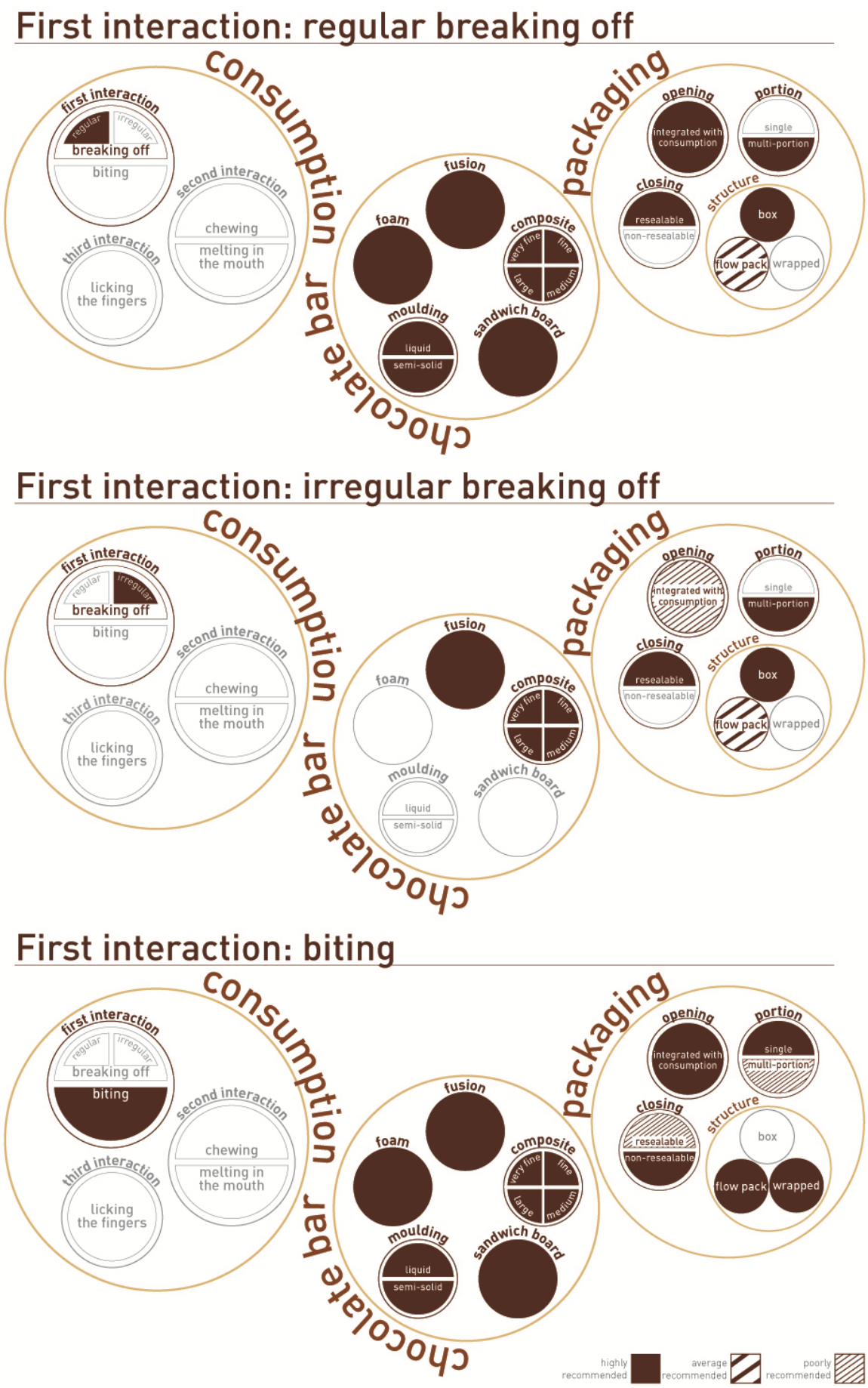

Fig. 9 - Method of Designing by interaction analysis: First interactions (Bruno S., Stabellini B., 2011)

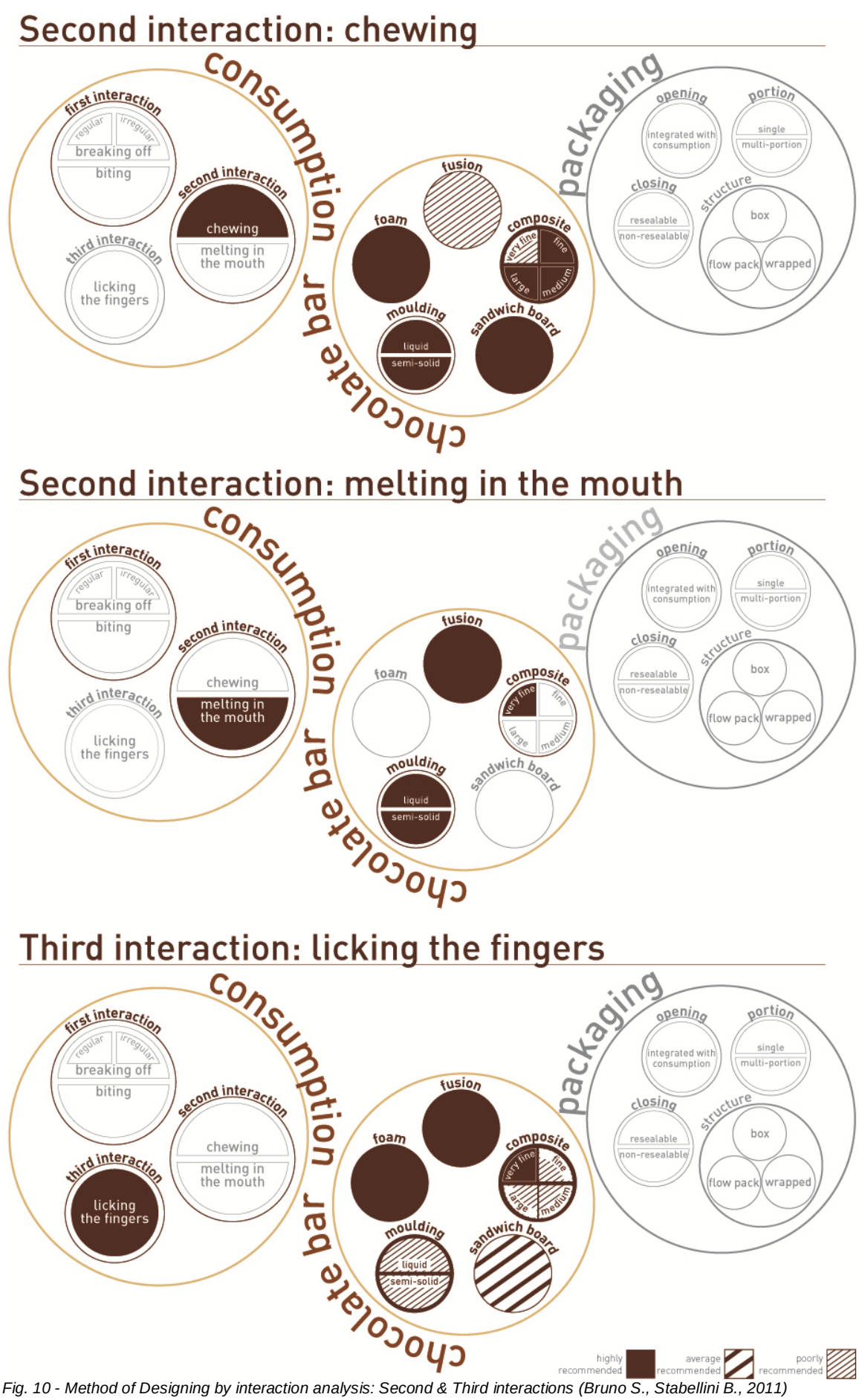

Fig. 10 - Method of Designing by interaction analysis: Second & Third interactions (Bruno S., Stabellini B., 2011)

The first possible places of sharing are the material libraries (Lucibello, 2006), physical or virtual places in which technical information on broad ranges of materials are gathered and made available, relating, in particular, to the world of architecture design, fashion and industrial production in general.

Within the material libraries a cupboard section may be set up, dedicated to the world of materials-foods, of which to analyse presentation forms, production processes, technical and expressive qualities, consumption methods and also, as a consequence, the types of packaging most suited to them. In this way the food will be considered to all intents and purposes a material, which, designers, not just as food designers, master chocolate manufacturers and chefs, get to know.

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