

Interactive Shop Windows

- A New Design Phenomenon of Modern City

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Abstract:

The notion of interactivity pertains to many aspects of human existence, including architecture and art design. On this premise, the paper deals with the topic of generating interactive relations between shop windows and people, focusing on the new sophisticated form that employ sophisticated multimedia and digital technologies. The research presented was focused on elaborating basic taxonomy depending on shopper's engagement factor, the type of created multimedia effects and "response" of a store window installation to external stimuli. The subject of the conducted research was also mapping of predominant localization of interactive store windows in city context, examination of character and degree of triggered interactivity in relation to the functional use of interiors and user's preferences. The explored novel form of storefront is understood as a means of demonstrating human capabilities, increasing vitality and design quality of city parterre and supporting human social interactions as well.

Keywords: shop window, interactivity, city parterre, sensory perception, innovative medium, advanced technology.

1. Introduction

Shop windows are important elements of the parterre that influence a city's appearance, specific architectural form-giving phenomenon which provides a wide range of options in designing buildings and urban sceneries. They are also important components of branding, presenting products and services offered while building the image and identity of individual companies. *"More specifically, window displays can act as a more direct point-of-purchase promotional device by simulating the purchase probability of the displayed merchandise"*. (Yildirim & Akalin-Baskaya & Hidayetoglu, 2007) These facts give rise to the need to invent new approaches in the creation of display zone, and among others, to consider more closely the new possibilities of achieving alternative ways of generating mutual relations between shop windows and people as the main recipients of information offered. In this context, the issues of sensory perception as well as users' possible interpretative reactions are particularly important. These factors are therefore the primary concerns of the present study. The aim is also to define various types of created interactive store windows and to point out both possible positives and negatives of their integration into city environment.

The Canadian theorist Harold Adams Innis and his pupil Marshall McLuhan were among the first to attribute a significant role to technology and media as the causes of social changes and cultural and civilizational developments. Today we know that historical processes and changes in living conditions cannot only be explained by unilateral factors. Technologies are always part of the societal culture, not its cause or effect. We create technologies; in turn, they shape us. Technological changes extend significantly also to the field of art and design. As Chengyi and Unying (2018) point out, *"In the course of human civilization's development, scientific technology and arts have always maintained a relationship of mutual promotion and common development."* Innovative media and technologies provide an alternative visual interpretation and thus, they gradually become a new technical layer, offering creative possibilities in the sphere of urban and building design, and parterre itself. *"The birth and application of all kinds of new technologies have greatly enriched the forms of artistic expression; new media art changes the audience's ideas through the effective interaction with them, thus generating new concepts and perceptions. In addition, the new media art gives people a visual feast by means of advanced spatial expression forms, giving people a visual enjoyment."* (Chengyi & Unying, 2018) Advanced visual digital rendition has already made inroads' into the retail industry by going beyond typical fixed installations and bringing exceptional visual ideas.

2. Background Information

2.1 Influence of Technologies and Multimedia on Display Zone Creation

In the course of historical development, shop windows have undergone several development stages, influenced in particular by technological and production possibilities and socio-cultural specifics of individual societies. In the European context, today's versions were preceded by the so-called "display cases" and "display cabinets" based basically on wood and later steel material. Often, these were remarkable artworks created by carpenters, locksmiths or other craftsmen, which thanks to their expression value and thorough craftsmanship, were considered artistic and technological treasures of the city parterre. The advances in the fields of information and communication technologies have gradually pushed boundaries of the approach towards shop windows design to a completely new level, at which a conventional static expression has been

supplemented by new visually dynamic forms. The new technological possibilities gradually change the character display zone in terms of both structural characteristic and content and manner of provided information. By use of advanced, sophisticated technologies, artistic motifs and design concepts are frequently represented in the media installation itself, while the structural “artworks” of building tend to be visually suppressed, as if on purpose. Thus, besides creating visually captivating, well-crafted architectural details, *a search for new strategies of thinking* and *new ways of merchandise’s interpretation* nowadays becomes a main key for engaging the potential customers and increasing retail traffic flow in stores.

In the last decade, many alternatives of interactive store installations, based on different degrees of generated interactions have been realized, depending on situational variables and characters of retail environments. Advanced interactive shop windows and possibilities of their integration into the public space have over time become the subject of interest to many scientists, technical engineers and designers. The research studies carried out so far, focuses mainly on various taxonomies and exploration of specific characteristics related to “*ambient information systems*“, issues concerning informatics capacity, notification levels, general aspects of generated interactions in the public space etc. These topics are for example discussed in the articles: “*A taxonomy of Ambient informatik Systems: “Four Patterns of Design*“ (Pousman & Stasko, 2006), “*AmbientROOM: Integrating Ambient Media with Architectural Space*“ (Ishii et.al., 1998) and other. The explorer’s attention is also focused on issues of *social behaviour of people* due to the introduction of modern technologies into public urban spaces. These issues are also addressed by authors of publication “*Public and Situated Displays, Social and Interactional Aspects of Shared Display Technologies*“, who are engaged simultaneously in influence of new technologies on new directions in design. (O’Hara & Perry & Churchill & Russell, 2011) The growing interest in *the influence of store atmospheric on shopping behaviour*, which is up to the present but mainly pointed to *the interior spaces*, in the last decade, has also been shown. As agree Yildirim et.al. (2007), “*A number of previous studies have supported the idea that store image attributes play an important role in affecting consumers’ shopping attitudes and patronage behaviours. These researchers have primarily examined the effect of environmental attributes on consumer evaluations of store image.*“

Despite the generally declared importance of *exterior situational variables* in the user’s decision-making process, exploration in the given field is nowadays not adequately addressed. Empirical research of how visual merchandising of products in store windows possibly interactive window displays influence store traffics has received little attention in past studies. How argue Oh and Petrie (2011): “*So far, no systematic research has been done on the effects of store windows display on shopping behaviours.*“ “*Although store windows have a very important effect on consumers, there has not been significant empirical evidence regarding the effect of window displays on consumers’ shopping attitudes.*” (Yildirim & Akalin-Baskaya & Hidayetoglu, 2007) Up to present time, only some partial research has been carried out in this area. Aspects of consumer behaviour concerning store entry decision and possible enhancement of traffic flow due to window displays is for instance the main subject of interest in published results of conducted in the studies: “*How do storefront window displays influence entering decisions of clothing stores?*“ (Oh and Petrie, 2011) and “*The influence of interactive window displays on expected shopping experience*“. (Lecointre & Daucé & Legohérel, 2018) Sen et al. (2002) in their study also examine how the information acquired from window displays might be related to two key shopping

attitudes: entry and purchase. Another one of the explored issue in this context is *the different perception by the gender* as independent variable on perception. Among the other, this question is addressed for example by authors of studies Yildirim et al. (2007) and Dube and Morgan (1996). Much less attention is paid to the issue of interactive store windows itself. Despite many successful implementations, the process of digitizing of storefront does not always meet with a favorable response. “*Even though the store window plays a big, important role in the purchasing momentum, the digitalization processes of retail stores are hardly considered.*” (Claus, 2017) The objects of our interest, i.e. consumers’ perception related to interactive window displays, are also mentioned only marginally in the studies published so far.

2.2 People as Participants in Interactive Processes

In comparison to conventional static forms, interactive shop windows invite the passers-by engage actively in ongoing events while offering the possibility to be brought in interconnected physical and virtual worlds, and communicate with an digital medium possibly with surrounding audience. “*Interactive store windows are a really great tool to link online and offline and to lure the customers through an unprecedented shopping adventure back to the inner cities.*” (Claus, 2017) Depending on purposes, different levels of technology and different types of media are used. Peter Fabián (1998) divides the media into so-called: input (e.g. data source), mediating (e.g. projector), specific (cameras, sensors, tactile media) and target (visual media). Depending on the type of media used, different types of interactions are generated. The degree and character of triggered interaction are determined by objective and subjective factors. *Subjective factors* include primarily cognitive givens of individuals, level of cognitive load, visual and information processing capacity limits, personal taste, physical and psychological state of individual, capability to experience emotions, actual motivation, and individual evaluative, visual and other preferences. *Objective factors* comprise above all visual availability (distance, view angle, situational and compositional relations etc.), predominated traffic flow in the given city area/parterre, products’ categories, the situational variables as predominant spatial, operating, atmospheric, lighting, and other parameters. On the basis of performed experimental observations, Daniel Michelis (2009) in his study “*Interactive Large-screen Displays in Public Space*” specifies several incentive factors that influence the beginning and development of an interaction. Assuming the use of a large-screen visual medium, he distinguishes three *proximity zones* – a zone of wider surroundings, a zone of notifications/ information and an interactive zone. As he states, in the zone of wider surroundings, a person only has a negligible chance to notice produced interactive actions; in the zone of notifications/information he gains input information and in the interactive zone is able to react to the stimuli and become an active participant within a multimedia performance. The probability of interaction decreases in proportion to an increase in the distance between the observer and the window display. John B. Thomson (2004) defines three *basic types of interactions*: dialogic interaction “face to face”, which takes place while participants are physically present in a given space and time; a mediated interaction based on the use of a technological medium, and a meditated quasi-interaction emerging as a result of using means of mass communication. As the author argues, in most interactions these types are combined; thus, their character is ultimately hybrid. Given their character and the development of arisen processes, interactive shop windows are closest to mediated interaction.

For a man, it is important to be identified fully with surrounding environment through an immediate, *tangible contact* with its elements and their material, shape, colour and tactile properties, by way of sounds, smells, temperature, temporal frequencies etc. Comprehensive sensory perception is contingent on a development of different aspects of verbal and non-verbal communication as well as creation of complex multisensory experiences. Interactive store window displays offer one of such possibilities. The employments of interactivity in form of digital picture and signage applications do not only bring about changes in the way of mediating information concerning goods or services. It contributes also to a deeper awareness of events taking place, and offers specific forms of user interfaces and by engagement of more spectators it offers as well the alternative ways of generating mutual correlations between individuals. Thus, implementation of interactive window displays into the city parterre has also the potential to support a reciprocal dialogue of people and contribute to the socialization of individuals as well as. Achieving a harmony and integrity in the information flow is a challenging task for individual creators and competent city officials. In this context, a question arises regarding the optimal way of engaging the participants in generated events, so that they would freely, consciously and not forcibly opt for the inviting retail stores. This is frequently connected with the requirement to achieve a higher-quality, captivating and friendly visual rendition that boost the traffic flow and consumer's interest.

3. Research Hypotheses

Incorporation of interactive shop windows into the city environment may bring many benefits, but also supposable negatives that need to be in the future explored and carefully addressed. At the beginning of the research we declared any initial assumptions regarding the deployment of given sophisticated form in city environment. Based on successful realizations and published research studies so far we consider the main followed *positives* of potential introducing of interactive store window installations:

- Strengthening the vitality, attractiveness, distinctiveness and identity of the public place
- Generating a new dimension that offers virtual experiences directly in tangible environment and thus supporting physical presence of a man in city interior
- Providing unconventional forms of entertainment and mental relaxation
- Development of cognitive, emotional and sensory capabilities of individuals; enhancement of user's imaginative capabilities by observation/perception of abstract phenomena and simulated events
- Support of multisensory experiences and comprehensive awareness of reality via verbal and non-verbal perception; creating new ways of sensory and physical experiencing
- Support of individual creativity, playfulness, self-realization and self-expression in public by means of "participative" installations directed at the general public
- Support of social inclusion providing impulses to communicate and interact according to the "bring people together" principle
- Offering new information and knowledge in an alternative, playful way
- Introducing of sophisticated technologies, alternative ways of thinking and artistic expression to general public by way of the "art coming to people".

The interactive display zone may produce not only positive but also any *disputable phenomena*. The accessibility to broad, diverse population strata brings up the question of its different acceptance by people of different age, social status, mental and cognitive abilities, economic activity etc. Thus, the main precondition for achieving a positive effect is the absence of undesirable, disturbing, visually or otherwise excessive media effects causing adverse reactions in all affected individuals. An important criterion for successful implementation of interactive media is the guarantee of a required privacy level. The advanced digital technologies nowadays allow a precise evaluation of the respective person and providing information about the shoppers that are scanned in the given radius of action. Especially this subject has to be discussed in the future, especially by installations based on capturing data from the surrounding environment, including the passers-by.

4. Methodology

The data presented are the partial parts of the research activities carried out within the project KEGA (Cultural and Education Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic) No. 042STU-4/2015: “*The Design of the Internal Environment – Innovation of the Teaching Model with Focus on Practice*“ (Vinárčiková, 2015 - 2017) and doctor thesis: “*Interactive shop window in contemporary retail parterre*”. (Vozárová, 2015) Both projects were conducted at the Faculty of Architecture of the Slovak Technical University in Bratislava during period 2015 - 2017.

At the beginning of the research the exploration of various interactive installations in store windows implemented so far was our first priority. The case studies surveyed comprise among other: United Colours of BENETTON – various installations in Piazza Duomo, Milan, Italy (Live windowsit) _ SCHAU! installations: “All Eye on You“, “Just Wave“ and “More than Words“ in Bonn, Germany (Bitzermann) _ NIKE Retail store Selfridges in London, United Kingdom (Best, 2013) _ Adidas NEO in Nürnberg, Germany (Contactless) _ LIBERTY London in London, United Kingdom (Best, 2013) _ UNITED ARROWS Marionettebots in Tokyo, Japan (CampainPortfolio, 2013; Best, 2013) _ WELLCOME TRUST, installation “Reflex“ in London, United Kingdom (Random, 2011) _ LIGHT SWITCH in Broadway a Waverly, New York City (Best, 2012) _ JOHN LEWIS installation Hi TV!, Samsung in Oxford Street, London, United Kingdom (Best 2012) _ JOHN LEWIS’, installation “Beatiful on or off“ in London, United Kingdom (Best 2013) _ “FEONIC Whispering Windows”(FeONIC, 2013 - Figure 1) and other. Given examples simultaneously comprise different categories of taxonomy defined in the research part.

Over time a number of other attractive examples have been accomplished. All investigated examples demonstrate a successful connection of modern technologies and design with the purpose to support attractive imagery and create new stimuli while gaining traffic flow and increase interest of passer-by. Thus, the interactive storefront as an unconventional interpretation of technological innovations has not only become a potential means of increasing the area’s attractiveness, but also an important marketing tool supporting retail sales.

Based on above mentioned detailed study of case studies, the *basic taxonomy* of interactive installations was elaborated in the next phase. This became a main source for the subsequent developing of relevant questionnaire and data collection in form of interviews, that were carried out in order to collect user’s preferences. The subject of the conducted research was also mapping

of localization of implemented interactive store windows in city context, examination of visual design and degree of generated interactions in relation to the functional use of interiors.

4.1 Classification of Interactive Shop Windows

In the process of establishing a mutual dialogue between a shop window and a user, fundamentally, two basic types of interaction are generated: *a conscious* and *an unconscious interaction*. The first one is based on an active participation of a passer-by to an incoming stimulus; unconscious interaction takes place spontaneously due to involuntary, no purposely induced impulses. Oh and Petrie (2011) define in their study two main types of window display: *merchandise focused display* that conveys concrete messages and *artistic focused displays* that convey abstract messages. They argue that “story telling”, theatrical designed displays are distinct from simple merchandise focused displays and it is possible, they will induce consumer’s interests. “*Successful implementation of such artistic window displays can grab shoppers’ attention, provoke their curiosity and interest, effectively communicate store/brand image, and further draw them into stores to purchase.*” (Oh & Petrie, 2011)

The way resulting multimedia generate effects greatly impacts the nature and extent of arising interactions. It plays an important role in this process the influence of installation on sensory perception of individuals. Based on *the type of created multimedia effects* while addressing the individual senses of a man and mapping of realized implementations so far, the following classification of interactive shop windows was determined:

- Installations primary based on use visual effects – virtual forms employing various 2D and 3D pictorial, graphical, textual, lighting and combined visual rendition (video projections, animations, holographs and other digital modes)
- Installations primary based on use acoustic signals – forms generating different sound effects
- Installations primary based on use olfactory effects – forms employing specific attractive fragrances
- Installation based on combinations of aforementioned stimulating effects.

Among existing implementations, visual media and tactile media possibly combined with user applications in mobile phones, smart phones, iPhones, iPad etc. are nowadays most common.

The response of a shop window installation to external stimuli generated on the basis of processing data gathered from the surroundings is another important aspect in the process of emerging interactions during the multimedia performances. In this context, a key role is played by employed technologies and the media equipment itself. On the basis of a window’s “responses” to external stimuli, the following basic types of installations were distinguished:

- Installations responding to motion, lighting and other detection from surroundings
- Installations responding to tactile impulses
- Installations responding to acoustic signals
- Installations responding to several of the mentioned stimuli.

The mapping of existing implementations showed that most interactive shop windows respond to movement activities (physical gesture, facial expression of a man and movement of other objects), followed by light- and shadow effects, sound stimuli and tactile impulses.

4.2 Relations between Interactive Shop Windows and their Surroundings

An analytical mapping of existing implementations confirmed our assumption that interactive store windows are predominantly present in *city centres* with buildings of historical and visual value, that provide good accessibility, spacious area and functionally attractive facilities. Spacious, vivid places allow users to pause and adequately experience the artistic scenery sensorial and thus they provide ideal conditions for executing interactive events with an active engagement of the audience. On the other hand, installations that don't require pedestrians to stop but employ the aspect of unconscious interaction instead, may be conceived by passer-by as attractive artistic scenery also in the narrow small street. The appropriate placement in terms of both function and utility and ideal view conditions is an indispensable factor of successful integration of interactive store window. Logically placed interactive installation designed in synergy with its environment can effectively reach the target consumers 'groups who are willing to accept the information received and actively respond to the challenges posed.

4.3 Relations between Interactive Shop Windows and Functions of the Interior

The choice of an appropriate design philosophy, i.e. *a thought intent/motive* behind the specific visual work, is a key factor in the strategy for successful integration of interactive installations. This is influenced by a number of factors, the most important one being *the function of the interior*. The functional use of internal space generally determines window display concept in terms of employed types of displayed commodities, the selected visual form of presentation, the dynamic of visual rendition etc. The present research focused on the level of "retail parterre" was predominantly occupied with commercial stores of the group of civic amenities. A conducted mapping showed a direct relation of implementation of interactive storefront to two main groups of investors. The principal category consisted of good established, prosperous retail chains of well-known multinational companies, that can boast their visually attractive installations designed as experimental "experience storylines". The second, much smaller group comprised new emerging retail units with strategic vision of entering public awareness via implementing innovative smart concepts. These facilities were mostly focused on the sphere of design, advertising, arts, multimedia etc. The greatest share of interactive expositions was discovered in consumer goods shops, primarily in commercial stores offering clothes, electronics, books and musical products. To a significantly lesser degree, they were included by companies providing services; however, there were initial positive impulses here as well. A pioneering role in this field was played above all by relaxation facilities and units of specialized services, such as beauty salons, hairdressing salons, advertising agencies as well as design and graphical studios. The mapping of implemented installations confirmed a significant influence of an interior's function on the thought- and visual conception and its almost negligible influence on the chosen character and degree of arising interaction. The mutual relationships between a function and an selected form of interaction are influenced by a plethora of other conditions, the most important being situational variables of existing environment, type of building, viewing conditions, target audience, shopping goal, individual authorial intention and other factors.

4.4 Questionnaire Research

The questionnaire was conducted by author of this paper via internet blog during the research activities of the above mentioned doctor project elaborated. It was focused on three target groups

of Slovak citizens – the shoppers (200 respondents), the retail owners (50 respondents) and the designers (50 respondents). Entered questions were accompanied by use of selected digital picture documentation of the surveyed case studies and designed simulated digital models.

4.4.1 Mapping of potential consumers' opinions.

The respondents from the public belonged to an age group of 18 - 76 years. A relatively conservative attitude typical of Slovak citizens was presented in opinions on the basic forms of shop window installations at the very beginning of the survey. As much as 47% of the surveyed individuals preferred conventional static installations, while 21.5% reported an interest in a dynamic, visually variable form and only 31.5% of the respondents would appreciate the presence of interactive shop windows. Here, however, it is necessary to emphasize the aspect of required participation, which most likely influenced the resulting nature of the responses. The results regarding the requirements *for physical placement* of offered products showed a balanced proportion of contrary attitudes – 48.5% of the surveyed persons declared such a requirement, while 51.5% did not require a physical interpretation of displayed goods. 3D forms proved much more acceptable for shoppers (77.5%) than two-dimensional displays (22.5%). Presentations using dynamic lighting effects and installations featuring moving images and sound effects were also considered as attractive. However, here it is also necessary to distinguish between particular artistic renditions; for instance, colourful flashing effects were considered unpleasant and disturbing by the 57% of respondents. Polychrome expositions employing wider colour spectrum were met with a significantly more positive response (65%) in comparison to two-coloured (27.5%) and monochromatic compositions in shades of a single colour (7.5%). Resulting from these facts a 3D multi-coloured medium proved a strong means of expression in the process of providing information and attracting individuals on the level of urban parterre. A mapping of preferences towards to predefined *types of media presentation* showed 56% preference of 3D kinetic installation responding to external stimuli, in comparison to the preference of installation with touch surfaces (24%), installation that requires performing a particular activity (12.5%) and installation that requires the use of a digital in a user's device (7.5 %). Concerning *visual rendition of installations* was conveyed 62% preference of coloured pictorial media displaying specific motifs following by employing graphical rendition (37%) and textual information (1%). Simultaneously concrete motifs: figurative, animal, object and similar motifs were more popular among potential shoppers in comparison to abstract, stylized forms (68% vs. 32%).

4.4.2 Mapping of potential creators' opinions.

The research included potential creators covering architects, civil engineers and designers. The given surveyed sample of respondents considered the integration of interactive shop windows into urban parterre as a relevant means of drawing the interest of future clients and a logical alternative to the general expansion in the variety of expressive forms. The benefits resulting from the incorporation of multimedia and sophisticated digital technologies were understood as natural and integral part of a continuous development. The necessary cooperation with specialized professions – IT, advertising, marketing, or other specialized professionals was also regarded as an important moment in the process of achieving creative, comprehensive solutions. 74% designers understood interactive forms of shop windows as an attractive type of design task, 14% expressed neutral position and 12% consider interactive shop window to be a tool of increasing the artistic

and social qualities of city parterre. 62% of respondents perceived potential of the given sophisticated form to increase the artistic and social qualities of city parterre, 28% declared indecisive attitude and only 10% didn't see the future profit.

As principal benefits, designer pointed out the differentiation from the mainstream and the commercial, community and artistic merits of installations compared to standard fixed expositions. On the other hand, however, the creators demonstrated more sceptical views, stating that contemporary city dwellers are already exposed to an enormous amount of sensory stimuli resulting of the increasing rate of information flow and the excessive implementation of various multimedia forms. Any of them declared that it is often at the expense of a comprehensive experience of natural stimuli resulting from the genius loci, the historical essence and the socio-cultural and other values of the site, possibly from the presentation itself. In spite of these assertions, most potential creators displayed a positive attitude towards the creation of interactive shop windows when understood as a peculiar artistic expression.

4.4.3 Mapping of potential investors' opinions.

The respondents included owners of retail stores situated in differentiated areas of the city Bratislava in Slovak Republic. They were directly addressed by the author of the questionnaire elaborated during above mentioned research activities. (Vozárová, 2015) Functions were represented as follows: 72% consumer goods shops, 14% gastronomic establishments and 14% facilities providing other services. A positive attitude towards realizing interactive installations was present especially among the keepers of consumer goods. Business establishments and the owners of retail stores offering brand luxury goods mostly preferred conventional static forms. Like they interpreted, they consider dynamic, interactive forms tend to be subconsciously associated with "show making" and producing undesirable distractions. In their view, expressive multimedia forms reduced the place's nobleness or exclusiveness, and therefore were not considered an adequate means of attracting customers. This attitude was most likely influenced by a specific visitors 'clientele - customers with a specific taste and higher social status. The owners of gastronomic units also took a surprisingly conservative, even impartial attitude towards innovative forms of the display zone. Paradoxically, despite these findings, up to 80% of respondents expressed favourable expectations regarding the potential increase in visit rate and sales due to the use of interactive shop windows. The other participant considered this assumption as follows: probably yes (4%), probably not (10%), no (4%) and I don't know (2%).

5. Conclusion

On the basis of the research findings, it is possible to raise the hypothesis that the implementation of interactive store windows, especially in a more distant time horizon, will meet with a positive response among citizens. The survey research showed a generally positive attitude among the consumers towards interactive store windows as such. Installations based on the principle of unconscious interaction were more acceptable than installations requiring active participation. The higher the necessary degree of active personal involvement, the lesser was showed interest in a reciprocal communication with an installation, it means that low degree of required participation was by potential consumers more acceptable. As expected, however, forms requiring active participation by generating digital data proved interesting above all for younger people. In general, the proclaimed opinions showed a positive attitude to innovative digital

installations, particularly among potential users and designers. There was a lesser interest among business keepers, who in majority share preferred conventional approaches. Regarding the potential increase in the visit flow, and consequently, sales rate, all groups representatives expressed a favourable view. At the same time, the findings showed that there is a growing interest of the contemporary digital generation in innovative multimedia forms as well as in their further gradual incorporation into the ambience of modern cities. Concerning localization and interior function, in the future, interactive installations will most likely be located in the central/historical parts of cities and in local consumer goods retails. Given the regional situation, they are less likely to be implemented in gastronomic units and facilities that provide services, the exception being specific specialized establishments thematically linked to information and communication technologies, multimedia, digital and artwork design etc.

Interactive window displays as a new smart category of the city has the potential to offer creative ways of displaying products, to create entertaining users' experiences and finally effect shopper's store entry decision while providing an artistic accent to the urban scene. For this reason, it is necessary to develop the topic, enhance awareness of it among both lay and professional public and consider possible positives and negatives. This phenomenon, still unfamiliar in many countries, introduces new functional-, utilize- and artistic alternatives, new impulses and an unlimited number of opportunities. In times when the physical and the virtual worlds permeate and the demands of diverse consumer strata are differentiated, novel form of generating mutual correlations between store windows and people represent both new challenges and new potentials.



Figure 1

The interactive installation with use of Smart TVs and “Whispering Window technology” based on exploitation of a high quality sound coming out of unseen audio devices. Storefronts implemented in Oxford Street and Sloane Square in London in retails John Lewis and Peter Jones. [FeONIC, 2013]

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