The User's Point of View:

Borrowing a rephotographic approach towards using usergenerated images in experience driven design Gökhan Mura*, Gary McLeod**

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Abstract: Experience driven design defines a shift in industrial design towards prioritizing, recognizing a shift from a generation of users with fewer possibilities and channels for selfexpression towards a transparent generation who create, share, document and exhibit their experiences through digital images via online platforms. Our hypothesis is that referring to usergenerated images can provide designers with new information about behaviours, habits and lifestyles while providing a creative source of inspiration in early stages of design processes. To aid the construction of a more empathic understanding of the target user, methods are sought to place users in the position whereby their interpretation lends itself to furthering design ideation. A convergent strategy addressing this need exists in the practice of rephotography, a process, which directs the participant-user to make visual decisions thereby empowering a target user-centered perspective that contributes creative input to support design ideation. This paper proposes the adoption of a rephotographic approach to recreate user-generated images through describing a design ideation workshop conducted with senior industrial design students from Izmir University of Economics. Following directed selection methods to browse user-generated images, rephotographic methods were applied to recreate selected images in order to re-interpret the user experience. Through this, the perspective of the participant can be translated to the designer.

Key words: User-generated images, Rephotography, Empathic Design, Experience Design

1. Introduction

The recent shift towards experience economy [1] requires the designer to develop an experience driven understanding of the design process. Design activity becomes more and more an activity that aims at creating positive experiences for the users. This transition demands the designer to develop skills for analysing personal user needs. Creating positive experiences through design requires building an empathic understanding of users in the early stages of the design process, namely the design ideation steps. Various tools and methods are used to help designers to understand individual lifestyle needs of users better. This paper introduces an ideation tool that aims to build an empathic understanding of the users, not by directly involving them in the design process or not involving a sample set of end users into information gathering stages, but by analysing images provided by crowds available from photo sharing websites and re-experiencing them.

There are two steps in the use of images for design ideation. In the first step, thematic sites are determined by the designer to browse and analyse the user-generated images. The sites approach is adapted from Gillian Rose's sites in where she claims the meaning of the image is made. [2] Our thematic sites are determined by the designer

based on the requirements of the design brief. Then, user-generated images are browsed and analysed based on the predetermined sites. In the second step, selected user-generated images used to generate first ideas are rephotographed by the designers. Through the adaption of rephotography as a tool to help the designer to understand the content-generating user's experience, each designer would be able to project these experiences on the design ideation processes, thus recapturing the experience of the content-generating user in the process of making the image. Retaking the photograph helps the participant user to not only think in the shoes of the content-generating user but also analyse the image on a different level.

2. Images and Design

Before we discuss the workshop and its results, it is necessary to reflect upon the relationship between images and design. Images are present throughout the design process either as inspiration, visualisation or documentation. However, the creation of images is not often seen as necessary in preparation for design ideation. Instead, they are often seen as objects to be studied and used.

2.1 The importance of images for the designer

According to the Czech philosopher Vilém Flusser, [3] images are surfaces that signify something 'out there' in four dimensions and reduce it to two dimensions. In order to deepen their significance, the viewer has to allow their gaze to wander over the surface following a path constructed by the structure of the image and the observer's intentions; thereby revealing a synthesis of two intentions: that of the creator and that of the observer. Images are connotative and not denotative: as the observer returns again and again to elements of an image, they relive a moment while synthesizing it with their own point of view.

The use of images within design ideation are well-known, but it will serve us well to describe three techniques that are common within design: Moodboards, Design Ethnography, and Probes. Moodboards depict images as a source of inspiration for the designer whereby images are usually professional images or from stock image libraries, which are selected by the designer or researcher. Design Ethnography presents images of "real" people and images of their lives in order to communicate factual information about the user, the environment and their interaction with it, whereby images are then usually created and carefully selected by designers and design research professionals. The third technique of Probes presents researchers and designers with images that are created by the users, which can provide surprising inspiration as they are images that reflect the end user's point of view. Such images are usually collected on demand from a group that best represents the target user group. These three techniques point to a shift in the types of images used, from the selection of professional/library images, to the creation of documentary images, and finally to the use of user-generated imagery. As a consequence, the techniques also point to a gradual shift from a designer-centred experience design to a user-centred experience driven design.

2.2 User-generated images in design ideation

Images are a strong medium. Fulton Suri [4] uses carefully curated images to illustrate observations on intuitive design from all around the world. Our approach on the other hand favours using images to share

observations *for* intuitive design. By referring to user-generated images, we can engage in the sharing of people's observations and points-of-view.

Despite drawing upon images in a connotative fashion, all of the techniques described above presume images as denotative: they read from the image and project their interpretation upon design ideation. What is required in a connotative approach to images is experience: an experience where an image is read and simultaneously written. To engage in these observations, it is necessary for an analysis of user-generated images to take place during an experience rather than after it. This leaves us with the following question: how can the researcher actively and asynchronously re-experience the users' experience?

Within our approach, we look to the field of photography and specifically the genre often called "rephotography", which can be defined as the act of researching a previously taken photograph and creating an image of the same subject in order to obtain or communicate unrealized information about it. In deliberately recreating a previously taken photograph, the aim of the photographer is to share an experience with the original photographer and learn from that experience, whether that be their vantage point, their habits, their use of equipment, or simply changes in the world around them. Central to any rephotographic approach is the introduction of image making skills. Therefore, rephotography could be considered an effective approach in re-experiencing user-generated images for design ideation.

2.3. Rephotography for design ideation

It is important here to summarize the trajectory of rephotography, as we feel it strengthens its relevance to our discussion of user-generated images. The recreation of a preceding photographic image has been a practice of learning since the invention of photography. Although early practitioners of photography returned to the same subjects so as to more accurately notice differences between experiments with chemicals treatments and substrates in search of the elusive fixing of an image, they were also perhaps, albeit subconsciously, developing their personal visual language. When Henry William Fox Talbot serially captured small photographs of the inside of his window from the South Gallery of Lacock Abbey, it is suggested that Talbot was telling us that photography was not only about framing, but that the camera, image and photographer are all present within a picture even if seemingly absent from it. [5]

Rephotography was not seemingly taking place as a conscious act until 1888 when the Bavarian mathematician Sebastian Finsterwalder used a technique known as 'repeat photography' to survey the mountain glaciers in the Tyrolean Alps. This process of establishing camera stations and returning to them after a period of time has passed allows for measurement as well as a visual comparison of slow subsiding change over time, and continues to be employed within scientific disciplines as a means of measuring concerns within the changing biosphere. [6] The first noted use of repeat photography within a cultural understanding of change was the "Rephotographic Survey Project" (1984) led by Mark Klett.¹ Through intentionally adopting repeat photography as a methodology for re-documenting historical survey photographs, their images replicated not only the same camera angle but also the same time of day, time of year, and weather conditions. The attempt to recreate the original experience had a profound effect on Klett, who twenty years later along with Byron Wolfe led a project titled "Third View: Second Sights" (2004) that aimed to retrace the steps of the rephotographic survey project.

¹ Mark Klett is also credited with coining the term "Rephotography".

This second act of experiencing the same images led Klett and Wolfe to become increasingly concerned with the experience of time itself. [7] Other photographers have also adopted rephotography, but its popularity is arguably most aligned with the increased use of photo sharing websites and user-generated images. In 1999, photographer Michael Hughes began a series of photographs that depicted his hand holding vernacular images and other souvenirs in front of the same scenes that were commemorated. In response to this, Jason E Powell, a self described "Cameraist", began a photo pool on Flickr titled "Looking into the past" [8] that paid homage to Hughes's work by holding prints of archival photographs in front of contemporary views [9]. The photo pool invited fellow Flickr members to post their own photographs resulting in an easily identifiable rephotographic style. Although simple, this particular rephotographic style saw photography.

All rephotographic projects require that the photographer, whether they be a professional, amateur or an enthusiast, read an image and ask questions relating to the visual point of view of the original creator of the image: the composition, framing, vantage point (the height and angle); and the context in which the image was created: time, season, location, environment. Although not all questions need to be addressed in achieving a rephotograph, each question addressed through the process of rephotographing an image can unlock new information about an experience or subject. This process of visual analysis can, according to Klett, generate "a conversation about a place over time" [10]. We are interested in such conversations and specifically the conversation that could take place within the context of experience driven design.

3. The workshop

The aim of the workshop was to analyse the possibility of making use of user-generated images and rephotography to explore design opportunities associated with a particular problem area. The workshop was conducted with four volunteer senior students of Industrial Design at Izmir University of Economics, who participated in two sections separated by a period of one week. The intention behind splitting the workshop into two sections was to provide students with sufficient time to carry out the required activities. The problem area was defined as "eating lunch at a cafeteria". Not only was the problem seen as practical given the timeframe of the workshop, the problem was also considered as one where students would have equal exposure to.

3.1 Workshop structure

The first part of the workshop introduced students to our aims and reminded them of existing practices of encouraging inspiration and design ideation (For example: Mood boards, Design Ethnography, and Probes). Following an introduction to the defined problem area, students were asked to generate keywords and search photo-sharing websites for a minimum of five user-generated images with which they could identify problems and design opportunities. The key words were defined within the context of three sites: the site of the user, where an analysis points to a possible user group, their behaviours and their relation with food; the site of the environment, where an analysis points to features of the environment of eating lunch; and the site of the service, where an analysis points to features and rules of the serving system, and their effect upon the customers and staff. Following keyword generation and retrieval of user-generated images, students were asked to present their evaluation of how those images could be used for design ideation. Following an introduction to the history and

practice of rephotography, the first part of the workshop concluded with a discussion of interpreting images in preparation for the act of rephotography. Each student was expected to similarly analyse each of their selected five images and subsequently rephotograph two of them prior to the second part of the workshop.

The second part of the workshop began with a presentation of the participants' images. This was then followed with a discussion of the contribution of the rephotography process to the design ideation process through semistructured interviews, which were structured around the gathering of the following information: prior steps and strategies towards any design project; existing methods of analysis of potential users and prior idea generation; reasons for selecting the user-generated images in the first part of the workshop; and what was learnt through the application of the rephotography process to user-generated images within the context of design ideation.

Five students were invited to take part in the workshop. Due to unfortunate circumstances, one participant could not attend, and another completed the first part of the workshop only. Therefore our findings are taken from three participants that completed firstly the rephotography of selected user-generated images and secondly the interview stage. Despite the small number of participants, we identified a number of points relevant to our hypothesis.

3.2 Ideation after observation

Each participant presented their selected photographs at the end of the first session of the workshop. They were asked to present the images and the design opportunities they had extracted from the images based on their image browsing and idea generation sessions that took place under the supervision of the authors.

The first participant was Gamze, a 23 year-old Industrial Design student, who identified several problems and design opportunities from the images she found. Regarding one found image of two women eating outside (Figure 1), she reported that the people eating must have difficulties as they do not have a place to put their belongings. In contrast, a second found image presented how freely the people were eating (Figure 2). From an image of a rubbish bin (Figure 3) and an image of fast food on a tray, she observed a need for a system to keep/save the leftover food to be distributed to stray animals. From an image of a father and son, she presented the problem of eating with children. Lastly, from an image of a cafeteria where people served their own food, she observed that the service people could be removed. The two strongest ideas that Gamze derived from this process were the women's problem and the storage of food for stray animals. Her first idea could lead to "designing a place for storing the belongings," whereas the second idea could lead to "designing a service place for collecting food or a garbage pocket for storing meat for the stray animals."

The second participant was Selçuk, a 23 year-old Industrial Design student who began his presentation showing black and white images of traditional Turkish floor tables and people eating around them (Figure 4). He stated that he thought people were happier in the old times while eating around circular tables and are unsocial nowadays by comparison. By showing these images, he concluded that circular floor tables could be designed for restaurants. Furthermore, in reference to an image of a luxury café and a fast food restaurant (Figure 5), he concluded that the leftovers could be packed and distributed to the poor regions as a universal social responsibility project.

The third participant was Ozan, a 22 year-old Industrial Design student who started his presentation with the problem of visibility while food is being served. Showing an image of how restaurants displayed food with steel

containers, which kept food warm and fresh, he observed that such containers also made it difficult to see what was being served (Figure 6). Showing a second image without such containers (Figure 7), he observed, "People prefer to see what they eat beforehand". When asked how to solve this problem, he said he would work to find a suitable material that maintained the freshness of the food served, which was also transparent so that the people could see the food. A second problem identified from an image of people queuing (Figure 8) was the way plates were held. From this, he suggested that alternative and easily stackable products should be developed instead of trays. Furthermore, he added that working on ideas of a service design solution by placing the trays alongside the queue or devising an alternative plate or tray would be his next step. The last two images presented were of cafeteria trays. The first one (Figure 9) had a message written with mayonnaise on the whole surface of the tray, whereas the second (Figure 10) had a message carved on the bottom-right corner of the tray. He proffered that people would like to personalize the trays, or maybe they would want to use them as a Facebook "wall"². He added that, as a next step, he would work on whether the message on the tray should be temporary or permanent.



Figure 1. (left) An image chosen by Gamze presenting a design problem for storing personal belongings. Figure 2. (center) An image chosen by Gamze that, in contrast to Figure 1, reinforced her suggested design opportunity.Figure 3. (right) An image chosen by Gamze which prompted an idea for collecting leftovers for stray animals.



Figure 4. An image chosen by Selçuk presenting his interest in low round tables used for eating in traditional Turkish culture.

² A Facebook "wall" is a personalized messaging system that is popular within the social network site Facebook.



Figure 5. An image chosen by Selçuk which prompted design opportunities regarding leftovers.



Figure 6. (left) An image chosen by Ozan which highlighted the problem of visibility of food. Figure 7. (center) An image chosen by Ozan which confirmed a need to see the food easily. Figure 8. (right) An image chosen by Ozan which prompted him to think of design solutions for queuing.



Figure 9. (left) An image of a cafeteria tray chosen by Ozan, which showed a temporary message. Figure 10. (right) An image of a cafeteria tray chosen by Ozan, which showed a permanent message.

3.3 Ideation after rephotography

Each participant was invited to discuss their rephotographs of two images in a documented semi-structured interview. Using this method allowed participants to convey their approach in their own words as well as constructively discuss possible further ideation steps with the authors in a less-formal setting.

Gamze selected user-generated images regarding cafeteria objects when eating lunch. From these five images, she selected two images to rephotograph: an image of fast food on a tray from a popular fast food restaurant, and an image of waste packaging. Discussion of these images revealed most points of interest relating to the image of a fast food tray (Figure 11) and her subsequent rephotograph of that image (Figure 12). The original image depicted a red plastic tray with an arrangement of fast food products and packaging prior to its consumption. A

fork and three sachets of tomato sauce were placed on top of a napkin in the foreground, while behind them sat a tub-style packaging, a wrapped sandwich, and the brown paper bag in which they were probably given to the customer. Although the image was created in a location unknown to the participant, the fact that it was clearly taken in a popular fast-food chain prompted her to visit a branch of the same chain within the city of Izmir. Despite being able to situate her rephotograph in the same chain of fast food restaurants, she noted that obtaining an exact image would have been impossible because the "mayonnaise is different and the table is different." However, she was able to deduce from the original image that it was possibly taken during a lunchtime period because of natural daylight appearing in the background of the original image. Through her process of rephotography, she revealed a number of un-anticipated user behaviour: that three sachets were more sachets than required; and that the use of a fork was possibly unnecessary and difficult for the user to use. From these observations, she informed us of ideas that differed from her initial ideation. For example, the design of the packaging and tables could perhaps be reconsidered on account of the position of the fork.

During the second session, it emerged that Selçuk chose two images to rephotograph based upon preconceived ideas. When approaching both rephotographs, he specifically intended to explore the experience of eating a plated meal at a café and the social function of low round tables used for eating in traditional Turkish culture. Regarding the experience of eating a plated meal (Figure 13), he stated that he was interested in how the café dealt with leftovers. Referring to the user-generated image, he noted that the customer may eat one piece, maybe two pieces, but maybe not three pieces of Börek (a Turkish savoury pastry). Therefore there was the suggestion that the café could package the leftovers and deliver to poor people. When rephotographing this image (Figure 14), Selçuk spoke to the staff working in the café and explained the project. The staff subsequently provided him with a plated dish to match that in the original image. Having a friend pose, he paid meticulous attention to other details such as the painted nails of the woman in the original image and the necklace that was held in her hand. Although these details did not trigger any ideas, neither did they serve as distractions. As he did not have enough time to complete his planned task, the angle of his rephotograph was sufficiently lower. However, the experience served to adapt his initial idea further with the suggestion that the plate could be designed to allow for it to be packaged for others and therefore not wasted. Regarding the social function of the low round tables used for eating in traditional Turkish culture (Figure 15), he was interested in the role of the table in social communication. Having noted that his initial idea was for a modern and ergonomic design of the table, his rephotograph made use of friends to recompose the scene (Figure 16). In doing so, he observed that the people in the rephotograph were relaxed emotionally, thereby leading him to question whether a low round table should be designed with ergonomics in mind, or whether emotional values should be more prioritized.

Rather than choose to separately rephotograph two images from the five pre-selected images, Ozan chose to make one rephotograph from a combination of two images (Figure 17). The two images that served as inspiration both displayed alternative uses of trays as surfaces for communication: the first image was a view of a whole cafeteria tray where the message "you are my inspiration" had been writ large using mayonnaise and torn green paper to create a heart; the second image was a close up view of a corner of a cafeteria tray where below a seal, the message "tray of forgiveness" had been carved into the surface of the tray. As Ozan had noted, one message had been written in a temporary media, the other had been inscribed permanently. From the previous period of design ideation, it was noted that he had the idea of using cafeteria trays for a customizable messaging system akin to the "wall" messaging tool on Facebook. However, it is interesting to note that the experience of

rephotographing these two images led Ozan to experience a problem with morality. By attempting to project the user's behaviour, he described anxiety experienced as a result of deeming a carved message as an act of vandalism. Therefore, as a responsible designer, he sought to adapt his original idea of a customizable messaging system by using an oil-based crayon, which would not be permanent yet would require soap and water to remove. Through this creative solution, Ozan converted a display of disrespect to shared property into one that increased the communicative value of shared property.



Figure 11. (left) Original image selected by Gamze. The image depicts a tray of fast food from a well-known fast food restaurant prior to consumption. Figure 12. (right) Rephotograph of Figure 11. By visiting the same chain of fast food restaurant within the local environment and rephotographing similar items, the participant experienced unanticipated user behavior.



Figure 13. (left) Original image selected by Selçuk depicting a plate of Börek prior to consumption. Figure 14. (right) Selçuk's rephotograph of Figure 13.



Figure 15. (left) Original image selected by Selçuk depicting the emotional comfort of eating around a low traditional Turkish table. Figure 16. (right) Selçuk's rephotograph of Figure 15.



Figure 17. Ozan's rephotograph that creatively combines two images of cafeteria trays as seen in Figure 9 and Figure 10. After experiencing anxiety from attempting to recreate an act of vandalism, Ozan opted for the less permanent medium of an oil-based crayon to convey a message.

3.3 Concerns

While conducting the workshop, several concerns came to light. Firstly, using the novice designer as the participant user in design ideation workshops provides a layer of interpretation of the image by the user. However, this layer of interpretation is dependent upon the ability to distinguish differences between user-generated images and professionally created images. Each of the participants in the workshop had unknowingly selected at least one professionally created image amongst their five chosen images for analysis. For example, Gamze selected an image of two women enthralled in conversation while drinking Coca-Cola (Figure 2.). While this image could faithfully depict a conversation in a diner between two friends, of which a third person had photographed, a number of visual clues about the image suggest that it is contrived: the shape of the bottles are recognizable as Coca-Cola; there is no indication of a third friend, meaning that the viewer is a voyeur to their conversation; the

table, floor and general condition of the diner appear too clean; and the light in the scene appears professionally lit. Only through discussion and collective evaluation of these images did the participants realize that they had unknowingly selected a professionally created image as opposed to a user-generated one. Although professionally created images could also potentially lead participants to devise ideas, future studies that utilize user-generated images may require a stage of visual analysis to clearly distinguish professionally created images are not used to their full potential because of a lack of time and unfamiliarity with user-generated media's functionality. Secondly, the limitation of time may have influenced the participants' decision-making. We found that being given time constraints in which to conduct the workshop forced students to select and rephotograph images that appeared more achievable, thereby impacting the effectiveness of rephotography upon design ideation. If participants were asked to use a more rigorous and moderated approach to rephotography (e.g. replicating time of day, month and year), this would be worthy of further exploration. Thirdly, as with most user-centred design methods that employ a sample group of users to analyse all users, there is the question of whether the people providing the content of the user-generated media are faithfully representing all the target-users of the design process.

4. Conclusion

When asked about their previous approaches to design ideation, each participant gave different responses, which were consistent with commonly taught design ideation practices, such as brainstorming, 'bodystorming', photographic research, formal and functional analyses of existing products, user lists, and user-researchquestionnaires. However, after employing rephotography to re-experience the images of the user, each participant noted points that are useful for further discussion and study.

By noticing the users' habits, Gamze told that she learnt time was important, and by recreating moments not based on the designer's own experiences, she had a chance to reframe unanticipated user behaviour. Ozan said that it was possibly useful as part of a toolkit in conjunction with other methods. Furthermore, he said that it was best for simple projects although he had not fully contemplated how it could be used for complex ones suggesting its use depended on how well an image was analysed. Selçuk said that the process enabled him to become a director of an idea, which he had previously conceived at the user-generated image selection stage. Rephotography allowed him to visually prototype user behaviour, therefore allowing him to visually communicate an empathic understanding of user behaviour. Moreover, he likened it to a pianist learning how to perfect a piece of music.

Rephotographing the user-generated image enables the designer to elaborate more upon the activity of a hypothetical user by tracing and recreating the steps of the user and trying to recapture the image. The participants of the workshop reported that they thought they started to think like the content-generating user when they were trying to rephotograph the image, as they had followed similar steps as the content-generating user to accomplish a recreation of the original image. Thus user-generated images not only provide the inspirational input to the designer but also a means of anticipating possible user activities and behaviours by interpreting the image. Rephotographing the browsed image allows the designer to test the hypotheses he/she developed and allows the designer to monitor his/her behaviours and thoughts reflexively, and thereby enable them to analyse user

behaviour in view of developing an empathic understanding of the user's point of view. Moreover, as in the case of Ozan who experienced anxiety through attempting to recreate an act of vandalism, rephotography does not exclusively mean mimicking the behaviours of the content-generating user, but it can also lead to empathizing with and even learning from them.

Having conducted this initial workshop, we tried to gain a better understanding of how rephotography could be a useful approach to employ user-generated images in design ideation. We feel that the approach has significant potential to improve the impact of design ideation, which in turn could potentially benefit novice designers. The concerns raised in this paper point to a need to conduct future workshops to further explore and refine our approach.

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