

It's About Time: An Affective and Desirable Alarm Clock

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Abstract. Transcending form, everyday objects evoke emotions and have meaning beyond their physical form. A successful design is dependent on the emotional relationship created between the object and the user and incorporates influential social and cultural concerns. The author presents an affective and desirable process that demonstrates how layers, forming the aesthetics of interaction, create engaging everyday designs. No.21 is an alarm clock designed in order to test the process model for desirable and affective designs. It is a system which promotes longevity by appealing to the needs of the user thus leading to the discovery of interaction.

Categories and Subject Descriptors

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1 Introduction

Increased availability of materials, quickly advancing technology, a global economy and expedited manufacturing have all combined to create a culture of continuous production and consumption. In a market based on novelty and fashion, designs are made to compete with bestsellers, making the needs of the user no longer the primary concern. Attempts are made to improve upon features based on the competition, as designers respond to new needs created by the new designs. Sometimes this results in designs that while being more technically advanced, are failing the consumer. It creates a culture of disposable design in which the user, having lowered expectations, no longer considers the permanence of the design. And it is in this instance that awareness of the aesthetics of interaction becomes a way to halt the cycle of disposable design and reconnect with the needs of the user.

All designs arouse emotion and carry 'baggage' based on experience and societal response. This makes it impossible to interact with an object without having any preconceived thoughts. The emotion felt is a psychological reaction to the overall design form and can be attributed to the aesthetics. Here, aesthetics refer to more than just the visual impression of the design, but also incorporate that which is invoked by engagement. For a design to be successful, both the physical and psychological aesthetics need to be appropriate to the needs of the intended user.

Designing for the user as a secondary audience, results in the proliferation of more

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complex and increasingly disposable designs. Donald Norman proclaims with irony, “My coffee maker is perhaps the most complex device in my home” [21]. Norman writes of the imposing complexity layered on everyday goods that disengages them from the needs of the user. By employing a process of novelty and flexibility, additional layers are added to an already complex design. The end result is a design that causes frustration and discourages long-term attachments. Understandable and functional design is favoured over that which requires constant effort and maintenance and in a process focused on trend and competition, all innovation is lost [23]. Both designers and consumers are responsible for the continuation of disposable, detached designs. Designs are purchased without regard to the once valued concepts of aesthetics, usability, appropriateness and timelessness.

Designing emotionally rich interaction relies on an understanding of the cultural values and needs of the user. The user is therefore the primary concern and starting point in the process. As a method of research into the development of a process that is concerned primarily with the physical and emotional response, the author chooses to construct a process model for affective and desirable design based on the aesthetics of interaction. In order to test the validity of the process, an alarm clock is designed using the process.

An alarm clock is selected because it is a common object relied upon by many as part of their daily ritual. It is a particularly interesting choice because alarm clocks are often purchased out of need and not desire. Used as a tool for waking, they are typically startling and associated with negative emotions. Failing to make a positive connection with the user, most alarm clock designs fail, even when functional.

The end result of the affective and desirable process is No. 21 which is an emotionally intelligent alarm clock that addresses the issue of how to create a desirable emotional relationship based on multiple levels of interaction. Focus on the aesthetics as related to both body and mind, allows for design to move beyond the material specifications of the form.

2 Affective Design

In human-computer interaction, success is evaluated in terms of simplicity, ease of use, and on the overall effectiveness of the tool to complete specific tasks [11]. While ease of use is an entryway leading to interaction, it does not encompass the entire extent of the aesthetics of interaction. An affective design process incorporates the principles of user friendly design along with a concern for the aesthetics of interaction and should be centred on emotional response. By heeding the needs and the affect of the interaction, a designer is able to manipulate the aesthetics at various levels in order to achieve a desirable outcome.

It is not design without regard for usability and functionality. Well designed objects are functional, easy to understand, and are the objects upon which people regularly rely. When a design is functional and the interaction is accessible, a relationship can then occur. It is then that a user assigns meaning to the design. When explaining the connection that people form with everyday designs, Donald Norman explains, “Our attachment is really not to the thing, it is to the relationship, to the meanings and feelings the thing represents” [20]. Attachments are not formed with overly complex

and hard to use designs requiring excessive effort because they do not allow for a continual positive user experience. Success and longevity are dependent on a positive interaction with the audience [20].

Usability practices leading to the simplification of form and function improve the overall aesthetics. The *aesthetic-usability effect* concludes that more aesthetic designs appear easier to use - regardless of whether they are or not [15]. It is not enough for an object to merely function well. When aesthetically designed, users allow for more tolerance, and are then willing to exert more effort. When a user feels that the design is easy to use, it leads to more broadened interaction.

An affective design process relies on user-testing in order to determine the emotional and psychological responses based on interaction with the design. Emotional responses include both physiological and psychological feelings. As part of cognition, emotional responses, occur as a result of the activity of knowing and learning and include the science of both philosophy and psychology [26]. They are instinctive and are similar throughout cultural constructs [5]. Therefore they can be rationalized, studied and evaluated [9].

By isolating the affects of singular attributes, the experience can be manipulated to ensure prolonged interest. Further interaction offers the user potential for additional levels of connection. Response has been shown to occur on three different cognitive levels: visceral, behavioural, and reflective [21]. Each is progressive and is based on a different type of interaction.

The visceral, is based on the initial appearance of the object, and is an instinctive response to the physical form [21]. It is a gut reaction, and interaction is not required. If the user is not interested in the form, then interaction will not move beyond this level.

The behavioural response is based on the performance of the design and comes only after use [21]. User-centred design focuses primarily on behavioural responses. Like the visceral, they are also immediate, and are the feelings associated with usability and functionality. The performance at the behavioural level directly influences the response at the reflective level [6, 27]. Reflective emotional reactions are holistic. They reflect the overall design experience and incorporate the meaning of the object within society. Cultural values can not be separated from the design. The semantics provide the cultural context and determine how an object exists within that environment [13]. The meaning associated with the design changes over time as it enters new contexts [14]. The connotations will undoubtedly influence the user on a psychological level and go towards the acceptance or rejection of the form, regardless of usability or functionality. In this way, concepts of aesthetics expand to include both the visual appearance of the design, as well as the cultural meaning as reflected through the emotional relationship.

3 Understanding the User

Secondary research in the area of affective design mandates that the project be centred on the user. Common methods of conducting user testing include interviews, surveys, observations and analysis [16].

The design model starts with the identification of how the available market is fail-

ing the user. An attribute matrix provides a clear and organized record of the available market. Needs of the user are not accessed at this stage. The focus is on formal design specifications in order to isolate, and later inform, the technical attributes necessary for the new design.

The next objective is to determine exactly how alarm clocks are being used. Exploratory research identifies the variety of styles, motivations for use, and responses towards the routine experience. To obtain an overview from people of various ages and backgrounds, an online survey method is selected as the most efficient course of research [28].

The online survey and matrix analysis help to clarify market trends and identify the needs of the users. Based on the matrix, an exemplar set of six alarm clocks, representing the variety of options available, is selected to be used for further in-depth research using volunteer testers (Fig 1). The focused set allows the observation of prescribed interaction. The response to the interaction with the physical attributes and the provides information about usability and functionality of the samples [22, 3, 16].



Fig. 1 A set of six exemplar alarm clocks.

With the addition of semantic surveys, the observation provides a way to quantify emotional responses. Secondary research indicates that semantic surveys using Kansei principles are a successful way to gauge emotional response [3]. Kansei-based research begins by converting a set of adjectives intended to represent the possible emotional responses to interaction with the design into numerical data, thus making the responses quantifiable [31, 23].

However, the value of each emotional response in relation to desire and motivation is not yet identified. For the design to generate positive long-term desire, it is necessary that the user respond well to the behavioural and reflective levels of interaction [21, 11, 12]. Using a semantic scale and assigning a numerical value does not take into account the meaning attributed to the design. The aesthetics of interaction come from knowing what emotion is desired from all those possible, and how the experience relates to meaning and memory. Intuitive decisions based on cultural interests

obtained from the initial online survey and from social observations, help to determine the meanings and values associated with a design [29].

The conclusion of the primary research is an understanding of alarm clock semantics within society as related to the affect of the technical attributes. A solution to the disposable alarm clock market is to use affective aesthetic design in order to connect with users through both mind and body.

3.1 Similarity Matrix

An understanding of the alarm clock market gives an indication of the options that currently exist and provides insight into consumer trends. A selection of fifty alarm clocks is chosen from local stores and popular online retailers in order to evaluate what is immediately available. This grouping is then expanded to also include historical examples available from resellers. The physical attributes of each are then entered into a matrix. The majority of the designs represented are portable, illuminated, and utilize tonal alarms. This consistency demonstrates a need for various specific attributes and will help to inform the functional needs in the design development stage.

The frequency of occurrence for each attribute reveals commonalities and suggests questions to ask in surveys regarding preference and use. For instance, fifty percent of the alarm clocks collected are analogue displays. It appears then that people are neutral and do not have a preference with regards to the type of display. When posed as a question on the online survey, the answers can then verify or refute the assumption.

The market matrix is condensed even further into a more manageable set classified by similarity or divergence. Six common types are identified and examples of each are purchased for subsequent testing (Fig. 1).

3.2 Online survey

To determine how and when they are used, as well as to resolve assumptions made using the matrix, an online survey is conducted. The ability to send a survey to an international audience makes the configuration ideal for accessing a large variety of users. Research reveals that online surveys produce richer data than attempting to conduct surveys in person or via the telephone [16].

The survey asks 100 people questions ranging from the type of alarm clock used, to more open-ended questions requesting personal opinions. The type of question applied is determined by the answer sought. Open-ended questions allow the participant to respond in their own words and are beneficial for acquiring unbiased information and opinions. Closed questions are used to obtain information about more logistical parameters. With a dictated set of possible responses, closed questions do not provide the richness of data that the open-ended questions permit. An amalgamation allows for a more balanced survey. The same general question, asked both ways, tests the consistency of the answers. It also is a way to make certain that the closed question answers provided are unbiased.

The results are tabulated into percentages that help identify commonalities and divulge how purchasing decisions are made. Exploratory questions do not offer pre-

chosen answers, but instead allow for the participant to provide their own response in the blank space provided. This information is not able to be tabulated into percentages. In this way, the questions are more similar to an interview process. Given the inclusion of opinions and personal accounts, they are a constructive way to obtain insight into needs and trends.

It is discovered that 51% of respondents use a mobile phone rather than an actual alarm clock. While a further 2% use a wristwatch. The majority are not using an alarm clock which supports the initial hypothesis and reasoning for the re-design.

By far, the most informative question asked is, "What changes would you like to see in the design of alarm clocks?" Seventy-four of the participants take the time to answer the question. Most are centred around interaction and focus on the concepts of personalization and the method of waking.

3.3 User-testing of exemplar alarm clock set

Using semantic scales, ten participants are asked to complete four tasks chosen to isolate the various levels of emotional response based on increasing levels of interaction. Kansei Engineering principles stipulate the use of adjectives and semantic differentiation to translate the emotions into quantifiable data [18]. Selection of the Kansei databank is made based on a combination of previous published accounts [3, 17, 19]. Using inference logic, adjectives commonly used to describe art, design, and architecture are pulled from art history and design books and are combined with those used in current and historic advertisements describing alarm clocks. Open-ended responses from the online survey provide additional words. Using cluster analysis, a list of over 380 words is then cross-referenced. Words repeated and those considered less significant are removed to pair down the list to a set of twenty-five.

The first survey is an evaluation of the visceral response to each of the six alarm clocks. A semantic survey card is provided for each clock presented. Each contains an image of the clock to be experienced, along with nine Kansei words selected from the list of twenty-five. A number scale is placed next to each of the words. The tester is asked to evaluate their response to looking at each clock using concrete adjectives: easy, reliable, fun, plain, expensive, stylish, nice, technical, and contemporary. The total, mean, median, mode, and standard deviation are calculated for each Kansei word (Fig 2).

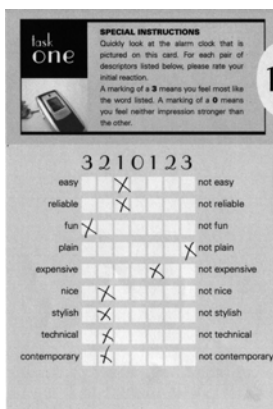


Fig. 2 Task 1 card.

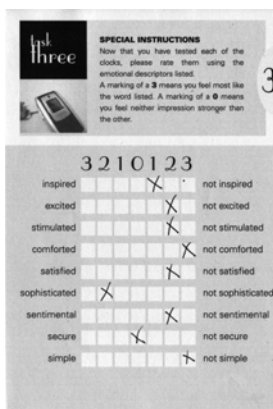


Fig. 3 Task 3 card.

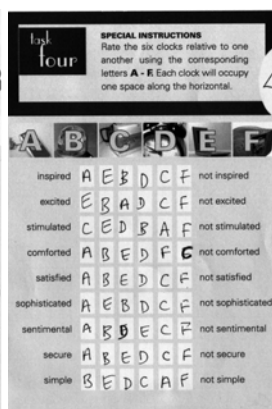


Fig. 4 Task 4 card.

The third task is a reflective evaluation of how the user feels after the previous two tasks. Similar to the first set of six cards, another set of cards are given, but contain nine new kansei words (Fig 3). Targeting the psychological response to the physical interaction, this inquiry is concerned with more abstract emotions: inspired, excited, stimulated, comforted, satisfied, sophisticated, sentimental, secure and technical. Once translated into quantifiable information, this highlights the necessary aesthetic parameters for interaction. Tabulation of the mean, mode, median, and standard deviation, reveals correlations and extremes. Correlations are also made to the responses from the first semantic task.

The fourth task is a reflective comparison to find which clock generates the strongest responses for each reflective emotion. Users are asked to rate each clock relative to one another based on the same set of Kansei words presented in task three. One card is provided that contains all six of the clocks. Each is assigned a letter 'A' through 'F' (Fig 4). Using the letter scale, the clocks are all evaluated against one another. The participant places the clocks in order from the strongest to weakest with regards to each adjective.

When processed, the collective data reveals links between the visceral, behavioural and reflective responses. Correlations based on conjoint relationships are combined with data with regards to tastes and opinions. Emotional responses shared, and consistencies between research methods, help to reveal individual needs and cultural values.

As an example, it is found that the majority feel that the mobile phone is 'easy.' It also registers high with regards to comfort and the concept of feeling 'secure.' Thus a connection is shown to exist between familiar attributes and ease of use, leading to feelings of security and comfort.

In isolation, this information is not enough to demonstrate a clear concept of the necessity of each emotion with regards to desirability. However, when combined with information obtained from the online survey and cultural trends, it does inform aesthetic design parameters. For instance, the online survey illustrates that people want to feel secure. It is also found that most choose their alarm clock on the basis of portability and convenience. Portability is shown to be an attribute that evokes feelings of newness and technological modernity. When perceived as being contemporary, the alarm clock evokes the desirable feelings of trust and security.

4 Design Rationale

Once analyzed and interpreted, the data establishes design parameters and constraints. The results are used for different aspects of the design. To be affective and desirable the physical aesthetics related to touch, look, and feel need to be supported by the aesthetics of interaction. The physiological constraints are derived from the usability data and online questionnaires, whereas the psychological needs are targeted from the results of the Kansei user-testing and an awareness of perceptions of meaning within society. The affect is not determined solely by the physical object present. Aesthetics are not inherent to a design, but are a result of interaction that includes social and cultural influences [25]. The incorporation of statistical analysis of the physical form along with an intuitive understanding of society leads to affective aesthetic design.

4.1 Form

Both primary and secondary research indicates that the physical form should be both simple and familiar. If the clock fails the user by being overly complicated and unreliable then it will not be desired. The user-testing reveals that feelings of comfort - established by an easy to use interface with a simple form - lead to frequent use. Simplicity and clarity create affordances making the design appear easier to use [15]. A more conceptual and innovative interaction based solution is able to be explored once a positive visceral response is achieved. Thereby, the choice is made to use a simple and familiar form that the user becomes comfortable with before the design divulges additional layers of information through intuitive displays.

While fitting comfortably in the hand, the owner cradles the organic form when accessing the main menu. In order to create a desirable emotional connection by humanizing the interaction, the shape is fixed around the contour of an adult hand to ensure comfort and warmth [6, 22].

The possible options are reduced to an absolute minimum in order to clarify and limit the necessary interaction at each stage. To streamline the attributes, menus are carefully planned and arranged in the most orderly manner. Technology allows the alarm clock to be simple without being simplistic. For instance, as it receives radio waves from the nearest atomic clock, the user no longer has to set the clock time, time zone, or date. The interface required for these settings is eliminated. This also means that the clock is not susceptible to human error or reliant upon memory, as it is no longer relies on maintenance in order to display the correct information. It is both more convenient and reliable.

The innovative functions are balanced with an easy to use clock in order to keep the user from feeling overwhelmed by the new technology. Once comfort and security are felt, more constructive layers of complexity are revealed.

4.2 Material

Semantic testing indicates that most want the clock to exhibit a balance of modern sophistication with classic elegance. To achieve this, No. 21 is formed using a common polymer combined with a traditional walnut wood backing. Polymer, a popular

plastic used in personal electronics, helps the new form appear up to date, which is shown to create more secure interactions. Limited to the back of the form, the warm wood is intended to be physically enjoyed by the owner while the alarm clock is cradled while accessing the main menu. Remembering the warmth of the wood and relating it to other, perhaps, heirloom objects, fosters a new relationship. In the hope of triggering future memories, wood is a material that shows signs of wear and age. Just as the white faded square on the back of a pair of denim jeans reveals which pocket frequently holds a wallet, or a pressed cushion discloses how a chair is frequently sat in, the wood will also show signs of wear and tear.

4.3 Colour palette

The colour red is shown to arouse the pituitary gland which, in turn, elevates the heart rate and causes a stimulating affect that demands action [8]. The darker hue is accompanied by feelings that are more refined, authoritative and rich [8]. Due to this, a deep shade of red, Pantone 201, is used on No.21.

Red is used for the main button to provide a visual cue that it should be pressed. The minimal use of colour makes the entryway to the alarm clock menu obvious and more usable. No. 21 is offered in three body colours: white, PMS WG2 (neutral grey), or black. Following cues from Dieter Rams, and more recently that of Apple Inc., the goal is to make an unobtrusive object that does not distract from life [7]. The additions of black and a neutral grey were added for practicality. The multiple colour offerings are helpful when identifying various clocks that could potentially co-exist within one household. Moreover, the optional colour provides people with the ability for self-expression.

4.4 Unexpected results validate design process

While affective design is often linked with appealing to the emotions through sentiment, research reveals that the alarm clocks that were expected to make automatic connections based on tradition, novelty, and sentiment, were in fact less appealing to the majority. Both of the more classic and sentimental options brought about feelings of uneasiness and worry. They were not to be trusted or were too dated to be reliable. Many mention wanting them as objects, that along with other kitsch trinkets, will be placed on a shelf. But they were not wanted as a primary alarm to be included as part of the daily ritual. History, sentiment, and/or memory were surprisingly less influential than the need for security. Security that stems from previous successful wakings creates comfort. Reliance and daily reflection allows the alarm clock to become part of the regular waking ritual.

Concept development begins with a look at daily rituals to gain an understanding of how design is seamlessly incorporated into daily life. While it is true that complex technology discourages emotional connections and use, it is also evident that sophisticated technology needs to be present [20]. Initially it was thought that the older users would not be as adaptable to new and emerging technology. But the initial findings negated this when the online questionnaire revealed that most use mobile phones instead of a traditional alarm. It is no longer the scenario of having to invite over a

child to programme the VCR. A result of increasingly complex electronics is that we all now know how to programme the TiVo, regardless of age or gender. No. 21 must use forward thinking technology, with the potential for growth, so that it offers feelings of advancement to accomplish long-term security. In terms of becoming a ritual, ideally, the design is so useful that it is viewed as necessary. It is found that necessity ultimately depends on the reflective relationship that evolves based on the aesthetics of interaction when memory and meaning are assigned.

A relationship between user and object is not pre-destined. The author Henry James speaks of the unlimited potential of experience.

Experience is never limited, and it is never complete it is an immense sensibility, a kind of huge spider web of the finest silken threads suspended in the chamber of consciousness, and catching every airborne particle in its tissue. [2]

Life is unpredictable as values and needs change over time. However, the potential for evolution is possible. A design can appear to gain knowledge of the user based on a dependent relationship that involves the user sharing information. This allows the design to reproduce memories of the individual while also remaining representative of the current time and place.

Waking with messages based on life experiences and preferences, a relationship is ensured, as the user's own values are echoed through the interface. The alarm clock aesthetics remain timeless as the information potential is never limited. The alarm feels contemporary and is an authentic object worthy of trust. It is a bridge creating a connection between the user and their emotional needs. The alarm clock effortlessly informs the user and reflects personal social and cultural interests, thus making the user more secure and comfortable in their daily life. Further encounters provide the alarm clock with longevity and keep it from becoming a meaningless and disposable design.

5 No. 21: an Emotionally Intelligent Alarm Clock

An evolution in the functionality and ritual use of an alarm clock is needed to break the cycle of disposable design. Research bares twenty previous design stages in the evolution of the alarm clock. There have been other attempts to create an emotional alarm clock using pre-set formulas and dependencies to predict the emotional states of the user [30]. This methodology chooses not for technology to adapt to people's needs but to have the ability to evolve through interaction. No. 21 is not responding but managing, generating and prolonging an enduring emotional relationship. As an emotionally intelligent alarm clock it is the twenty-first progression in the evolution of alarm clock design and is named thusly, No. 21 (Fig 5).



Fig. 5 Photographs of No.21.

The clock transcends current limitations and develops an empathetic relationship as it encapsulates information offered by the user. The database driven alarm clock appears to get to know the user through information shared with an online application. It is not meant to be just another decorative object, to be used, and then eventually discarded. Instead it aims for the user to take ownership and develop a dependent relationship based on continued interaction and constructive disturbances.

The user controls the amount of information shared with the software by determining what from the home computer and online interests is collected. The frequency and amount of data shared ultimately determines how attuned No. 21 is to the life of the user. By sharing, the alarm can more precisely weigh values; evaluate content decisions on the basis of increasingly fine distinctions; and, perhaps, become more affective while appearing trustworthy, secure and wise. To reach its full potential, No. 21 relies on the user for input. In turn, the user is dependent on No. 21 not only for waking but, more importantly, for the organization and sharing of pertinent messages.

Organizing the web of information, No. 21 presents a personalized alarm and provides the user with an intelligent and tailored message. Each day a new greeting is pulled from the most recent information. Greeting the owner by name, the alarm clock appears to know the user. Whether a photo of a friend, important calendar date, or current event to keep the owner informed, the style of message displayed reflects personal concerns and interests. The message and language used defines and reflects the individual. The alarm clock reflects the values and concerns of the owner, as well as that of the society of which the owner is a part. This intimacy generates an empathetic relationship as the information becomes more tailored.

Societies share common memories but some happen independently to individuals and can not be predicted [4]. By designing an alarm clock that relies on input to de-

termine content, individual memories and needs are made pertinent. It adjusts to changing values and reflects trends, giving No.21, the ability to grow and refrain from becoming outdated. This provides the capability of longevity by generating desire for future use.

Desire is achieved through an understanding of the culture in which the object exists and of the historical precedents of which it is a part. When describing objects to be exhibited at the MoMA, the curator describes what is in her opinion good design. The description references the concept of an affective balance.

The best contemporary objects are those which through their presence express history and contemporaneity; those which manifest in their physical presence the material culture that generated them, while at the same time speaking a global language; those who carry a memory and an intelligence of the future. [1]

In other words, good design is that which balances the feelings of comfort through familiarity with the awareness of cultural meaning, and of the influence it has on the aesthetic affect.

No.21 is constructive beyond the immediate experience of other alarm clocks. It transforms the daily ritual of waking into an occurrence with the potential to provide the user with an emotionally and psychologically stimulating experience. Using database driven constructive disturbances, No 21, informs and inspires the user, thus giving purpose to the ritual.

6 Conclusions

Financial limitations do not allow for a fully functional alarm clock to be made. In order to complete the learning cycle a more ideal process yields a working model [30]. However, to ensure that it is more than a beautiful form, extensive research and contact with manufacturers are conducted to make certain that there are no problems with the technology used.

Affective and desirable design is championed as a process to reconnect with users on an emotional and meaningful level based on the aesthetics of interaction. Understanding that people have to be interested for the design to be experienced, Kansei Engineering and affective design methods identify emotional needs. No.21 attempts to demonstrate how the integration of affective design, along with the careful generation of desire, transcends the physical form and creates a more sustainable design that relates to psychological needs. It is not a cause and effect relationship that simply provides feedback, but rather an informative, expanding, and interdependent relationship that develops based on triggers through the aesthetics of interaction.

Review of the ritual use of everyday objects, and of design classics, reveals that meaningfulness emerges through use. Affective design revolves around the evaluation of basic human emotional response. Desire is based on continued interest by means of the aesthetics of interaction. Therefore, an understanding of not only the emotions evoked, but of the role that the emotions play in generating desire, is needed

in order to incorporate desirability into the process.

The experience of using an alarm clock has many emotional connotations within culture. Most are negative because it involves jarring or startling sounds. While others take the opposite approach, and are overly fun or cute. Beyond superficial aesthetics, No.21, offers an experience with a presence. Here the idea of 'presence' refers to the existential definition of an alarm clock as it is accepted into daily life, and how that response relates to the rest of the world [11]. It establishes a new relationship based on the existing daily ritual of waking but reclaims the event to engage both body and mind. The aesthetics are used to constructively add purpose to the event. This promotes further engagement leading to additional levels of reflective interaction.

Increased complexity rarely meets the physical and psychological needs of the user. No longer the primary concern, people are forced to consume goods which fail to meet their needs. It is the responsibility of the designer to change the habits of the disposable consumer market. An affective and desirable design process uses aesthetics of interaction to create a total design that will combat the disposable trend. The process allows for an everyday object to obtain a meaningful presence [11].

6.1 Future Work

Design reveals information about the society of which it is a part, simultaneously reflecting the desires and values of both the individual and culture. Some everyday objects acquire significance over others as they become a necessary part of life. A few have been elevated above all others. These classic designs are timeless, and have been empowered with social status, ideology, tradition and/or collective memories.

Longevity and continued use are a result of the object gaining presence within the life of the user. Further research will remain focused, not only on the possible emotional relationships shared with objects, but also in the potential for everyday objects to extend beyond the physical form. Of particular interest are the social relationships expressed through design, and the ways that design can identify, enhance and even manipulate culture.

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