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Incomplete by design

Exploring incompleteness as a design approach to product design, and its potential sustainability implications

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Abstract

In our current times, as consumers are incentivised to continually spend money and fuel the desire of wanting the next best thing, emotionally durable design aims to shift the thinking towards long term ownership and emotionally deep, meaningful relationships with our objects.

Incompleteness tries to approach this by involving users in the final stages of the design process shifting their involvement from consumer to collaborator. The act of designing and finishing the last parts of the design aims to build a deeper emotional connection with the users thereby extending the longevity of these objects.

This thesis aimed to understand the notion of incompleteness and contextualise it within design literature. The core question of the thesis is whether incomplete design as an approach could foster the emotional connection through the act of completion, with the users.

Keywords Emotionally durable design, co-creation, sustainable design, products design,

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EDD – Emotionally Durable Design

1. INTRODUCTION

1.1 Background: Sustainability and emotional durability in product design

Understanding what emotionally durable design (EDD) means, is a foundational aspect of this thesis work is. Emotionally durable design is a proposed design approach to product design in which users and customers develop increased emotional bonds with their objects. This can take the form of family heirlooms, where the existing history of an object creates an emotional connection. An example of this would be a wristwatch handed down by parents or grandparents to their children and grandchildren. These objects because of their nature create an emotional connection to a certain person. In this case if the watch gets lost, it would be impossible to replace it, as even if the object is recreated perfectly, it would be lacking the connection to where the original one has come from.

Emotional durability has frequently been referred to in connection with sustainable design practices and products. As we develop emotional connections with objects, the need to replace those decreases which in turn would leave to fewer products being purchased

1.2 Problem: Consumer detachment → short product lifespans

Nowadays it is commonly understood, that current consumer behaviours and production processes are huge contributing factors to the environmental issues we are facing currently. In the western world product development and consumption is driven by capitalistic ideals where constant production is a key objective. In this environment companies are incentivised to produce and keep developing new product in order to sustain their business and to keep user needs fulfilled. A partial driving force behind this constant need from consumers is the detachment of consumers. Users are not connected to the things they own beyond the surface level functionality of those objects, which makes these things in return seem as disposable or undesirable based on a multitude of factors. New offerings, quickly deteriorating construction quality and the change of current fashion can all be contributing factors to consumers wanting to get rid of their things in order to make space for new things. This shortened life cycle of designed object carries a large environmental implication as not only do these things need to be disposed of (often burned) but new things have to be produced and transported around the globe, further damaging the environment.

1.3 Theoretical framing

The thesis is framed through the lens of sustainability literature which highlights the importance of meaningful and long lasting objects. The literature is then further expanded by introducing emotionally durable design, which describes the approach to objects which create value to the users beyond their functional purpose.

1.4 Research question(s):

Can incomplete product design foster user involvement, emotional attachment, and sustainable product use?

What are the potential sustainability implications of utilising incompleteness as a design approach to foster emotionally durable products?

1.5 Scope: Theoretical analysis + interviews with designers/users

The thesis comprises of two key areas of inquiry; firstly a literature review diving into the history of concepts and relevant terms, secondly a series of interviews with 5 participants of different backgrounds. The thesis mainly focuses on the sustainability implications of emotionally durable design and it's potential to be designed for in connection with incomplete design practices.

The thesis will briefly mention the parallel thoughts within co-design, namely customisation and modularity, however those are not the focus of this study due to the possible negative impacts of those practices as well as the different nature of those approaches.

To reduce the scope of the thesis, the chosen vessel or example product category for this study is sling bags. As this product category is currently becoming more fashionable, it's environmental impact will too, therefore it is worth understanding the underlying intentions and choices of the design teams.

1.6 Practical design relevance

This study aims to explore the notion of 'incompleteness' within product design and potentially offer product designers a starting point on creating objects that will be emotionally more durable.

The term 'incompleteness' has not been referred to in combination with EDD or design approaches, therefore this thesis aims to establish an understanding of what incompleteness as an approach to product design means and where its implications may lie.

1.7 Thesis structure overview

The thesis consists of two main areas of qualitative research. Firstly it explored the theoretical background of sustainable design practices and emotional durability to serve as the framing through which the proceeding section was constructed. The literature review serves as the foundation of knowledge upon which the following sections build.

The second part of the qualitative research consists of multiple, semi structured interviews which have been conducted. These interviews with experts in their field give insights, which are not present in literature and help with building an understanding of incompleteness within design academia.

Following the research, the interviews are analysed and through the literature review and the findings are made. Finally conclusions are drawn from the findings at the end of the thesis.

1.8 Limitations

This thesis mostly focuses on physical product design, especially consumer good. As there was limited time to conduct the research, the scope had to be kept fairly small, therefor this thesis only explores the theoretical and conceptual parts of the notion of incompleteness.

The initial starting point for this research was consumer lifestyle goods such as bags, and those served as the platform for framing of what incompleteness might look like during the interviews, however the thesis itself only focuses on the theoretical possibilities of incompleteness.

2. LITERATURE REVIEW

2.1 Introduction to the literature review

2.1.1 Purpose of literature review

In this chapter the underlying literature of this paper will be introduced. The literature review will introduce the key areas of interest of this thesis – emotionally durable design, sustainable product design practices and user involvment in product design (DIY culture and open design practices.) These sections aim to clarify the existing knowledge of these topics, highlighting the most relevant information and current best understanding of these fields within design.

2.1.2 How was literature acquired

The selection of literattue was obtained through reputable and reliable sources. This entails search engines such as Google scholar and ResearchGate as well as Aalto University's library system. In addition to search engines and the university library systems, as part of the interviewee subset was academics and researchers in the field of sustainability in design, recommendations of books and articles form them were also included in the literature. The literature mainly consists of peer reviewed research papers and published books on the topics of sustainability, product attachment and user involvment.

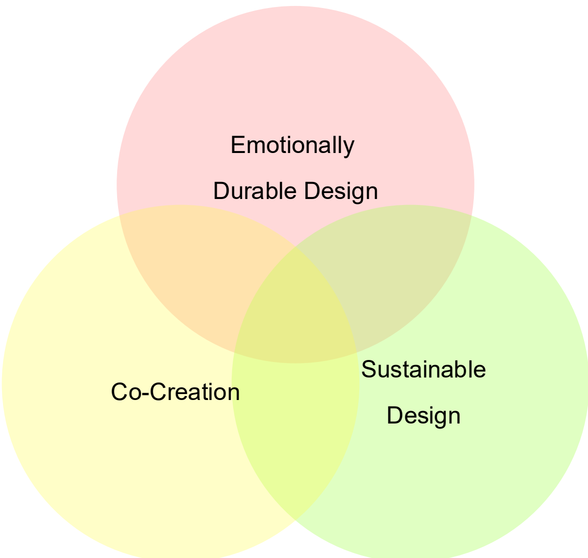

Figure 1 - Visualisation of literature topics

2.2 Key areas of literature

Emotionally durable design is one of the most crucial and key parts of the literature used for this research. As the topic of product-user relationship is the core area of focus, the terms and understanding of emorionally durable design practices has to be understood clearly to be able to conclude accurate and valuable information.

A large emphasis in this thesis is on sustainibiliy and how it should be designed for. As part of the key literature, notable sources from sustainable design literature have been used to illustrate the historical and contemporary konwledge that is centred around sustainibility within design. This includes ethics as well as practical implementations of sustainibility principles.

2.3 Emotionally Durable Design

Emotionally durable design (Chapman, 2005) provides a framework for understanding user-object relationsips where deep emotional connection forms the basis of this relationship. While emotionally durability requires a certain level of material robustness, Chapman argues, that EDD goes beyond physicality and objects must also be capable fo maintaining relevance, meaning and desirability over time. Emotional durability is framed as a response to the cultural pattern of rapid consumption, disposability of items and constant novelty seeking, which characterise consumer behaviour in the contemporary context.

Chapman critiques the current approach to product design, which values innovation, efficiency and novelty, over long-term engagement and lasting experiences. Emotional durability proposes that items, which are able to create a deep and meaningful emotional connection with the users need to be replaced less frequently thereby enabling a more sustainable approach to products.

2.4 Emotionally Durable Design in connection with Sustainability

Chapman argues that by strengthening the bond between users and the objects they own, these items become less disposable and thereby tend to stick around for longer. While for longevity there is certainly an aspect of physical durability which ids needed, contextually items which manage to build strong emotional connections with their owners can become indispensable for users (Chapman, 2005).

The sustainability implications of emotionally durable design are more conceptual compared to other approaches of sustainable design principles. Emotionally durable design proposes that items which are meaningful carry value beyond purely functional and therefor this intangible value creates a necessity of keeping these things around. For example one could think of objects such as a watch passed down from generation to generation. In this case the meaning and emotional connection is embedded within this object and its importance goes far beyond the functionality of telling time. It becomes an item which is indispensable due to the context of the life it has lived and replacing it would simply not be possible.

This indispensability is the main argument formed for how emotionally durable design reduces the environmental impact of objects by reducing the need for getting rid of items to make room for newer ones. It can be argued that emotionally durable items incentivise users to maintain and repair these things instead of replacing them, which further carries these sustainability implications.

2.5 Sustainable product design principles

Victor Papanek argues that design as an activity is inherently and ethical process which is shaped by social and ecological outcomes. The main critique of Papanek's work on contemporary industrial design highlights the need for prioritising aesthetics, consumerism and constant innovation over the societal and environmental potential which design could bring. (Papanek, 1995) According to him, design has an intrinsic goal to be honest and meaningful which is in direct contrast with consumer culture which emphasises novelty and marketing driven values.

The sustainability discourse extends further in which while technological advancements and material efficiency are strong drivers of more environmentally conscious design, these can by themselves not address the causes for unsustainable consumption. (Walker, 2006)Design needs to not only to serve function btu also should cultivate and encourage behaviours that challenge the values of contemporary consumer culture. Longevity over novelty can encourage a deeper engagement with objects and thereby foster and environment in which reflection and stewardship which are in contrast to objects which perpetuate desire and replacement

2.6 Incomplete design

While other similar design strategies under the umbrella of co-creation such as modularity and open design are well defined, there is a noticeable lack of academic discourse on the idea of incompleteness. Many might see incompleteness as a part of modularity, however for the arguments of this study, incompleteness has been defined as a separate term. In the following sub-chapter the other terms will be introduced and the differentiation between those and incompleteness will be made.

2.7 Co-creation (DIY, modularity, customisation, open design)

2.7.1 Co-creation

Co-creation refers to a design approach in which users and designers collaboratively shape and influence the development and final form of products or services. Unlike more traditional design approaches, where the end user is treated as a recipient of a finished and completed solution, co-creation involves them as active participants in the design process where users are able to apply their own experiences, insights and values to the design. This process balances the authority between designer and user which helps the final outcomes to be more grounded and contextually more meaningful compared to traditional approaches. User invlovement can occur on a variety of levels, where co-creation and co-design principles enable the deepest level of influence users can have.

The key differentiation between co-creation and incompleteness lies in the relationship between designer and user. In co-creation practice users and designers create a dialog through the process and are working towards a shared understanding of what a finished solution is. Incompleteness creates a designed space where the involvment of the designer ends and the act of finishing an object is the sole responsibility of the users. This autonomy of users and disengagement of the designer is the mechanism which enables the contextualised and unique approaches to finishing objects which could lead users to develop more meaningful relationships with their things.

2.7.2 Modularity

Modularity refers to a strategic design approach, in which products or systems are composed of distinct components which can be changed, replaced and reconfigured independently. Modularity treats designed products as more of a fluid and changing item rather than a static object. Users have the autonomy to change and modify the objects within the designed limitations of the system in which these objects exist. An example of this would be desktop computers, where the components can be configured in a variety of different ways to suit the need of every individual user accurately. This of course exists within the limitation of the interfaces of these components and areas where careful considerations need to be made are things such as interfaces – how these components come together. Customisation would also form part of modularity to a certain degree. Products can be customised by purchasing complimentary products often offered by the same manufacturer, which fit within the limitaitnos of these products.

While incompleteness borders on modularity, in the sense that one single component of object could not be considered finished, the key differentiation between these terms lies in the way they address completion. Modularity provides the possibility to complete an object and enables users to take readily made solutions to make their object usable while incompleteness would open the design space for customers to ideate and create their own, highly contextual and individual solutions.

2.7.3 DIY

DIY or "do-it-yourself" refers to the practice of individuals creating, modifying or customising products independently of professionals. The idea is rooted in self sufficiency in which individuals have the agency to create solutions rather than take ready-made ones. DIY challenges the contemporary consumption habits and aims to encourage users to become active participants in shaping the objects and their environments.

This approach is related to incompleteness as user involvement and the encouragement of creating solutions is a key aspect of forming deeper connections with objects. The main differentiation between DIY culture and incompleteness lies in the involvement of designers. While incompleteness aims to create a space in which user involvement can happen, DIY addresses highly contextual problems rather than completing incolmplete objects.

2.7.4 Open Design

Open design could be considered the most alike to incompleteness as it democratises and involves users in a deliberate and designed way. Open design makes documentation and design publicly accessible and enables users to adapt the provided solutions to their own context. Through this process design becomes a highly collaborative activity in which designers and users all contribute to the process.

Incompleteness, while bearing similarities to this approach, is distinctly different as unlike open design, it doesn't rely on distribnuted knowledge between designers and users. Rather, incompletenes creates a framework in which knowledge can be created and solutions can be formed, but these do not have to be redistributed. In this sense Incompleteness is a more individualistic approach to the act of colmpleting an unfinished design.

2.8 Identified research gap

As shown in the above mentioned sections, 'incompleteness' is a term that has not yet been defined within the context of co-creation and product design. This could be attributed to the lack of clear distinction between the terms, where incompleteness might be used synonymously with others.

3. RESEARCH DESIGN

This chapter details the methodology used in researching and achieving the aforementioned research objectives. In this chapter I explain the methodology of how research was conduced for the underlying framework and knowledge on which this thesis aims to expand upon. Furthermore this chapter explains how qualitative data was gathered throughout the research process to explore the topics of the research questions and how this data was subsequently analysed and processed.

3.1 Qualitative research approach

The methodology of the research process of this thesis consists of two parts. Firstly the research consists of a qualitative examination and exploration of the current and established knowledge on the topics of modularity, DIY, Co-Design, emotionally durable design and their relationship to sustainable design practices. This in practice entails a thorough look into existing documentation such as research papers and other publications. As the scope of this thesis is limited, qualitative research leaning on previous knowledge enables a deeper understanding of the current existing knowledge on topics and allows for exploration of topics which are partially covered by these publications.

3.2 Semi-structured interviews

As the thesis is expanding on existing knowledge, it was vital in the process to acquire reliable and accurate information from experts and professionals versed in the topics which are discussed. For this purpose experts were interviewed to gather first hand information from them. The interviews were semi-structured, meaning that while some guiding questions and discussion topics were used to steer the conversations, there was opportunity for both participants and the interviewer to expand on topics. This allowed the interviews to be carried out in a more discussion-like manner through which it was possible to explore topics which were, prior to the interviews not anticipated by the interviewer.

3.3 Sampling method and recruitment process

This sub-chapter explains the rationale of how research participants were chosen for the interview portion of the research. Following the breakdown of interview participants, the recruitment process will be explained.

3.3.1 Academics

Understanding the core literature and their connections, as well as touching on parts of these topics which have not been researched allowed for the interviews to include academics and researchers within the field of sustainability and design.

3.3.2 Limitations of interview subset

Due to the scope of the thesis, only a small number of interviews were possible. This presents it's own challenges as it can skew data in case the chosen interview participants fall outside of the narrowly defined, intended interviewee categories. As these interviews were conducted as semi-structured interviews, there was room left for the participants to express their own opinons as well as their expertise on the topics discussed.

3.3.3 Summary of interviews and relevant information of the interview participants

	Interviewee field	Relevance	duration
1	Sustainability research, Design research	Expertise on sustainable design practices and EDD	40min
2	Design acaemic, Sustainability and Design Professor	Expert on Design and sustainability, Co-creation	35min
3	Multidisciplinary Designer, researcher, Professor	Experimental design and installations based on viewer involvement with unfinished experimental work	31min
4	Design researcher, Design professor	Materialities, sustainable design practices	45min
5	Design researcher, Design professor	Experimental design, co-creation	45min

Table 1 - Summary of interview participants and relevant information

3.4 Ethical considerations

3.4.1 Informed Consent

As with any research in which data is collected through qualitative or quantitative means, handling the information of participants in an appropriate manner is to be strictly followed. For this reason every interview participant in this study received a consent form prior to the interviews which details the handling of data gathered from the interviews as well as how their private information will be processed and handled.

3.4.2 Anonymity

To ensure the privacy of the research participants, their names, affiliations and other key identifiers have been anonymised in the research, interview transcripts and all other supporting materials used for this study.

3.5 Data analysis

3.5.1 Interview transcription

The interviews have been transcribed to enable the next stages of the research. This way, using the transcripts occasions and themes can be highlighted in a clear way and further on can therefore be quantified and better understood in the context of the other interviews. Creating a transcription for the interviews is another way of creating data which can be later analysed outside of the scope of this study without compromising the anonymity of the research participants.

The interviews were transcribed with the help of on device transcription software such as macWhisper. Running transcription software locally was a consideration made for keeping the anonymity of research participants intact. The transcripts were reviewed and errors have been corrected manually, and any identifying remarks or other texts were redacted in order with the anonymity values of this paper.

3.5.2 Thematic Analysis

Thematic analysis was chosen to analyse the data gathered from the inteview part of the thesis. This method presents a good way of interpreting and systemically categorising the fluid and often difficult to define topics discussed during the semi-structured interviews. This method allows for identifying how a specific topic is talked about by highlighting themes and patterns emerging form this highly contex-specific and varied dataset.

3.5.3 Coding

Coding in Braun and Clarke's method means going through data systematically and labeling information that seems relevant or meaningful to the research questios. The highlighted quotes are given decriptive codes, which help with grouping these ideas together and susequently creating themes which help with emerging ideas.

3.5.4 Initial Themes

The initial themes that were identified during the thematic analysis process are as follows:

Designing for EDD

Modularity

Customisation

Incompleteness

business practices

3.5.5 Review

After reviewing the themes as well as revisiting the research questions and re-categorising the codes, more clear and relevant themes have been created. These themes highlight how the topics discussed in the interviews touched upon various parts of the research questions, and within these themes, there still emerged different ideas that showed a multitude of perspectives.

Themes	Number of quotes
Designing for Emotionally Durable Design	30
Designing for Incompleteness	32
Evoking Emotional Connections	24
From Customer to Collaborator	9
Lived Experiences	19
Problems with Consumerism	18
What makes things Incomplete	16

Table 2 - Overview of Codebook

3.5.6 Excerpt fom the codebook

Evoking Emotional Connection	2:41	I'm not sure if just because a product is customizable, whether that product evokes emotion	Interview 2
	2:42	designer wants to create value for the user on the basis of customizability, of course, there is a room for that. But for me, that's an evil,	Interview 2
	3:1	My object relations are usually that I feel responsibility for the objects that I own in the sense that I feel that we should consider what objects we let into our lives	Interview 3
	3:13	I think there are some really nice options for this modularity, but also they within our systems, they grow their own weird flowers sometimes in this, you know, in this stuff as a status symbol.	Interview 3

Table 3 - Excerpt from the Codebook

4. FINDINGS

This section of the thesis will present the findings drawn from the interviews and prior data collection based on Braun and Clarke's (2006) thematic analysis method. The themes presented in previous sections of the thesis were created according to the most prominent talking points of the interviews and the quotes highlighted in the code book were used to create more coherent clusters of ideas, that show emergent thoughts and insights on the topics of the thesis.

The following sections describe the insights gained from categorising and examining the quotes as well as using the knowledge gained from the literature. These insights while varying in depth, provide an interesting picture of the current knowledge on the notion of incompleteness, and highlights possible areas of further research on the topic.

4.1 What are the drivers behind building emotional connections?

As Chapman (2005) describes, emotional connection can be the outcome of a variety of outcomes, such as graceful ageing or items carrying a narrative, such as family heirlooms. Durign the interviews a recurrent topic of conversation was the idea, that lived experiences could be a factor through which emotional connection can be built and strengthened. This idea is not necessarily a perfect recipe for creating emotional connection, as many occurences can be described as 'lived experience' where objects play a significant role, however they do not become more significant through these experiences. An example that came up was the fact that if one were to fall, and their watch prevented serious injury, that would not directly create a deeper connection with the user of this object.

Often lived experiences emerged during the interviews as something more accumulative and as something that develops over an extended period of time through continued use. This echoes Chapman's (2005) reasoning, that objects should be durable enough in a material sense to be able to stay around long enough to develop this relationship.

An other interesting insight which came from the interviews is that personalisation, or the idea of having room to engage hands-on with a product could lead to stronger empathy towards these objects and as such a more meaningful connection could be built. This however is a highly contextual idea, and it assumes that this interaction between user and object is achieved in a natural and honest way.

4.2 What could be considered incompleteness?

A very interesting and fundamentally relevant insight that came rom the interviews is the expansion of the term of incompleteness. The thesis primarily aimed to understand if incompleteness in the material sense, eg. a missing strap on a bag which would have to be created by the user. This idea was challanged my multiple interview participants, who questioned the difference between conplete and incomplete objects. What one would consider a completed product could be something that someone else would consider unfinished. An example that illustrates this well is the trend od IKEA hacks. This involves users who treat purchased furniture and home goods as a base which can be modified and built upon, rather than a complete product. In this case the object could based on perspective and framing be considered both copmleted and incomplete.

An other idea of incompleteness came in the form of how some items would become complete only through use. As this is quite an abstract idea, an example that could illustrate is the fact that certain materials, such as leather or denim become more desirable as they wear in. One could consider jeans incomplete without the classic faded, worn out look that makes them desirable and distinct.

4.3 Defining incompleteness

A large emphasis was made during the interview process to understand and describe what incompleteness means in the context of other design approaches sucha as modularity and customisation. Interviewees agreed that incompleteness could be considered as a separate and distinct approach when put sifde by side with the above mentioned ones. The cleares working definition for incompletentess during the interviews was forulated as follows:

Incompleteness is the parctice of designing objects for user involvement, in which these products are left incomplete in anticipation of them being finished by the end-user. A solution is not offered, rather the users have to design and create their own unique and contextually relevant way of completing their objects. This practice is aimed to create a stronger user-object connection and hopes to build a stronger emotional connection.

4.4 Incorporating designed incompleteness to foster an emotional attachment is difficult

As mentioned in previous sections, building emotional connections with objects is a very contextulal process which will look significantly different from person to person. The need for these lived experiences is that they have to be honest and meaningful, meaning that designing and manufacturing these moments would most ceratinly pose a considerable challenge to designers. As these moments in which users engage meaningfully with their objects can happen due to a variety of reasons, creating or prompting these experiences is a challenge.

Incompleteness, from the response of the interview participants seems to be a possible approach to forstering experiences through which more meaningful relationships would be developed with objects. This of course would depend on the context in which these experiences are prompted. Some of the participants highlighted the fact that the variety in unwillingness to get involved with products would alienate, or certainly make it difficult to bring some people to these experiences. A certain level of curiosity and affinity for hands-on experiences would be required from the users for incompleteness, in the material sense, to be a valuable approach to product design.

This could be in some sense averted if incompleteness is framed in a more conceptual way. If objects, which would only be considered complete through continued use, are the lens through which incompleteness is viewed, perhaps more users would be willing to engage with objects that are designed this way.

4.5 Negative implications of Modularity and Customisation

During the interview, the ethics, and the role of designers was also touched upon. As multiple interviewees have highlighted, the notion of incompleteness as framed in this research, bears a resemblence to modularity. Modularity was a design approach that emerged in the late 90s and early 2000s, that was expected to change consumer behaviours from constantly purchasing new things to one where items would be held on for longer and broken or undesirable parts would be changed out. This as highlighted during the interviews, turned out to not be the case. Instead of reducing consumption, modularity became in some cases an other tool for increasing consumption. Instead of consumers holding on to objects, modularity provided an easy way for changing the look and feel of products and it provided a platform for companies to creaet and sell more. The ethical question of whether incompleteness is something that should be even designed for, or if it would become through scale an other example of mass cusomisation and a fuel for constant dissatisfaction with products, is a debate that should be discussed further. During the interviews it was discussed that incompleteness as an approach to product design could only really be a viable approach on a small scale. This ofcourse is something that is not conclusive and therefore can not be verified as such.

4.6 Anticipating where users would be likely to involve themselves in the design process

As already mentioned in previous sections, anticipating if and how users would be likely to involve themselves in the design process is a difficult task. For this a deep understanding of the users would be necessary for the designers and it would most certainly bring its own limitations. Multiuple interviewees touched upon the fact, that their willingness to engage with products, and interest in involving themselves in the design process of their everyday objects is highly dependant on the context in which these objects exist. Not every object can be expected to involve the users in the design process in the way that incompleteness proposes, as due to the societal and practical context in which these things exist could make incompleteness a counter intuitive practice. Some products are meant to be used, worn out and replaced and as such incomleteness would most likely not be the most relevant approach for these cases.

Likewise some interviewees have raised concerns on the level of hands on skills of the users being a highly important part of incompleteness. As incompleteness shares a lot of the values with DIY culture, it also shares a need for people to be able to use the necessary skills and equipment to complete their objects. In practice this wold mean a big variance in the skill level of users. If we think, some have access to more advanced techniques (sewing, woodworking etc.) while others only have basic skills. This variance in skills would also mean a variance in how users could be involved with the products and expected to complete them. Designing for this would most certainly pose a challenge, and due to this fact could pose a significant limitation to incompleteness as a design approach.

This being said, the limited capability to reach users could also benefit incomlpeteness as the drawbacks that came with mass customisation might not apply, if incomplete objects only have a smaller scale reach.

4.7 Drawbacks of offering incomplete products

The practical implications and commercial viability was not part of the scope of this thesis and the interviews, however interviewees commented that offering incomplete products would in certain scenarios be an objectively bad business practice. Points were raised, that offering an incomplete product without offering solutions might be a negative factor in the eyes of the customers. Likewise offering products which are not functional unless the necessary user involvement takes place can also be seen as a negative in the commercial side of incompleteness.

5. CONCLUSIONS & DISCUSSION

This section of the thesis will revisit the findings of the qualitative data that was gathered during the research process and will relate these back to the original aim of the thesis. The research questions will be revisited and in the following sections the insights learned from the research will be used to answer these questions.

5.1 Summary of findings in relation to the research questions

5.1.1 Research Question 1

Can incomplete product design foster user involvement, emotional attachment, and sustainable product use?

Particularly during the interviews, a large emphasis was placed on understanding how emotional attachment to objects could be achieved. Understanding the context in which these products exist as well as having deep knowledge of user behaviours and prompting user involvement are all key elements of incomplete product design that would have to be further explored for this question to be definitively answered.

All interviewees agreed that leaving space for users to get involved and create solutions for their things could be a valid approach to designing products. Emotional attachment could be achieved by designing these objects in which the act of completion would be an experience which sparks a deeper connection with the objects. It is most likely not a definitive yes to the question, as context and quality of this incompleteness as well as the nature of these objects plays a crucial role in this.

Whether incompleteness and subsequently emotional attachment could create more sustainable product use, is highly dependant on the sustainability implications of EDD. It could lead to more meaningful connections with objects and thereby, depending on context, encourage users to keep those things around longer by taking care of them better.

5.1.2 Research Question 2

What are the potential sustainability implications of utilising incompleteness as a design approach to foster emotionally durable products?

The potential sustainability implications as mentioned in the previous section are in general positive. Incompleteness could be a tool for creating deeper and more meaningful connections with the objects we have around us.

That said, incompleteness could have negative sustainability implications as well, if we consider the case of modularity as an example. The idea of offering an item which is incomplete could potentially lead to an effect which was the case with mass customisation, that users have a constant dissatisfaction with their things. This of course would have negative implications as it could lead to an increase in consumption and this could serve as a platform to serve the current consumption trends of constant upgrades and the need for novelty.

5.2 How findings align with/differ from existing theory

The findings of this thesis mostly align with the existing theory which describes the need for more meaningful product design which lasts longer. The main idea of this thesis, incompleteness being an approach to designing emotionally more durable products aligns well with the current understanding and historical context described in the underlying literature, of slower consumption habits and extended use of objects.

It is not clear if incompleteness would be a viable approach to product design to creating longer lasting objects, as it is a highly contextual question and it would have to be examined on a small-scale basis. As a theoretical design approach, incompleteness fits in well with the current sustainability theory in product design, and with further research and a continued discussion on the topic, it could prove valuable to the academic side of design research.

5.3 Practical implications for product designers

As incompleteness, according to the findings of this thesis, could be an approach to achieve a more meaningful relationship with objects, this would undoubtedly have certain implication to product designers. While perhaps not a widely applicable approach, on small scale productions and in cases where more unique experiences are expected, incompleteness could be a valuable tool to designers.

Designers would have to make considerations in their designs on the quality of the incompleteness, designing areas of the products which leave enough room for customers to imbue their personal experiences and values into the object. On the other hand, the designs would have to be limited in the sense that the objective and process of completion is clear and the object invites users to engage with it in a certain way. If the incompleteness is too wide, it could lead users to be overwhelmed by the task, and if it is too narrow, the room for building the deep understanding and emotion connection with these objects could be limited by the limitations of the design.

5.4 Limitations

As this thesis was done in a limited timeframe, the scope had to be kept fairly small. The thesis only examined the theoretical possibility of incompleteness as a design approach and therefor the literature used, as well as the interviewees' background was heavily rooted in design theory and academics. The findings of the thesis could still prove relevant to the broader academic community however, the topic of incompleteness would have to be explored further.

5.5 Suggestions for further research

Based on the findings of this research, there is a gap in knowledge on the notion of incompleteness within design literature. This suggests that further research could be conducted in this area and this thesis could be further built upon with subsequent research.

An area of possible research would be interviewing and involving product designers, and gaining an understanding thereby, of what incompleteness could/would look like when it is applied in practice. This could prove valuable in that it would uncover more about the design process of incomplete objects as well as the user-object relationship of these products. Understanding how users see these things from when they decide to acquire them to actually finishing them and living with them would help with the understanding of the journey of these objects and the emotional mechanisms that drive this relationship.

5.6 Personal reflection

The process of exploring this topic has been greatly beneficial to me personally as it has opened my eyes to the exciting world of conceptual design theory. Originally my thesis very much focused on the more practical aspects of this topic, however through the process I developed a deep fascination with understanding how design academics and researchers view this topic.

A lot of my interviewees have expressed interest in my questions and framing of the topic which not only helped me realise that I was looking into something which could be relevant to the field, but also helped with understanding just how much there is still to learn within design. Curiosity has lead me down the road of design research, and while this thesis would be considered more as a research exercise rather than a true research, it really made me interested in diving deeper into theoretical and conceptual research within design.

I very much hope that whoever reads this can find something of interest in the pages above.

Thank you

6. REFERENCES

Chapman, J. (2005). *Emotionall Durable Design: Objects, Experiences and Empathy*.

Papanek, V. (1995). *The Green Imperative: Ecology and Ethics in Design and Architecture*.

Walker, Stuart. (2006). *Sustainable By Design*.

7. APPENDICES

7.1 Informed consent template

Aalto University
School of Arts, Design
and Architecture

Research on Incompleteness in product Design
Consent to Participate
Researcher Copy

1 (2)

Consent to Participate in a research on incompleteness in product design.

I, ___________________________________, have been clearly informed on the purpose and procedures of the research led by Marcell Grämer at Aalto University School of Arts, Design and Architecture, Espoo, Bachelor's Programme in Design and have shown interest in participate in the studies developed by the student cited above. I am aware and understand the contents of the research and how my participation will occur.

This research includes
[ ] interview
[ ] other field works (specify)

[ ] I agree to participate   [ ] I do not agree to participate

__/___/_____ ___________________________
Date and Place

____
Name of Participant

____
Signature of Participant

____
Signature of Researcher

Contact Information
Marcell Grämer
marcell.gramer@aalto.fi

I volunteer to participate in the studies. I may choose to rescind or abort my participation in the studies at any time during the studies. by informing the student cited above. Rescinding or aborting my participation will not affect my position at any point in time. I may also revoke this consent to participate in the study, in which case information pertaining to me will not be used in the studies. Research results pertaining to me may be used in scientific reporting (e.g. publications). This study follows the responsible conduct of research, legislation and guidelines available at http://www.tenk.fi/en/resposible-conduct-research-guidelines

Aalto University School of Arts, Design and Architecture Bachelor's Programme in Design	Postal address P.O. Box 31000 FI-00076 AALTO	Visiting address Otaniementie 14 Espoo, Finland	Marcell Grämer marcell.gramer@aalto.fi Bachelor's Student

Figure 2 - Informed consent template

7.2 Interview guide

Interview Guide

1. Introduction (5 minutes)

2. Warm-up Questions (5 minutes)

Purpose: To ease into the topic and understand their relationship with design or products.

For all interviewees:

- **Can you tell me a little about your background and your relationship to design (academic, professional, or personal)?**
- **How would you describe your general attitude toward objects or products you use regularly?**
- **What role do you think design plays in shaping that relationship?**

———

3. Core Section: Incompleteness and Design Philosophy (15–20 minutes)

For Academics

- **How do you interpret the concept of incompleteness within design theory or philosophy?**
- **What precedents or theoretical frameworks come to mind (e.g., Wabi-sabi, participatory design, affordance theory)?**
- **Do you think incompleteness can foster emotional durability or sustainable consumption habits?**
- **Where do you see the tension between designed openness and user-driven completion?**

———

5. Reflection and Closing (5 minutes)

For all participants:

- **In your view, what makes a product emotionally durable or personally meaningful?**
- **Do you think embracing incompleteness could be a valuable design strategy for a more sustainable future?**
- **Is there anything else you'd like to add — ideas, experiences, or examples — that we haven't covered?**

Figure 3 - Interview Guide