

# Chapter 6

## “My Peaceful Vagina Revolution:” A Theory of a Design



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*Therefore turn at least your minds around now;  
now they'll begin to speak, and now we'll be pressed to answer.  
Hymenaeus Hymen, come! O Hymen Hymenaeus!*

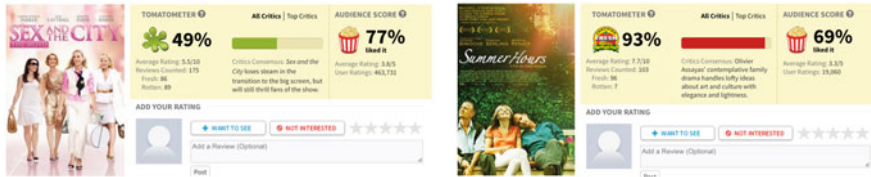
—Catullus *Carmen* 62

An interesting feature of online media meta-review sites such as Rotten Tomatoes (a meta-review site for movies) is that they feature two independent rating systems: critic and audience scores. It would have been quite easy for a site like Rotten Tomatoes to have developed an algorithm to blend these scores into one. But they did not, implying the difference between the scores is meaningful, and consideration of a few cases bears that out. When the two meta-scores are in agreement, one tends to infer that the two scores are validating one another. For example, Kieslowski's *Three Colors: Blue* has a critic score of 100 and an audience score of 93%, so site visitors probably see the two scores as agreeing that it is an excellent film.

When the two meta-scores disagree, however, something interesting happens. Site visitors are not confused; they do not try to somehow average the two scores together; and they do not simply pick a side and dismiss the other. Instead they most likely draw inferences about the meanings of that difference. Figure 1 shows two such disagreements. For *Sex and the City*, the Tomatometer (i.e., critics' score) was 49% shown with the “Rotten” badge, while the audience score was a fairly high 77%. In contrast, *Summer Hours* has an elite 93% Tomatometer score, with the site's highest badge, “Certified Fresh,” and yet a merely solid 69% audience score. We suspect most readers would interpret the differing scores in the first example as suggesting that *Sex and the City* is relatively forgettable as a work of cinema, but nonetheless probably a fun, feel-good movie while it lasts, especially for fans of the TV series on which it was based. And we suspect that many readers would interpret the differing scores in the second example as implying that *Summer Hours* is an aesthetically ambitious, yet slow-paced art film, possibly with a tragic ending, a film

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**Fig. 1** When critics and audiences disagree on films

that rewards careful viewing, but which is probably not a feel-good romp. And if a Rotten Tomatoes visitor that evening happens to be in the mood for something more aesthetically challenging, she will probably pick *Summer Hours*, and likewise if she just wants a feel-good stress reliever, she will probably pick *Sex and the City*.

This example suggests that when critics versus audiences evaluate films, they are up to two different activities. Audiences are reporting more or less directly on their own personal experiences. Critics are doing something else, offering some kind of aesthetic evaluation, one that goes beyond the immediate experience of watching—though what, exactly, they are doing is a topic we will come back to. This example also suggests that visitors to Rotten Tomatoes intuitively understand this difference, and if they might not be able to articulate it with academic precision, nonetheless it is obvious to them that the scores should be different and should be interpreted using different criteria.

## 1 HCI and Criticism

What is at stake in a question like this is the role of viewer response versus a more professionalized interpretative and critical practice to help us understand cultural products, be they films or interaction designs. Yet in the field of human-computer interaction—a primary audience for *Funology* and where we co-authors usually situate our work—a skepticism towards subjective reasoning is still oft-asserted, even after nearly two decades of scholarship within the field emphasizing the roles of interpretation in understanding user experiences and design methods. And if HCI had its own proprietary meta-scoring system, there is no doubt HCI researchers would tend to apply it to the user score. Indeed, the following combination of HCI commitments tends to prioritize user perspectives: prevailing notions of “user-centered design,” the methodological centrality of the deployment and user study, and the scientific commitment to objectivity. And in fact a whole tradition of user experience and aesthetic interaction research (e.g., Tractinsky 2012; Hartmann et al. 2008; Law et al. 2009; Hassenzahl 2010) is carried out only with reference to users, as if the researchers themselves had no particular aesthetic opinions or even a modicum of taste themselves. (Of course, they do have aesthetic opinions and tastes—they just suppress them insofar as they act in researchers.)

There seems to be an opportunity for HCI to ramp up its critical practice to complement what we are able to learn from users. That leads to the question of what a critic brings to an interpretation or evaluation than an ordinary citizen viewer/user typically does not. We argue in this chapter that the kinds of critical evaluations offered by critics cover a much wider range of phenomena, and take far more into account, than typical user evaluations. A serious aesthetic critic will read a work with reference to such matters as its location in and contribution to its medium/genre, the artist(s)’s prior work, the narrative and emotional structures of the work, its pacing and structural economy, its stated and implied politics, the depth and subtlety of its handling of people and ideas, its reception upon release, and similar factors. As for outcomes, criticism typically contributes a very different kind of theory: critics often offer a theory of an individual work. As philosopher of art and art critic Danto (1983) puts it, “To interpret a work is to offer a theory as to what the work is about, what its subject is” (p. 119). In other words, instead of contributing towards a theory of modernity, a critic of T. S. Eliot will often instead produce a theory of *The Waste Land*. Applied to HCI, this line of reasoning would suggest room for thoroughly worked out theories of individual interaction designs.

## 2 Design Artifacts as Theory/ies

We need theories of works because in both HCI (e.g., Carroll and Kellogg 1989) and design research (e.g., Archer 1995; Frayling 1994), the idea that design artifacts embody theories is prevalent. But as is well known, as a community we struggle to make good use of theories embodied in artifacts. There are many possible approaches to dealing with this issue. For example, Gaver and Bowers (2012) propose “annotated portfolios” as a new discursive mechanism in HCI to foreground curated collections of artifacts that are annotated with explanations. This is promising in a number of ways, but it also has two key drawbacks: one is that the annotations are produced by the designers themselves, with no mechanism for anyone else to participate in the sense-making and annotating (Bardzell et al. 2015); and second, an “annotation” is not as robust as a full-blown critical essay, at least as we attempted to define the nature and roles of the essay in HCI (Bardzell and Bardzell 2015).

We propose that HCI should more seriously consider existing scholarly practices that also are organized around the knowledge, theories, values, and concepts embedded in artifacts: film, literature, art history, cultural studies, and so on. What we tend to see in such practices is an aggregation of knowledge that does not so much unfold through generalized theory, as it does through the ongoing construction of a collection of exemplars accompanied by critical works theorizing about what those works mean. However controversial the literary canon is, it remains at the heart of literary practice: it is what is taught in literature classrooms, what is written about in literary scholarship, and key to how literature continues to be legitimated in university budgets and state curricular mandates.

Art history, film, and much of design are no different. Consider any book on architecture used in undergraduate design studio education, for example, Ching's (2014) *Architecture: Form, Space, and Order*. This academic book has a higher percentage of image-based content than text-based. It is filled with exemplars, and the exemplars in this case are organized into formal categories: form and space, organization, circulation, proportion and scale. Other books from fashion design to product design on first glance look similar, though their organizational principles might vary to include era, style, geographic region, materials, social class, level of difficulty) as well as catalogues of exemplary elements (e.g., an introduction to fashion will survey different forms of closure, such as buttons, zippers, Velcro, laces, etc.). This collection becomes a living repository of knowledge used for creative inspiration, pedagogy, the construction of elements and categories, and ongoing scholarly debate.

The collection of exemplars—not an organized collection of abstract and verbally articulable theories—comes to organize the knowledge in the discipline. And of course, individual practitioners both master the collection in general and also specialize in a certain area of it. That specialization often entails a more intimate and insightful mastery of a smaller set of exemplars, which the individual uses to gain creative and/or analytical access into new exemplars and/or problem spaces.

It is not hard to see in such a description room for major design concepts, such as Christopher Alexander et al.'s "patterns" (1977). Practitioner's understandings of these are not mediated by a larger abstract theory (along the lines of, say, the theory of evolution, plate tectonics, or big bang theory); the exemplars *are* the theory: in Christopher Alexander's idiom, those patterns collectively form a "language." The more personalized specialization is captured by Schön's (1983) notion of a "repertoire"—a personalized collection of exemplars that an individual designer turns to again and again to help frame and solve similar problems. All of this comes together in the designer's act of problem framing, which entails the construction of one or more ways of viewing a problem space, by proposing relationships between particulars and broader themes (Schön 1983; Dorst 2015). Without going into a full analysis, such a description resembles the practice of constructing a *theory of a work*, as described above (Danto 1983). In short, there exists a robust scholarly practice—interpretation—that is key to many professional and scholarly disciplines, including design. And we believe that HCI has too often outsourced this practice to users—users that are certainly qualified to characterize their perceptions and experiences, but who do not do critique, because they do not offer a theory of the work.

In what follows, we offer an interpretation of a work of design—the Formoosa Cup—which is a menstrual cup designed in Taiwan. The interpretation—that is, the theory of the work—that we will develop offers an organization structure in which a wide array of highly diverse details—details, for example, like the material out of which it is made, or a political value expressed at the time of its creation, or a disapproving statement by a prospective buyer—come to make sense together, in what a humanist would call an interpretation, Danto might call a theory of the work, and a designer might call a "frame."

### 3 A Theory of the Formoosa Cup

The Formoosa Cup is a menstrual cup inserted in the vagina during a woman’s period. Like other menstrual cups, it catches the menses as it is discharged by the uterus, offering a similar function to tampons and pads. Menstrual cups are made of a durable material—rubber and latex in the past, while silicone is most common today—and they can be washed and reused for many years. The menstrual cup was first patented in the United States in 1932, and the first commercially successful cup appeared in the United States in 1987.

The Formoosa Cup came on the market in Taiwan in 2017. Its name is a play on words: “Formosa” is the Dutch word for “beautiful island” and it was their name for the island when they colonized it in the seventeenth century; “moon” of course connotes (among other things) menstruation. Its Chinese name is also a play on words, though it is somewhat difficult to translate: 月釀杯. The name does not use the characters for “moon” or “period” ordinarily used; instead, it substitutes in a character that sounds like (almost rhymes with) moonlight, but suggests a notion of intentional fermentation (e.g., that of winemaking)—notions of cultivation, or brewing—as if the period is a precious and carefully crafted fluid. The name itself raises several themes that we will develop in what follows. In our interpretation, however, what makes the diverse details of the Formoosa Cup “hang together” is the product’s political objective to reframe and reclaim menstruation as something to look forward to, and more broadly to affirm the value of loving oneself as part of a biological process and often debilitating experience that is culturally construed as repugnant.

Formoosa Cup is an important design, therefore, not because it is functionally superior to Western menstrual cups, but because it was an ambitious and hopeful design project. By the time it had become a mainstream consumer product in Taiwan, it had raised unquestioned misogynistic cultural tendencies to the public’s awareness in a pointed way, and that in turn set in motion democratic processes leading to meaningful social change. The misogynistic cultural tendency it challenged was a taboo against putting anything into one’s own vagina, a taboo based on an often unspoken ideal to treat the vaginal cavity as a protected space belonging to one’s future husband, including but not limited to a fetishization of hymen intactness and anxieties about vaginas being too loose. The most literal change that Formoosa Cup led to was the legalization of menstrual cup sales in Taiwan beginning in May 2017. Menstrual cups had not been legalized in part because they were categorized in a stringently regulated category of medical devices, making regulatory changes unusually difficult. Thus, Formoosa Cup’s contributions to this legal change through democratic procedures constituted a remarkable political achievement: “my peaceful vagina revolution” to borrow designer Vanessa Tsen’s oft-repeated phrase.



**Fig. 2** Photo of the Formoonsa Cup (left) and instructions on its use (right). *Image source* <http://www.formoonsacup.com/>

### 3.1 *The Formoonsa Cup*

Heralded as “The First Cup for Taiwanese Women,” the Formoonsa Cup (Fig. 2) is made with medical-grade soft silicone. Unlike pads and tampons that have to be discarded after each use, each cup, like most other menstrual cups, lasts 5–10 years and can be re-used. To use the cup, one squats or sits on the toilet, folds the cup using clean hands, parts the labia, and then inserts it into the vagina. After rotating it a few times to ensure it is firmly in place in the internal walls of the vagina, the cup will then unfold inside. After 4–8 h of use, it can be removed and emptied by gently squeezing the bottom of the cup to release and slide the cup out, again in the sitting position. For each subsequent use during the menstrual period, it needs to be rinsed with water. Between periods, the cup needs to be sanitized using lightly boiled water for 5–7 min. Although functionally the Formoonsa Cup works like other menstrual cups in the market, it is distinctive in many other ways, partly by identifying itself as a menstrual cup “for Taiwanese Women,” a claim that we explicate below.

In 2015, Vanessa Tsen came up with the idea for the Formoonsa Cup and began to seek investor funding. She was denied support from the company she worked for, whose CEO happened to be her father, so the thirty year old inventor went to Taiwan’s Kickstarter-like crowd-funding platform, Backer-Founder. Within three days she had over US\$100,000 in pledges, eventually closing the campaign with US\$320,000 raised from 6,361 supporters to manufacture 10,000 cups, more than 300% of her original target.

Not surprisingly, Formoonsa Cup and Vanessa<sup>1</sup> earned a lot of press attention. However, the project was not celebrated as an example of Taiwanese innovation in the new shared economy. Instead, the press focused on its politics, and in particular

<sup>1</sup>We note that the founder uses only her first name, “Vanessa”, as her professional name. Even when she writes her name in Chinese, instead of using her real name, she strings together Chinese characters that sound like the English “Vanessa.” Respecting her preference, we refer to her as Vanessa throughout the chapter.

the questions it raised about women’s rights. That Formoonsa Cup could have been featured in both types of stories but was only featured in one of them itself is interesting, and we believe itself a political act. At any rate, raising the funds turned out to be one of the easiest challenges for Vanessa to overcome. What lay ahead for Vanessa and her supporters was a long journey to negotiate with state, legal, medical, and ideological power over the control of women’s bodies. This struggle prompted debates, new understandings of, and new legal and medical norms about Taiwanese womanhood.

### 3.2 *Seeing like a Hymen*

A major obstacle to any kind of menstrual cup in Taiwan are social taboos about crossing the boundary into the vagina, a taboo that often focalizes on the care and maintenance of the hymen. Most Taiwanese women have never had anything in their vaginas aside from their husbands’ penises, nor have they been taught that it is okay to do so. Even as recently as the late 1990s, only 2.1% of Taiwanese women used tampons. Like tampons, menstruation cups are considered by many Taiwanese to be 異物 (a “foreign body,” with derogatory connotations). An intact hymen is considered to be a woman’s greatest gift to her husband. This cultural more is reflected in contemporary law: prior to 2009 tampon packages were required to carry warnings: “unmarried women should use it with caution,” and “consult your GYN before using the product.”

As a result, it is widely considered an indecent and/or unethical behavior to put a “foreign body” in there. Although society has begun to change, some of these values die hard. Resistance to change can be seen in Formoonsa Cup user forums and as well as sections of ptt.cc (the largest bulletin board system [BBS] in Taiwan) devoted to the topic of women’s health. In such places, one still finds resistance from mothers who feel strongly about safeguarding their daughters’ hymens for their future husbands. For example, Vanessa quotes a conversation she had with a mother about the product, “*Why are you promoting products like this? Why do you ask my daughter to put something like Formoonsa Cup in her body?*” (Vanessa 2016). And it’s not just the mothers; some husbands also do not support the use of Formoonsa Cup. Vanessa describes her experience at the booth at an expo promoting the Formoonsa Cup: “*I saw a couple walking by the Formoonsa Cup booth a couple of times. The wife showed a lot of interest in Formoonsa Cup and wanted to learn more, but the husband told her ‘Don’t use something like this’ and dragged her away*” (Vanessa 2016). These quotes suggest that the primary caretakers of women’s bodies are first their mothers, and then they are transferred to husbands after marriage.

The preoccupation with the hymen is thus not medical, but sociological. The hymen is a signifier of virginity and its accompanying notions of purity, worthiness, and marital eligibility. Many Taiwanese women are taught to be reluctant to use

either tampons or menstruation cups in fear of losing their virginity. But as one PTT poster writes,

Let's return to the question 'whether a virgin can use Formoonsa Cup.' This really should be a question one asks oneself as opposed to turning to others for an answer. If you are really that crazy about the hymen, you should not even ride a bike, because bike-riding is likely to tear it.....As to the question whether the use of Formoonsa Cup might bring discomfort, well, it's your own body, so ask yourself whether it is okay to use it. Who cares about whether others like it or not? We should disregard those chauvinists who insist that it's not comfortable to use FC. They don't have vaginas.... [N]obody can deprive you of your right to choose for your body, disguised in the 'I am only trying to protect you' rhetoric. (<https://tinyurl.com/yaawpofb>)

The symbolic value of the hymen was so great that it was worth denying women choices about menstrual products: it has been illegal to import, sell, and purchase menstruation cups in Taiwan—a law that only changed in May 2017 thanks largely to the Formoonsa Cup. With menstrual cups illegal and tampons packaged with government warning labels, women have little choice but to use pads. But pads have their own disadvantages. One is forced to get by with bloody undergarments, which introduce various forms of restriction (e.g., no swimming, sex, or ballet) and body anxiety/shame (e.g., did I stain my clothes or the chair? Can others see or smell my period?).

Restated from a Foucauldian perspective (1988, 1995), the body is a surface where rules and regulations, hierarchies, and socio-cultural traditions are inscribed and enforced. The physical nature of the hymen renders the female body subject to examination in a way that has no equivalence in men (i.e., there is no visible change in the penis when a man has sex the first time), and the semiotic nature of the hymen (as a signifier of virginity, purity, and worthiness) renders the female subject to serious forms of social, political, legal, and medical control. But as Foucault is careful to stress, the operations of power are not always so obvious as in the case when the military cracks down on a protest. The loving mother who admonishes her daughter to protect her marital value by caring for her hymen is a social subject who is passing her subject position onto to the next generation; there are no tanks, but the compliant daughter is now a subject of the same regime. Making room for a product like the Formoonsa Cup will require new subject positions.

And indeed, attitudes in Taiwan are changing. As outspoken Taiwanese activist and feminist Wen-Fei Shih wrote on Facebook,

I'd like to share something I witnessed when I was behind the Formoonsa Cup booth today. A mother began by asking me whether Formoonsa Cup might tear the hymen. She wanted her daughter to wait till after she gets married and has obtained the approval from the husband first before using Formoonsa Cup. .... I find it mindboggling that the mother believes her daughter's vagina belongs to her future husband. It's also incomprehensible that parents believe they have the right to decide whether their daughter can insert something into her vagina. I don't think I am not a virgin because I bleed from using Formoonsa Cup. I am a virgin because I have never had sexual intercourse with a man.... Why is it that women and girls in the West can put different things in their vaginas but we cannot? (Wen-Fei Shih, from her FB post: <https://tinyurl.com/ybxyfcf9>)



Her post reflects changing views from younger generations. The regime of the hymen was coming to an end.

### 3.3 *Seeing like a Taiwanese Menstrual Cup*

The Formoosa Cup mounted a direct attack on both the laws and the ideologies underlying them. Combining political activism, concrete design choices, an education platform, and a strong communications campaign, Vanessa and her Formoosa Cup would offer an alternative vision, change the law, and create alternatives for women—not just hygienic alternatives, but also alternative relations to the self and others.

We begin with Vanessa’s political activism. Enlisting the help of Taiwanese women’s rights activist Wen-Fei Shih, Vanessa petitioned for a new law to legalize the sale of menstruation cups, using [join.gov.tw](http://join.gov.tw) in 2016. [Join.gov.tw](http://join.gov.tw) is an online open government platform in Taiwan that facilitates direct public engagement with different branches and offices in the central government in Taiwan. The platform offers systems and procedures by which citizens can participate in policymaking, demand transparency and accountability from government, and collaboratively leverage open data. Vanessa’s petition was seconded by 6150 people, prompting the relevant government branches to respond (in this case the Ministry of Health and Welfare in the Executive Yuan). In spring of 2017, Taiwan’s Food and Drug Administration amended the law, and Taiwanese women can now purchase menstruation cups legally.

With the funding secured and changes to health regulations underway, Vanessa set out to design the first Taiwanese menstrual cup. There are two important points here. One is that she set out to design a high quality menstrual cup, choosing medical grade materials and so forth. The other is that she specifies that it will be “Taiwanese.” The latter move is unusual. Vendors of menstrual products do not typically frame their products in national terms: “this is a tampon for Canadian women” or “these pads are made for Tunisian women.” Most of us intuitively think of hygiene products in ergonomic terms: this is for larger versus smaller women, or for heavy days versus light days, but not: Taiwanese versus Korean women.

But the choice to make the menstrual cup Taiwanese is a recognition that Formoosa Cup is not addressing itself primarily to an ergonomic problem, but rather to a sociocultural one. And although many cultures fetishizing the hymen as a signifier of virginity and therefore purity, worthiness, and femininity, each region or culture plays that out in its own concrete ways. Vanessa would scope her inquiry to Taiwan. Of course, part of it is ergonomic: women in Taiwan tend to be smaller than Western women, and so the sizing of Western menstrual cups might not work for Taiwanese women. To determine this, Vanessa collaborated with a group of over 60 menstrual cup users in Taiwan (one of them also happened to be an industrial designer).

Trying to find the right cultural connotations to resonate with Taiwanese women, Vanessa sought to create a cute design. She designed the Formoonsa Cup in the form of a lily of the valley (Fig. 2), because the flower has gentle, harmless, and appealing characteristics. A similar design principle was that the cup should be “adorable” and not “intimidating” because as Vanessa put it “Taiwanese girls are cute and are drawn to cute things.” Here, she is encouraging women to identify with the Formoonsa Cup, rather than seeing it as a “foreign body” (異物).

Helping women to relate to menstruation in a new way required a learning and education campaign, one supported by design choices and also figures, diagrams, and public appearances. Two design choices reflect the educational agenda of the Formoonsa Cup. First is that the cup itself is made of translucent material, rather than being dyed a solid pink or purple. The translucent material allows a woman to engage with, rather than merely dispose of, her menses. The second choice was to put measuring marks on the side of the cup (visible in Fig. 2): encouraging women to measure their menses. Vanessa explains this choice as follows:

My hope for Formoonsa Cup is to provide women in Taiwan with a meaningful way to know their own bodies. With the measurement marks on the Formoonsa Cup, you can accurately tell your friend, ‘hey, how much did you bleed in this menstruation cycle? I got 78 cc. How about you?’ ‘I got 125 cc.’... Gone are statements such as ‘I bleed too much this time’ or ‘I hardly bled last time.’ Formoonsa Cup as a project promises Taiwanese women a more accurate way to discuss heavy vs. light bleeding during menstruation, and such knowledge cannot be obtained from using pads or tampons. ... Additionally, with Formoonsa Cup, you can actually tell yourself during menstruation that ‘you have been taking good care of yourself’... as a woman, loving oneself means you are taking good care of yourself. Only when you do that you can then turn around and love and care for others around you. (Vanessa 2016)

Even as Vanessa tried to prepare women to switch to a menstrual cup, there is still the physical discomfort of putting a foreign object in the body. Beyond detailed anatomical diagrams and descriptions, Formoonsa Cup is also available as a “learning cup”—a tiny cup that is not functional as a menstrual cup but which is designed to help women practice putting it in and taking it out. The learning cup is the one on the left in Fig. 3.

None of this matters, however, if women are construed as hymen caregivers. For advocates of the Formoonsa Cup, this means confronting attitudes toward the hymen directly. As one bulletin board poster put it,

Who actually cares about the hymen? We do? Or we are worried about the fact that it is important for men? [...] A more important issue is for us to critically reflect what that piece of membrane actually means for us now.... If you for whatever reason want to keep yourself intact, it is your choice, and it is not for me to say otherwise. But if you are worried that your future husband might be upset because you do not have an intact hymen and that he would only marry you if you are a virgin, then please tell him to travel back in time to the century he actually belongs. Clearly 2017 is too dangerous and unsuitable for him. (<https://tinyurl.com/ydxdjngb>)

The assertion of a new generation with new values also implies a whole new set of subject positions. In other words, not only has the woman changed, when it



**Fig. 3** The “learning cup” and two usable sizes. *Image source* <http://www.formoonsacup.com/product>

comes to how she cares for her body, but also what constitutes an acceptable husband has changed. Such views are increasingly seen on social media, online boards, and streaming political programs, such as “阿苗帶風向” (“Trendsetting by Miao”) hosted by Miao PoYa, a lawyer turned activist.

In one episode of her show, host Miao invited Vanessa to the show to answer the question, “Does Formoonsa Cup destroy hymens?” Vanessa then demonstrated 8 different types of hymen using acrylic models. Afterwards, Miao observed:

the hymen is only a thin layer of membrane. The act of sexual intercourse does not necessarily destroy the hymen or make the hymen disappear.... The fact that the hymen is intact does not mean that one never has sex.... After all, the membrane is very fragile... just Google it... our bodies have many different kinds of membranes and they don't stay with us forever. Even if you never had sex in your entire life, it does not guarantee that you will forever have an intact hymen.... The fact that you have the hymen only means you have it, it doesn't mean anything else.... (<https://tinyurl.com/yatqhl6z>)

This talk asserts a merely anatomical status of the hymen, attempting to sever it from questions of virginity and all the meanings attached to that. The changing perceptions about the hymen are happening just in time: an article published in Taiwan Journal of Public Health in 2015 on the use of tampons in the country, the authors surveyed 363 female college students and learned that 49.7% had sexual experiences, and 35.3% have used tampons before. These college students also claimed that the potential risk of tearing their hymens was not a concern (Chang et al. 2015). Instead, lifestyle choices and personal hygiene (e.g., the desire to keep up the exercise regimes, the anxiety over leakage and bodily odor during menstruation, and influence from peers and siblings, etc.) were offered as reasons for tampon use.

The changes are felt as empowering at least by some women. One self-described virgin describes her experiences of the Formoonsa Cup:

Ever since I started using Formoonsa Cup, I noticed I stand taller and feel more beautiful. I often score 100 in exams. The important thing is I am a lot more comfortable and also enjoying playing with [sex] toys now. (<https://tinyurl.com/ydacgwok>)

And coming back to Vanessa: “I do not want to be sneaky when I menstruate anymore, because menstruation is not a disease.”

In her discussion of menstruation, feminist political theorist Iris Marion Young proposes a concept of menstrual etiquette, a concept that concerns “who can say what to whom about menstruation, what sort of language is appropriate, and what should not be spoken” (Young 2005, p. 111). This etiquette creates disciplinary burdens for women, both physically and emotionally. The Formoonsa Cup not only proposed a new way of managing menstruation; it also changed the rules of menstrual etiquette in Taiwan. For that reason, Formoonsa Cup is indeed—however counterintuitive it may sound—a menstrual cup for Taiwanese women.

## 4 Seeing like a Critical Computing Researcher

We hope it is obvious that everyday users are unlikely to produce a reading such as the foregoing interpretation of the Formoonsa Cup. To finish this chapter, we want to address ourselves to two questions: The first is this: in what way did we offer a “theory” of Formoonsa Cup, or, what exactly is a “theory of a work”? And the second is: “how can such a theory inform HCI?”

### 4.1 *In What Way Did We Offer a “Theory” of the Formoonsa Cup?*

Danto’s formulation of an interpretation as a theory of a work is slightly unusual; it is more common to see words like “reading,” “interpretation,” “critique,” or “analysis” used. But we believe “theory” is actually a very accurate word. A theory of a work is basically a single account that unifies and explains the salient particulars of the work, not unlike the way that “evolution” offers an account that unifies and explains an extraordinary number of empirical findings. The more variety, and the more surprising the connections among them, the more elegant and interesting the theory is.

Our “theory of the work” might be paraphrased explicitly as follows: The Formoonsa Cup was far more than the creation of a functional industrial product; it was a sociological and political intervention that prompted conversations and led to actual legislative change. More poetically, we suggest that just as the physical Formoonsa Cup has the potential to destroy a woman’s hymen, so does the Formoonsa Cup as an ideology destroy the ideology of the hymen fetish, and the latter was required before the former was ever possible. The product—including

the Cup itself, the creative process and designer intentions, all the accompanying materials packaging and illustrations, the teaching at expos and public events, the political activism leading to changes in Taiwan’s laws, and the nature of the press coverage—can be explained by this theory of the work.

## 4.2 *How Can Such a Theory Inform HCI?*

The short answer is that works embody theories in particulars, and in doing so, they model how particulars, by embodying certain theories, can solve problems in future situations.

Philosopher of art Danto (1983) makes the point that when we commit to one statement about a work of art, we immediately also commit to many other statements about the work. If we look at a painting, for example, and say, “that is a mountain,” then we are committed to dozens of other statements: “these are trees,” “this is in the foreground and that is in the background,” “this painting uses 3D perspective,” “this is a landscape painting,” “these daubs of paint are representational,” and on and on. We also attend to some things and not to others, as soon as we have made this claim. We might see one daub of paint as representing a person on a road, but a similar daub of paint in the sky we might not notice at all, merely processing it as a variation of color in the sunset. The lack of representationality of the daubs making up the artist’s signature would likely be overlooked.

So it is with the hymen regime in Taiwan. If one accepts that the hymen is connected with virginity, one has also accepted innumerable other statements—about purity, responsibility, the worth of women, the exclusive and non-reciprocated rights of the husband’s penis, the relative importance of hymen care versus menstrual pain, and on and on. To reject one statement is to undo all (or many) of them. The Formoonsa Cup project is significant because it is a design that reframed care of the vagina away from *care of the hymen* towards a *care of menstruation*—managing its pain and inconvenience, but also becoming comfortable with it as one’s own. This reframing depended on and drove meaningful social change. Perhaps it is likely that another product, another activist, or another designer would have changed Taiwan’s antiquated ban on menstrual cups anyway. But in 2017, it was the Formoonsa Cup, and the group of activists it attracted, and a democratic platform that gave them a voice, that led to this change.

If we compare Danto’s “theory of a work” to the way that design researcher Dorst (2015) talks about a “design frame,” the similarities are hard to miss. In both cases, an interpretative structure is proposed, and accordingly certain details become important while others fade away. Propose a new frame and the same thing happens again, only with different details. An intractable problem in one frame becomes a readily solved problem in another. By connecting Dorst to Danto, we avoid the reification of design thinking as a unique cognitive style proper only to designers and instead connect it to millennia of examples, theories, and methods of criticism. The idea that theories are embedded in artifacts is no longer an

epistemological mystery better avoided in appeal to empiricism (i.e., user research); instead, the notion of design objects embodying theories is simply the same sort of thing that art historians, literary critics, and so on have taken for granted and worked from for millennia. Danto's skillful analyses of how artworks become meaningful can support readings of design seeking to unpack design objects' meanings.

For us, staging a dialogue between Dorst's characterization of design framing and Danto's characterization of interpretation (i.e., a "theory of a work") helped us learn to see how the Formoonsa Cup achieved meaning. The cup built on and pushed forward a social movement by integrating into a single work a coherence of specific design decisions, activist movements, consumer demands, sociological changes, and political structures. Our part in offering a theory of the work is to point to that coherence. Its benefit to HCI is to add that work and its theory, its coherence, its framing to the collection of exemplars that the HCI community uses to think through similar problems. We can imagine an HCI designer-researcher interested in using design to pursue gender-oriented social emancipation. The Formoonsa Cup is an exemplar, featuring reusable design patterns and design rationales, available in our community's design repertoire. One way to contribute theory to HCI is to fill out that collection of exemplars, enriched by accompanying theories of them as individual works to make those patterns and rationales more visible and actionable.

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