

# Pragmatist Poetics in Interaction Design

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**Abstract:** There has been an increasing interest in higher experiential values in interaction design beyond functionality and usability, for example, pleasure and aesthetics. While manifestos such as ludic design, reflective design, and design with ambiguity have been issued and extensively investigated, poetic interaction design is relatively unexplored. This paper aims to create poetics as felt experience while living with such interactive artifacts. Instead of presenting a conceptual argument of poetic interaction, I advocate pragmatist poetics that seeks to understand what poetic interaction *is* by asking what it *does*. A pragmatist approach might provide a more flexible framing of poetic interaction: knowledge construction from the course of its making and remaking at any giving moment, rather than from a pre-established conceptualization. The research focuses on a constructive process of building an epistemological stance, providing a methodological framing, and exploring possible ontological implications of poetic interaction design. Drawing on Verplank's practical framing and extending Bachelard's notion of material imagination, this paper presents a constructive and analytic framework based on poetic imagination of material, expression, function, and form. Reflecting on Vico's poetic wisdom and Heidegger's ontological enquiry, I propose a possible future of seeing poetic interaction design as an ontology of interaction design.

**Key words:** *Pragmatism, Aesthetics, Poetic Interaction, Pragmatist Poetics, Interaction Design*

## 1. Introduction

According to Maslow's hierarchy of human needs, Jordan proposes a hierarchy of consumer needs for products from lower to higher [20]: functionality, usability, and pleasure. Interestingly, Harrison, Sengers, and Tatar identify three paradigms in HCI research [14], which coincidentally echo Jordan's three needs respectively: engineering/human factor, cognitive science, and phenomenological matrix; Functionality is the central concern of the first paradigm, focusing on the optimization of human-machine appropriation; Usability is the issue of the second paradigm, emphasizing the importance of mental models in HCI; Pleasure and other higher needs, in a broader sense, could be better addressed with the third paradigm, seeing interaction as phenomenologically situated. In recent years the study of interaction design has apparently moved from functionality and usability issues to more pleasurable and aesthetical topics [6, 13, 15, 17, 24, 32, 33]. Interest in crafting better interaction design has shifted to reflect current developments in experiential values which emphasize how to create implicit meanings and felt experience with interactive artifacts [29]. For example, such interest ranges from ambiguity [8], fluency [27], slowness [12], reflection [35], and ludens [10], to serendipity [23]. Therefore, these years have seen increased attention being given to higher values of interaction design not only in terms of consumer needs but also

corresponding research paradigms. One of the emerging topics catching researchers' attention is the aesthetical interest of interaction design.

Aesthetic interaction generally concerns the experience of and response to beautify in interaction process. One approach to addressing the definition of aesthetics is to provide precise conceptualization or rich discourses. In search of existential definitions of a thing based on how it becomes a part of our *lifeworld*, Hallnäs and Redström define aesthetics as *a logic of expressions* that are central for accepting things in our lives [13]. In order to develop well-defined practical knowledge, Lim et al. propose the concept of *interaction gestalt* and its corresponding attributes for designing aesthetic interactions. Djajadiningrat, Gaver, and Fres reject the concept that aesthetics indicates making products desirable and argue that aesthetic interaction requires attention to “the richness of a system’s appearance, interaction, and potential roles [6].” Hashim, Noor, and Adnan see aesthetic interaction as graceful interaction and attempt to build a framework [15]. Hummels and Overbeeke advocate the phenomenology of perception as a basic stance for aesthetics, always referring to culture and ethics [17]. As Hummels and Overbeeke point out that there is no such thing as absolute Aesthetics, seeking definite definitions might lead to endless ideal arguments. Therefore, the other approach is pragmatist’s approach. Drawing on Shusterman’s distinction between Analytic Aesthetics and Pragmatist Aesthetics [36], Petersen and her colleagues argue that aesthetics is not re-defining everything known about interactive systems and argue that Pragmatist Aesthetics is a strong theoretical basis in terms of designing interactive systems [32, 33]. While considerable attention has been paid in the past to research issues related to aesthetic interaction, a literature on issues of poetic interaction design has emerged only very slowly.

Similar to the way we tackle aesthetic definitions, I advocate a pragmatist stance to frame poetics in interaction design practice. Although poetics and aesthetics are all higher values we pursue in interaction design, sharing much common quality, there are still subtle differences between them. For example, poetics is not necessarily related to beauty, not always perfect, not about completion, not rational, not reflective, not a logic of expressions, not emotionally pleasing, nor is it consistent with deterministic rules. These qualities make it impossible to give clear conceptual definitions of poetic interaction, nor is it possible to investigate with positivism. Therefore, I advocate pragmatist poetics that seeks to understand what poetic interaction *is* by asking what it *does*. This perspective will lead to questioning how an interaction designer creates novel interaction experience by means of embodying a “real poem” with an interactive artifact in daily practice.

Although growing numbers of designers and researchers have discussed poetic interaction and poetic design, mostly with an approach to reflecting or discoursing on such a vague, intangible, and fascinating notion, very little attention has been given specifically to seeing poetic interaction design as a paradigm, that is, the construction of a discipline with subject matters, nature of knowledge, and methods. Thus, this paper attempts to explore poetic interaction design and to build its paradigm positions. Specific research questions are as follows: What are the basic beliefs of poetic interaction design paradigm? What is the relationship between the design researcher and what can be learned from designing poetic interaction? What kinds of methodology and tactics are appropriate for poetic interaction design? What is there that can be known as poetic interaction? With these questions in mind, this research may help promote interaction designers’ understanding of poetic values in interaction, and also help design communities construct a unique paradigm of interaction design focusing on such a specific human nature, poetics.

This paper is structured as follows. The following section investigates related theoretical studies first and then reviews work related to poetic interaction. After which a framework of poetic interaction design is presented, with full details of illustrative artifacts. A discussion of ontological issues is then presented, with a thoughtful reflection on poetics and interaction. Finally conclusions are drawn.

## **2. Literature Review**

In order to learn poetics from different disciplines, this section covers poetic wisdom, phenomenology of poetics, metaphors and poetics, poetic design, and poetic interaction design.

### **2.1 Theoretical Studies**

#### **Poetic Wisdom**

Vico claims that poetics is a human nature, including elements such as curiosity, imagination, fear, wonder, and superstition [39]. Knowledge, in Vico's view, comes from curiosity, and real creation originates from unknown things rather than those known. Here, knowledge is not generated from logic reasoning but from perception and imagination; Vico's concern is not how real the knowledge is but instead, how human beings create knowledge. The lack of reasoning ability is regarded as a key feature of poetic character for poetic sentences are "formed with senses of *passions* and *affections*, in contrast with philosophic sentences, which are formed by *reflection* and *reasoning*." Vico's notion of poetic wisdom is a combination of poetic character and wisdom; Poetic character comes from nature human instincts while wisdom, a more philosophic term, indicates the power of reflection and reasoning. As *imagination* is the center of poetic characters, the essential power of *creating* civil society is the heart of poetic wisdom.

Vico sees a problem that cognitive powers of human beings dominate over creative capability, and reason becomes the primary way of understanding the world instead of poetry. Here if we reflect on the development of interaction design, Vico's concern also reminds us whether we see the world as a functional world or a mythical world. Is the incentive of designing interaction only to solve and to fix problems in an instrumental sense? How would it become if we see the world as a mythical one always emerging where interaction design could articulate itself as an imaginative, playful, curious, and serendipitous meaning-making process? As Vico states that, "the most sublime labor of poetry is to give sense and passion to insensate things [39]," how does poetic interaction design achieve such sensitization?

#### **Phenomenology of Poetics**

Poetics as an immaterial ontology, Bachelard's phenomenological approach to it is very clear; He asserts that a sincere impulse toward admiration is always necessary if we are to receive phenomenological benefit of a poetic image [1]. In Bachelard's sense, an objective approach to studying imagination would fail because reading literary work initiates from the admiration of literary images, which would further lead to reverberation (*retentissement*) of images. For Bachelard, poetics associates to "unfinalization" or "implicitness." "In this respect, we orient oneirism (daydream) but we do not accomplish it [1]." Bachelard further clarifies the relation between poetic images and language: "The poetic image is an emergence from language, and it is always a little above the language of signification. By living the poems we read, we have then the salutary experience of emerging." Furthermore, Bachelard sets material imagination apart from formal imagination [2]. Rather than being conceived

intellectually in formal imagination, material imagination is an idea that comes from contact with nature material, such as water and fire.

Based on Bachelard's perspective, this research poses the following questions. How does an interactive artifact keep interaction in a state of emergence? How can we have the salutary experience of emerging by living the poetic artifacts we interact with? Is it possible that poetic interaction design comes from the admiration of interactive experience? Could poetic interaction be based on material imagination or other types of imagination? How does interaction design orient poetic images instead of accomplishing them?

### **Metaphors and Poetics**

Metaphors, argued by Lakoff and Johnson [22] as central to the understanding of human psychology rather than merely peripheral in literature, have influenced the idea of a cognitive poetics [37]. However, Lakoff and Johnson did not make a distinction between poetic metaphors and metaphors we describe things with. Nunberg systematically investigate two types of metaphors: poetic metaphors and prosaic metaphors [30], which "strike our fancy" and "pass by unnoticed in our ordinary discourse" respectively. Novel metaphors begin their lives as "fresh" and "vivid" figures that require a special imaginative leap. Nunberg argues that as time goes by, these metaphors become "dead metaphors" that are not psychologically distinct from literally-used terms. Hence, poetic metaphors associate with "play," "affect," "evocation," "pleasure," or whatever while prosaic metaphors are those that "strike us as involving no-nonsense referential business-as-usual." It is "the degree to which a usage is justified in terms of a *strictly instrumental rationality*" that differentiates these two metaphors. Nunberg further argues that the aspect of *playing-acting* "gives poetic metaphors their affective import, and makes them quite literally playful or dramatic." Therefore, if we classify design in terms of Nunberg's sense, prosaic metaphors would relate to those design artifacts that emphasize functionality and usability, which require a *strictly instrumental rationality*, while the immaterial aspect of poetic metaphors would indicate a novel design genre concerning "play, affect, evocation, and pleasure."

Grace observed computer games and concluded that the independent game provides a sense of sonnet with small moments of poetic intensity [11]. As poets create novel metaphors for readers, such game developers provide new game verbs. Similarly, poetic interaction designers should create new verbs with interactive artifacts to convey poetic metaphors. These independent games usually employ abstract, ambiguous, and surrealistic images without clear narratives. Accordingly, we wonder if poetic interaction design could use ambiguous form instead of clear affordance in most practical interaction design.

## **2.2 Related Work**

### **Poetic Design**

Ionascu proposes poetic design encompassing a class of objects beyond instrumental (functional, practical) power, which make immaterial interactions visible [19]. By developing new practices of living with things, "poetic design involves a different kind of production (which is not about improving the functionality of a product) and alternative forms of consumption." Ionascu also argues that "play could become a creative design process embodying uncommon forms of use that regenerate a poetics of everyday life [18];" for example, Droog's 'do hit' chair shows a ludic value in terms of participating in the making of an artifact. Putting more emphasis on playful, political, and consuming issues of poetic design in Ionascu's term, she does not intend to address poetic images as

Bachelard. Ball defines Design Poetics as creating “objects which are elevated above the pragmatic and formal functional artifact, and deliver ambient observations in condensed form for reflection and contemplation [3].”

### **Poetic Interaction Design**

Manovich attempted to change the physical space into augmented space that is overlaid with dynamic information [28]. He envisioned such wirelessly accessed space with rich information as poetics of augmented space. White and Small designed an interactive poetic garden where poetry is projected on natural materials such as water, stones, and grass, in the form of textual flow [40]. Juxtaposing digital media and Zen-like matter has successfully created a calm and mindful space. Although literal poems are directly projected onto physical matter, White and Small certainly have made appropriate choices of material to evoke senses of poetics in terms of Bachelard’s material imagination. However, poetics in interaction design seemed to be a term relating to atmospheric immateriality and Zen-style.

Poetic Interaction, introduced by Kolko in 2007 [21] as a type of reflective and emotional design, has just begun to show its possible potential. Kolko defines poetic interaction as one that “resonates immediately but continues to inform later – it is one that causes reflection, and one that relies heavily on a state of emotional awareness. Additionally, a poetic interaction is one that is nearly always subtle, yet mindful.” In Kolko’s view, contrasted with aesthetic interaction, poetic interaction places much more emphasis on later and continuous reflection and emotional awareness rather than immediate feltness. This emphasis somewhat conflicts with Vico’s point that reflection is a reasoning activity *about* poetic moment rather than *of* poetics itself. However, this conceptual description still suffers from ambiguous abstraction which is nearly impractical to inform interaction design practices. Kolko further characterizes poetic interaction with three elements: honesty, mindfulness, and vivid and refined attention to sensory detail; honesty indicates ‘the philosophical understanding of how various materials *want* to work,’ which is very similar to how Luis Kahn sees a brick in a building; mindfulness is to evoke the holistic imagination, for example, when reading Eliot’s poems, instead of picturing a tree or a rain separately, and in this sense, mindfulness could be modeled with Gestalt psychology; however, Kolko’s extension of mindfulness goes very far from Buddhism; ‘vivid and refined attention to sensory detail’ is very close to the Bachelard’s notion of material imagination but attention is a superficial term comparing to imagination. Although Kolko’s investigation provides reflection on poetic interaction, these thoughtful discourses do not seem helpful to framing poetic interaction design, constructing methodology, or providing tactics.

### **3. Poetic Interaction Design as a Paradigm**

In order to better position poetic interaction, I echo the calling by Harrison et al. [14] to explain epistemic perspective before detailing this interaction design research. This paper first embarks on the task of building an epistemological stance of poetic interaction design: a pragmatist and constructive design research approach to poetics. Based on this stance and drawing on Verplank’s practical framing of interaction design [38], poetic interaction is characterized by four aspects: poetic material, poetic expression, poetic function, and poetic form. As Bachelard conceived an ontology that thrives not only on reason but imagination [2], poetic interaction, recognized as such an ontology, needs a design process highlighting imagination in addition to reason. Extending Bachelard’s sense of material imagination in contrast to formal imagination, I argue that the experience of poetic interaction might be elicited from one of these four types of imagination related to the framing above: material

imagination, expression imagination, function imagination, and form imagination. This methodological framework provides not only a constructive way of designing poetic interaction but also a lens to analytically understand a poetic artifact. Reflecting on Vico's poetic wisdom, poetic interaction emphasizes the imagination of the unknown that might or might not elicit aesthetic experience. Finally, in Heidegger's ontological enquiry that the truth is, by its very nature, poetic, poetry is regarded as the most essential form of language that brings man to the measure of his being [16]. Analogic to Heidegger's work, I suggest that poetic interaction design could form an ontology of interaction design that articulates itself and brings man into the state of his being and his world.

### 3.1 Epistemological Stance

Poetic interaction design is a specific type of interaction design, under the perspective of constructivism while regarding poetics as a design resource as well as arguing that poetics is experienced through living with interactive artifacts in everyday practices according to a pragmatist stance. Cross has addressed epistemological issues of design and proposes 'designerly ways of knowing,' which are fundamentally constructive and logically abductive [5]. Zimmerman, Forlizzi, and Evenson propose 'research through design' (RtD) approach to encourage interaction designers to create design outputs for articulating a preferred future, and thus RtD is also a constructive way, stressing how design artifacts transform the world [41]. Although Zimmerman et al. see RtD only as an approach, the epistemological implication of RtD is very obvious: the designer researchers know the world by constructing design outputs for articulation. Therefore, poetic interaction design employs *designerly ways of knowing poetics* and deliver poetic interactive artifacts for articulation. The aim is to seek understanding and reconstruction with a subjective stance through created findings. Legitimate kind of knowledge is thick description as Harrison et al. propose in the 3rd paradigm [14]. A poetic interaction designer thus must argue about the relationship between the design artifact and poetics she seeks to elicit.

Such poetics is not a conceptual notion but a felt experience that pragmatists would state as 'poetics as experience [29],' excluding interactive installations in fine art. The value of pragmatist poetics is construction of meaning intrinsic to interaction activity in our daily practices. Namely, we craft poetic experience through practically weaving embodied poetics into the meaning-making process of interaction.

### 3.2 Methodology and Framework

Methodology of investigating poetic interaction includes two parts: designing poetic interaction and then researching the phenomena of embodied poetics. Regarding the second part, poetic interaction, a type of embodied interaction as Dourish defines [7], is best researched through phenomenology, a subjective, hermeneutical, and dialectical methodology employed by constructivism. Also in the 3rd paradigm, Harrison et al. advocate the 'phenomenological matrix' methodology that sees the metaphor of interaction as phenomenologically situated, ranging from embodiment to situated meaning to values and social issues. Positivist methodologies are not only inappropriate for inquiry into poetic experiences but also highlight wrong kinds of questions and methods for answering them. Therefore I coin the term, embodied poetics, to indicate a phenomenological turn to poetic experience through embodied interaction in terms of Dourish's methodological advocacy.

On the other hand, the first part emphasizes the ability of interaction designers to practically frame and create interactive artifacts that elicit poetic experience. To address this issue, I propose a TID (tangible interaction design) framework first. Drawing on Verplank's interaction design framework that basically consists of four sequential columns [38], I provide a modified version of framework based on design language. This reframing

adopts all detail concerns proposed by Verplank, which also represent respective methods and techniques for addressing these concerns. Necessary toolkits and corresponding methods are welcome to develop during the design process if necessary. In addition, I add ‘movement’ in the aspects of form to highlight the relationship between body gestures and interactive artifacts. This framework not only provides an analytic model but also a guiding map for collaborative construction of embodied interaction. The spatial layout in Figure 1 indicates a perspective that equalizes these four aspects in their roles and the sequential orders.

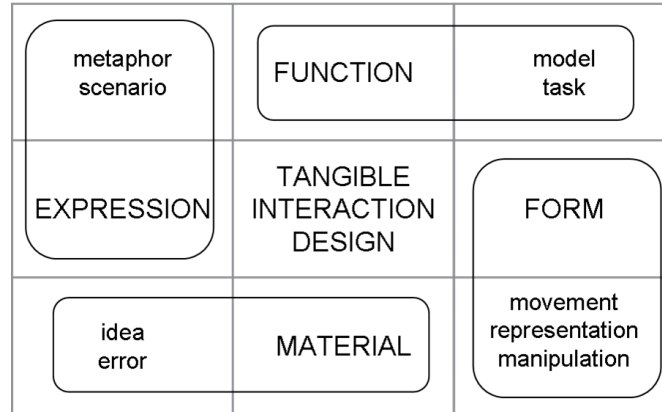


Figure.1 Tangible interaction design framework

Although the original framework is inspired by Verplank’s work, this TID framework is based on what phenomenologist Bachelard [1, 2] calls “the material imagination.” He distinguishes between two types of imagination: formal imagination and material imagination. Rather than being conceived intellectually in formal imagination, material imagination is an idea that comes from contact with nature. The reason why we employ Bachelard’s work in tangible interaction design is that design process is not only a process of rationality but also of imagination, creativity, and dream. Therefore, how imagination works as a design resource becomes significant in our framework. Bachelard conceptualizes the dynamics of imagination in line with the experimental laws and he proposes the term “material imagination” to indicate a way to “materialize” the imaginary, which may be thought of by a creative imagination.

Four fundamental elements: earth, water, fire, and air, are mostly concerned and each of them will shape a certain type of “material imagination.” Bachelard also points out that we usually have a combination of these types of imagination, such as fire vs. water, fire vs. earth, and water vs. earth. Seeing tangible interaction design as an imaginative process, as well as a scientific and rational one, we relate the whole design process to the four elements which materialize the imagination of tangible interaction design as well as provide mutual interpretation in pairs. Therefore, what the form of a tangible artifact is can be transformed into what the earth element of this artifact is. The benefit of materializing imagination is to invite designers to creatively associate an abstract aspect of a tangible artifact to the image of a concrete nature element. This method makes communication across perspectives from different paradigms very fluent while keeping discussion ambiguous and flexible but concentrated.

Form (originally defined as *mapping* by Verplank) includes representation and manipulation, and an extension of movement in our framework. Form is conceptualized as the earth element of a tangible interaction. Association between creative imagination of the earth element and the aspect of form will generate understanding and semantic meaning such as shape, appearance, tangibility, affordance, etc. Function (*modes* in Verplank’s work)

on the other hand indicates enabled tasks by a certain model. Fire element is associated to a set of meanings such as innovative function, enabling, and advanced technology. The discrimination of Function vs. Form can be literally discussed or related to the discussion of fire vs. earth. Nevertheless, the subtle understanding will emerge in this way, beyond definite definition of each term. Similarly, expression, associated to water element, denotes metaphor and scenario in tangible interaction. Material, both literally and metaphorically, indicates physical matter and conceptual idea to inform tangible interaction design, and is associated to the air element.

Although poetic experience is an impression when interacting with the whole interactive artifact, for practical reason, I argue that poetic imagination majorly comes from four types of imaginations in this framework: material imagination, expression imagination, function imagination, and form imagination. Each type of imagination might solely or partially contribute to the poetic imagination. For example, poetic experience might solely come from perceiving an artifact that is made of a special or uncommon material regarded as poetic. Therefore, an interaction designer would face four types of design choices when pursuing poetics: poetic material, poetic expression, poetic function, and poetic form.

The material itself of an artifact eliciting poetic imagination is called poetic material, which usually results from a novel, alternative, or uncommon usage of a specific material. Poetic expression is made of an intentionally unfinalized expression that invites us to fill in the gap and make imagination upon its ambiguity (Fig. 2). Poetic function is the enabled task that creates a novel interaction verb a user feels poetic. A creatively embodied function allows literal description of an interactive process to form a poetic collocation in vocabulary. Poetic form is the shape or affordance that stimulates poetic imagination.

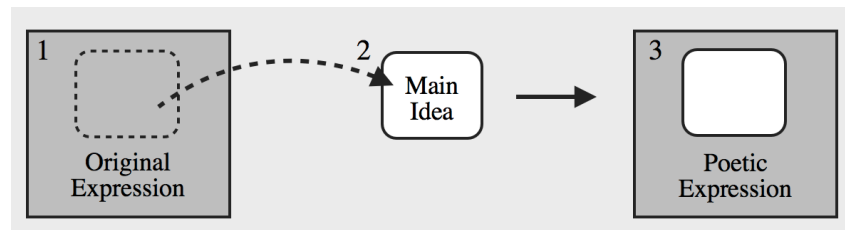


Figure. 2 The expression-making of a poetic interaction [25]

### 3.3 Ontological Implication

The ontology of poetic interaction design is a specific constructed reality that embodies poetics in interaction, based on relativism rather than realism in other paradigms. This poetic ontology surely builds on human construction and thrives on imagination in Bachelard's sense [2]. Referring to Nunberg's notions of poetic metaphors, which might become 'dead metaphors' as time goes by, I argue that the ontology of poetic interaction design is always changing, situated according to time, space, and culture. A poetic interaction in a specific situation might become a prosaic or a pedestrian experience elsewhere, and thus would no more stay in the scope of such ontology. Moreover, analogic to how Heidegger sees poetry as the ontology of language, I regard poetic interaction as the ontology of interaction design, for its purist form of interaction articulating itself rather than serving other purposes. In this sense, poetic interaction design does not address problem-solving issues, nor is it intended to improve experiential qualities.



## 4. Poetic Interaction Design Cases

### Poetic Expression

Two examples we have designed illustrate how poetic interaction is crafted from poetic expression-making: Whisper [25] and Scentonight [26]. In each case, an original expression from a fairy tale was made into a poetic expression by intentionally blanking out the main idea. Inspired by the well-known fairy tale “King’s Donkey Ears”, poetic expressions of Whisper were made: everyone has a drawer that is connected to the Internet, like a square of shared ground; users could bury their secrets in their own drawers; secrets would be synchronized automatically; the finder is the secret keeper; buriers and finders are anonymous (Fig. 3). The main idea in the original expression, which might be embodied explicitly in interaction design, was removed and implied by peripheral implicitness. The sound of nature played while opening a drawer refers to the space as a wilderness at night. The form and function of the drawer remain the same, keeping the artifact in daily use and preserve the original context of the interaction between drawers and users.

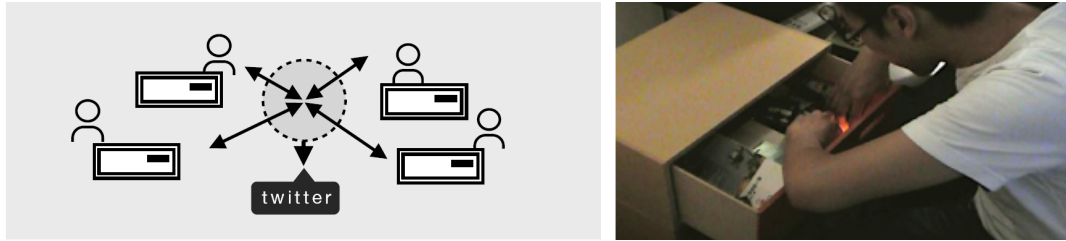


Figure. 3 Concept of Whisper and its scenario

Inspired by the famous novel “Alice in Wonderland,” Scentonight, has been created (Fig. 4). One character in the fiction, the caterpillar, always smokes a hookah in the dark. Regarding nightlight-turning as a daily behavior that can be practiced and included in a poetic expression, Scentonight enables implicit interaction among connected individuals. Turning on a Scentonight while going to bed would trigger a process that informs friends through other nightlights connected with Scentonight system. An ambient notification with light glimmering gradually and fragrance spreading gently creates a poetic moment collectively that receivers could feel it implicitly through the sense of smell and the light triggered by an anonymous friend. Although the image of caterpillar smoking a hookah did not appear explicitly, but its main characteristic still remains. In our expression, Scentonight spreads fragrance with the analogy to the smoke of the hookah. Expression imagination in the above two artifacts might elicit daily poetics.



Figure.4 Concept of Scentonight and its scenario

### Poetic Function

Tech Tap allows users to ‘take a bottle of jazz music and soft light’ to any space. Putting the ‘bottle’ under the ‘tap’ gets music and light that will ‘evaporate’ gradually as time goes by [31](Fig. 5). The above literal description of the enabled function has created novel collocations that invite us to make function imagination. “Would you

like a bottle of jazz” becomes a fully embodied experience rather than rhetoric. This also shows a great potential of interaction design to embody poetics as daily practice.



Figure. 5 Tech Tap (left)[31] and History Tablecloth (right)(image © RCA Equator project) [9]

### Poetic Material

The material of History Tablecloth is a grid of lace-like elements with electroluminescent material [9](Fig. 5) Cells beneath an object light to form a halo that glows for hours. An ordinary tablecloth while made of lace-like, halo-glowing, responsive, ambient material, greatly stimulates a poetic material imagination, dominating other types of imagination, such as function, expression, and form.

## 5. Discussion

Interaction designers are expected to engage ‘wicked problems’ [34, 41], as well as design is usually understood as a ‘problem-solving’ process. However, this ‘problem-solving’ perspective needs to be re-examined when different manifestos of interaction design emerge. Critical design definitely challenges this perspective since it intends to pose questions and stimulate discourse rather than solves them [4]. Questions could be thought as outputs instead of inputs of critical design process. Similarly, reflective design usually refers to ‘critical reflection’ that brings unconscious aspects of experience to conscious awareness [35]. Therefore, reflective design artifacts intend to question our unthinking attitudes, practices, values, and identities rather than to provide solutions to certain problems. Ambiguity, itself as a problematic aspect, is advocated to be a resource for design, rather a solution to a problem. Rejecting the view that ordinary life only requires work to achieve, Gaver notices that we might neglect ‘the joyful, poetic, and spiritual rewarding nature of the lives,’ and advocates ludic values in interaction design [10]. Gaver’s concern echoes Vico’s perspective of how mythical world becomes our underlining belief of life in contrast to functional world that sees everything as problematic.

Based on such belief of mythical world, poetic interaction design invites designers to ‘give sense and passion to insensate things’ rather than to solve ‘wicked problems’ in the functional world. Therefore, poetic interaction does not pose questions as critical design, nor does it provide reflection as reflective design, which is a rational activity. Poetic interaction design also stresses how human’s poetic nature informs interaction design. Imagination upon unknown things is the center of poetic interaction, not necessarily beautiful, pleasant, or ethic as aesthetic interaction.

## 6. Conclusion

To conclude, the present study is preliminary research on building poetic interaction design as a paradigm. Starting from constructivist stance, the construction of epistemology, methodology, and ontology leads to a clear picture of how pragmatist poetics locates in interaction design disciplines. A practical framework based on poetic

imagination, under the category of methodology, provides both constructive and analytic framing of poetic artifacts. Although illustrative design cases are described, extensive investigation of more poetic artifacts is necessary in the future. Moreover, seeing poetic interaction design as an ontology of interaction design is still very much in the beginning stage and much more discourse and knowledge construction have yet to be done.

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