"Indirect" and "In-Between" of Open Database Art

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Abstract: In the digital age, many artists use digital information mixed in various ways to create works of art. The subject of this paper's discussion, i.e., open database art (ODA), is one such example. This form of art uses database techniques to retrieve and accumulate vast amounts of readily available and participant-contributed data from the internet, for the purpose of using the contents of the artwork. In other words, the work itself has no preset content, and all of the content relies on the import of external data. This paper seeks to hypothetically discuss the movement of data during its entry and the departure from an artwork, to provide a context and perspective for understanding ODA works. This paper also seeks to analyze ODAs through the conceptual notion of the "between", to systematize and eke out the various directions that an ODA work may take, for the reference of future related studies.

Keywords: in-between; open database art; relationship; detour; participation

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1. Introduction

As one enters the digital age, data appears to have proliferated within every aspect of our lives. In the digital world, every word and image that is transmitted represents a form of data; data is effectively the core through which the digital age propagates and disseminates itself. Digital imaging involves signal processing and alterations rather than the production of objects (Chiu 2012). This has led to databases becoming a new form of culture and symbolism, such that it has developed into the center of the creative process in the computer age (Manovich 2000). To see the art in the digital age, we need to explore how does the data turn into art. People have seen many works of art that use digital data, such as data visualization, database art, generative art, software art, and so on. However, "the purpose of visualization is insight, not pictures" (Shneiderman 2008, p. 3). Database art is concerned with a new aesthetic creation that involves data science, visual presentation, and social interaction. Unlike the artistic representation of realism by means of an act of mimesis of reality. Here, data is a medium that represents a different digital scenery and the data-seeming aesthetics.

Many researches have focused not only on exploring the techniques and forms of data visualization, but data aesthetics, network aesthetics, data representation, shifting authorship, culture data, and digital humanities (Vesna 2000; Daniel 2007; Sack 2007; Ushizima et al. 2012; Hsu and Lai 2013a; Manovich 2015, 2016). But, what is the forms and meanings that results from the input of data into these artworks? What is the role of data in these works? What kind of meaning will take shape in these works while visual or non-visual data transforms into visual form?

These questions are issues that must be confronted in explorations of this type of artwork, and this paper seeks to discuss and answer the aforementioned questions. This paper examines artworks that are categorized as open database art (ODA) and hypothetically discusses the meanings that are associated with the entry and departure of data from ODA works to investigate how the extensions and dissociations of external data outline the multi-layered meanings of ODA works. In ODA works, the use of computer programs to continuously import external data and the maintenance of its dynamism through constant updates with new external data illustrates how the object that is external to ODA

works (i.e., data) plays an immensely important role within ODA works, despite being external texts. However, what is the difference in meaning between the dynamic entry and departure of external data from a work, as compared to being internal or external to the work? Is there some idea or concept that could tie these different layers of meaning together? The notions of *in-between* and *indirect* may be able to fulfill this role. Hence, this paper attempts to inject these concepts into its discussions as a different pathway for examining ODAs to provide a different perspective for studies on this form of artwork.

2. What Is Open Database Art?

Database art or data art refers to artistic creations that utilize database technologies whose content may be fixed and unchanging, or in a constant state of flux. This paper specifically discusses database artworks that import masses of external data as their content, thus having an open content that is not fixed and is referred to as open database art. *We Feel Fine* by Harris and Kamvar (2006) is an example of one of the types of ODA. The creators used keywords like "I feel" and "I'm feeling" to search and retrieve relevant text from the internet, and visualized the collected external data, which were then randomly hidden within balls with varying colors. When the viewer moves the mouse pointer to one of these balls, words representing emotions, such as sad, happy, or isolated will appear, and clicking on the link will show an abstract of the original text that was retrieved from the internet (Figure 1). The retrieved external data are categorized according to the original author's age, gender, and location, and the viewer gets to choose and sort the text they want to see according to these categorizations. The retrieval of the text causes it to dissociate from the context of the original text, which lends it a different mode of interpretation from the original text. The work itself has no fixed content, and these externally retrieved texts also do not persist within the work, as *We Feel Fine* (Harris and Kamvar 2006) will automatically retrieve and update its data every ten minutes from the internet. This is the first common type of ODA: retrieval ODA. The content of retrieval ODA works (i.e., external texts) continually changes. Retrieval ODA works retrieve texts from the internet using computer programs, and regardless of the original form of the data (images, sounds, words, etc.), these are transformed into the contents of the work according to the program settings that are used for the ODA work; these contents are then presented in a different form of appearance to the viewers (Hsu and Lai 2014).
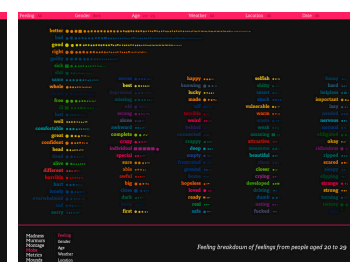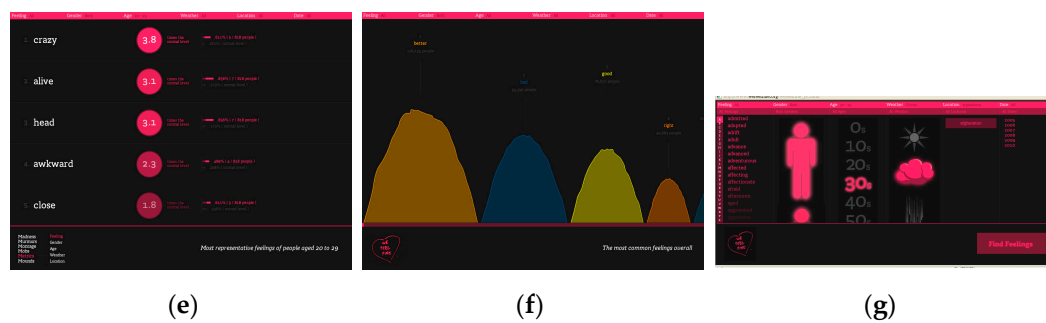

(**a**)

(**b**)   (**c**)   (**d**)

Figure 1. *Cont.*

(**e**)

(**f**)

(**g**)
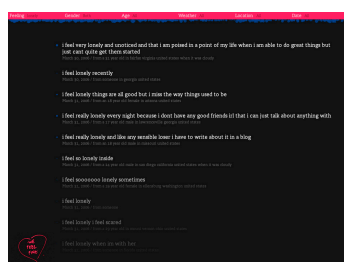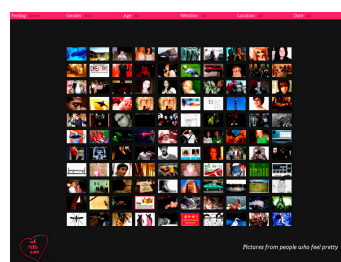
Figure 1. *We Feel Fine* (Harris and Kamvar 2006). (**a**) Madness mode; (**b**) Murmurs mode; (**c**) Montage mode; (**d**) Mobs mode; (**e**) Metrics mode; (**f**) Mounds mode; and, (**g**) Search interface.

To look at another typical retrieval ODA work, *Color Code* by Wattenberg (2005) is an interactive color map of English (Figure 2), consisting of more than 33,000 words. Each English word was assigned a color, and this color is based on the average color of images that is found from the internet, which is based on internet searches using that word as a keyword. The words are then grouped by meaning to produce a colored lexicographic atlas. The viewer is also able to type in their own words to query the representative color of that word. This is why Wattenberg (2005) sees this work as "the full-color portrait of the English language".
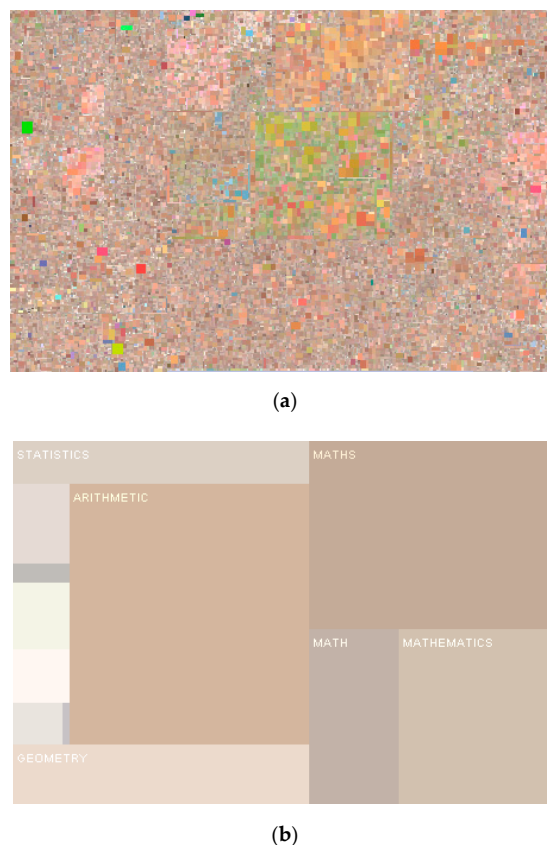
(**a**)

(**b**)

Figure 2. *Color Code* (Wattenberg 2005). (**a**) The full-color portrait of the English language; (**b**) The representative color of the word "Math".

Flow is an interactive installation premiered at the 2016 *Ars Electronica Festival*. To represent nature through real-time data, the artist Maotik (2016) has captured the real-time data of nature world, such as sea levels, tide coefficient, humidity, weather cast, wind force, wind direction, weather cast, moon

cycle, location, and time of the day, and furthermore visualized those retrieve data into a multimedia environment by the front and the floor projection. Different parameters will affect different properties of this creation, such as humidity, will change its color. The changing visual scenery depicts the variation of the real nature world.

During the process in which external data is converted from its native context to the context of the artwork, the original connotations of the words are changed. Each update of the data results in a new narrative and a renewed realization of the work, as well as a shift of the visual focus on the screen; these repeated "updates and renewals" of the narrative combine to form the whole of the ODA work. As the program randomly selects data according to the conditions set by the work, there are thus an uncountable number of possible combinations, and each updated selection of data simply represents one of the possible realizations of the work. Hence, the continual updating and renewing of the work brings some of these other possibilities into light, to form a type of narrative that constantly updates and renews itself.

Collabyrinth by Deck (2003) uses database technologies to openly gather participants to draw graffiti in the work (Figure 3a). A viewer who enters the work sees something that looks like the insides of a building, with every wall having graffiti that is created by participants who have entered the work. Hence, any viewer that enters this work has the choice to simply view the work, become an active participant in the work by drawing on a wall, or alter the graffiti that had been drawn by someone else (Figure 3b). As the level of participation of each viewer varies, the role that is played by the viewer is not always the same. *Collabyrinth* (Deck 2003) is a virtual space comprised of the participants' graffiti, with participants who can draw new pictures or alter the works of others; conversely, the designs that were created by a participant can also be altered and changed by others into new pictures. The participation of participants (by drawing on the work) then continually updates the content of the work, and renews the realization of the work. This is then the second common type of ODA: participatory ODA. The foundations of participatory ODAs are based upon the continuously changing creative capacities of the collective.
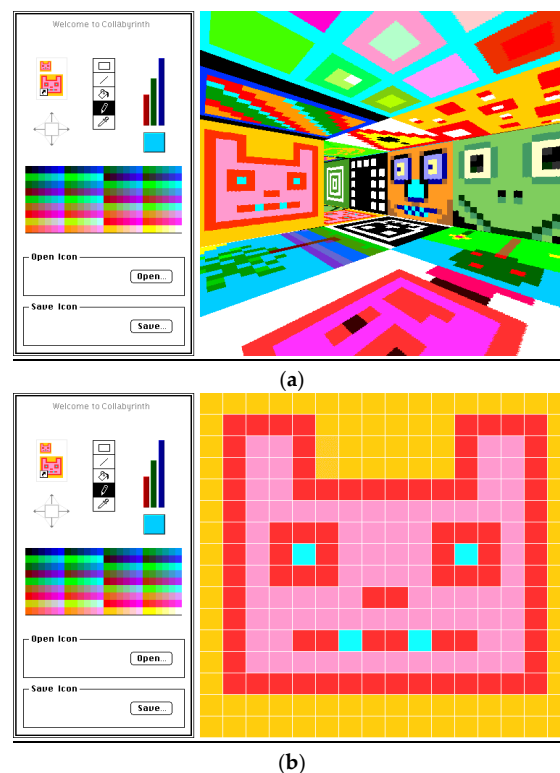

(**a**)

(**b**)

Figure 3. *Collabyrinth* (Deck 2003). (**a**) The drawings in this project; (**b**) Drawing interface.

An ODA work is framed within the internet, and creates its own body through its own operational networks; the tension in these works lies between its visual form and database structures. The continual search and retrieval of external text and the participation of different participants both serve to update data; both of these actions are thus a type of update for ODA works. For ODA works, updates are a kind of exploration of the unknown: "The primary creation of the creator of an ODA is the frame that allows content to be filled in, and the call for external inputs and the invitation of viewers to participate and create are some of the most distinctive practices of ODA works" (Hsu and Lai 2014, pp. 62–63). "Content to be filled in" implies a state that has yet to be determined, and also a state that is dynamic and mobile. Every realized component will continue to change, and only the continuous implementation of this operation to shape every moment will enable works that are a collection of moments, such as ODAs, to become completed. The "updating and renewing narration" that is the creative method used in ODAs allows for these works to become by themselves a creative process, rather than a fixed and complete product. However, it is worth mentioning that the data of the participatory ODAs like *Collabyrinth* (Deck 2003) is from participants' aware contribution; the data of the retrieval ODAs like *We Feel Fine* (Harris and Kamvar 2006) is unaware retrieved by the work's program.

Beneath the continuity of ODAs lie a hidden spontaneity, randomness, and dissociation. The "content waiting to be filled in" of ODAs refers to the spontaneous retrieval of data or participation of participants. The entry and departure of external data through the ODA program's settings or the free entry and exit of participants from the work, just like breathing, creates a certain rhythm within the ODA, thus forming a random, unpredictable, and continual rhythm within the work. During the development of an ODA work, time and motion are a unified continuum, but for each individual bit of external data, a parallel, native space-time exists for each original text. Retrieval ODAs involve a re-narration and migration of the original text, and as these external data are placed in different frameworks of meaning, the meaning of the external text dissociates from the original context. The re-interpretation of external data implies an interaction between the original space-time with that of the ODAs'. Every bit of data presented within an ODA work is also a self-reflection of the data, hinting at an external view of the original context of the imported text. Here, the external data is not just an embedded object within a visual representation; instead, it realizes the work through its original context, and goes on to paint a picture of the world that is being created by the ODA work.

Open Database Art is an art about aggregation, processes, and relationships. ODAs need to be filled in with content, as these are aggregations of external data and continuous development processes. The appearance of each bit of data simultaneously covers up other data, and hints at the non-appearance of other possibilities. The concealing and revealing of data in ODAs also implies various relationships, such as relationships between entering and exiting, relationships between the internal and external, and so on. What is the significance of that which lies "between entering and exiting" and "between the internal and external" for ODAs? ODA brings a work to life through external data or its participants, but does the fact that the realization of these works necessitates things that are external to the work particularly warrant contemplation? More specifically, how does an ODA display a work's *current instant* through the *between*? The implementation of the current reality is the next topic of discussion in this paper; through the conceptual pathway of the *between*, people shall deepen their understanding of ODAs and contextualize new directions and ideas. In the following section, discussions and hypothetical arguments shall be conducted from the perspectives of the in-between and indirect. First, the *indirect* shall be observed to explore the relationships through which ODA works are indirectly expressed through external data or participants; the next section discusses the "in-between", through which this paper shall discuss how ODAs bring about the detours and revelations through others. On the interpretation in Chinese meaning, it might appear that the only reason that ODA has been placed within the conceptual discussions of *indirect* (間接) and *in-between* (之間) is simply because both of these terms share the same Chinese character "間". For ODAs, however, these concepts are intimately related to each other. ODAs are creations that indirectly present themselves through others, and this inevitably leads to a relationship between these two entities;

an *indirect* relationship is thus formed between the work and things that are external to the work. Therefore, this paper seeks a deeper understanding of ODA through reflections on the "in-between" and "indirect".

3. Indirect

3.1. Open Database Arts Present Themselves through Others

Open Database Arts use the data that is obtained through internet searches and explorations of external data as its content; its stance is similar to that of a query that is made towards the outside world. The answers to the questions that it poses to the outside world are answered by the external texts that are retrieved by a program or the contributions of its participants. This query declares the proposition for which the work exists; in other words, the purpose of this query is to complete the work itself. This query hints at an uncertain and undetermined state of being, while also involving a process "to obtain", that is, to obtain an answer (through external data), and also to obtain the realization of the work's own self. The visualization of data obtained through retrieval, participation, and aggregation is thus the only way for an ODA to create a new spatial structure for these external texts, and for the work to come to fruition.

Metrogram3d is a real time three-dimensional (3-D) interactive map of Tokyo subway by Koi (2014). Tokyo transit looks like a beautiful light painting by obtaining and transforming the Tokyo Metro data into a 3D universe (Figure 4a). Every line is a colorful pathway and every station looks like a gorgeous star. Viewers can follow individual train's motion and experience a splendid spacey journey (Figure 4b–d). The action of obtaining the transit data is to fill the work's content and form its framework.
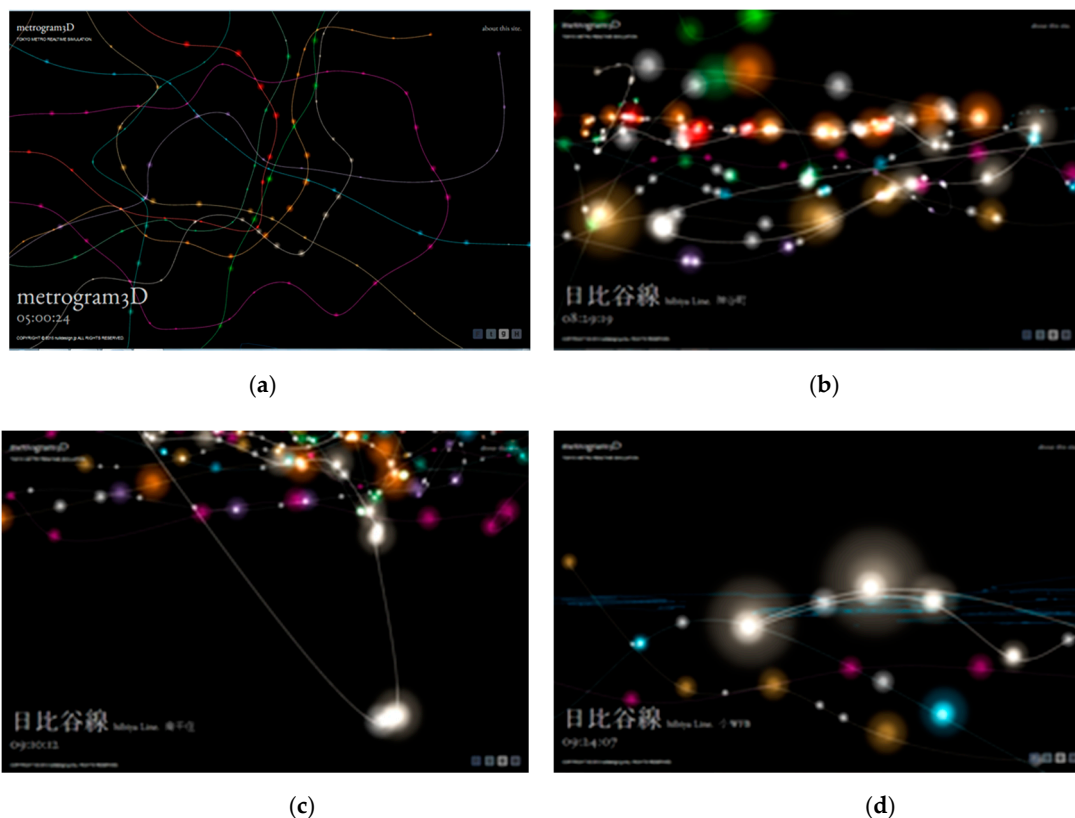

(**a**)

(**b**)

(**c**)

(**d**)

Figure 4. *Metrogram3d* (Koi 2014). (**a**) Over view; (**b**) Hibiya Line (Time 08:29:19); (**c**) Hibiya Line (Time 09:10:12); and, (**d**) Hibiya Line (Time 09:24:07).

The process "to obtain" is also like an action of querying. The action of querying the outside world causes retrieval ODAs to be formed by things outside the work's framework, and the work's own self is thus expressed through various things that are outside of or far removed from the work. Through the internet, distant objects can appear within ODA works to allow its viewers to feel that for an instant that they have become closer to that distant object. Here, ODAs have a rather large space to work with as distant objects can be searched for through the internet; distant objects may thus appear right in front of a viewer's eyes, but even then, a certain distance is maintained, and it remains impossible to see everything at a glance.

The content of an ODA is not a creation of the author, as it has to be filled in by others; from time to time, external data and participants are summoned to co-create the work. ODA uses the notion of the "there" to present what is "here", i.e., it expresses itself through others; the data may come from that which is far away or outside of the work, but are nevertheless organized or linked by programs to become the work's "here and now". For example, *Metrogram3d* is a new existence that is different from the original transit data; a viewer can experience a far way motion from a station to another station at different moments (Figure 4b–d). At first glance, the work presents the "here and now", but actually presents a distant scenery through the "then and there".

The key for the realization of these works is in the expression of the work through readymade external data and the participants' creations. To obtain an understanding of ODA works, one must look beyond the methods that are used to create its visual form and understand them through their inner nature as presented by the works, because with the continuous input of external data, the meaning and interaction between the work and the external data will randomly change. ODAs present themselves through others. In other words, the life and content of an ODA work is bestowed upon itself by others. Although the artist/first author has constructed the outline of the work, the participation of others remains necessary. If one examines the content in detail, one will notice whether others are present or absent; these clues do not reveal themselves at once, but rather make themselves known and felt gradually.

The contents of participatory ODAs are also indirectly sourced from others, but in this case, this might be in the form of external texts or actively participating viewers, in addition to the original authors of the external texts. Anonymous collaborators usually participate without a given name or location, or without any prior knowledge, in the process of creating a work; these are the narrators who are hidden within the text, and the work is indirectly completed through these people. For example, the graffiti on the walls in *Collabyrinth* (Deck 2003) announce the presence of a participant, and the entire evolution of the work lies in the progressive display of the presence of others, with the tracks left behind by the presence of others acting as the work itself. In short, the work is gradually shown through the work of others. In this category of participatory ODA, the others may refer to the input data itself or active viewers/collective authors, and it is indirectly through them that the work is completed.

Retrieval ODAs display the work itself through every bit of data that is input into the work, and what it is showing cannot be fully displayed in a single visual scene; therefore, these works are only able to obtain a self through numerous texts or a multitude of "scenes beyond scenes". The first scene in the "scenes beyond scenes" is biased toward the visual, and refers to the frame of the work; the second scene involves external scenes beyond the frame, i.e., the native context of an external text. The "scenes beyond scenes" that may be felt but not seen nonetheless makes its existence known through its absence. Although ODA works are independent, these works are inseparably linked to others through the internet; it is then in a state of being "neither here nor there", as it remains connected yet distant. When one becomes aware of the "scenes beyond scenes", then everything falls into a state of dissatisfaction and emptiness. Feeling is then generated by going back and forth through this state. Let us look at *We Feel Fine* (Harris and Kamvar 2006) once more: starting from the chaotic distribution of the circles on the front page, this work is performed within an atmosphere of appearance, expression, disappearance, and mystery. The circles first disperse from the center, and uncountable numbers of circles in different colors then start to move in every direction. If the viewer

then clicks on one of these circles, then the previously hidden external information is then shown in a pop-up; at this moment, the viewer has seen and experienced the entry of external data into the work. A second click by the viewer then causes the current word representing some emotion to disappear, which is then replaced by another word that represents some other emotion. The scene of retrieval ODA (the photos in external data) corresponds to the mood of the author of the external text, and these easily lead the viewer to imagine and think about plots, stories, and possibilities external to the work; numerous situations beyond the work thus invade from every direction. In summary, ODAs are a type of creation that presents the "here and now" through the "then and there", and the key element for the presentation of ODAs are others, regardless of whether the others being referred to are things (external data) or humans (participants).

3.2. Readymade Data

On the aforementioned "others", there are certain contexts that warrant further clarification. To describe this in further detail, this issue shall be probed from the perspectives of viewer participation and the use of readymade objects to improve our understanding of ODAs. Firstly, ODAs have inherited the participatory Happening movement from the 50 s, where viewers were invited to participate in the creation and completion of the artwork. Most ODA artists do not begin a creation from the contents of the work, but rather simply provide a device and frame, or they may simply formulate a process. Unlike the other readymade artworks in the physical environment, readymade data is collected randomly and openly by the ODA's program, but not from the artist's choice. The amount of the readymade data is unlimited and much more than the physical readymade artwork. The ODA itself is open-ended by nature. The artist's role in the work is to provide a context rather than to be a content provider (Kester 2004). The changes added to the artwork vary with the purpose and intent of each participant, and all the forms of participatory art that utilize participation as an important factor find expression through others. This is why participatory art is strongly conversant by nature, as is participatory ODA. Furthermore, as ODAs use the internet as an intermediary, this provides a distance shrinking experience that cannot be found in a physical environment. Distance shrinking refers to a significant reduction in the time that is required for the transmission of material or information between different places due to advances in transportation or communications technology (Gillespie and Williams 1988).

Swarmsketch by Edmunds (2005) is a public artwork that was created through online interactivity and the collective creations of its participants. The work itself was basically an empty canvas, and the content was opened up to willing participants to collectively create a drawing. A different subject for the sketch was given every week, and one of the given topics, *Pumpkin Carving*, was left open for two days, 12 h, and 31 min. It was estimated that 1000 participants from the U.S., UK, Germany, Japan, Holland, Australia, Brazil, and other countries participated in this work, drawing a total of 1000 lines. Each participant was allowed to draw one line, and the opacity of each line could also be modified by other participants such that the lines could be made completely transparent; the opacity of the lines in that work were modified a total of 15,141 times. It would not be a trivial matter to organize the participation of 1000 participants from more than 10 different countries within two days for an artwork in a physical environment. On the internet, however, this can be achieved with relative ease, and neither the viewers nor participants would be restricted by geographical distances. Through the internet, ODA artworks thus provide an artistic experience that is free from the limitations of distance; regardless of how space and time might change, the unified setting of the internet enables viewers to experience a work or participate in a work from afar, thus nullifying any sense of distance.

Furthermore, the others referred to by the retrieval ODAs are the products of popular culture, such as recordings by the public of their daily lives or occurrences in their surroundings, including words, images, and sounds. These data are simply commonplace occurrences in everyday life. An ODA artist then takes these commonplace occurrences and puts them into their artworks, thus changing the native meaning and usage of these external data. In other words, data is being treated as a readymade

object. One of the most famous examples of readymade artworks is *Fountain* by Duchamp (1917), which was originally an ordinary urinal on which Duchamp signed a pseudonym "R. Mutt 1917", thus transforming it into an artwork. This act announced the birth of an artwork, and served as an announcement by Duchamp that says: as long as the creator wishes it, anything can be turned into art—even commonplace objects—regardless of their aesthetics or functionalities. The most important point does not lie in whether an artist has processed an object to create new meaning; it instead lies in choice. The artist's choice thus renews the definition of a readymade object's identity, so that even a readymade object can be treated as art.

Retrieval ODAs can be said to be digital versions of readymade art, with data being treated as readymade art (Hsu and Lai 2013b). In the digital era, numerous artworks have ties with data, as readymade art is not the only pathway for the incorporation of data into art, and Manovich (2002) even used "data-subjectivity" to describe how every member of society is an individual who has immersed themselves within digital data. Retrieval ODA gives prominence to these data in the everyday context, changing the ordinary into the extraordinary. Here, I would like to add that ODAs use information databases to let these data stand out from the mundane, to allow them to be admired and seen from a different perspective. However, through the import of external data, retrieval ODAs convert data from the everyday lives of the public into parts of artworks, and demolish the walls between art and everyday life; these are essentially digital implementations of readymade and assemblage art.

As retrieval ODAs are presented through readymade data, the features and meaning of readymade data thus warrant further discussion. The use of readymade objects, which are incorporated so that the artist does not have to personally complete the work's content, significantly weakens the artist's authorship rights, and also diminishes the sense of divinity that is associated with the artist. Furthermore, readymade data also changes the role that is played by the artist, as well as the artist's standing in the work. Although the decisive contribution of the artist in drawing out the thinking of the artwork is beyond doubt, the artist has not created a work but rather a frame for the initiation of the creative process. These non-artistic data generated by the public have been extracted from their native environments and re-established as a part of the artwork. It is merely a coincidence that these data were collected at some given moment to be transformed into art. It is clear that these readymade data will undergo some change in meaning in a new environment and context; in short, readymade data allow for artworks to become interrelated with the data generated by the general public.

Besides its digital characteristics, the readymade data in retrieval ODAs still differ from the readymade objects of Dadaism or assemblage art in certain respects. Firstly, the readymade objects of Dadaism or assemblage art are usually clearly identified objects, whose identity as an artwork is announced by the artist. Readymade data, on the other hand, are usually selected according to the settings and conditions of the computer program that is used for the artwork, without prior knowledge as to what data will be selected by the program. In Duchamp's art, or assemblage art, whole readymade objects are changed into artworks, but this is not the case for readymade data, as the original data still persists within the internet. Furthermore, readymade data may be temporary and transient, as the random selection of data during updates or its deletion by the original creator could cause the departure of data from the work. This also means that the use of readymade data could simply be a temporary aggregation, as the data only stays as a part of the work for a limited amount of time; however, the data can also be archived within the work, so that it persists indefinitely. Retrieval ODAs present themselves indirectly through readymade data, but the body of the work that is constructed by these readymade data can continually change through the settings of the program, as well as additions and deletions of content from public webpages. Although the artists of retrieval ODAs do not personally create content, nor do they specify what the contents might be, the artist nonetheless retains the will and authority to designate the type of content within the work.

Readymade data plays a major role in retrieval ODA works: regardless of whether these are temporary or archived, it is certain that their state of existence will continually change during the period in which the program is running, by repeatedly linking and unlinking from the work. Similarly,

participants play an indispensable role in participatory ODAs: every line that is drawn and sound that is made by a participant could be permanently archived, or simply rewritten. Therefore, the others relied upon by ODAs, whether in the form of readymade data or the contributions of participants, will always carry a certain uncertainty and variability; these are indirectly reflected upon the ODAs' existence and appearance.

3.3. Open Database Arts Express Themselves Indirectly

From the previous discussions, it is not very hard to discover that a hidden control mechanism exists within the narrative processes of an ODA: the allocation of creative rights. The allocation of these creative rights is fixed by the first author to create the order in which the work progresses. Although an ODA artwork might look like a collective creation, created through the participation of other content providers (participants and collective authors), and the artwork may even look like it is progressing in a natural manner, the reality is that these were predetermined by the allocation of rights within the work. All of the participants within an ODA are situated in the downstream regions of the developmental process and are led on by these allocations, so even if these participants do enjoy certain rights, these are rights that are lower in level that were delegated by the artist. During the beginnings of a work's development, the artist has already calculated how these people, objects, and matters can be brought into the work through the dispersal of the artist's own creative rights. The artist then enters a process of "waiting" for others, while also waiting for the opportunity to introduce externalities in a timely manner. The opportunity in this case does not simply appear haphazardly; rather, it appears in a timely manner under the cooperation of various factors, in an environment and time where things are happening (Jullien 2004b). The progressive development of an ODA acts like an emergence that is motivated by circumstance, and all of the potential that was accumulated by the work is released all at once, at some moment.

When the opportunity comes, the rights of the allocator (artist) are then weakened; the artist's stance now changes from that of an active operator to a passive actor. As the artist understands that the accumulated potential can only appear and come to fruition while the work is in progress, the artist quietly lies in wait. Thus, a process has appeared between the active and passive states, which can also be seen as a direction for development. The artist of an ODA actively introduced a program into the work—a program that is only indirectly shown in the work; ultimately, the work attains its final result through a state of passivity. Just as a crevice in a rock wall will gradually expand into an open hole, "the development from a crack to a wide breach is predictable, because it is implied from the start; the change is bound to happen; it is all just a matter of time" (Jullien 2004b, p. 69). This is also the reason that this paper analyzes ODA works through its processes and not the results that are produced by these works. The unstable contents of an ODA are cooperatively weaved through *waiting*, *opportunity*, and *induction*.

Nevertheless, both the active and passive states come from the artist's own arrangements and manipulation. If one looks at this in terms of the imaginary and the real, the active control of the work is akin to a satisfying and affirming activity, whereas passive waiting is akin to the use of attraction, i.e., imaginary acts of power. By taking on a state of passivity, the artist conceals his/her own ego to place others at the center of the work. Hence, although an ODA work might only be indirectly presented through others, these external others are directly and clearly shown within the work, at that time and place.

ODA is a point at which related things may come together and interact. Working through others is an indirect and circuitous pathway towards self-revelation. Nonetheless, "the opportunity has become glaringly obvious, but at the beginning it is barely perceptible" (Jullien 2004b, p. 65). Both the external data of retrieval ODAs and the participants of participatory ODAs are all part of a multitude; even if each bit only represents a small part, like a small ray of light, it gradually illuminates the work through aggregation, and eventually reveals the meaning of the work. Although external data or participants may continuously reveal themselves to the world, it is always through some moment or

situation, after a certain amount of accumulation, that they finally show their true selves. Through the internet, ODA works continuously to search for that weak yet self-illuminating ray of light to indirectly express themselves.

This narrative that is expressed through others is both indirect and participatory. The queries that an ODA poses to the outside world not only create the ODA's existence, but also demonstrates the existence of readymade data and exposes the tracks of the participants' presence; hence, ODA works "develop from the faint into the conspicuous" (Jullien 2004b, p. 103).

4. In-Between

ODA exists through others, and two opposing conceptual points are conversely drawn out by the others: the "here" and the "there", which also imply the existence of the in-between. In particular, the external data of retrieval ODA comes from one place (the native context) but belongs to a different place (the ODA work); this "other place" cannot be overlooked as far as reflections on the processes of an ODA and the shuttling between these two places are concerned. This is also why the means by which external data mixes *in-between* these two places to become embedded within art and to continually renew itself is an issue that is worthy of study. The following section discusses the notion of the in-between, between the ODA and others.

4.1. The In-Between That Is Constantly in Flux

All of the ODA artists do not directly complete the content of the work and do not directly reveal the work, but rather queries the world of the internet through the frame of the work. The responses to these queries are the data that is searched and retrieved, and these answers form the content of ODA works. Regardless of whether the data was obtained through programs or contributed by participants, these data can be seen as a type of product of ODAs. However, the implementation of an ODA work is not just about aggregating data, but rather is more about constructing an accumulation of relationships. A multitude of unrelated people have traces of their existence left behind in an ODA, regardless of whether these were intentionally left behind in participatory ODA works or taken without any prior announcement in retrieval ODA. These traces are aggregated and revealed within an ODA work, such as every scene of the canvas in *Swarmsketch* (Edmunds 2005), the smearing and splattering of the virtual walls in *Collabyrinth* (Deck 2003), or the obscured convolutions of external data that were extracted from their native environments and gathered as fragments in *We Feel Fine* (Harris and Kamvar 2006). ODAs are filled not only with data, but also with relationships that exist between two or more parties. Therefore, ODA is also a type of relational art. Relational art is founded by the interrelations of mankind, and is an art that extends from the world of art towards individuals in society. These works are not just about art; rather, they are about mankind (Freiling et al. 2008, p. 130).

Open Database Arts do not generally say much about the ideas of the work itself, nor do they actively express themselves. Instead, they mainly reach out for possible answers or meanings through indirect methods. Hence, an ODA must constantly update its external data in every appearance it makes for the viewers to read these data and to further improve their understanding of the work and the external data. Thus, any viewing of the external data will simultaneously involve viewing of the ODA; conversely, when one reads the ODA work itself, this must also involve the reading of external data. This is because the work itself is essentially constructed through the interactions of three dynamics between the work and external data: the dynamics of the text, the dynamics of the meaning, and the dynamics of the work's structure (Hsu and Lai 2014). While the work and external data may appear on different place or internet address, these are in reality inseparable and constantly interacting with each other; in other words, ODAs indirectly express themselves through others.

Strictly speaking, the *expression of self through others* that is mentioned here involves a type of detour. As shown in *Metrogram3d* (Koi 2014), the work presents itself through others' movements. The dazzling, moving spheres not only symbolize individual trans' motion, but also build the connection among the viewer, artwork and the train's physical movement in a timely manner. The import of external Tokyo

metro transit data as content, followed by transformation or intertextualization, then visualization, is an approach in which the work does not directly show itself; a distance is thus created from the work through detours. The work ultimately discovers itself in detours *in-between* the multitudes of others and the work, through this indirect approach. In other words, ODA works express themselves through detours.

The French philosopher François Jullien has given a profound exposition on the concept of detours (Jullien 2000). According to Jullien (2000), by distancing oneself, one is then able to see one's self more clearly; this is why Jullien reflects on Western culture through an understanding of Eastern philosophy. From ancient Chinese books, he discovered that since ancient times, the people of China often used indirect language to describe their views on objects and matters, thus achieving the desired effect through metaphors; this is precisely what is meant by a detour. Jullien (2000) discussed the effectiveness of expressions through detours in his book, *Detour and Access*. Detours refer to indirect expression, and imply a winding and uncertain path; on the surface, it may appear that this would not be as effective as direct expression. However, the true strength of detours comes from the progressive deepening that occurs throughout the development of an affair, without leaving any signs or traces. A detouring pathway or method avoids direct confrontations, thus reducing conflict or resistance, and conversely reaches a realm that is beyond that of direct expression. Jullien (2000, pp. 345–46) said:

> The value of detour lies in its capacity for *unfolding*. By deploying a succession of phases—like the succession of scenes here—it gradually *opens up* reality; and the continuous concatenation to which it gives rise enables us, by accompanying it, to immerse ourselves in it: not to seize hold of it all at once, as direct expression purports to do, but gradually to become imbued with it, to establish a relationship with it, to embrace its development, to enter into its inner depths and vitality, and thereby experience its at-once infinitely diffuse and all-encompassing nature as atmosphere (here, one of desolation) and globality (as opposed to generality). A scene-landscape is described, yet we *enter* a world; this requires a path. It is detour that *gives access*.

From the previous passage, it is known that the true value of detours is in its ability to progress matters through gradual permeation, to ultimately venture into the deepest realms of the truth, and to enable a proper appreciation of its deeper meanings. Detours are not intended to misdirect, but rather to refer back to one's self in a circuitous manner, to ultimately *enter or reveal* the intended matter. Hence, revelation is the other side of detours; in other words, detouring is required to truly reveal a matter. A detour may appear to lead one into the distance, but its true objective is to refer back to one's self. Detour has a profound sense of process, but as it is a process of change, it does not include any processes that may have an *inevitable result*. In other words, detour is a process without a predetermined destination, but rather it progresses with change to ultimately bring about entry. Jullien (2000) is of the opinion that detours possess the ability to progress and connect; therefore, detours possess profundity, broadness, and inclusivity, and provide the possibility for entry and revelation.

Looking back at ODAs, the works are performed indirectly through others, and gradually come to life through a long and winding road to finally reveal the work itself. In other words, ODAs also reveal and bring themselves into reality through detours. Detours create distance between things; through this distance, which is in-between the work and the external is drawn out. The distance that is being referred to here is not a physically measurable distance, but rather the point of focus. As the data imported into ODAs vary greatly, it is as though these data have passed through various channels, and each of these different channels could bring in different kinds of texts. Every bit of information maintains a certain connection to the work, from one piece of information to the next.

The work is a direct reflection of whatever the data happens to be, and the data that exists within the work will determine the content of the work. Once the data has been linked into the work, there is no longer any distinction between the internal and external; at that very moment, the work and external data are unified as one. The links with the work form the relationships of ODAs, and also

that which is *in-between* the work and the external texts. During the period in which the ODA work is being performed, it continually presents itself through that which is *in-between* the external data and the work. These relationship between the two entities could be seen as the product of ODAs, as these relationships were created from the operation of the ODA's programs. Amongst the multitude of moments within the work, these relationships between the work and external data are weaved by the continued operation of the work.

The narration frequency of ODAs are not always the same, as some of the ODAs will continually update their data at specific intervals according to the settings of their programs, while others will continuously collect data without pause, and the state in which each text is imported into the work and that of the narration also have limitless variations. Therefore, each update of the data will cause the relationships between the external data and the work to change continuously. Furthermore, the process of these continual changes and corrections will continuously reveal the different aspects and faces of the work's content; therefore, a sense of self-renewal is also implicit in these works. As the external data changes, different relationships are continually created and go on to create different *in-betweens*. Some of these relationships are visible and traceable collaborative constructions, such as the drawn lines in *Swarmsketch* (Edmunds 2005); some relationships are only temporarily visible, such as those in *Collabyrinth* (Deck 2003); other relationships are very faint and barely noticeable, like in *Color Code* (Wattenberg 2005), where every color block is averaged from the colors of a multitude of images, making it hard to sense the connections between each color block and the original images. These relationships are the foundations of the work that continuously support the creation of an ODA, as ODAs are based on relationships. Since an ODA's program will continuously update its data, these *in-betweens* are constantly in flux, and the work is consequently framed within these dynamic relationships.

The ODA artist determines the settings of the ODA's computer program, while the program determines the creation of the work's content through retrieval operations; an ODA is only able to reveal the self of the work through a detour mode of action, through others. ODAs are not limited by fixed content and continually update themselves; each appearance of the work is simply another link in an endless chain. As a consequence, the viewing of an ODA is in actuality a process of sensing the "becoming" of a work.

4.2. In-Between That Which Is Shown and That Which Is Not

"Every actualization constitutes a limitation, for it excludes all other becoming" (Jullien 2004a, p. 42). Therefore, any realized matter will become fixed and restricted. Conversely, that hidden and unfinished state prior to realization possesses potential as it has not been restrained, and is free to move in any direction of change. If a work with a visually fixed appearance is the epitome of solidity, then an ODA is a work that is loose and unbound with gaps that still remain; it is through these gaps that an ODA gradually seeps through and makes itself known.

If a visual image is absolutely complete, then one should able to obtain satisfaction through a single glance of the image. Conversely, an incomplete image leaves gaps that are to be filled by the imagination; visual images or data that have not yet been shown by the program lie in a state of uncertainty and remain in continued development, and are thus shrouded in mystery and hidden promise. This subtle state of *not yet appearing* conceals possibilities for visual development and the viewer's imagination. Thus, this state is able to contain change, and possesses the potential for development. The subtlety of the not-yet-appearing state is transformed into a real experience and an apparent fact when it is finally revealed through visualization. This is about a change in view; between every update, in its not-yet-loaded state, the ODA creates a moment of pause and expectation. Analogous to breathing, the import of content is akin to inhalation, while the release of content and the addition of gaps are akin to exhalation; that state in which content has yet to be imported into the work is much like the transition between breaths, which can be brief or extended in time.

It is the states of *appearance*, *not yet appearing*, and *expectancy* of ODAs that makes them highly compelling as artworks. In particular, the concealment and appearance of the external data of retrieval ODAs implies a realization and denial of visualization, as well as the entrance and departure of the authors of the external texts. External texts and the authors of these external texts continually enter the work according to the program's frequency of retrieval; these are presented within the retrieval ODA's perspective, thus becoming integrated in the work. These may become unlinked by the program, or deleted by the authors of the original text, thus departing from the work. This process of entering and departing continues to proceed until the program has announced its end.

Appearance and *not yet appearing* are two moments that are acutely dependent on each other and are bound to one another, and thus they cannot exist independent of each other. The state of *not yet appearing* acts as a prequel that constructs the common roots of the work, founded in that which is not visible; a multitude of changes are thus developed. Any moment realized in the work is a process that is created from the interactions between these two entities; no moment is able to exist independently of these as they are always present and persisting within the work. The alternating appearance of these two moments are due to the operation of the internal existential logics of these two entities, which proceed according to the rhythm that is set by the program. This forms the tension of the work, and enriches the entirety of the ODA. ODAs retain this unique meaning through the continuous renewal of tension, and discover themselves through this continued tension. The depth of the work comes from its innate elasticity that enables it to appear or conceal itself in a timely manner. Through its appearance or the state of *not yet appearing*, an ODA is always poised to change.

The moment just before an update is imminent signifies a visual change, a renewal of the data, and the departure of the external data, with the voices of the original authors concealed within. This is immediately followed by the wait for the clarity that comes from the next moment. By developing further in this direction, the imperceptible is once again captured and converted into the perceptible. The ODA at this moment serves as an intermediary that captures the imperceptible (distant texts) through the perceptible (the frame of the ODA work) to allow for viewers to perceive the existence of things that are distant. ODAs are not simply limited to the visual; instead, they open up the world using the internet as a channel to bring in different feelings. "Dynamism" is thus generated through change, and feelings are sparked through "dynamism".

An ODA is completed only after the processes of change of its various moments have ended. An ODA expresses itself through change. The uncertainty presented by change progressively reveals the self of the work and leads to the origins of the work. In summary, change is one of the necessary factors of an ODA, and it is the driving force that drives the concealment and uncertainty between *appearance* and the state of *not yet appearing*.

4.3. Different Types of In-Between

The in-between of an ODA may refer to the contents between the two or more entities that are formed by the work and the multitude of externalities; a certain kind of distance exists within this *in-between*. Other than the meanings of distance and opposing points, the *in-between* of an ODA also has other different meanings: "between two extremes" and "entre immanent". "Between two extremes" was explained by Jullien (2003) as that which is in-between two things, but is in reality empty and a dynamic form of alternation (Lin 2009, p. 65). The translation or unlinking of the inputs from participants or external texts is an alternation between the ODA and the participants/external texts, thus being a movement "between two extremes". The linking or unlinking of the external data forms a moving and unstable relationship. When the external data is linked, it transforms itself into another entity. Once the external data is unlinked, the movement "between two extremes" shifts again, and so do the meanings of the external data, all back to their own original place. The data aggregation of ODA is a developmental process.

"Entre immanent" refers to the voids and gaps that exist in all things, which is to say that all things are incomplete in some way and exist in a type of intermediate state, implying that all things

have a certain internal fluidity (Lin 2009, p. 65). These gaps sustain fluidity and conceal the possibility for movement. ODAs are inherently full of gaps that are waiting to be filled by external data to fulfill the work. Hence, if one treats the external text as the original text, then the existence between the external text and the ODA work is "that between two extremes"; the external data becomes a part of the work after it has entered the work, thus filling the gaps in the ODA work. After a multitude of external texts have entered the ODA and become converted into a part of the ODA work, the relationships between the ODA work and the converted text then becomes "entre immanent". As the meanings of the converted external texts change in meaning due to intertextualization, the external texts also form a relationship of "entre immanent" with each other. The collection of data thus causes unstable relationships between texts, as the entry and departure of external texts causes numerous changes in the meaning of the texts. Furthermore, as the collection and release of external data occurs continually, the structure of the work itself is consequently dynamic and ever-changing. The collection and release of information that creates this dynamic alternation is the key factor that creates the dynamic characteristics of ODA works.

4.4. In-Between the "Here" and "There"

Our journey from the *in-between* has formed uninterruptible and unstoppable loops, one after another, that transcend the boundaries between cultural products and artistic products. The important point to take away is that ODA works may either be a temporary shelter or an eternal home for these external texts that are being circulated through various contexts. In summary, the *in-between* that connects external texts with ODA works is virtual and constantly in flux.

As ODAs are a type of work that communicates with the external, to understand ODAs, it is necessary to understand the processes through which these works are regulated. In an ODA, the original contexts of the external texts are not superfluous; rather, this is where a portion of the meaning lies. Furthermore, ODA works are indicative by nature, and one will always be allowed to remain within the narration of these works. Within this categorization of artworks, detours (indirect expression through others) and revelations (to express oneself) exist simultaneously: the import of external data and limitless renewals is a detour to express one's self; within these detours, one also finds entry and departure.

The implementation of ODA works is performed through detours. Through the detours of others, an ODA allows for everything to remain in flux, reflects on the issues of art through undetermined modes of thought, and enables the work itself to remain in a state of limitless renewal. The special character and uncertainty that comes from having content that is "waiting to be filled" forms that which is imaginary, obscured and concealed, as well as that which is real, exposed, and open of ODAs; these also form the operational mechanism of the work itself. Although ODA works only appear to provide a frame, without any active behaviors or expressions, they constantly change, create, and express themselves over time. The viewer is thus able to "follow the real in the tension of its constant advent" (Jullien 2000, p. 348).

Admittedly, there are many *in-betweens* in the detouring execution of an ODA, such as that between the others and the work, the various others, the imported external texts and the original contexts of the texts, and the perceptible and the imperceptible. ODAs also have different kinds of in-between, such as "that between two entities", "that between two extremes", and "entre immanent". These *in-betweens* are indicative of the different levels and modes of participation. Further, these *in-betweens* may have come about by accident, and these may also be concealed. In short, until the program of an ODA has announced its end, an ODA will continually appear or disappear within the realm of the in-between.

5. Conclusions

An ODA work has no concept of permanence or stillness, and itself is a continual and developmental process. One may clearly perceive changes in the meaning of the texts and the

relationships between the work and others by reflecting on ODAs through the *between*. In this case, the *between* highlights a form of mutuality and an alternation between "being and nothingness" that allows for tangibles to reach an inner state of being where no divisions remain, or for those that have attained shape to return to obscurity (Lin 2009). As one considers ODAs through the notion of in-between, it is found that ODAs *indirectly* express the *here* through *here* via the creations of others; the continual updating of external texts to express the work's self also forms a multitude of *in-betweens* between the work and the external data, in the form of connections that are both perceptible and imperceptible. However, as these connections between the work and the external continuously change, these *in-betweens* cause the ODA to continually and indefinitely appear or disappear within the in-between, during the period in which the ODA work is being performed. ODAs are always *within* and *with* all things. From the interleaved traces left behind by the notions of the others, detours, and "bringing distant matters close by", it is shown that ODAs have transcended the barriers of distance through technology, and express themselves through their encounters with the world.

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