DIGITAL MONKEYS: HOW AN INTERNET-BASED PERFORMANCE CAN REFLECT THE DEVELOPMENT OF RULES IN SOCIETY

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ABSTRACT

This paper explores the idea that audience interaction in improvised performance can challenge and, in turn, change the way that audience members understand relationships and structures in society. I propose that it is the visceral experience of simulated social relations during a performance that facilitates this reframing in the audience. This concept is examined with regards to *Digital Monkeys*, an internet-based, audience-interactive improvisation that aims to achieve this very goal. Specifically, *Digital Monkeys* aims to expose the subjective and flexible nature of rules in various aspects of life and educate audiences on the role that individual motivation and interaction between different parties has in determining the development of a set of rules. This paper also looks at how the various means of interaction in *Digital Monkeys* support or hinder the achievement of its goal and evaluates the impact that the internet has on its success in this regard.

1. INTRODUCTION

Group improvisation is inherently social. It necessarily involves performers interacting with and relating to each other in various ways. As a result, many have attempted to claim that the nature of the interactions and relationships during an improvisation can represent different ideologies and that this, in turn, can have real-world consequences. In free improvisation, for example, there are no pre-determined goals, processes, or hierarchies directing the performance, and as a result, performers have to figure out ways of reconciling their individual approaches to music-making to produce a collectively created performance. In jazz, performers are constrained by various stylistic conventions, yet, within those conventions, there is plenty of room for personal expression.

Many scholars, practitioners, and philosophers claim that the co-operative and democratic performer relationships of jazz and free improvisation can impact wider society and promote positive social change (Gooley 2016; Bailey 1992). A quote by Wynton Marsalis sums up this idea nicely: "Through improvisation, jazz teaches you about yourself. And through swing, it teaches you that other people are individuals too. It teaches you how to coordinate with them" (Holley 2016). However, many critics have raised issues with claims such as these, citing an over-idealisation of the microsociality of the performance and a lack of consideration for how the sociality of the performance connects to broader social relations. (Born 2017; Gooley 2016). Additionally, many social relations external to the performance can contradict the claimed ideals, such as the controlling nature of some bandleaders of improvised music and the institutionalised sexism of jazz (Monson 2017; Mercer 2017; Hagberg 2006). Does this mean that we should stop trying to use improvisation to change society though? I don't think so. The issue is not that improvised music can't change society, it is that the process of change should be better supported wth evidence.

One way of providing this evidence is to more explicitly describe how the improvisation affects the wider world and what that effect is. As one example, in *The Fierce Urgency of Now: Improvisation, Rights, and the Ethic of Cocreation* Fischlin, Heble, and Lipsitz argue that the improvisational and flexible nature of street parades in New Orleans call communities "into being", and, through participation, teach the people in these parades to "anticipate dialogue and participate in it" and "blend sameness and difference" (2013). The book goes on to discuss how the binding of the community through improvisational parades provided solidarity for African Americans in New Orleans and how the ideals imparted on the black community through participation in this improvised musicking were applied to their political activism and even their very survival (Fischlin, Heble, and Lipsitz 2013). In this account, the authors do not simply identify the principles inherent in the performer relations of the improvisation, they explain the mechanisms (namely unifying the community and imparting ideals through a participatory experience) through which the relations of the improvisation connect to and affect wider society.

The approach proposed in this paper is to include the audience in the microsociality of the performance to, in turn, facilitate a transformative experience that changes the way these participants interact with society after the performance. This transformative experience provides the mechanism through which the relationships of the improvisation can impact social relations in the real world. This concept will be explored by examining my work, *Digital Monkeys*, and by discussing the role that

the audience interaction has in achieving the goal of a transformative experience that leads to positive social change. Further, because the debut performance of *Digital Monkeys* occurred over live-stream, the effect that the internet had on these social change intentions will be evaluated.

2. MODELLING RULE-MAKING IN DIGITAL MONKEYS

Digital Monkeys is a group improvisation for performers of any discipline and an audience. The first performance of the work was on the 4th of August 2018 via Facebook live stream on my personal Facebook account, with every performer in this case being a musician. Over the lifetime of the stream there was one hundred and thirty-eight views. Viewers of the stream interacted with performers by typing instructions into a shared Google Docs document. Unfortunately, the anonymity of editing on Google Docs means there is no way to check how many people actually contributed to the document, and therefore how many people actively participated. *Digital Monkeys* has been performed two additional times, once on the 21st of September 2018 at the Red Rattler, Sydney, Australia and again on the 28th of September 2018 as part of the This is Not Art festival in Newcastle, Australia. Both of these performances involved participants writing rules in person and not over the internet however. As a result, the two later performances

The goal of *Digital Monkeys* is to, through the ways that the audience members relate to the performers and each other, provide an experience where the audience comes to understand that rules in the real world are subjective and flexible and are the result of individual motivations in dialogue with the effects of these rules on the society they are governing. To achieve this, *Digital Monkeys* simulates the way that rules are created and evolve in the real world. *Digital* Monkeys is inspired by Peter Suber's Nomic, a game published in 1982 which models the way that laws are created and develop throughout time in the American legal system (Suber 1990).

The law, like any social institution, is an accumulation of decisions made by various people across time (Cook et al. 2015; 5-9; Friedman 1975; Sawyer 2005). In countries that follow common law, such as America, England, and Australia, laws are determined by the precedent set by the results of previous court cases and by legislation created by government bodies (Cook et al. 2015; Suber 1990). As new conflicts are brought up in courts, the decisions of previous court cases are reinterpreted and new decisions are made as appropriate for the time (Cook et al. 2015). Simultaneously, the government constantly creates and amends laws through legislation based on a variety of factors motivating the politicians at that time (Cook et al. 2015). The specific change made in any of these instances is often the result of multiple interactions between multiple people all across society. Whilst a specific judge, jury, or legislator is generally credited when a law is changed, the actual decision tends to be influenced by debate amongst the

rule makers, pressure from society, the rule maker's personal ideals, and many other factors.

Nomic captures both this process of constant amendment to previous rules and the fact that these decisions are the result of multiple interactions. When it is a player's turn, they can: enact a new rule, repeal a previous rule, amend a previous rule, repeal or amend a previous amendment to a rule, or change an immutable rule into a mutable rule. Immutable rules, in the context of the game, are those that cannot be amended or repealed. These rules were designed by Suber to be analogous to the long-standing and fundamental rules often used by governments to ensure consistency and continuity with how their country is run, a country's constitution or a company's charter being examples of this (Suber 1990; Hatakeyama and Hashimoto 2009). After proposing a rule change in Nomic, every player must vote on whether to implement it or not. If the vote is unanimous, this change is put into effect and written down. However, all of these rules can be changed during gameplay. For example, there is no reason why the rules cannot be changed so that one person determines every decision and many sets of player interactions exist that could lead to this result. Maybe this individual was able to show everyone that they create the most interesting rules, so everyone agreed to put them in charge, or maybe the group agreed to base rule changes on majority votes, and this person obtained majority support.

The point is that the rules of the game can be vastly different from one point in time to another, and the specific way these rules change is based on the virtually infinite number of ways that the players interact. This process of rules being proposed, accepted or denied, and then constantly built upon is what I aim to make audiences aware of in *Digital Monkeys*. It should also be noted that the law is not the only set of rules that follow this model. Social norms, company policies, and many other rules in society also follow this model in their own ways.

Digital Monkeys follows a model similar to Nomic, but simplified. During a performance, the audience is given the following instructions:

> You will be defining a variety of rules for our performers.
> You can choose any rule you wish. It may be as simple as "everyone play fast" or as complicated as "the trumpeter must always be louder, but lower in pitch than the guitar".
> Adding a new rule, removing an old rule, or changing an existing rule counts as a single "action".
> Once you take an "action" you must wait until someone else takes an action before you can go again. You cannot make two actions in a row.
> This way, the audience must work as a collective to direct the performance.
> Please try to be specific. If no performer is specified then we will assume you mean

everyone, e.g. "play fast" will be interpreted as "everyone play fast".

Like Nomic, the audience works as a group to define a set of rules, but unlike Nomic, the group does not discuss or vote on whether a change to the ruleset should be made. Instead, changes are enacted without contest, and the person who enacts that change must wait for someone else to take their turn before they can go again. This change was chosen for a few reasons. For one, forcing multiple anonymous people to debate the details of a rule change via text chat is highly impractical and would massively slow the pace of the performance. It also makes it more difficult for participants to join the performance once it has already started, as they would have to revise the previous discussion before they could contribute themselves. Finally, debating the validity of a rule change with people over the internet is likely to be a less enjoyable experience than simply making the change and seeing the results happen. Levels of enjoyment, a sense of personal agency, learnability, and the speed with which a participant's input is represented in the music are all factors that can affect audience engagement (Wu et al. 2017; Graham 1997), and a slowly changing ruleset would disrupt the work's ability to demonstrate how rules develop over time. As a result, having edits to the rules be enacted instantly without contest was determined to be the optimal approach.

The design of the rules also impacts the social dynamics of the audience. Because participants can only make one action before someone else edits the rules, a single individual cannot be responsible for every rule in the set. This limitation is integral for realising the goal of demonstrating that rules are created by groups of people across time and encourages a variety of possible interactions amongst the audience members. Whilst making participants discuss changes would force a democratic power structure, the current approach allows for many social structures to organically develop. A forceful individual could continue to make changes to the rules as soon as it is available to them for example, evoking a dictator-like relationship to the rest of the audience, or participants could work together to reinforce their allies rules whilst removing their opponents, resulting in the development of "factions". Beyond simply maximising audience engagement, allowing participants to instantly change the ruleset capture the way that rules, and the power structures influencing how those rules are made, can change over time.

Another significant point of departure from Nomic is the absence of a clear hierarchy for the rules. In Nomic, rules are classed as "mutable" or "immutable". Immutable rules govern the fundamentals of how the game is played and how mutable rules are created, amended, or removed, whilst mutable rules are more general rules defining the surface-level gameplay. Immutable rules are more difficult to change as players must first expend a turn and change them to mutable before they can be freely altered. Aside from this, if an immutable rule and a mutable rule contradict each other,

the immutable rule is given priority (Suber 1990). The hierarchical priority given to immutable rules is analogous to constitutional laws in the United States, which require a much more difficult procedure to make amendments to them (Suber 1990). In both Nomic and the United States, these immutable rules make it easier to resolve conflicts when the ruleset contradicts itself, and they help sustain the identity of the entity they are governing (whether that be the U.S. or a game of Nomic; Hatakeyama and Hashimoto 2009). *Digital Monkeys* still technically has a hierarchical ruleset, it is just not made explicit during gameplay. The instructions that I give to the audience, for example, are a set of immutable rules. These instructions define what participants can and cannot do and give the performance a consistent identity (i.e. that it is *Digital Monkeys*). Like in Nomic and the real-world though, these rules are not truly unbreakable. In the August 4th performance, for example, participants were initially fairly hesitant to participate. Only one person was adding rules, and, because of the lack of interaction from other participants, this person decided to consecutively edit the ruleset despite the instruction to "wait until someone else takes an action before you can go again". This example demonstrates that whilst not an explicit part of the piece, *Digital Monkeys* still models, to some degree, the hierarchical nature of rules in the real world.

In addition to modelling the process of rule-making and the hierarchical nature of certain rules, *Digital Monkeys* also demonstrates that there are various factors influencing why rule makers make their decisions. One of these factors is the interaction between the rule makers and the society that they are affecting. Consider this; if a legislator were to introduce a new law, say tougher punishments for drug users, it will have a perceivable impact on society. This impact might be higher incarceration rates, increased expenditure from the police department, or some other change to society. Legislators will decide on further changes to the law based on how much they desire these effects. A spokesperson for reducing incarceration rates may aim to repeal or amend the law, whilst someone that believes police enforcement is necessary for curbing drug use might support the law or even amend it to increase restrictions. In both cases these individuals are in a constant dialogue with the society that they are legislating for, and future rule changes are based on the effect that they are having on this society. A similar process occurs in *Digital Monkeys*. Any rule that a participant makes will have an effect on how the performers interact with each other and the music that they end up creating. Whilst one participant may enjoy the heavy metal aesthetic created by the restrictions they have put in place, another may not. One participant may enjoy seeing all the performers play in a coordinated manner, whilst another would rather the performers play with a sense of individuality. Like the legislator example, the participants and performers have a reciprocal effect on each other in *Digital Monkeys*. The performers play differently depending on what rules they are provided with, and the rule makers write rules based on the music being created by the performers.

3. TRANSFORMING PARTICIPANTS THROUGH AUDIENCE-INTERACTIVE IMPROVISATION

All of these parallels between *Digital Monkeys* and real-life rule-making are not just ways of creating an interesting audience-performer dynamic. As described at the beginning of this paper, the purpose of the work is to change the way that participants understand the world. This idea that audience participation can facilitate a transcendent experience is not something new. In HCI (human-computer interaction) research, participation is often seen as a way to impart new ideas, processes, and lenses onto the audience (Vines et al. 2013). Including the audience in improvisatory, acted scenarios is one approach companies use to teach employees new practices and thought processes in their work life (Friis and Larsen 2006). *Digital Monkeys* and, I propose, any improvisation that features the audience as a significant contributor to the performance, can function in the same way. I argue that experiencing the novel social relations simulated in these improvisations can challenge, and inevitably change, the audience's thinking about social relations in the real world. In the case of *Digital Monkeys*, participants can compare their experience of making rules for improvised performers to the way laws or policies are created in real life. They may see how much the rules of the performance changed in such as short amount of time and realise that the rules governing their own life are just as temporary. Perhaps their desired outcome for the performers was not shared by the other rule makers and required compromise, a quality the participant now more easily notices with their country's legislators and policymakers. Maybe a rule the participant created resulted in an unintended consequence for the aesthetics the performers are now creating and further action was required to amend this. There are many possible realisations that a participant may have from their experience with *Digital Monkeys*, the point is that the interactive experience provided by the work critiques their understanding of the world and, therefore, facilitates these realisations.

It is important to note though that there needs to be more empirical research to accurately assess the effectiveness of using audience interaction to facilitate a transformative experience. There is evidence to suggest that audience-interactive experiences are more engaging for audiences (Wu et al. 2017) and allow the memory of the performance to be retained for at least six months after their time with the work (Graham 1997), however, there are few studies I could find assessing the effectiveness with which interactive experiences can reconfigure the audience's understanding of the world. There is, however, a great deal of literature examining interaction in general. *Interactive Experience in the Digital Age: Evaluating New Practice,* edited by Linda Candy and Sam Ferguson outlines a variety of evaluation methods in the field of HCI. Most chapters focus on how participants interact with the work and each other during participatory computer-based artwork, and, whilst we are not explicitly discussing human-computer interaction, many of the findings and theories of the book are still applicable to human to human interaction. Because the

ways that participants interact with each other is vital to *Digital Monkeys* achieving its goal, to improve upon the work, it is important to discuss and evaluate the different means of interaction during a performance.

4. SHAPING AUDIENCE INTERACTION

Before discussing the different ways the work employs audience interaction, it is necessary to define the kind of audience interaction I am examining. Practitioners of audience-interactive art generally define it as art where a reciprocal exchange between the audience and the artwork is required for the final realisation of the work (Graham 1997; Edmonds, Bilda, and Muller 2009). In many musical practices, the audience will interact with the performers in some regard, such as the audience following the rhythmic cycle and audibly responding to the performers in Indian Classical Music (Wade 1979; Van Der Meer 2014), the physical movements and vocalisations of the audience in Popular Music (Shuker 2017), or the "vibe" of the crowd for DJs in nightclubs (Shuker 2017). Whilst these interactions can be considered reciprocal, the audience is not integral for realising these compositions in physical form. The audience interaction may enhance the performance both for the performer and the audience, but in these examples, the musicians could perform the music without the audience, and it would exist in more or less the same form. *Digital Monkeys*, on the other hand, does not exist without the audience interaction. The audience is necessary to create the rules for the performers, and until the audience creates a rule, the performers have nothing to play.

Aside from being necessary for the work's realisation, audience interaction is also crucial for creating the transformative experience that the work intends to create. Because the performance is an analogue for the ways rules develop and evolve throughout society, there needs to be a sufficient amount of interaction between a variety of individuals to represent this process adequately. As discussed earlier, I argue that it is by experiencing the rule-making process that the participants come to understand the flexibility and subjectivity of rules in everyday life, and without audience interaction, this experience does not happen. Beyond just reframing the audience's understanding of rules, if there is a sufficient amount of interaction between audience members, they gain a more nuanced understanding of how rule-making occurs. Qualities such as conflict between rule makers and how they resolve it, the effect of individual motivations on the process, and the live feedback between the musicians and rule makers as the performance develops are only experienced if there is enough interaction amongst the audience itself.

Maximising the amount of engaged interaction between audience members is clearly vital for the work then, and there are many examples from the literature that explore how audience members interact with both an artwork and other audience members. Through observational study, Beryl Graham (1997) found that in interactive artworks (in this case computer-based works in a

gallery), participants that came as a group tended to interact with each other and would use the works for longer than those who arrived as a group and did not interact with each other. This was found to be true, even for artworks designed for use with one person (Graham 1997). Bengler and Bryan-Kinns (2014) found similar results in their study of the *Polymetros* installation. Both of these studies concluded that group interaction frequently occurred and improved usage time, but was rarely between strangers (Graham 1997; Bengler and Bryan-Kinns 2014). A lack of interaction between strangers is limiting for achieving the goals of *Digital Monkeys*. If audience members only interact with people they know, it is not an accurate representation of rule-making in the real world and prevents some of the more nuanced understandings possible with this work.

In both the Graham and the Bengler and Bryan-Kinns studies, there were certain features of the artworks that may have caused this lack of interaction between strangers. In Graham's study, all of the works were physical objects in a gallery setting. Most of them were designed for only one person, and of the two works that were designed for multiple people, only required multiple people to interact with the same interface simultaneously (Graham 1997). *Polymetros* occurred in a gallery setting and employed various individual interfaces that interact with each other as opposed to a single shared interface (Bengler and Bryan-Kinns 2014). Whether it be headphones closing participants off from their auditory surroundings (Graham 1997), a monitor that's size is only appropriate for individual viewing (Graham 1997), or an interface where use by more than one person is redundant (Graham 1997; Bengler and Bryan-Kinns 2014), the design of these artworks discourage inter-audience interaction.

On the other hand, in the live-streamed performance of *Digital Monkeys,* the audience interacted with the performers via the internet instead of a common physical space. Each participant edited a mutually accessible Google Docs document hosted on the internet, with all changes to the document occurring in real time. Unlike the individual interfaces of the studies, Google Docs forces the participants to interact with each other, as, any time an individual makes a change, it instantly changes everyone's interface. The performance's lack of physicality means that, unlike Graham and Barthet and Bryan-Kinns examples, the participants must interact with each other within the shared virtual space.

In addition to the shared virtual space that strongly encourages participant interaction, the anonymity of these interactions promotes interaction between strangers. Because of the way Google Docs works, unless the participant is signed into their Google account and on my contacts list, they are assigned a consistent, randomly-generated alias made up of the word anonymous and the name of a random animal (e.g. "anonymous alligator"; Google). Whilst it is not possible to see which user made which change after the fact, Google Docs does provide a visual cue as to the user's alias as they are making changes to the ruleset (i.e. as

they are typing). Unless audience members are physically co-located or are communicating with each other through channels separate from the performance, it is unlikely that participants will know the true identity of the other participants, and therefore, are unable to differentiate between their friends and a stranger. As a demonstration of this, during the performance, one of the participants assumed that another participant who kept contradicting their own rules was one of their friends (as indicated by a message they left referring to their friend by name). In fact, the person was a total stranger.

The alias provided by Google Docs is also beneficial beyond encouraging interaction amongst strangers. In their study of how participants interact with one another in digitally-mediated public art, Bryan-Kinns (2014) found that giving participants identities and making those identities clear to the other participants improved mutual engagement; mutual engagement being when the participant is engaging "with both the collective artwork *and* the other people who are engaging with the work" (emphasis original). In *Digital Monkeys*, Google Docs does this by keeping the participant's real identities anonymous but assigning them the aforementioned "anonymous animal" pseudonym. Another finding from Bryan-Kinns (2014) is that the ability for participants to communicate outside of just the music they are creating enhanced mutual engagement.

Whilst not explicitly encouraged in *Digital Monkeys*, participants can write anything into the shared Google Docs document, and therefore are able to write messages to each other that are not actual rules. In the initial performance of *Digital Monkeys*, some examples are a participant telling another to stop contradicting their own rules, a participant exclaiming in celebration over a rule they made, or me sending messages to the viewers encouraging them to post more rules. By ensuring that participants understand when they are interacting with the same person and allowing the participants to communicate with each other in non-abstract ways, they can form more complicated relationships with the other participants and are able to interact with each in more profound ways. This ability for the participants to experience a variety of nuanced interactions is necessary for achieving the goals of the work, and so allowing participants to have stable identities and providing means of communication outside the direct method of interaction in the performance enhances the effectiveness with which *Digital Monkeys* achieves its goals.

Making participants interact with the work via a shared space, using anonymous, consistent aliases, and providing channels of communication external to the primary means of interaction within the work are not features exclusive to internet-based art, but they are things that are better and more easily implemented because the work occurs via the internet. The low likelihood that participants interacting via the internet are all also in the same physical space allows for anonymity, and the specific way that people typically use the internet (via a visual display on a computer, phone, or other device) encourages the sharing of virtual space

and provides both easy cues for signifying consistent identities and additional means of communication. However, there are also disadvantages to the internet-based nature of the performance. In a typical performance situation, where the performers and audience are physically co-located, there are various temporary conventions and social norms that people are expected to follow. Not talking when the musicians are playing and clapping once a piece has finished are two examples of this. One of these conventions is the increased authority given to performers for the duration of a performance. Think of the singer of a heavy metal band initiating a mosh pit in the crowd or a rock singer asking the audience to clap along during an a cappella section. In performances that feature audience interaction, this temporary authority is essential as it allows the performers to override other social conventions that would otherwise inhibit or prevent effective audience interaction. A common example of this is a performer allowing the audience to break the conventional boundary between the audience space (the seating) and the performer space (the stage), such as a magician calling an audience member onto the stage to assist with a trick.

In the August 4th performance of *Digital Monkeys*, the temporary authority usually afforded to a performer was significantly reduced. Despite amassing a total of one-hundred and thirty-eight views over the life of the stream, only about five or so different users were compelled by my encouragement to participate in the rule-making. Further, twice during the performance, I needed to encourage the participants to provide more input due to inactivity. In contrast, subsequent performances of the work, which occurred in person, had the majority of the audience actively participating by writing their own rules. In addition, there was no point in either of the two physical performances where I needed to coax or encourage more participation. The lack of participation during the live-streamed event was likely due to the fact that I did not have a physical presence during the performance. I could only coax participants through text-based comments, and this places little social pressure on the audience to engage with the work.

5. OTHER IMPACTS OF INTERNET-BASED PERFORMANCE

The internet-based nature of the work also affects other aspects of the performance aside from just audience-interaction. The ability for people to access the stream from any physical location with internet access for free increases the potential viewership of the work. As discussed previously though, this ease of access does not necessarily mean all viewers will actually interact with the performers. The variability of the performance's aesthetic means that, depending on the audience-input, the performance could be entirely mainstream or hyper-niche. In the August 4th performance, the musical styles ranged from Latin to punk to dissonant atonality. This multitude of possible aesthetics means that whilst the performance can reach a wider audience because of the internet, these viewers may not interact with the performers or even continue watching the performance for a sustained period of time.

Another factor that could be preventing audience members from interacting with performers is the learning curve associated with participating. Previous explorations of audience-interactive musical performances found that the learning curve of an interactive technology can inhibit audience engagement, especially if participants are not given time to practice the process of interaction (Wu et al. 2017). In *Digital Monkeys*, the learning curve for the rule-making process is quite short, as it is only a two-step procedure (you make an edit and then wait for someone else to do the same) and there are only a few simple restrictions on how participants edit the rules. Although the process itself is relatively simple, based on the initial performance, there was still a learning curve concerning the creation of rules worthy of contribution. In the comments for the live stream, both musicians and non-musicians commented that they could not think of a rule to write. This was reported by both musically trained and non-musically trained participants.

Initial assumptions might be that non-musicians find it harder to write rules, as they have a limited set of terms they can use in crafting their rules. However, in all three performances so far, there was a trend amongst non-musicians (and even the trained musicians) to use visual metaphors as instructions for the performers. Whilst many rules contained specific musical instructions or references to musical styles, (e.g. "…move to a time signature of 13/16" or "…attempt to have a low microtonal trill on the double bass…"), the majority of rules invoked a visual image for performers to respond to, such as "think about swallows flying", "unknown tentacles are pulling [yo]u under", and "imagine you're in an African safari". In all three performances, the use of this imagery by one person would not only inspire others to use the same tactic, but it also inspired more participation in general.

The idea that non-musicians might have trouble participating in the work is undesirable, not just because it reduces the number of people actively participating in the piece (and therefore reducing the work's potential impact on society), but also because it reduces the diversity of perspectives and understandings amongst the participants. Vines et al. (2013) note that an issue with interactive technology and interactive experiences is that, often, the specific means of interaction are designed in a way that is appropriate for demographics that are already likely to use that particular service. In the case of *Digital Monkeys*, this would be the nature of interaction in the work encouraging trained musicians to participate with the work and excluding those with little musical knowledge. In practice though, the use of visual metaphors gave non-musicians and even trained musicians a common language they could use to communicate with the performers, alleviating much of the performance's learning curve. This better maintains the work's goal of reflecting real-world rule-making and facilitates the possible experiences participants can have

in regards to how rule-makers navigate conflicting perspectives and understandings.

The negative impact of the inaccessible musical aesthetics and difficulty for non-musically trained participants are intensified by internet viewership's casual nature. When viewing a performance in a concert hall, gallery, theatre, or other physical setting, leaving, especially in the middle of a performance, is generally in violation of a variety of unspoken social norms. Further, leaving requires some physical effort, and often the process of leaving disturbs other nearby audience members. On the internet, however, the usual social pressures are reduced because of a lack of physical presence. Leaving is as easy as clicking on something else, and doing so does not inhibit anyone else's viewing experience. Because of this viewing experience, if the audience member is turned off by displeasing aesthetics or has difficulty thinking of a rule they are much more likely to just stop watching and therefore not interact with the performers at all. To maintain as much audience attention as possible (and therefore increase the likelihood of interaction), a more accessible and instantly gratifying approach might be preferable for internet-based performance. The work does this to a degree in that the rules are short and simple and interacting require little physical effort. The issue is that interacting in *Digital Monkeys* requires mental effort and a sufficient time commitment, two things that are incongruent with the way people generally use the internet.

These discussions demonstrate the impact that the context of and specific means with which audience members interact with the performers and each other can have. As shown, the use of the internet to connect the various parties involved in the performance can promote more interaction and increase the mutual engagement of these interactions by giving participants consistent, anonymous identities, allowing them to easily communicate with each other via channels external to the performance itself, forcing participants to interact with each other via a shared interface, and making the performance accessible to anyone with an internet connection. Whilst the internet-based medium shows benefits for interaction between participants, it also, however, can decrease the number of people who go from being a viewer to a participant. I argue that this is because of a reduction to the temporary authority usually granted to performers by social convention and the ease with which viewers can shift their attention. There are clearly benefits to internet-based performance, but it seems to depend on the work being performed. For *Digital Monkeys*, the internet-based nature of the performance affected how the participants interacted with each other in a way that better helped it achieve its goals. At the same time though, it seemed to inhibit the number of people who actually engaged with the performance in the first place.

6. CONCLUSION

Digital Monkeys suggests one way of overcoming the critique that the microsociality of an improvised performance does not necessarily impact the wider social relations and institutions that performance is tied to. It does this by using audience interaction to provide an experience that transforms the participant's understanding of the process and nature of rule-making in various aspects of society. For one person this might be realising that a law that they consider unjust is not fixed and that they can take action to change that rule. For someone else, it might be realising the impact that conflict between rule-makers has on the rules that are finally created. I have argued that these realisations are a result of the experience that the audience has during the performance, and so the way that the performance is conducted plays a significant role in how effectively the participants' views are transformed. *Digital Monkeys*' internet-based performance had both advantages and disadvantages, and my analysis of the internet's role in the performance suggests that the impact of the internet will depend on the type of work being performed and the goals it is trying to achieve.

Nevertheless, the work demonstrates the potential that audience-interaction and internet-based performance has for facilitating transformative experiences in audience members. In the future, more work can be done to empirically evaluate the effectiveness with which audience-interaction in works like *Digital Monkeys* facilitates this transformation. This of course can only occur if more artists experiment with using audience interaction for this purpose. Many social issues are well-suited to this kind of improvisatory performance, and looking at the successes and failures of this particular performance of the *Digital Monkeys* can assist these future explorations in most effectively reframing the audience's understanding of these social issues.

7. REFERENCES

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