

The Politics of Laptop Ensembles: A Survey of 160 Laptop Ensembles and their Organisational Structures

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ABSTRACT

This paper reports the results of an online survey of 160 laptop ensembles and the relative democracy of their organisational and social structures. For the purposes of this research a laptop ensemble is defined as a performing group of three or more musicians for whom the laptop is the main sound generating source and who typically perform together in the same room. The concept of democracy (i.e. governance by members of the group) has been used as a starting point to assess what types of organisational structures are currently used in laptop ensembles. To assess this we recorded a number of data points including ensemble size, whether the group has a director or conductor, use of homogenous vs. heterogenous hardware and software, whether they perform composed pieces or mainly improvise, the types network interaction and whether or not the ensemble has an academic affiliation. The survey suggested defining a scale of democracy in laptop ensembles and typical features of the most and least democratic groups. Some examples are given of democratic and autocratic activity in existing laptop ensembles. This work is part of a larger scale project investigating the effect of social structures on the musical output of laptop ensembles.

Keywords

laptop ensembles, democracy

1. INTRODUCTION

The explosion of network based communications in our society has had a huge effect on how we communicate and interrelate, and how we form social structures. In the music world there has been much discussion in recent years about how the internet has 'democratized' the distribution of popular music once monopolized by the record labels. With a greater ability to communicate and exchange thoughts and ideas the potential for democracy is huge.

Though laptop music has been around as long as laptops themselves, the development of networked communications and the decreasing cost of electronics products has led to a rise in the number of laptop musicians forming into groups.

This study considers how members of these groups relate to one another and whether laptop ensembles are utilising the full democratic potential of network communications in their musical activities.

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2. METHODOLOGY

A survey was undertaken of 160 laptop ensembles, investigating their organisational and social structure in order to determine the level of democracy evident in such groups.

For the purposes of the survey a laptop ensemble is defined as a group of 3 or more performers for whom the laptop is the main sound generating source. This study focussed on co-located groups as theories of small group democracy focus on interpersonal interaction[10]. A small number of groups who perform telematically are included where telematicism is not aesthetically integral to their performance.

The survey was conducted primarily through a literature review and web searching for terms such as 'Laptop Orchestra' and 'Laptop Ensemble'. Although the level of searching was extensive it is not claimed to be exhaustive. However, 160 ensembles is a sufficient poll size to give an overview of the types of ensemble models that exist. The types of web resources used include ensemble websites, university webpages, online videos of performances, gig and concert listings, as well as academic publications. In some cases ensembles were contacted directly to clarify information.

Several online wikis giving listings of laptop orchestras and ensembles already exist, though none list more than around 50 ensembles[9, 20] and most have fairly incomplete information; while they were a useful starting point, most data was collected from primary sources.

Precedents for studying the organisational politics of musical groups include Bourgon et al's study of the Utrecht Jazz Orchestra which maps performer's perceived level of influence in the group[5]; Davidson and Good's study of social and musical co-ordination in a student string quartet[8]; and Murnighan and Conlon's study of the correlation between internal dynamics and success in 24 string quartets[15]. More recently Booth and Gurevich's study of the Birmingham Laptop Ensemble (BILE) considers the implications of work distribution in the group[4].

The above studies are all limited to a small number of specific groups. Performer interviews and observations are used in order to make a full analysis of group interaction. The survey conducted here is designed to give a snapshot overview of the developing laptop ensemble scene, the types of organisational structures in use and the underlying politics. It, therefore, did not include any in-depth observational analysis of specific ensembles within the context of their private rehearsals (though online documentation videos and concerts were a source), and was limited to the analysis of information available on the internet, as well as key texts; the conclusions made necessarily involve a level of deduction and generalisation.

3. DEFINITION OF DEMOCRACY

Most definitions of democracy provide a model for governance of large bodies of people. One of the more influential

academic definitions of democracy is Dahl's concept of polyarchy which stipulates eight conditions relating to voting, election rights and political parties[7]. Dahl maps these conditions in a two-dimensional grid where the X-axis relates to the inclusiveness of a regime (how participatory voting is); and the Y-axis relates to the competitiveness of the regime (whether there's a real and fair contestation for leadership and if forming of political parties is restricted or not).

The organisations Freedom House[17] and Economist Intelligence Unit[23] both rate democracy in states and have a number of criteria for measuring the level of democracy based on Dahl's model. Their definitions and extensive metrics proved useful in determining data to be collected in order to analyse the level of democracy in laptop ensembles.

While Dahl, Freedom House et al. are primarily interested in the agency of state citizens in determining the selections of elected representatives of the state, this research targets the level of agency the members of laptop groups have in determining the activities of the group and shaping the groups' performative output and musical direction. Therefore, Gastil's definition of small group democracy, that is, democracy among bodies of 3 or more people, has also been used in analysis[10]. Gastil's small group democracy is dependent on interpersonal relationships within the group and considers a group to be democratic when it has equally distributed decision making powers, inclusive membership, healthy interpersonal relationships among members, and a commitment to acting democratically which is played out in any deliberation over decision making.

Using the above models a scale was constructed with democratic laptop groups considered to be those where member have a high level of agency in determining the activities of the group. As the antithesis, autocracy is also discussed, defined as the lack of agency of members of laptop ensembles, mainly characterised through strong hierarchies and lack of social equality within groups.

4. COLLECTED DATA

In the course of surveying laptop ensembles 30 data points were collected for each ensemble including the following:

Background information: such as geographical location and the year in which the ensemble was founded. This information allows comparison across regions of relative democracy, and to draw up a timeline of laptop ensemble models.

Defining terms: How do the groups refer to themselves in self-written statements: Orchestra, Ensemble, Group, Quartet, or a 'band' type name?

Group structure: Number of members in the group, whether the members change over time, whether the group has an administrative director and/or a conductor. Are the group members undergraduate or postgraduate students, non-academic or a mixture? Is a group hierarchy evident?

Modes of performance: Whether the group performs composed, semi-composed or improvised piece or a mixture.

Affiliation: Is the group affiliated with a university or other institution, or even part of an educational course? Was the group primarily formed for pedagogical or research purposes or is it an independent collective?

Political engagement: Does the group actively engage with social politics, have a political formation, consider political implications of their structure? Do performances reflect democratic considerations? Do they have a manifesto?

Research activity: Does the group have a research output? Are members of the group contributing to the research equally, and is it possible that they could?

Network interaction: Does the group use networking technology? What type of networked interaction is there in

the ensemble performances, pieces and rehearsals?

Technology: Does the ensemble use heterogenous or homogenous hardware and software? Is any of the technology self-built or Free and Open Source Software (FLOSS)?

Qualitative information was also collected from self-published biographies on groups' motivations for forming and their level of awareness of social and organisational structure.

It was not possible to publish the full data set produced during this study within the confines of this paper, however an example of some of the data recorded is included in Table 1. The full dataset will be available online later in 2014.

5. GENERAL FINDINGS

The geographical spread of the ensembles surveyed showed a high concentration of ensembles in North America and Europe, with the USA having the highest number. There were fewer ensembles in Asia, Australasia and South America. No ensembles were found in Africa, or indeed, Antarctica.

The earliest groups recorded were The Hub and EMU ensemble - starting in 1985 and 1986 respectively[14][24] (The Hub has precursor ensembles such as the League of Automatic Composers, and such early ensembles didn't use 'laptops' but computer kits and other home computers). A number of groups formed in the 90s but the majority of ensembles were founded 2000 or later. PLOrk, who have widely been publicised as pioneering the laptop orchestra format, gave their first performance in 2006[21], leading to many ensembles conforming to similar models forming in the proceeding years. The dominant laptop ensemble model in the USA is now based on a PLOrk style ensemble.

The term 'Laptop Orchestra', however, has a number of pre-2006 precedents: Mego Laptop Orchestra (2000); Laptop Orchestra, Tokyo (2002); Helsinki Computer Orchestra (2003); Laptop Orchester, Berlin (2004). None of these ensembles, however, conform to the strongly hierarchical PLOrkian model, taking a more collective approach, with the term 'orchestra' used only as a definition of a large group, and of aspects of instrumentality.

The more frequent use of the term orchestra accompanied the increase in uptake of academic institutions in forming large laptop groups and allocating funds and research time to developing this area. The use of (often comedic) acronyms is prolific among laptop ensembles.

The range of membership size of groups surveyed ranged from 3 (the smallest number accepted in this survey) to the 200+ performer ensemble MICE (Mobile Interactive Computer Ensemble).[1] Other larger projects include the 50 piece one-off project Worldscape Laptop Orchestra[11]. Around 25 was the largest size for a group that regularly performs and rehearses. Most groups had < 10 members, with 4 and 6 member formations commonly occurring. One tripartite split would have small groups with 3-6 members, medium groups 7-12 and large groups >12 members. It seemed characteristic that smaller groups tended towards more democratic social structures and greater engagement with their own organisational structures; several smaller groups had manifestos. There was a greater tendency in larger groups towards having directors or conductors, most likely due to the need for group management in larger formations and the increasing inefficiency of trying to cater to the opinions of all members with rises in group size, however, no instances of leaders being elected by group members were recorded. The largest group with no director was Republic 111, with 15 members[12].

Most projects had been running for two or more years, however, a number of project specific ensembles were recorded as well as projects that ran for only one academic year.

Name	Country	Formed	Members	Conductor	Affiliation	Software	Network Interaction
The Hub	USA	1986	4-6	No	None	Heterogenous	Data Sharing
MIMEO	Europe	1997	8-12	No	None	Heterogenous	
MICE (Mobile Interactive Computer Ensemble)	USA	2001	ca. 194	No	University of Virginia	Homogenous	LAN Gaming Infrastructure
PB_UP	Germany	2002	3-6+	No	None	Homogenous	Code Sharing
Helsinki Computer Orchestra	Finland	2003	22	Yes	None	Heterogenous	
European Bridges Ensemble	Europe	2005	7	Yes	None	Homogenous	Yes
PLOrk	USA	2005	15+	Yes	Princeton	Homogenous	Various
L2Ork	USA	2009	10-15	Yes	Verginia Tech	Homogenous	Data Sharing
Electronic Resonance Korps	Australia	2010	8-9		None	Heterogenous	Data Sharing
Tonstor Laptop Ensemble	Switzerland	2011	4-6	No	Verein		

Table 1: Excerpts from a dataset of 160 Laptop Ensembles

The level of university affiliation was far higher among North American laptop ensembles than among European ensembles. This is probably due to a large number of American institutions funding departmental laptop ensembles, which is less frequently the case in European institutions, with only a few examples of this in the UK - such as the recently founded OxLOrk[25] - and a number of projects which were supported in their formation by PLOrk such as the Oslo Laptop Orchestra[22]. Ensembles following the PLOrk model tended to have a strong basis in pedagogy with many being part of a university course or as extra-curricular activities in music departments.

In both North America and Europe many groups were part of postgraduate or departmental research projects, often with accompanying pedagogical aims including undergraduates in the group. European groups were more often unaffiliated and had purely musical or collaborative aims.

The use of self-built hardware or open source software was found to have a weak correlation with group democracy. For example L2Ork uses the Linux operating system[16], and PLOrk has self-built speakers, though both ensembles might be placed towards the autocratic end of the scale, and the use of the commercial package Max/MSP is prevalent amongst ensembles with more democratic structures.

6. ENSEMBLE ROLES

Booth's study defines particular roles taken by members of BiLE (Birmingham Laptop Ensemble), during rehearsals and performance[4]. The functions these roles play within particular ensembles and more particularly the level of blurring between roles was found to be one indication of the level of democracy in a group, with more democratically inclined ensembles tending towards having greater blurring of roles.

Roles defined by Booth are composer, performer and designer. The composer is the director of creative activity for a given piece, the generator of initial ideas as a guide to collaborative activity. In Booth's paper the performer develops sound generating patches in response to the composers' creative ideas, however more generally the performer may have a more traditional role of patch 'operation'. The designer develops software for infrastructural or sound generating purposes. The designer as a role in itself is absent from many laptop ensembles with it changing across ensembles and even pieces where the programming responsibility lies, including with performers, composers, and directors. It seemed correlated that programming responsibility is more evenly shared when a group is more democratic.

This project would add the roles of Director and Conductor, where the director is responsible for the organisational aspects of the ensemble activity, and in some instances designating the ensemble structure and aims. The Conductor takes the traditional role of conductor in guiding a musical

performance. There was a higher prevalence of designated Directors and Conductors in more autocratic ensembles.

7. SCALE OF DEMOCRACY

In order to assess the political formation of the ensembles surveyed a simple scale is defined taking into account the definitions and metrics described above. It is useful to state characteristics associated with extreme ends of a scale to provide a context upon which to situate particular models.

Characteristics of a fully democratic group might include:

Social Formation: all members have equal opportunities to engage in decision making processes and the creative/research outputs of the group; weak divisions and blurred boundaries between the roles of composer/performer/designer; limited use of conductors and directors; where a group has a director they should be an elected representative and should engage in consultation with members of the group; social mobility within the group should be possible.

Musical Output: typically, a democratic ensemble would engage in more improvised or collaboratively composed pieces and make greater use of networked collaboration to allow greater agency of group members to influence performances. An example of a democratic performance may be a group improvisation where all players have contributed to instrument design and network interaction and sharing of data is both possible and potentially disruptive in order to break down the boundaries of ownership. Group decision-making during performance may be a possibility.

Other factors: ensemble names with less hierarchical connotations such as 'ensemble' or band-like names; no band 'uniform'; use of heterogenous software and hardware.

8. FURTHER MODELS

In the middle of the spectrum lie other groups structures such as those who orient themselves around a particular technical infrastructure, designed collaboratively or by a member of the group. Another potential central model is 'collective' style ensembles such as The Lappetities and MIMEO which have no network interaction but improvise with performer-designed instruments.

Pedagogical models typically provide a strong role differentiation in order to allow low entry levels so that, for example, an undergraduate without programming skills can still take part as a performer, while building their skills to the level of being able to design their own pieces. The strength of hierarchies and possibility of rising through the ranks differs between groups. Other pedagogical models promote strong democracy with similarly low entry levels, such as Alberto de Campo's student group Republic. Member's use the Republic network infrastructure developed by PBUP to share and modify code[18]; de Campo takes a mentoring role without defining the group activities too strongly, allowing

students a strong input into the ensemble's direction.

There are many crossovers and mixed practices - an ensemble may have pieces which are strongly improvisatory and others with strong role differentiation.

9. EXAMPLES

The Hub lies on the democratic end of the scale. Ensemble members write their own software and pieces are typically text scores providing structures for improvisation. Ensemble members typically use the score as a stimulus to design their own software or hardware instruments with which to improvise. The Hub discuss social and political motives in their writing and clearly consider political and social aims as part of their practice[6][3]. Other ensembles such as BiLE (Birmingham Laptop Ensemble) strongly affiliate themselves with The Hub style formations[4].

Another highly democratic group, PowerBooks Unplugged, perform with a self-designed network infrastructure for live coding. The members write their own software for sound generation during the performance. All code written is shared with the group making it possible to change the code of others and act disruptively[2]. Benoît and the Mandelbrot is also built upon this model of having a fixed network infrastructure as a basis for free improvisation. All members of the group have agency to fully influence the output of the musical performance[13].

This study would consider PLOrk, L2Ork and other ensembles of a similar model to lie at the autocratic end of the scale. PLOrk pieces typically define a clear boundary between performer and composer. PLOrk pieces are normally credited to one person who would have written any scores and software required to perform it. The performers are usually undergraduate students, who may be taking part in the ensemble for credit. Typically they do not have input into the instrument design but are performers in the traditional sense of interpreting the score with a pre-designed instrument[19]. In addition L2Ork uses a specific operating system and a homogeneous hardware setup.

10. CONCLUSIONS

In this paper we have taken a broad look at the models that laptop ensembles are using to organise themselves and how potentially democratic these models can be. A large data set was collected from which general characteristics of laptop ensembles were inferred. We considered the various roles taken by members of laptop ensembles and how these roles may differ in more or less democratic ensembles. A scale of democracy in laptop ensembles with their specific characteristics was defined and we took a closer look at the structures of some example ensembles.

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