

## **Interdependable: Case studies on improvisation, composition and choreography in contemporary dance**

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### **1. Abstract**

*There is a considerable history of interactive dance/music, spanning examples such as musical and dance interdependence in long-established forms such as Bharata Nattyam, Morris and tap-dancing, newer occurrences such as Meredith Monk's use of the same performers' bodies to produce the music and the movement and the oft cited Cage and Cunningham's Variations V where dancers' movements triggered score elements via sensors, and so on. In our recent practice we have been exploring the use of custom built and off-the-shelf digital musical instruments to explore a range of relationships between performative musical gesture and sonic outcome such as might be useful in facilitating musical participation by people with special needs, and in improvised musical situations (i.e. in our own performances and those of our students). Since 2011 we have created scores for pieces by the choreographer Sean Tuan John. In these we have used digital technology with a range of interfaces to explore the situation of improvising with dancers, working out rhythmic patterns in situ which aid the required dance movements, recording them and then using these as the bases of sections of the finished score. This paper is a report on that process, strengths and weaknesses we have discovered in it, and an attempt to convey where we think the work might lead us.*

*Reflecting on two case studies, a show we have just completed and premiered in October 2013, and a site-specific piece performed in a Cardiff Night-club, we will show how these two different but related projects inform our current and future practice as part of a more structured approach to collaborative composition and performance-making. Presenting data from open discussions and interviews with Sean Tuan John and dancers from Bombastic Dance Company we reflect upon experience of dancers working collaboratively within the compositional process, giving the 'other side' view of the compositional-choreographic axis. The project premiered in October 2013, 'Happiness Repeats Itself' has had us involved at the beginning of the devising and choreographic process. There will also to be follow-on projects where it is proposed that performers will be directly involved in triggering and manipulating sounds within the performance.*

## 2. Background to the project

The authors began working with Choreographer and film-maker Sean John Tuan in 2010 editing recordings of our improvisation (which were performed live in concerts) into a score for his film *Antediluvian*. We were then invited to go on and create scores for live dance pieces (*Space show* 2011, *Magic Doors* 2013, *Mr. Magic* 2012, all for Bombastic Dance, *Violence of Summer* and *Happiness Repeats Itself*, both 2013 for Sean's own company). Our concerns in fulfilling these commissions was to develop a working method that enabled us to work closely with the choreographer and his dancers in an improvisatory way, to be able to quickly create rhythmic patterns and riffs that aided the dancers in their movements and had the right rhythmic impetus or 'feel' for the movements being executed with the movement. Once these rhythmic patterns had been agreed and fixed they could be quickly captured, taken away and edited into the finished sections of the score. The advantages of working in this way were firstly, that we were working alongside the dancers and could negotiate the rhythmic bases of the finished compositions *in situ*, thus obviating the need for an iterative approach where we generated musical material and brought it into rehearsals *to see if it worked for and with the dances*, and secondly that we were able to instantly capture the agreed grooves as quite complex, clean and digital recordings that we could take away and build into more complex and satisfying musical pieces, but that the dancers could keep as reference material for Sean to choreograph and the dancers to practice to.

One of the authors, Rob Smith, spent much of the 1980's working as a composer and musical director for several small-scale, independent dance companies based in Wales but was frustrated by the working process which was usually iterative and speculative, on the part of the composer. He would observe, or even take part in, choreographic sessions, accompany movements on various instruments and make suggestions, go away and work ideas into formalised musical sections, often to be then told that the music did not have the right rhythmic 'feel' for the dancers' movements. At the same time, music technologies such as MIDI were developing that offered a more instant method of musical creation, but their development as something which could be easily and instantly manipulated was some way off.

In parallel to this more formal activity, and arising from warm-up activities and more open-ended experimenting in dance studios, there arose the possibility of musicians and dancers just improvising in response to each other. This was an exciting workshop activity where dancers and musicians would develop a language of communication instinctively, creating feedback loops where the dancers would respond to the musicians' playing and the musicians would respond to the dancers' improvised moves. These activities, always marginal to the dance groups' core activities and the need for them to produce formalised pieces with titles for set programmes to be fitted into evening-long shows, did result in some performed outputs. Notable were a duet performance by Rob Smith on soprano saxophone and dancer Nigel Charnock in Queen Street,

Cardiff, organised by the Charles Street Arts Foundation in 1986, a performance by Rob Smith (keyboards), Jess Phillips (drums and percussion), June Campbell and Janet Fieldsend (dancers) in the Charles Street Carnival (1987) and a performance in the series 'The Diggers Present' (1996-2001) by Rob Smith and Jess Phillips (musicians) and Phil Babot and Marega Palser (dancers) in 1998. Readers will notice here that the musicians are credited here open-endedly as musicians, rather than by instruments played. This is because two Soundbeam detectors were used to detect dancers' movements and convert them into MIDI signals to play musical instruments, whilst the musicians calibrated the digital instruments live as well as improvising alongside on acoustic instruments, so there was some flux around instrumental rows in this performance. This experience, with all its flaws and shortcomings, as well as its creative possibilities, continues to drive the authors' work with dancers today and into the future.

On the one hand the Soundbeam technology was difficult to work with in performance, to calibrate for the best results and to avoid unwanted incursions from, for instance, stage lights into the feedback loop between dancers' movements and the musical gestures created by dancers and musicians. Also, the relative rarity of opportunities to work with improvising dancers in public performance is partly attributable to a professional reluctance amongst dancers to improvise in performance, in large part due to the fact that their domain is physical space and an ill-judged movement could result in collision and injury, whereas for musicians the result would merely be an unpleasant or unintended combination of sounds.

But on the other hand, taking inspiration from the possibilities for interplay on a structural level between music and dance in forms such as *jazz tap dance*, *flamenco* and *bharata nattyam* as well as experiments with sensor-aided dance and music environments such as that in John Cage and Merce Cunningham's *Variations V*, the authors are developing a vision and a strategy for a sophisticated environment of structural interplay between physical movement, music and sound.

### **3. Relevant Academic Literature**

Perhaps it is the tentative and imprecise nature of dance movement notation, or a resistance to the reductive analysis of dance itself that have made writing that analyses dance movements a relative rarity. Add to this the complexity of dealing analytically with the structural relationships between dance movements and their musical accompaniment *in the improvisational performing environment* and it becomes understandable why academic writing in this narrow field is hard to come by. Such writing will need to deal with the subtle interactive relationship between musical 'groove' and notions of physical rhythm and flow in dance. How is a musical gesture converted into a physical movement that feels right. Is the 'rightness' of this link a shared experience or a very individual one?

Ferguson [4] uses the term *performance ecology* to describe an extended arena created by an improviser or improvising musicians, in his case the extended network of devices used to process sound from his electric guitar: effects pedals, amplifier, table-top devices etc. Our notion of this *performance ecology* includes ourselves as musicians, instruments, signal processors and amplifiers, but also the dancers who join the feedback loop of the improvisation process by visual responses to sonic input. Future plans include a more complex ecology of improvised or composed performances incorporating dancers movements triggering musical events and so forth. Calibrations of sensors, dancers' movements and musical instruments and processors, such as we have described before [1, 3] should make this fertile territory for music and dance's interaction and interdependence.

Malloch et al [6] have devised three categories for the cause and effect relationship between controlling physical action and resultant musical output. In brief these are skill-based, rule-based and model-based, where skill is the closest to being instrument-like and model is closest to being a near pre-recorded work. For most users of musical systems these tend to revolve around perceptions of the performer's musical agency or control [3]. To bring dancers into the live feedback loop of the improvised movements could be perceived as threatening the dancer's autonomy and the aesthetic autonomy of dance itself, or, on a mundane level, it could create problems where the movements required to trigger musical events would be superfluous to the narrative or choreographic flow of the dance itself. (None of the collaborative pieces described here are purely abstract; all have narratives, however fractured.)

Finally, Peters [7] proposes that in 'music where the making and sounding are decoupled and re-coupled by mappings, it is the composition of *resistance* by way of these very mappings that make the aesthetic difference in the expression of agency' (*italic added by us*). So to create some form of perceived resistance in 'mid-air' will aid the perception of the physical relationship between sound and gesture for performers and audience alike.

There are two distinct parts to what we are proposing to do here in developing a methodology for interactive dance and music collaborations, one is well under way and the other is speculative. For the pieces for Bombastic and for *Happiness Repeats Itself* we devised a way of generating material that we were sure worked as an impetus for the required dance movements, then shared them, took them away, developed and sculpted them into 'finished' pieces. This is now a realistic alternative to having choreographers work to finished musical pieces or having composers try to, by an iterative process, match music to pre-determined choreographed movement. For the creation of an interactive musical environment where music affects movement in the time-honoured way of having the dancers improvise their movements to it, but movement affecting music in return by having the dancers' physical movement trigger sounds in the musical flow, this remains a treasured objective. Where the two can meet is on the level of flow. A groove can be created (in advance or in the moment) captured, looped and fed into the improvised flow as a kind of 'holding pattern' or safe territory to which

performers might return at any point to re-gather their thoughts. This pattern could be present as a rhythmic base to the improvisation or could be brought in and out of the musical triggered either by dancers or musical performers. (This of course assumes that the particular distinction, dance versus musical performers, will hold!) But ultimately it is the pursuit of this notion of dance and musical *flow* through improvisation, dialogue and interdependence that sets our research and its output apart.

#### **4. Technological considerations**

As part of the evolutionary development of a robust working practice, there have been a number ongoing issues to refine, some of which have been addressed by drawing upon novel music-technologies. Broadly, these issues can be described as: fluidity, capture, connectivity, musical development, synchronisation and control. Although these issues have emerged and been identified quite organically, they now form the basis for continual trialling and testing of new and hopefully more efficient ways of collaborating in future projects. The following sections present a little more detail on each of the key considerations that have been recognised.

*Fluidity:* Perhaps one of the most significant and therefore very desirable considerations has been an underlying need to avoid interrupting the collaborative workflow between choreographer, dancers and musicians. There are obviously unavoidable moments where dance and music needs to stop completely but during the periods where ideas are beginning to emerge and take shape there needs to be a sense of continuity and cohesion. Though there may be a desire, say on the part of the musicians, to explore new textures, harmonies, rhythms etc., this can rarely be abrupt, instead being more developmental. Indeed, 'fluidity' in this sense is implicit across all of the other considerations and though music-technologies can bring much to the table in terms of offering an extensive palette of sounds and rhythms to work with, they can also be disruptive as programs, patches and patterns are switched between. Fluidity in this sense suggests a balance between the breadth of contrast that any technology might offer and the ease by which performers might migrate between contrasting musical forms and textures.

*Capture:* Critical to the overall compositional process has been the notion that ideas can be revisited or extended by holding one phrase whilst superimposing counter-phrases or by perhaps layering complementary motifs and textures to build and reduce density. There have been two key requirements here; the ability to easily loop and repeat on-the-fly and the ability to constantly capture all output in a format that lends itself to post-rehearsal editing. As improvised ideas are captured and edited, they can become more concrete until ultimately the dancers are working with a composed piece.

*Musical development:* There is an obvious desire for music to reflect and support the shape and form of any emerging dance and as the movements develop, so the music needs to develop too. Rapid access to methods for dynamically

adjusting sounds and patterns over time is essential. There are formal musical concepts that can be explored here based on harmonic progressions, rhythmic structures and the development of melodic motifs, however there are more abstract properties that can be considered too. Smalley [10] considers the lifespan of any individual sound by reference to its spectromorphic evolution, how the sonic properties evolve and change over time. The ability to explore musical development by shaping individual sounds in this way has proven invaluable as the opportunities to develop musical ideas in large structures can counter-act against the underlying desire to remain fluid.

*Connectivity:* Again, though technology can bring a great deal to the table in terms of great variety of sound and rhythm, there is a fundamental need for musical ideas to appear connected to the dancers' movements. Working with composed material enables the choreographer to synchronise these movements to key musical occurrences such that the two components become one. However, during improvised rehearsal this process becomes reversed as there is no definitive score available; musicians may need to create the illusion of synchronised movement by responding to and reflecting the movements, which may also be improvised. This might mean that a rhythmical pattern needs to be altered quickly from one texture to another and back again quite seamlessly.

*Synchronisation:* Where the music and dance are working to a specific meter and tempo this has to remain constant and there are clear considerations to be made here as to how best to achieve this with any new technologies that are introduced to the overall set-up.

*Control:* Lastly, there is the ease of control that any piece or collection of technology might offer. For example, a particular instrument or controller may offer a more limited set of sounds and patterns to work with than a more complex and complete system that is perhaps significantly more cumbersome to operate and 'play'. Within the context of improvised rehearsals, which instrument is ultimately less likely to interrupt flow whilst still offering scope for development, connectivity, capture and synchronisation? This is a balance that can only be assessed by the individual within a live performance environment and there are good examples of music-technologies that have proven to very valuable in this respect whilst others that have proven to be too intrusive or perhaps unpredictable. There is also an additional consideration of overall control, how easy it is for a cohesive sonic backdrop to be created, sustained and developed whilst still allowing scope for individuals to be exploring other instruments and technologies.

## **5. Reflections on music-technologies**

During our explorations of new working practices we have explored numerous commercially available processors and sound generators. Aimed primarily at a rapidly expanding DJ market, there are already certain technologies that offer swift methods for generating sounds, processing and looping. Notably amongst these are the Korg Kaos series of touchpads and during early trial rehearsals

these rapidly proved to be highly versatile instruments. Most notable within the series is the Kaossilator Pro (KP) though all of the Kaos series share similar control properties in that they feature a touchpad interface that allows the performer to manipulate sounds in a multiparametric way. For example, the x-axis might control a filter whilst the y-axis is controlling a delay. The KP is essentially a synthesiser that offers swift access to beats, riffs and harmonies, but also quite abstract sound sources too. Though these devices are generally aimed at performers from non-traditional music backgrounds they can be particularly powerful when additional musicality is introduced. They also offer the ability to quickly capture and layer loops such that ideas can be held and developed in a very intuitive way.

There are other devices that offer generative patterns in easy to use modes with arpeggiators being a common inclusion on many synthesisers. These frequently offer a 'hold' function such that a chord can be left sustained, generating a continuous pattern of notes whilst the performer explores other instruments or perhaps dynamically alters the current patch using filters and other effects. Then there is the 'in the pocket' power of smart-phone technologies too with sound processors (e.g. Moog Filtatron) and instruments (e.g. Gyroscope) proving to be particularly expressive and versatile. The real strength in smart-phone technologies lies in the sheer number of instruments, processors and generators that can be available to use at a moment's notice, though there can be drawbacks to their use such as synchronisation within a larger system. If the music permits a more free and less meter-based improvisation these can be very effective instruments to turn to.

Some of our previous research has focused on the design and testing of novel musical instruments for people with disabilities. This has led to a number of designs for inclusive instruments such as the 'Octonic' [1, 3], which offers a non-contact based approach to triggering and manipulating sounds. Designed to be inclusive the underlying ethos has been one of achieving a novel instrument/controller that anyone can use and this particular instrument has featured within many of our own improvised music performances. The Octonic has been seen to be a sensitive and expressive device for working with both abstract and tonal improvisation and the same instrument is also being considered within a context of digital-Foley where there is a shared desire for instrument-like control over sonic objects.

Continuing with the theme of technology for disability, we have also drawn upon our own research into synchronised musical improvisation for musicians with mobility challenges (Challis and Smith 2012). In this project we used technology to assist in rhythmically holding together improvised performance for people who generally struggled with rapid movement such that maintaining rhythm as a group could be very difficult. To achieve this we used a DIY MIDI synchronisation unit to send clock message from a master controller to a number of slave devices. The results were very promising though at the time we were particularly conscious of the balance between sound generation, synchronisation and any sense of ownership that might be eroded. Our work with improvised music for dance has

allowed us to revisit this same synchronised set-up but when these same approaches are explored within the creative contexts we are considering here the issue of 'ownership' disappears and the choice of technologies and the opportunities they offer becomes part of a compositional process in readiness to improvise.

Often the realisation that a piece of technology may have something to offer within a context of improvised music for dance occurs elsewhere. As described earlier, there is a need for the rehearsal process to remain fluid such that introducing a completely untested approach could be hugely destructive. As improvisers, we regularly engage with live performance where that element of the unknown can be the catalyst for something exciting and engaging interaction. This provides us with a testing ground to consider new technologies for performance in contrasting creative contexts with the theory being that if we cannot respond meaningfully to one another whilst improvising live (and under audience scrutiny), why should we be able to achieve that and more with dancers in rehearsal.

Though the case studies being described here have allowed us to explore new working practices in dance there is a strong correlation between our findings here and those from our practice and research in improvised music and accessibility. Ultimately, it is our hope that this working pattern of inclusive design, performance-testing and improvised music for dance will lead to further technological developments that will benefit all three groups (performers with physical challenges, ourselves as performers in our own right and the dancers/choreographers we work with).

## **6. Interviews with participants**

The interview took place on 27th November 2013 and Rob Smith interviewed Choreographer Sean Tuan John (STJ) and dancer Kim Noble (KN) who has performed in all three of the Bombastic shows and is therefore highly familiar with, and contributed hugely to, the emergent collaborative process. In transcribing sections of the interview ellipses are used when a sentence is unfinished or interrupted, ellipses in brackets means that sections of the speech have been omitted.

The response to the working method and collaborative process, particularly in relation to having the musicians involved in the devising stage of sections of the show was very positive:

KN: As a dancer, when Sean is setting a task, say, and we're creating movement, it's really nice to have you guys responding to the same task and to hear how you're interpreting it and then (...) seeing how I interpret it and that can inspire each other.

Sean himself, as choreographer, went further in describing the emergent process:



STJ: I think it is that concept of *play* as well, that it's a two-way thing, isn't it? By the musicians being in the studio without, sometimes, already prepared scores, responding in the moment, that is where the real benefits come, aesthetically or artistically. Definitely, and that point, it is *immediate*. (...) though it is immediate in the process, of course it's not been an immediate over-arching process. It's taken a while to get to that process, because I think at the beginning (...) in *Beyond The Stars*, the first time (...) that was maybe more conventional wasn't it, that sometimes the music was made for us, not in the space to share, and that's been a positive thing for all of us I think - that we can have the opportunity, that luxury to do *that* there...

There is therefore a sense here, evident in the transcription, that trust has been built, not just between the participants but also in the emergent process and this has been reinforced by and understanding, especially amongst the choreographer and his dancers, of what the technology used in the studio devising sessions is actually doing and how useful this can be. This emerging methodology for devising material can be contrasted with a more traditional approach:

STJ: ...working with found music? (...) it has a set structure that you can't deviate from, really, unless you're sound editing yourself. So it creates a really *locked-in* structure. What we've found, choreographically is that yourself and Ben can respond to different structures *in the now* and that can really affect what the physical side...

KN: ...yeah, what we can do as dancers. Because there's so many times we've found a piece of music; 'oh yes this is really good but I wish that *that* bit would come in again there' or 'I wish it was just that size, just that length of time'.

So instantaneity is valued but the flexibility to re-edit the music after the rhythmic character of it had been defined and agreed in the studio in order to accommodate movement and narrative is also tremendously valuable too. This suggests that the dancers and choreographer favour improvisation in the devising process, but consolidation in the rehearsal stage. Improvisation is therefore a creative tool but definitely not, here, considered a performance strategy.

There is a distinctive repeated presence of certain key terms that comes through the interview. Key terms such as *play* and *improvisation* are there. The idea of *playing* with an idea through *improvisation* in order to create material or 'find' material that works. *Real time* is another key concept:

STJ: In *real time*, through improvisation, and that's a very important thing isn't it? The background for both music and dance, the importance of improvisation...

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*Interpretation* is also an important concept. It is used to mean re-workings of existing pieces that might have been used as inspiration but cannot be, or are not intended to be, used in the final performed version of a show. Elsewhere it is used to mean beat-matching and mood matching of already existing pieces to create original alternatives, but also describes interpretation between movement and music. *Creative process* is also another key concept emerging from the interview.

Overall the data from the interviews reinforces the value of a creative feedback loop: something that the authors have hypothesised but not yet confirmed outside our own compositional/performance experiences. The data also suggests that there is real strength in the feedback loop being achieved *in the moment*, or in *real time*, that is, instantaneously. After all, the same could be achieved over a much longer time frame with us bringing new 'complete' recordings of compositions to each rehearsal. The constraints of arts funding for the kinds of shows we have made, at the scale they have been commissioned, have been mitigated by the way we have worked, but they have also constrained what we have been able to do.

## **7. Conclusions**

We have collectively, choreographer, musicians and dancers, devised a collaborative process that values *improvisation* as *play*, even to the point where they may have become interchangeable terms for us. However, we have not really explored improvisation as a performance strategy as yet.

The musical technology we use clearly aids *creation in the moment* for us, but also it enables us to capture what we make, what happens in the studio, for future use, rehearsing and reworking the material made *in the moment*.

Sean and Kim, as choreographer and dancer, are clearly interested in having dancers, or even audience members, trigger elements of musical scores, but not in a narrative context. The bringing together of 'triggering' and improvisation in performance remains a cherished idea that remains some way ahead of us.

## **8. Identification of future activities**

We are still interested in using sensors to enable dancers to trigger sounds in live improvised performance. We may however need to attract funding for this as a discreet project, not necessarily a proposal for a new dance show but for a laboratory based programme of work to explore different systems for tracking motion and triggering sound with a view to their future commercial use or use in shows.

We will devise contexts, possibly improvised or semi-improvised, where environments incorporating triggering of sound by dancers. These may be abstract provisionally but we would like to incorporate some of them in shows.

STJ: So we have thought that maybe we might do something like that (...) like a gig for children with playing (music) live and animation and dancers. Which could be a way, rather than the way that Bombastic was set up (...) well there's the discussions with the Alan Morse, that we work with already, the animator and games designer, because he is interested in working with those sensors that trigger the animation...so yes. The sticking point...is when you make a story, like a show that's about a story, it doesn't always help to show all the mechanisms of the dancers triggering things because it goes against the fictionalised world, so it's a very specific thing to do. But, talking about the 'kids' gig' concert; that could very well fit in perfectly there.

Finally the authors are keen to explore participatory contexts for exploring the interdependent approach to music and dance in community arts settings.

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