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Performing Sounds Using Ethnic Chinese Instruments with Technology: SA

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Abstract

From a first-person research method, using the perspective of Singaporean experimental Chinese music group SA, this paper discusses the questions of motivation for incorporating technology with ethnic Chinese music instruments from a socio-cultural perspective; how this incorporation of technology is performed and has affected the perception of sound performance for the musicians; what were the initial challenges and how the challenges were overcome.

Keywords: Ethnic Instruments, Sound Technology, SA

1. Introduction

This paper is born out of the necessity to address several questions about SA, an ethnic Chinese instrumental trio utilizing the instruments of the *dizi* (flute), *guzheng* (zither) and percussions such as the *dagu* (drum), along with electronic effects pedals. The inquiry addresses a range of issues, from identity and motivation to performative, artistic, and technical reflections.

Some fundamental questions that we had reflexively asked ourselves are: *Who are we? What do we do? Why do we do what we do?* In relation to our music and performance, we have also questioned: *How has our artistic choice of incorporating the use of technology changed our perception of sound in our performance as an ethnic Chinese musician? How has it changed the compositional process? How has it developed the instruments? How has it changed the interaction between the musicians in the group?*

As members of the group, (Natalie being the *guzheng* instrumentalist and Andy the *dizi* instrumentalist of SA), we are continuously engaged in a form of action research (more common in the field of education than performing arts, but which we find highly applicable to the performing arts as well) which demonstrates reflective practice. This paper also aims to explore the phenomenon of SA, taking a first person subtextual phenomenological approach (e.g. Vallack, 2010; Valera & Shear, 1999).

Before we move on to discuss the aforementioned questions, it is important to give a brief introduction to SA. Having founded SA in 2011, we have been the constant members of the group, while Cheryl, our third permanent member who plays Chinese drums, percussion and drum kit joined the group in 2013. The group's portfolio emphasizes the performance of 'sound', as opposed to 'music'. The essence of the group could be seen in the following section of our biography:

"For SA, each instrument is merely the start of an exploration in sound. Every original composition is a bold experiment that combines traditional elements with modern techniques such as live looping. Triggered live, every performance is a risk that the band takes to interpret the question of identity."

To date, SA has released one debut EP in August 2013, debuted their first ticketed concert in 2015 at the Esplanade Recital Studio (Esplanade, 2008), performed locally and

internationally, having recently completed our France-China-Macau-Hong Kong tour, as documented on our various social media platforms (e.g. Facebook and Weibo).

In answering the questions of our identity and motivation, the formation of SA cannot be discussed in isolation from its socio-political-cultural context, which will be addressed in the following section.

2. What was the Motivation for SA to Incorporate Technology into Ethnic Music Making?

As we questioned ourselves as performing artists why we have consciously chosen to incorporate the use of technology such as electronic effects pedals, and microphone techniques as our tools of performance, our responses reflected not only personal motivations but motivations driven by social circumstances as well.

On a personal level, all 3 of us as musicians feel that we no longer wanted to be bound by our classical training and practice. The notion of performing set, composed pieces, practicing our own parts to technical perfection to be put together within an orchestra was no longer our individual aesthetic philosophy. Whether as individuals or as a group, we are seeking new possibilities in sound and art.

In conversations with Cheryl, she said, "all of us have been classically-trained and were very used to the classical musical environment...a composer writes a song, you get your parts in the form of a score and rehearsal begins... there is hardly any room for creative ideas or improvisation. So i guess we kind of got sick and tired of that... there's hardly any space to express yourself through your music, it's always someone else's composition/ idea that you are trying to put across. The interesting thing about playing in SA is that it is an avenue for us to express our ideas and ideals, using our instruments / electronics as a tool, so it's always an open book... we are always inspired by different things at different times, so the music is ever-changing (at least i hope!)" (Ong, 2015).

On a socio-cultural level, SA's aesthetic philosophy may not be entirely agreeable with certain directives put in place via the National Arts Council, which has further motivated the group to seek new artistic and sonic possibilities, which led to the incorporation of technology. This motivation emerged from negotiating dilemmas in Singapore's Chinese music scene, which falls under National Arts Council's *Traditional Arts* (TA) sector.

In Singapore, the TA sector falls under a specific and separate category from the rest of the art forms of music, dance or theatre under the National Arts Council (NAC), as evident in the *Performing Arts Masterplan* released in 2014 (National Arts Council, 2014). As can be seen from the appended documents following the master plan, the TA sector can be seen to be adhering to dominant national ideologies such as the Chinese, Malay, Indian and Others (CMIO) construct (Chua, 2003; 1995 & Siddique, 1990), which clearly delineates TA to be Chinese, Malay, and Indian respectively. In this national directive for the performing arts sector in Singapore, it is also specifically stated that "NAC will be undertaking a research study that will explore how certain TA forms were introduced, evolved and gained traction in their respective communities" (National Arts Council, 2014). This shows that there is a special focus that NAC has placed on what they have defined to be TA.

The master plan articulates examples of Chinese music groups, as follows:

- Amateur orchestras and instrumental ensembles (e.g. *guzheng* ensembles) in schools and community centres.
- Professional, i.e. the Singapore Chinese Orchestra.
- Amateur/semi-professional groups such as Ding Yi Music Company and Siong Leng Musical Association

It is interesting to note here that through these examples, the NAC has undoubtedly, whether consciously or not placed a definition of what Chinese music should be, under the TA sector. One fundamental similarity between these examples is that the nature of performance leans towards classical (orchestras and ensembles) and ancient,

traditional genres (Siong Leng Musical Association), thus putting contemporary or developing genres that use ethnic instruments, such as SA, neither explicitly in the TA sector nor in the music sector under NAC.

Interestingly, an article by the "Straits Times Life!" in 2014 featured several other Chinese instrumental groups - including SA - aside from Chinese orchestras and instrumental ensembles, which NAC's master plan did not explicitly acknowledge. Therein lies a dilemma that SA has negotiated with and emerged from to motivate our current artistic and sonic direction, which forms our Identity.

Firstly, it is ironic that Singapore, an immigrant country, places much emphasis on the development of her traditional cultural art forms based on the host country (i.e. China) as opposed to recognising what had been born out of Singapore itself. The Chinese orchestra is a 20th century construction, born out of the need to compete with Western, symphonic orchestras (Wong, 2005 & Jones, 1995). Yet, the NAC has identified the Orchestra as the only professional form of Chinese music practice in Singapore. In our opinion, this competes with the idea of developing Singapore's traditional art forms, as other embodiments of Chinese music, such as *jiang nan si zu* ("as in the silk-and-bamboo music of the Shanghai literati") (Jones, 1995) or even Cantonese music are not considered. Needless to say, the original intentions and significance of Chinese music, such as its ceremonial/ritualistic functions, or its function as court music (Jones, 1995) had not been considered as well.

This dilemma presented in the national directives set forth by the NAC has made SA question the social function and value of traditional Chinese music, and the pursuit of an ethnic Chinese music identity that not only allows creative expression and imagination, but is also relevant and representative of ourselves in current times.

All three musicians in SA were born in the 1980s, children to parents belonging to the Baby Boom Generation (1946-1964) after World War II (Ministry of Social and Family Development, 2015 & Roy, 2014).

Throughout the process of nation building, there have been many national policies that Singaporeans have been subjected to. This brings us to the 2nd dilemma that we as ethnic Chinese musicians in SA face. The introduction of the "Speak Mandarin Campaign" in 1979 (Speak Mandarin Campaign, 2015) also marked the demise of Chinese dialects in Singapore. In a socio-political move to unify the Chinese community in Singapore "to use more Mandarin and less dialect" (Speak Mandarin Campaign, 2015), also resulted in a loss of ethnic Chinese cultural identity, and resultantly, a loss of musical vocabulary and genres in Singaporean ethnic Chinese music.

A majority of Singaporean Chinese trace their ancestry to Fujian and Guangdong. The dialect groups of Hokkien, Teochew, Cantonese, and Hakka make up a large component of the population (Lee). However, the percentages of Singaporean Chinese who speak Chinese dialects have dropped from 30.7% in 2000 to 19.2% in 2010 (Department of Statistics, Ministry of Trade & Industry, Republic of Singapore). This implicates a loss of traditional musical styles, such as the 'silk-and-bamboo' genres common in southeast China (Jones, 1995) as mentioned earlier. With a diminishing knowledge or identification with such styles, Singaporean Chinese music practitioners resonate with composed pieces for the orchestra rather than the musical vocabulary of traditional genres that traces back to our ancestry.

Thus, the motivation for SA to seek new artistic and sonic possibilities was also a realization that while we may be able to replicate the forms and techniques of Chinese musicians from mainland China (who have largely been subjugated to the "conservatoire style" [Jones, 1995]), we will never be able to replicate the essence of Chinese music at its origin, as we neither speak their language (in terms of dialects) or live in their environment. With the influences that we have experienced as Singaporean Chinese, we were motivated to seek sonic experiences that we could call our own.

Thus, through reflexive conversations amongst ourselves and retrospectively as individuals, we are thus able to identify that SA made an artistic, conscious choice to incorporate the use of technology in our music-making process because we did not agree with the national direction which TA was taking, and we believe in our own creation and expression that undoubtedly have foundations in mainland Chinese music, but which we should not blindly abide.

3. How do we Perform Sounds using Ethnic Chinese Instruments with Technology?

In order to understand the nature of SA's sound and performance, the following section illustrates how we use technology with our ethnic instruments in performance.

Referring to the **Figure 1**, all three musicians in SA use a similar signal chain to execute our performance. Firstly, using miking techniques unique to each instrument, a dry signal of the instrument is routed through a sub-mixer. Then, through the auxiliary channels of the sub-mixer, the dry signal is output to the effects pedals which each of us use. These effects vary according to each one of us, which include various different combinations of effects processors that modulate time in terms of delay, vary our pitch and harmony, as well as modulate the notion of space through reverberation/resonance. In addition, it gives us the ability to create multi-layered tracks through live looping. Next, the wet signal from our effects pedals is routed back to the same sub-mixer. Finally, the summation of the wet and dry signals routed through the sub-mixer is then sent to the sound engineer's main mixing desk.

As mentioned, the effects pedals we employ allow us to modulate time, pitch and space, as well as create different layers through live looping. This allows us a magnitude of sounds that we can manipulate in our performance, which was never possible previously with our ethnic instruments. Although this may not be new to the western musical world and the incorporation of technology with acoustic instruments had already been widely discussed, (e.g. Arias, 1998; Emmerson, 1998 & Friedrickson, 1989) it is fairly new for ethnic Chinese musicians, with little or no research documentation in the area.

Undeniably, the incorporation of technology in this manner has changed our performance and perceptions in various aspects. As Arias (1998) states, "Technology propitiates a fundamental rethinking of music and rehearing of sound, paving the way for a musical praxis that can be tailored specifically to any particular individual and social context while remaining almost free of any predetermined cultural traits."

For SA, the incorporation of technology has definitely changed the way we think about our music-making, and the way we hear sounds. Though we are using instruments specific to our ethnic identity, technology also allows us to retain our ethnic Chinese identity, while creating new sonic experiences that are free of these "predetermined cultural traits" as mentioned by Arias (1998).

Our new perception towards sound is no longer limited to how we have been classically trained as ethnic Chinese musicians. As mentioned earlier, our 'traditional' practice dictates the playing of set, composed pieces according to the score, and to practise that piece to technical perfection, perhaps at the same time, to deliver the musicality that the piece dictates. We had been used to replicating a piece according to the way in which our teachers have taught us. However, technology has given us the space to explore.

In the traditional performance of fixed repertoire, we are often limited to linear melodies, especially with the *dizi.* With the incorporation of technology, the *dizi* is now able to play chords using a harmonist pedal; or, with a looping device, the instrument can now create layers of notes to form chords. Traditionally, in an ensemble setting, each musician has only one part to play, but with the use of the "looper", one percussionist can now sound like an entire percussion ensemble.

Though there have also been developments techniques and instrument making in Chinese

instrumental music, the possibilities in which technology offers us is tremendous. For example, although the modern development of playing techniques on the *guzheng* now incorporates the use of the left hand heavily to create accompaniments for right hand melodies (or interchangeably), as opposed to linear melodies on the right and pitch bending techniques on the left hand previously, the *guzheng* is still highly limited by its tonality. Though the fixed tuning method is utilized in contemporary compositions for the instrument, the *guzheng* is limited to only one key with each tuning or repertoire. Any change in tonality requires the shifting of the movable bridges on the instrument. With effect pedals that modulate pitch, the potential for the *guzheng* in SA to perform harmonies simply by striking one string, or even arpeggios, now surpasses its traditional limitation of tonality. This reflects Arias' (1998) statement "in which the methods and aesthetics are not intrinsically bound to the tradition that produced it."

The possibilities on each of our instruments in SA have also highly altered the way in which we compose music. Whereas in the past, one of us would write a piece of music out in notations using Sibelius with individual parts for each one of us to subsequently rearrange, we now create new repertoire simply by coming together and jamming. As opposed to looking at a notation and imagining the sound and harmony of a piece of music, the sonic possibilities which we are now able to produce has surpassed what is able to be represented visually on a traditional staff notation score. Our sonic imagination has gone beyond what can be documented in writing. Our song writing process has evolved from notation writing to selecting and developing specific segments from our audio recordings during jamming sessions. Each one of us in SA knows our parts by heart, and would be almost impossible to replicate in its entirety by another musician. This also allows our live performances to by highly dynamic in nature – each performance is unique because we are not bound by score, and our repertoire allows for a high degree of freedom in improvisation.

The interaction amongst the three of us in SA is also no longer limited to one musician playing one part in a piece of music. Previously, as traditional classical Chinese musicians, we can always anticipate what our fellow musicians in the ensemble or orchestra is going to play, and how it is going to sound. With SA, every music-making session is exciting and no longer anticipatory. There are creative expressions in response to the sounds

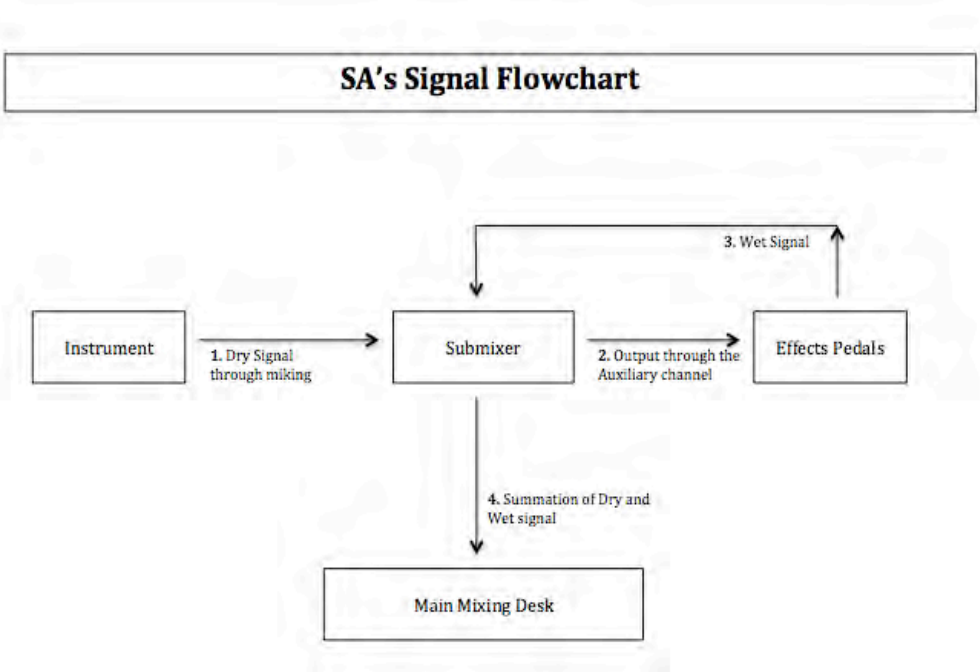

Figure 1. SA's signal flowchart.

we hear as a trio rather than as individual musicians. An interesting change for the incorporation of technology in performance within SA is that our sound engineer has become a paramount factor and thus member of the group. This is related to the challenges that SA had faced in the incorporation of technology, which shall be discussed in the next section.

4. What were SA's initial challenges in incorporating technology?

In conversations with our sound engineer, Yew Jin, he said, "for traditional ethnic instruments to play on live stages which involves big amplification using big scale speakers to project on, to project out, the whole workflow is designed based on western instruments, so, some of the for example, microphones, may not be entirely suitable for pick-up" (Lee, 2015). As a result of the use of western sound technology theories and concepts on ethnic Chinese acoustic instruments, some of the challenges which SA faces are – an imbalance of wet and dry signals, sound monitoring issues, and feedback issues. Though these may be issues common to any musician who use instruments (be it electric guitar or bass) with effects pedals, they are real issues that SA faces. In addition, unlike instruments such as the electric guitar or bass, we are working with acoustic instruments. These issues affect our performance levels. Thus, the execution of a successful performance for SA is also dependent to a certain extent on our sound engineer, who needs to know our repertoire and sound well.

For example, in the process of looping, we may sometimes be unable to achieve the same volume between our wet and dry signals. As SA uses acoustic instruments, when we stop playing live after we have executed a loop, it results in a drop in volume levels when we stop playing live. This also results in difficulties when we as musicians monitor sounds on stage during a live performance.

Sound monitoring had proved to be highly challenging during our initial phases of experimenting with technology in our performances. As mentioned above, the imbalance in volumes between loop levels and live sound playing affects the monitoring of the loops during performance. Due to the gentler, softer nature the *guzheng*, it was common during the initial period where it was challenging to monitor the sound of the *guzheng* on stage during performance. These are issues that affect our performance levels during a show.

In addition, the inaudibility that we feel results in the increase of volume on stage monitors. In return, this results in feedback issues, as the stage sounds are too loud, and the various microphones on stage pick up the stage sounds, resulting in feedback loops. This problem has been solved through the use of in-ear monitoring (IEM). Instead of using stage monitors, we sometimes use IEM to monitor our own sound, as well as the band's sound. However, the use of IEM reduces the level of musicianship, as we sometimes become too consumed in the direct sounds input. This results in a lower level of engagement with one another, as well as with the audience.

The nature of our instruments as acoustic, ethnic instruments was a challenge in itself. For the *dagu*, it is highly dependent on weather as it is made of animal skin. Thus, the sound of the instrument varies with temperature and humidity levels, and is not within the control of the musician. For the *dizi*, the resonant frequency membrane (*dimo*) interferes with the primary tone that is produced. This proved to be challenging as it interfered with the use of modulation pedals. The long and big sound box of the *guzheng* is problematic as it frequently resulted in feedback loops in the chamber of the body of the instrument.

Some of these challenges were solved by simple modifications to the instruments. For example, instead of using the *dimo* on the *dizi*, a tape over the membrane hole solves the issue of resonance that interferes with the use of modulation pedals. More recently, we have customized *dizis* without the membrane hole as well. For the *guzheng,* we used shorter, travel-sized instruments available in the market and modified its soundboard by

smoothening its surface, to achieve consistencies in the height of its movable bridges. We also increased the height of its saddle to balance the tension of the strings from the saddle, to the movable bridges of the instrument, over a smaller sound box. Thus, the reducing its susceptibility to feedback loops. For the *dagu*, an alternative to animal hide needs to be sought, but it will also be a negotiation which our drummer Cheryl will have to make on a personal level as it will affect the sound and thus her performance levels.

As mentioned earlier, the incorporation of technology in SA's music-making changes the way we perceive sound. Such a paradigm shift towards sound perception required us to have an open mind about possibilities, which may at times run contrary to our traditional, classical training. Conversations with our mentor from the *Noise Singapore Music Mentorship Programme*, Randolf Arriola pointed us in the direction whereby there was a need for a paradigm shift in our perceptions towards sound. He said, "there was the need to identify the motivations and find the right balance between sonic and performance aesthetics, novelty and dynamics and innovative sound design and tasteful application that function as creative tools to enhance rather than simply to ornament or overwhelm the integrity of artistic musical composition" (Arriola, 2015). In the initial stages of incorporating technology into our performance, we had to be mindful not to lose our musicianship, but instead, enhance our performance through contemporary techniques.

5. What's next?

Performing sounds on ethnic Chinese instruments with the incorporation of technology has given an opportunity for SA to question our aesthetic philosophies and ideals, which have helped clarify our identity, motivations and focus on sound perception. It has resulted in classically trained musicians playing a fixed repertoire to being able to participate in a more improvisatory form of performance that revels in creative sound-making. We are constantly experimenting different ways to explore sound, with further insights on sound, and building our knowledge on how to use technology to enhance our performances (such as modulating sounds simply by manipulating our sub-mixers and effects pedals through feedback loops, with or without our instruments), and also how to perform using extended and unconventional acoustical techniques. Rather than employing conventional methods and techniques, we now have the freedom to explore different ways to create and perform sound. The limitless possibilities only give us further potential to inquire deeper into sound art and performance.

Moving forward, much research needs to be conducted in the areas of organology for ethnic instruments (not limited to Chinese) for efficient use with technology. Having written this paper adopting a first-person approach is also limiting where further socio-political and cultural issues could be discussed in terms of the use of ethnic instruments with technology, and further theoretical frameworks in the area of sound and technology could also have been employed for a deeper understanding of the subject matter.

6. Conclusion

In essence, this paper has addressed the following issues: the motivations for SA as an ethnic Chinese instrumental trio to incorporate technology from personal and social perspectives; how SA performs with ethnic instruments and technology and how this have affected the perception of sound, composition and relationship between the musicians; and finally, what initial challenges emerged and how some of them were resolved.

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