The Mobile Device: A new folk instrument?

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Barbara Ballard's 'carry principle' defines the core elements of the mobile experience: small, personal, communicative, multifunctional, battery operated and always connected (Ballard 2007: 71). These qualities have ensured that for many of us some form of mobile device has become indispensable. Developments in mobile computing have meant that consumer devices are capable of increasingly sophisticated sound processing, leading to the emergence of new forms of mobile music. If this music is looked on as a new sub-genre of folk music, we might be able to put it in the context of live electronic music-making. With this in mind, this article will ask whether the mobile device has the potential to be considered a new folk instrument.

1. INTRODUCTION

Whatever our level of capability, mobile devices are providing the impetus for connectivity. In design practice, what is referred to as the 'carry principle' defines the essential principles of the mobile experience: small, personal, communicative, multipurpose, wireless, battery operated and always on (even in a standby state) (Ballard 2007: 231). Such core principles are what make mobile devices indispensable, ensuring that for many of us some form of mobile device has become an ever-present part of our lives. Smartphones and tablets are a ubiquitous presence in our quotidian tasks of communicating and accessing information, for work or for entertainment. Consequently we have rapidly adapted to a screen-based gestural language of pinching, scrolling and tapping. Mobile and portable devices differ from computers in that we will usually always carry the device around with us. Developments in sound application design have meant that mobile devices are becoming capable of increasingly sophisticated audio processing.

Miranda and Wanderley have long asserted an interactive music system could be considered an instrument by virtue of its possessing sensor inputs, signal processing capabilities and a sound output (Miranda and Wanderley 2006: 26). Atau Tanaka describes a smartphone as a 'self-contained and autonomous sound-producing object that enables a musician to perform in a live situation' (Tanaka 2010: 5), stating the iPhone to be an ideal performance system because of its numerous sensing modes. Yet there are still anxieties regarding the aesthetic authenticity and cultural legitimacy of mobile technologies (Briggs and Blythe 2013: 2).

The ability to create, exchange and consume music on a single, portable device is seeing the emergence of a new sub-genre of 'mobile music'. Folk transmission was the exchange of data between different and widespread communities, using stories and songs passed down from generation to generation, and we could say that the acoustic guitar was used to transmit musical ideas (Dawe 2010: 196). This article will ask whether a mobile device – hand-held, autonomous and capable of progressively sophisticated music systems, which allows for all levels of ability and technical knowledge while enabling networked communities to collaborate and exchange musical ideas – might have the potential to act as a new folk instrument.

1.1. Art, commercial or folk

There is an immediate problem linking music created on a commercially available electronic device with the cultural connotations associated with folk music. This article will examine the effect of travel and portability on the transmission of folk music and the ability for it to absorb a wide range of influences and adapt to new sociological environments, and will consider the mobile device as a new folk instrument in the context of live electronic music-making. We might think of folk music as traditional music played on acoustic instruments, usually by self-taught or amateur musicians. Folk music can be regarded as an expression of a way of life from the past, a past that has long since disappeared (Middleton 1990: 127). Defining 'folk' is contentious, and despite the enormous body of work written on the subject there is still no unanimous definition of what folk music actually is. To understand what is meant by folk, perhaps we need to first understand how we categorise music generally. Different genres of music follow different sets of socially accepted rules, from the formal and technical rules on form, playing conventions and instrumentation, to semiotic and behavioural models. Simon Frith (1998) suggests that music is heard through three overlapping and contradictory grids of discursive practice: 'art', 'commercial' and 'folk'.

Broadly speaking, art practice – or classical music – is primarily composed using sophisticated forms of musical notation for a select chamber or concert hall audience and is created to function within accepted performance conventions. There is often a lineage of

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teaching and learning, and it takes time to understand its musical constructions and heritage. In this respect art music is a form that rewards discipline and ability. By contrast, commercial, or pop, music is more strident, more exuberant and requires 'no immersion in salon culture or elite circles … [it seeks] immediate reactions' (Rojek 2011: 21–3). Pop music's imperative is commercial success coupled with the intention of attaining maximum public access. Folk music is more difficult to neatly summarise, although the *Journal of the International Folk Music Council*'s definition is often cited: 'Folk music is the product of a musical tradition that has been evolved through the process of oral transmission … which links the present with the past … [and the] selection by the community which determines the form or forms in which the music survives' (Marinus 1954: 23).

Where does music made on mobile devices fit within Frith's tri-partition of musical cultures? With no teaching lineage, use of traditional notation or sense of heritage eliminates it as classical music, and while there are similarities with pop music's immediacy, the lack of market or public desire to consume mobile music rules it out as a pop form. Therefore, of the three categories I would propose mobile device music to be closest to a new form of folk music.

1.2. What is a new folk instrument?

Robert Ashley's *Music with Roots in the Aether* (1975) was a series of video portraits of celebrated American composers, including a Sonic Arts Union Retrospective featuring David Behrman, Gordon Mumma and Alvin Lucier. During Ashley's interview with Mumma, they discuss what defines a folk instrument: is it a question of the age of the instrument? Are people still inventing them? Is it possible to have a modern folk instrument? Mumma defines a folk instrument as something mass-produced and that anybody can use, and goes on to suggest even a racing bicycle might be regarded as a new folk instrument. While the instrument demands a certain amount of skill to be developed in its operation, it also allows for a wide range of abilities. 'It's how people use them' (Ashley 1975: 8′05″). The same bicycle can be used for either the mundane chore of cycling to the shops or in a highly competitive six-day racing tournament. In the same way an acoustic guitar allows for a wide range of playing ability, from the basic strumming of three chords to the highly complex classical or flamenco styles of playing. Not only will a folk instrument allow this range of playability, but audiences will also differentiate between the different levels.

If we consider another popular instrument in the folk canon – the violin or fiddle – we see how the same instrument is used to make different music. Fiddles have featured in styles as diverse as dance music played by African slaves for eighteenth-century white colonial audiences, or the fiddle traditions of the Shetland Isles. Although both American and Shetland techniques were influenced by classical styles (Rosenberg 1993: 266), there are enormous differences in how classical and folk instruments are played. Examining an orchestral violin player's posture, fingering positions and bowing styles, compared to that of a folk fiddler, reveals the gulf between classical and folk music. Neither player holds, plays or even tunes their instrument in the same way. In all respects a fiddle and a violin might be physically identical, but they cannot be considered the same instrument: 'musical instruments … are only the material and conceptual infrastructure onto which musical style is built' (Théberge 2006: 284).

The way a musical instrument is played transforms both the instrument and the nature of the sounds it makes. Paul Théberge's ideas on the close relationship between musicians and their instruments concludes that although an instrument might determine what sounds are played, it has far less influence on *how* it is played. Musical practice cannot be separated from either the specific contexts of musical style or genre.

2. FOLK PERSPECTIVES

2.1. Folk: myth or reality?

The emphasis on folk forms is associated with authenticity and tradition (Frith 1998: 40). This ties in with the romantic notion that folk is the people's music, a critique of commerce, a stand against an impersonal technocratic culture of jobs and goals proposing instead 'a life radically less reliant on money and the accumulation of it' (Cantwell 1993: 57). Yet Neil Rosenberg tells us that studying folk revivals reveals something of our own unexamined assumptions about the form (Rosenberg 1993: 194), and in truth folk music was often a social construct. The concept of folk can be traced back to the eighteenth century and Johann Gottfried Herder's distinction between the 'Kultur des Volkes' and the 'Kultur des Gelehten': the culture of the people and the culture of the elite. The German Idealist tradition, exemplified in the Brothers Grimm collection of folk tales and songs, argued that the culture of the elite had become detached from what was natural and genuine. 'Volk' culture was portrayed as pure and honest, of simplicity and heartfelt emotions offering an attractive alternative to German intellectualism and its distaste of the pretentiousness of court society. Chris Rojek argues this reaction embodied a sentimental view of a society that never really existed, 'an allegory that the rising bourgeois industrial class fashioned and deployed in order to acquire privilege and influence in German society' (Rojek 2011: 41).

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This romanticised view of folk continued to spread far beyond Germany, and in Britain at the turn of the nineteenth/twentieth centuries the political, arts and educational institutions believed the working classes urgently needed saving from the invidious erosion of traditional ways of life that popular culture was initiating. As workers moved from rural areas into towns during the Industrial Revolution it was feared they had abandoned their heritage. Traditional customs, stories, songs and dances were disappearing and being replaced with 'vulgar and raucous' music hall songs; 'The common people had proved unsuitable heirs of the national culture' (Boyes 1993: 64). Committees and antiquarian societies were established to document and preserve rural heritage, and in her critique of 'The Imagined Village' Georgina Boyes remarks that the scholars and composers Cecil Sharp, Ralph Vaughan-Williams and Percy Grainger are more closely linked to English folk music than any folk singer or performer. In his studies of cultural revivalism, the historian Eric Hobsbawm deduced that conceptually tradition was often a 'reference to a historic past, the peculiarity of invented traditions is that the continuity with it is largely factitious' (Rosenberg 1993: 20).

2.2. The cultural entrepreneur

> Structures, social or otherwise, do not do things. Agents do. (Roy 2010: 100)

If the idea of folk music was a European bourgeois construct, then it is no surprise to learn the folk music revival in the USA was invented as 'a concept and developed as an ideology' (Roy 2010: 29). The Old Left/Communist movements of the 1930s and 1940s, and the US civil rights movements of the 1950s and 1960s both adopted folk music as a means of spreading their political message. The musicologist and folklorist Alan Lomax has been widely credited with making the postwar folk revival become the success it was (MacColl 1990: 272). Describing himself as 'a cultural mediator'[1] Lomax's contribution in broadening folk music's appeal beyond academic and antiquarian preservation societies was threefold; he redefined folk's 'authenticity' by subtly altering the music from a 'characteristic' of song to a 'style' of song (Rosenberg 1993: 12); in conjunction with the US Library of Congress he provided a core canon of music and encouraged singers to learn these songs, while he organised performance venues, coordinated record releases and radio exposure, and championed folk artists in magazines and newspaper articles (Roy 2010: 114); and he closely aligned folk music with the political left. These contributions transformed the American folk revival of the 1960s from a highly localised and specialist music into a more urbane and racially inclusive genre. Freedom and protest songs created a sense of social unity, helping to form close relationships between performers and audiences, and between social movement leaders and its participants.

This implies that music is fundamentally a social practice. We often tend to view performers as autonomous creative agents with their solitary acts of genius, but this overlooks the collaborative processes involved in music-making. Roy argues that, in addition to creators and consumers, culture needs an organised framework through which activities and content can be expressed: a framework which is itself is neutral, so the links appear to be intuitive (Roy 2010: 124). Folk music continues to reinvent itself; for example, the British folk magazine *Southern Rag* changed its name to *Folk Roots* in the mid-1980s, hoping to appeal to a new readership. Folk 'roots' has now become an established genre, perceived as 'both modern, yet steeped in tradition'[2] and has paved the way in establishing a new market for 'world' music. Folk thrives as a cultural activity through a web of cooperation between producers, consumers, mediators and interpreters, instrument makers, shops, festivals, magazines and academics, all engaging with each other.

2.3. A construction of informality

Niall Mackinnon describes his first experience of a folk club as a venue with no stage, and a performance with no amplification or 'special flourishes which said "we are performers"' (Mackinnon 1993: 94). This 'construction of informality' was contrived as a deliberate attempt to differentiate folk music from other genres: a convention that allowed participants the opportunity to experience communal, participatory music-making, and to evaluate music more by its direct contribution to sociability.

Today Hack-labs, FabLabs and other social incubators continue this informality, whose objectives are based on sharing information and collective knowledge. Such groups go against the grain of an increasing demand to provide a theatrical, almost cinematic experience at live electronic performances. Watching a performer operating a laptop often produces a visual vacuum, and the tendency to overcompensate by incorporating lights, visuals and 3D mapping is resulting in ever more elaborate and expensive production set-ups, in some extreme cases reducing performance spontaneity to little more than 'press play' (deadmau5 2012, online). By contrast, a

[1]Lomax grew up assisting his father John Lomax, who was instrumental in promoting the idea of an indigenous American music, collecting and recording cowboy songs, prairie ballads, rebel songs and prison chain-gang songs.

[2]*Folk Roots* press release, 7 March 1988.

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network culture of small, informal interconnected groups such as the UK Hackspace Foundation are meeting, creating and exchanging information.[3] Under-the-radar projects such as The Experimental Sounding Board provide performance spaces for people to experiment and improvise with technology.[4] Affiliations and online communities are built and strengthened through social media, and increasingly it is the mobile device that facilitates these activities. The practice of customisation and repurposing encourages personal autonomy, the freedom to take decisions over our lives. The principle of free exchange of information is sometimes pushed to its limits, when unauthorised downloaders such as Kim Dotcom acquire the renegade, outlaw status commonly found in folklore. Acts of cultural re-appropriation of media and technology undermine the dominance of corporate monopolies. 'The balance of power has shifted in favour of amateurs and hobbyists' (Rojek 2011: 202).

3. MOBILE PERSPECTIVES

3.1. Portable instruments, mobile music

At this point I must point out that, when speaking of a tablet, I am talking primarily about Apple's iPad. There are several reasons why the iPad is proving to be superior to other tablets for music-making; firstly the touch-to-sound latency of an android device is currently between 100 to 250 milliseconds (Lazzarini 2012: online) compared to 6.6 to 26.8 ms in iOS devices (Krebs 2013: online). Sluggish latency is making it difficult for android to function as a real-time music system. There is no driver support implemented for MIDI or USB audio and with no two brands of android device the same; there has been little coordinated design for android sound apps. To date, the one exception available across both platforms is TouchOSC,[5] a popular modular interface app for designing controller interfaces for a wide range of audio and DJing software, such as Max/MSP, Pure Data, Ableton Live and Traktor. Cycling74 have introduced their own Mira Controller app for Max,[6] but it is too early to see how it will fare against more affordable apps such as TouchOSC or Matt Benatan's Max/MSPControl.[7]

In their research into re-purposing mobile phones into music performance platforms, Essl, Wang and Rohs (2008) assert that, rather than being merely another controller, it is the *autonomous* nature of a mobile device that makes it more like a musical instrument. Tanaka (2009) expands on this by suggesting that the notion of mobile device as an instrument is metaphorical, rather than a strict definition. Using the word instrument helps us to conceive its links to an artistic tradition of musical technique and creative practice. He suggests one of the clearest ways to test this theory is by examining the ability of an instrument to enter into different musical contexts while still retaining it own sonic identity. Playing as a soloist, in a duo, within a small ensemble or in a large orchestra all demand very different stylistic and performative practices from both musician and instrument. Is it possible for a mobile instrument to be as adaptable as an acoustic instrument across such a wide range of situations? 'The performer's ability to navigate these different contexts … is a testament to that instrument's richness' (Tanaka, 2009: 254).

3.2. Improvising machines

It was while attending the weekly improvisation workshops run by Frédéric Blondy at the Église Saint-Merry in Paris[8] that I became increasingly dissatisfied with the laptop as a musical instrument. These workshops entailed collaborating with a diverse range of artists from all backgrounds and abilities, including conservatoire students, seasoned professionals and amateurs, the majority performing with traditional acoustic instruments. Improvisation between musicians depends on an exchange of ideas and gestures, exploring and experiencing fairly complex social dynamics, and a form of trust has to be quickly established.

For many electronic musicians a computer provides the link between musical thought and the production of sound. Paradoxically I found that, although audio software such as Max/MSP allows almost unlimited possibilities for sonic expression, being seated at a table behind a laptop created a barrier between me and the other musicians. Always physically bound to a fixed position while using the standard desktop computing interface of a QWERTY keyboard and track pad, my physical gestures were obscure and did little to help illuminate the audio processing being generated. Even with hot keys or short cuts, QWERTY felt unresponsive as a music performance system and I was continually frustrated with my own lack of sense of 'playing'. Being outside the comfort zone of a studio is a testing environment for any electronic musician; no one is prepared to wait while you search for a missing file or updated Max patch. John Bowers has described assembling a set of resources for musical activity as a 'performance ecology' (Bowers 2002: 57). I found introducing the paraphernalia associated with electronica – a mixing desk, additional loudspeakers, contact microphones

[3]http://hackspace.org.uk/view/Main_Page.
[4]http://theexperimentalsoundingboard.tumblr.com.
[5]http://hexler.net/software/touchosc.
[6]http://cycling74.com/products/mira.
[7]http://www.appbrain.com/app/max-msp-control/com.maxmsp-control.

[8]http://www.rendezvouscontemporains.com.

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and sounding objects – would only complicate matters. In their investigations into digital instruments beyond the piano keyboard Eduardo Miranda and Marcelo Wanderley argue that it is no longer enough for a system to be capable of impressive audio manipulation or synthesis algorithms: it must also allow a performer to interact intelligently with their musical instrument (Miranda and Wanderley 2006: 255).

A music interaction differs from a computer interaction; we do not 'use' an instrument, we 'play' it (McDermott, Gifford, Bouwer and Wagy 2013: 30). Since working with an iPad loaded with sound apps I have observed a significant improvement in music exchanges with other musicians. Through a process of testing, evaluation and adaptation, I have reached a point where I have reduced my performance ecology down to a single hand-held device with a single sound source – such as an integrated bass amplifier or even the iPad's own internal speaker – connected with a single lead. Like this I am free to sit, stand or move about and my physical gestures are clearer. Rather than operating a computer, I am playing an instrument.

3.3. Feature creep

Ballard's carry principle dictates that mobile design is unstable, and therefore the constant introduction of additional features, or *feature creep*, is inherently part of the development process. Théberge identified this feature as the intersection between consumption and use of technology. Musical instruments are defined through their use and not by their form; 'musical instruments are not ''completed'' at the stage of design and manufacture, but rather they are made-over by musicians in the process of making music' (Théberge 1997: 159–60). Many sound apps are improved iteratively, updated either by the i-Tunes app store, Google's 'play store' or through harnessing social media for alerts on software updates. Hosting discussion boards or session-sharing on sites such as YouTube and SoundCloud encourages consumers to contribute to what is essentially continuous beta testing of a product, or alternatively what Rojek refers to as 'co-operative labour' (Rojek 2011: 212).

One example is a personal favourite sound app – Samplr,[9] designed by Marcos Alonso. Samplr uses the touchscreen as an input modality, using six individual channels for live recording with volume, attack and release, direction, tempo and transposition enabled or disabled with a single gesture. The samples are synched to an overall tempo or played individually in a variety of ways: a two-finger gesture allowing adjustable looping points, a bowing function, simulations of magnetic tape, turntablism, or chopped and arranged across a keyboard. Familiar effects such as reverb, delays, and high and low filter passes have a visual interface, and all screen gestures are recordable and loopable. With such a rich array of controls, it is possible to quickly construct densely layered textures of sound. Samplr originally began with a set of pre-installed sound files, but successive versions have added features such as live input recording, audio copy and pasting, and background audio function, allowing multiple apps to open and play at once, and even altering its design to make it easier to play in low lighting conditions.

New generations of app design such as Audiobus[10] or Jack[11] function as modular mixers to integrate different apps on a single device. These features might seem fairly standard functions for laptop computing, but such models offer a glimpse of the further integration of multiple applications built by separate developers. Filatron by Moog[12] runs high-resolution digital oscillators and filter poles based on Moog's waveform synthesis architecture mapped to pads for real-time performance. Yet there is an implicit acceptance the sounds being generated are simulated, or what Frith refers to as an imitative realism: 'No sound, in short, can any longer guarantee the truth' (Frith 1998: 244). It is my opinion that we understand Filatron's sound is a simulacrum, in as much as its playful retro wood panelling is not considered to be real wood. Mobile music apps are not a rupture in the story of electronic music, but a continuation that draws upon the canon of past electronic music practices.

Interactions with mobile apps are often designed to be heuristic, enabling a user to learn its functions quickly through a process of trial and error. This approach can mean that sound apps are often dismissed as toys rather than serious music systems. When apps such as Soundbrush2 claim to be 'a fun way to create music without learning an instrument',[13] we might presume its music intentions to be unauthentic. Yet this ease-of-use allows the same device to accommodate all levels of musical knowledge and technical ability. Anna Dezeuze reports of the criticism new media face in the art world, as being 'shallow' technology or 'Nokia art'. She notes that, if critics do not use the media themselves, they are unlikely to be aware of the content carried by connective media: 'Like most art, it is the content and intent of the work that is important, rather than the media used' (Dezeuze 2010: 299).

[9]http://samplr.net.

[10]http://audiob.us.

[11]https://itunes.apple.com/us/app/jack-audio-connection-kit/id615485734?mt=8.

[12]http://www.moogmusic.com/products/apps/filtatron.

[13]http://www.idesignsound.com/soundbrush-ipad.

3.4. Travel and agency

> Whatever music technology is, it is not one thing alone. It is not separate from social groups that use it, it is not separate from the individuals who use it: it is not separate from the social groups and individuals who invented it, tested it, marketed it, distributed it, sold it, repaired it, listened to it, bought it, or revived it. In short, music technology – any technology – is not simply an artifact … it is rather, always bound up in a social system. (Taylor 2001: 17)

In his excellent analysis of pop culture, Chris Rojek (2011) imagines music before electric amplification: music bound by folklore and transmitted via the oral traditions of the wandering minstrel, the troubadour and the medieval jongleur. The technology used to augment the singing voice had to be light and portable – stringed, wind or percussive instruments. Robert Briffault's observation of the Moorish tradition of the jongleurs as they followed marches and military campaigns to conquer new territories, notes that songs were able to travel great distances far quicker than written texts (Briffault 1965: 76–9). Travel exposed the wandering minstrel to music from a wide range of unknown and different cultures, absorbing, borrowing and re-appropriating music techniques and styles of playing.

And then 'Electricity changed everything' (Rojek 2011: 177). Electricity has completely transformed the production of music, how we hear and consume it, and while the exchange of music still involves oral traditions, it is super-extended with broadcast media and the Internet. When encrypted data becomes the primary medium of exchange, those stringed, wind and percussive technologies are 'as redundant as a box of clogs' (Rojek 2011: 176). Electronically generated sound – whether made on a laptop, mobile phone or a hacked device – is music that tells us something of our time. The portability of these new instruments allows us to make music in any social setting, and the effect of networked societies and globalisation is making cultural monads of us.

Analysing the power and agency associated with musical instruments, Kevin Dawe comments that when Woody Guthrie emblazoned the words 'THIS MACHINE KILLS FASCISTS' on the front of his guitar it was an act that gave symbolic power to his instrument, transmitting a social and political message (Dawe 2010: 151). Portability plays a crucial factor in shaping an instrument's travelling existence and hence the action of migration plays a cultural significance in 'the sonic and design result of travel' (Dawe 2010: 189). When considering the relationship between performer and instrument, transportation becomes a primary concern (Richards, 2006: 286); indeed, how much one person is allowed to carry in a single piece of baggage on a train or airplane has had an impact on the evolution of live music practice. The travelling musician must always consider the weight of their luggage whenever setting out to a gig, and as the electronic musician must now travel on ever-decreasing budgets, so the portability of their instrument is as important as it ever was.

However, technological change is presenting fundamental challenges in our understanding of what constitutes a musical instrument. Changes in musical styles are always extending and challenging the idea of a musical instrument, even our use of the word *instrument*. As a musician's practice becomes more aligned with being a consumer of technology (Théberge 1997: 6), de-differentiation and new technologies are weakening the old divisions between producers and consumers. The Internet is breaking down the distinctions between composers and performers as active and an audience as passive. We need to begin reframing our ideas of creativity by extending the concept of composer-performer to the audience-consumer.

4. CONCLUSION

Mobile computing is only one more stage of technological progress, and mobile designers are already thinking of it as a bridging technology to ubiquitous and wearable computing (Rolston 2013: online). But mobility has already had an impact on how we relate to each other and our immediate surroundings. A portable device differs from a computer in that it is designed to be hand-held and always remains active, even when powered down. It may not have the processing power of a laptop, but portability and embodiment bring it closer to the 'player paradigm' (McDermott et al. 2013: 30) found with a musical instrument. Mobiles are highly personalised, they connect, receive, transmit and store our images, experiences and opinions, miniaturising the stuff of our lives, our memories, behaviours and habits. As we become increasingly decentralised, our devices can give us a *sense* of social connection. What began as a communication tool has become a relational device. Smartphones and tablets have extended the limits of what the Internet has to offer, to include the physical spaces we inhabit and the ways we perceive proximity; they are our agents to navigate these new spaces.

While this article is not a thorough investigation into the traditions of folk music, it seeks to draw comparisons between folk transmission of data between communities and the collaborative dissemination of knowledge provided by exchange forums and self-organised discussion groups, whether social, musical or technical. Folk music does not belong to the past, but is an adaptable culture that embraces commerce and entrepreneurship, and reflects social change. It is striking how folk music changes particularly during

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moments of social upheaval when transition and intercultural movements are at their greatest – perhaps its greatest strength is the ability to historically determinate social conditions and reflect change? And where does mobile music fit within the three overlapping and contradictory grids of discursive practice: art, commercial and folk? I propose mobile music fits closest to folk music; 'people' music.

Whatever our level of capability or understanding, portable devices provide the impetus for connectivity. Notionally they offer a sense of security and connection, but they can also offer affiliation and allegiance across communities. As mobile computing becomes increasingly sophisticated, the device moves further away from its original function and becomes an enabler of creative production. The ability to create, share and participate in electronic music-making on a single, portable device allows us all to be mobile musicians. To paraphrase Gordon Mumma: it's about *how* we use them.

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