

Lachlan Goold & Phil Graham: The Uncertain Future of the Large-Format Recording Studio

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Abstract

This paper investigates new spatial relationships in music production triggered by the proliferation of low-cost digital music production tools and how they have changed factors of time and creativity for the record producer. We address the problem through a focused set of production projects and the peer review of those projects by seven well regarded commercial producers. Put simply, we are asking whether those producers can determine whether the recordings were made in large-format or DIY “home” studio environments in blind listening tests.

Introduction

This paper investigates new spatial relationships in music production triggered by the proliferation of low-cost digital music production tools and how they have changed factors of time and creativity for the record producer (cf. Bennett: 2012, p. 8; Théberge: 2012, pp. 89-90). We address the problem through a focused set of production projects and the peer review of those projects by seven well regarded commercial producers. Put simply, we are asking in what ways do DIY recording spaces change the experience of recording for the producer and whether those producers can determine if the recordings were made in large-format or DIY “home” studio environments. The recordings were created in both DIY recording spaces, large-format recording studios, and a combination of both environments. The producers conducted blind listening tests. The producers took a questionnaire (see appendix) about their attitudes toward DIY recording, the effect on the producer’s creativity in DIY situations, and their opinion on the fidelity of the finished recordings from those environments.

We argue that the DIY paradigm in recording is a domesticated form of a formerly industrialised production process. As a result, the large-format, industrial era studio has become increasingly unviable, with many iconic facilities closing down throughout the world, especially over the last decade. We define the large-format recording studio as consisting of a console of 24

channels or more; the ability to record 24 or more inputs at the same time; an acoustically treated and isolated control room, and multiple acoustically isolated recording spaces of varying size. We define DIY (or home) recording as the practice of recording in an acoustically untreated domestic space, or any space not specifically designed for recording, which uses limited portable equipment based primarily around a computer and software. Our definition of a “hybrid” process describes a process in which initial recordings were made in a large-format studio with overdubbing done in a DIY studio.

Since the late 19th century, the quality, fidelity, and sophistication of audio production have progressed along with technology (Leyshon: 2009, p. 1319; Pras, Guastavino, & Lavoie: 2013, p. 612). However, this trajectory seems to be in question as the quality and use of new technologies, advanced as they are, are claimed by many to be detrimental, socially, musically, and concerning audio fidelity (e.g. Burkeman: 2006, p. 1; Williams: 2015, p. 3). There is little research to either reinforce or refute whether recordings have changed in respect of any of those factors.

Quality of space and creativity are commonly linked. There is, for example, a common-sense assumption that the more comfortable an artist is, the better they will perform. Howlett (2009) writes of spending a whole day in the large-format studio during the 1980s to acclimatise the artists to the artificial environment, reduce alienation, and promote better performances (p. 49). That is a generally unaffordable scenario in the current era of self-funded and small-label recording budgets. The large-format studio has been in financial decline since the first Digital Audio Workstation (DAW) began to compete in terms of quality with the analogue 2” tape machine early in the twenty-first century. Industry and academics discuss the trend in mostly woeful terms (Leyshon: 2009, pp. 1326-1327; Théberge: 2012, p. 82; Weidenbaum: 2012). However, the evidence we present here demonstrates that in a DIY context, the advantages of new digital technologies combined with an experienced producer can enable at least equivalently creative musical performances to those in a large-format studio by removing creative barriers built into the architecture of the large-format recording studio.

Csikszentmihalyi (1996) argues that it is ‘easier to enhance creativity by changing conditions in the environment than by trying to make people more creative’ (p. 1). The large-format studio has long been considered a creative space and regarded as another instrument and compositional tool (Eno: 2013, p. 129; Kealy: 1990, p. 179). By merging recording with the place of composition (for example, the home or a representation thereof), the recording studio becomes another musical instrument without the performer having to confront the institutional relations of power built into the large-format studio. The recording studio is a space in which musicians’ creativity combine with the recording environment and the producer’s ability to enable inspiring performances (Gibson: 2005, p. 192). Our focus here is to know how profes-

sional producers understand the large-format recording studio given the current recording downward budget trends, and whether its ability to capture a creative performance is vulnerable now that professional quality DIY home recordings can be made.

There are indications that the laboratory-like recording space of the large-format recording studio can affect a recording negatively, particularly when professional results can be achieved “in the comfort of your own home” or in another DIY scenario more conducive to creativity (Byrne: 2012, p. 174; see Gibson: 2005, p. 196; Hennion: 1989, p. 406; and Leyshon: 2009, p. 1319 on the 'laboratory'). Given the rapid uptake of DIY recording, this topic has significant ramifications across the music and recording industries and brings into question the relative usefulness of large-format studios as creative recording spaces. This paper aims to evaluate producer attitudes toward exactly what, if anything, is lost as the industry moves away from large-format studio recording spaces into DIY recording scenarios.

The changing space of record production

The pre-electric (mechanical or acoustic era) recording studio developed a culture of ‘getting it done’, and records were meant to document performances with artistic considerations being secondary (Horning: 2013, p. 2). By the late twentieth century, the electrical era changed the creative character of the studio radically, but the basic design principles of the studio remained unchanged from the earliest days of the electrical era (Williams: 2007, p. 2). The post-war period saw great changes in recording technologies yet the primary purpose of the studio remained entirely utilitarian: to capture a live performance with the best frequency response and fidelity (Kealy: 1990, p. 174). As fidelity increased, so did the demands on the recording engineer’s skill with the main goal being ‘concert hall realism’ (p. 174).

The development of magnetic tape recording in early 1949 added to the factory-like impetus of the recording studio, adding enhancements to fidelity, factorising asynchronous production processes, and offering economic benefits to recording with tape being much cheaper than direct-to-disc techniques (Kealy: 1990, p. 176; Toynbee: 2000, p. 80). The further development of multi-track recording and overdubbing enabled the studio to become a compositional tool and a place of creativity in which well-funded major label artists could “set up shop” for months and sometimes years at a time (Théberge: 1997, pp. 215-216; Williams: 2006, pp. 209-211). Extended time periods in the studio facilitated composition and experimentation (Byrne: 2012, p. 205; Leyshon: 2009, p. 1316; Théberge: 1997, p. 216). Technological developments from the late 60s through to the 90s, changed recording production cultures with the implementation of MIDI and digital recording technologies. In particular, during the 80s, production styles moved further

from a performance capture paradigm with the extensive use of programming and synthesizers, often with results never intended for live performance (Bennett: 2009, p. 2).

Even over the short time that recording audio has been possible, the dominance of large-format recording studio between the mid-70s and the mid-90s is a brief period of anomaly. The progression of recording techniques now relies less on the sound and architecture of the performance space because recording has well and truly departed from the “performance capture” paradigm toward the digital manipulation of pure signal. The advance of technology has put the large-format recording studio’s economic viability into question and continues to influence changes in the current era (Watson: 2013, p. 330).

DIY recording culture: domesticating technologies

The recording studio has had a history that is akin to the industrial zeitgeist at any given time. At some stages, it was like a laboratory. At others, it became like a production line factory (see Hull, et al., 2011, p. 221 on the ‘factory’). At others, it became the creative equivalent of a project office. Through those periods, the recording studio progressed from an uncomfortable space with limited creativity to an instrument integral to the construction of a successful and creative recording. The growth of low-cost music production tools concomitant with the closure of large-format facilities has dramatically changed the current era of recording practice (Bennett: 2012, p. 8).

Homer (2009) argues that DIY music production began to thrive from the early 70s, although it is possible to establish those origins in early examples of experimental overdubbing techniques known as sound-on-sound (pp. 86-87). In 1941, Sidney Bechet released a jazz recording called “one-man band” in which he used sound-on-sound techniques to record all of the instruments, including drums, bass, saxophone, clarinet, and piano (Théberge: 1997, p. 217). More famously, Les Paul innovatively recorded an instrumental using sound-on-sound techniques in his shed, in 1947 (Milner: 2009, p. 126). Despite Paul’s success in using innovative recording techniques, the conservatism of the recording industry restricted the multitrack’s integration into the laboratory model of recording architecture based on an institutional separation between control and performance as identified in the term “control room” (Toynbee: 2000, p. 81). Sporadic experiments in DIY continued after Les Paul’s recordings, outside the majors, sometimes with incredible success. Sam Phillips’ early work at Sun Studios is a well-known example, as are Berry Gordy’s early Motown recordings in Detroit’s Hitsville studios,

and Bill Putnam's¹ work at United Recording Electronic Industries (UREI) (cf. Bisel: 2015; Milner: 2009, p. 151; Sutheim: 1989, p. 729). Compensating for the shortfalls in their archaic DIY recording environments in the late 60s and 70s, producers Lee 'Scratch' Perry and King Tubby creatively used and experimented with reverb and echo to create new sounds (Gibson: 2005, p. 198).

Portable four-track recorders appeared in the early 1970s and gave artists a glimpse of what it may be like to record at their convenience (albeit in a non-professional capacity) while preparing and experimenting with their demo recordings (Milner: 2009, p. 174; Théberge, 1997, p. 221). Those new technologies were not comparable to the fidelity of the large-format studio, but as Théberge suggests, new musical genres emerged around the use of this equipment (Filipetti as cited in Massey: 2000, p. 194; Théberge: 1997, p. 195). A genre known as lo-fi (low fidelity) emerged in the 1980s and gained prominence in the early 90s, established itself using cheap domestic recording equipment to purposefully sound as if it wasn't professionally recorded (Carew: 2017; Jones: 2014, pp. 42-48). Bennett and Peterson (2004) define lo-fi as 'a form of DIY recording that was typically done by amateur musicians on cheap, domestic recording appliances, such as cassette or reel-to-reel tape machines, in home settings such as the bedroom or living room' (p. 218). In an effort to subvert the '80s rock polish' of the commercialised music industry, a new lo-fi genre emerged in which the participants recorded on cassette 4-track recorders and established an underground network of DIY culture (Spencer: 2005, pp. 273-274).

The 1980s is also the time at which professional-level home recording became possible, with the arrival of MIDI, sequencing, and affordable mixers. As Bennett (2009) notes:

The technological acceleration that began in the early 1980s had, by the decade's end, culminated in a wealth of time-saving, space-saving, not to mention money-saving systems, bringing with them new working practices and redefining the roles of the producer and engineer (p. 2).

By the late 1990s, the perceived quality of the home studio increased with further storage medium improvements of digital recording, and low-cost microphones that performed close to the most expensive high-level microphones (Filipetti as cited in Massey: 2000, p. 194).

Much of the literature on the DIY recording phenomenon concerns solo-performed electronic-based music (cf. Homer: 2009; Knowles & Hewitt:

¹ There is ongoing conjecture over who made the first sound on sound recording. Most literature has focused on Les Paul, however Bill Putnam claims that he used sound on sound before Paul (as cited in Sutheim, 1989, pp. 728, 729), despite Sidney Bechet's "one-man band" single. Regardless, sound on sound recording emerged in 1947 in popular music in the work of both Bill Putnam and Les Paul.

2012; Sirppiniemi: 2006). In contrast, the focus of this research is popular song recordings; guitar- or keyboard-driven music that is usually recorded in large studios due to the loud volume of acoustic drums and other electrified musical instruments. This research does not address orchestral recording, small string ensembles, Jazz, repertoire, musical theatre cast recordings, field recording, spoken word recording, or EDM/dance music production. Although some of the recordings used in the experiment we present here were created in a DIY manner, our intentions were to not sound lo-fi; rather, the music consisted of new and original works by independent artists, written by the artists, where innovation and novelty are desirable approaches in the recording process.

Watson, et al. note in 2009 that ‘professional quality recordings can be produced by individual musicians and producers in modest recording facilities and home studios, enabling artists to control more aspects of the production process’ (p. 867). Which is also to say that before then it was not possible to achieve a production comparable to large-format studios using home recording technologies (Homer: 2009, p. 92). Homer (2009) bemoans the development: ‘While there seems to be significant economic advantages for artists to record at home, it is important to draw attention to what exactly is lost when the musician dispenses with the professional studio’ (p. 90). In DIY spaces, not only are the large acoustically treated rooms missing, so too is the state of the art equipment, and the experience and knowledge of highly trained engineers and producers (Jenkins as cited in, Homer: 2009, p. 90; Pras, et al., 2013, p. 623). Without the need and expense for an engineer or producer Homer (2009) claims that:

With home recording technologies potentially providing a democratisation of the music making process through their affordability, it is important to explore what this greater access means for the creation of music. Through its ease of use, the proliferation of digital technologies has arguably enabled greater experimentation in the music making process. (pp. 90-91).

As major record businesses faced severe downturns from 2004 onwards, it has become commonplace to record part of an album in a large-format recording studio and finish the overdubs and editing in a DIY context, thus saving money and leaving more time for creativity (Slater & Martin: 2012, p. 69).

Recording at home requires reorganisation to accommodate the studio. Théberge (1997) argues that substantial inconveniences created by bringing the recording studio into private spaces and its effect on the household (p. 215). Home studios are usually hidden away within the household so as to not disrupt the normal flow of the house with a tangle of wires and equipment, making home recording a private act (p. 234). Auvinen (2016) argues that the domestic space is not ideal for production even if the studio is tech-

nologically current and the space comfortable because the home is not always conducive to work and it presents challenges acoustically in both recording and monitoring playback (p. 6).

Digital technology and the respatialisation of recording

Digital technology has given the recording studio a kind of freedom, but not without a cost to the industry. World-renowned studios have closed, including Olympic in London (Homer: 2009), Cello in Los Angeles (Milner: 2009, p. 347), Sony Music Studios (Théberge: 2012), The Magic Shop (Welsh: 2016), A&R Recording and the Hit Factory in New York (Rose: 2009), Studio Victor (CBS News Montreal: 2015) and Le Studio in Montreal (Kovac: 2015), and York St in New Zealand in recent times due to the combination of industry downturns and technological pressures.

The Internet, file sharing, and streaming significantly reduced the income potential of the once lucrative recording business (Hull, et al.: 2011, p. 29), returning only after major platforms like Spotify devised often-maligned deals with the majors in the development of a new business model that has yet to turn a profit for the platforms or generate significant returns to artists. Théberge (2012) asks ‘whether the recording studio is in fact threatened with extinction or whether we are witnessing another stage in its evolution, a re-configuration of the studio as a technology, a means of production and a form of musical practice?’ (p. 79). In his audit of recording studio numbers in the US, Théberge (2012, p. 89) found that the number of studios is in fact growing and not shrinking, just as they are in Australia (Graham: 2013, p. 23). The closure of many larger facilities has led to more opportunities for the autonomous producer/owner/operator (Watson: 2013, p. 331). Homer (2009) adds that many more people are now making recorded music due to the lowered entry barriers afforded by digital technologies (p. 88). As the major budgets shrank in the early 2000s, recordists still needed to find a way to work. An engineer could continue to work in a large-format studio for a reduced rate, or they could buy their own DAW and not charge for studio services, thus retaining their usual studio fee (Dye as cited in, Milner: 2009, p. 339). This trend is certainly a crisis for the large-format studio and Théberge notes that ‘while the overall number of recording studios may be expanding, the status of the large, high-end studio is in question’, referring to the large-format’s place at the pinnacle of recording technology (2012, p. 89). Gibson (2005) maintains that while home recording cannot challenge the mythical status of the high-end studio, it can still become an effective emotional and creative space, interacting with its built environment, in reference to the cultural significance of the recording studio (p. 205).

Methodology

This paper is based on a comparative series of music production projects that were conducted either by recording them in a large professional recording studio (Queensland University of Technology's recording facilities); by recording in situations dictated by a set of limitations common to smaller budget projects (DIY scenario); and by recording with a hybrid approach of both methods. This paper analyses four recording projects with three different artists, within which each project incorporated a mix of the three distinct approaches, dispersed as evenly as possible during the creation of new original recordings. The research design is as naturalistic as possible. Naturalistic design attempts to undertake research in conditions that are 'committed to the primacy of natural context' (Lincoln and Guba: 1985, p. 226). Every recording session involved the creation of new work. To re-record any works in an opposing scenario would not be naturalistic and would reveal a contrived result.

In the large-format studio setting, time spent recording was limited to 1.5 days per song (depending on the project and style of the artist) which, going by experience, is a typical amount of time to record a song. There was a greater time budget for the DIY studio, which is indicative of typical DIY processes. Each song was limited to no more than three days, which allowed time to experiment and capture the desired sound in those spaces. Using the hybrid approach, we recorded as much as practicable in a one or two-day session in QUT's studio and then overdubbed on these sessions in the DIY studio.

QUT's studios meet our definition of a large-format recording studio, consisting of a large-format console, numerous selections of outboard equipment, and a separation of control rooms and recording spaces. The DIY recording equipment for the DIY recording scenarios was sourced from QUT's hire department within the Creative Industries Faculty along with additions from a personal collection. A UAD Apollo system and a laptop are the centre of the DIY setup, which was portable and representative of typical small-budget DIY recordings. No microphone worth more than \$600 AUD was used and the entire DIY studio had a value of around \$10,000, keeping the budget in line with a typical DIY setup. The cheaper microphones of the DIY setup have a reputation of being lo-fi and not able to capture audio as efficiently as high-end microphones. All recordings were completed in a manner that suited that particular song creatively. Some songs were all overdubbed, one part at a time, and some are mostly performance as a group ensemble, depending on the desired aesthetic for that particular song's production. Most of the editing took place in that particular studio's environment, as is our preferred practice. A complete list of the equipment used in the recordings can be found in appendix D.

Multiple professionals assessed the completed recordings so as to achieve maximum reliability on an assessment of quality (Denzin: 1973, p. 297). The completed recordings were sent to recording professionals for critical evaluation of production and sonic quality. The recordings were de-identified and respondents were asked to determine the provenance of the recording scenarios. All producers involved have at least 20 years of experience during which they have gained artistic and critical acclaim. Draper (2013) points out that critical listening is motivated by ‘highly personalised practice-based drivers’ (p. 4). Using non-professionals, or even those who work in the music industry more generally, would have revealed ‘many interpretations and approaches to listening to recorded music’, giving results that would be ‘quite different from many external forms of evaluation schema theorised’ and would therefore be too imprecise to be of use to the research (p. 4). Experienced producers can perceive minute details in the completed mixes and thus may be able to determine in which recording space a recording was made. The producers completed further closed questions to convey their attitudes toward the current circumstances in the recording studio. Those data collections allowed me to draw credible conclusions about relative quality.

Producer Attitudes

Twelve producers showed interest in the research and seven completed the survey. They were: Andy Baldwin (Brooklyn); Mike Howlett (UK); Jeff Lovejoy (Brisbane); Jimi Maroudas (Melbourne); Paul McKercher (Sydney); Steve Schram (Melbourne); and Tim Whitten (Sydney). The producers were asked to determine the spatial provenance of the de-identified recordings. They were also asked to answer five structured questions regarding their attitudes toward DIY recording techniques and the current state of the large-format studio. Those questions and the de-identified audio files can be found in Appendix B. The producer responses can be found in Appendix C. Paul McKercher explains how he evaluated the recordings:

Things I listened for as clues to the recordings' provenance were the depth of the kick drum, the smoothness of cymbals and the ambience around the drums, the noise floor, the quality of the top end in vocal mics, especially sibilants and the amount of clarity and detail in the sounds generally which I assumed was a reflection of the converters used. (personal communication, 27/03/17)

None of the others gave detail about how they listened to the material or about the basis of their judgements. Figure 1 is a screenshot of the results of the listening tests. A green square represents a correct assessment and a red square is an incorrect assessment. The best score was 7 out of a possible 17

(40.18%) with the mean score being 5.14 (30%) out of 17. All respondents picked the song *Don't Suffer Kate* by the Oyster Murders as a DIY recording. That track involved found sounds in place of a traditional drum kit and was more easily identified as DIY in origin simply because it would be difficult to achieve in a large-format studio without literally bringing in the kitchen sink. If we removed this track from the list, the highest score would have been 6 out of 16 (37.5%) and the mean 4.28 (26.79%) out of 16.



Figure 1: Producer results.

Five producers correctly determined the provenance of *Blossom* by Tylea, in which I chose not to remove the sound of crickets from the preferred vocal take. The crickets are clearly audible in the breakdown verse of the song. No other tracks generated any consistency with producer responses. Even though it is a small sample, it is a sample of highly qualified listeners. It is unlikely that untrained listeners would be able to determine whether the recordings were made in a large professional setting or on a laptop in DIY situation based on listening to the final mixes alone whereas this acknowledged industry panel would have the highest likelihood of being able to identify hallmarks of quality recording in multiple contexts. A link to the mixes can be found in Appendix A.

Producer attitudes toward DIY recording

The producers were asked five questions were to gauge their attitudes about the DIY movement. McKercher was the only producer who overtly avoided DIY recording. He argued that artists who want ‘to work DIY are happy to operate their own equipment and produce their own music’ (McKercher: interviewed, 27/3/17). He prefers the immediacy of capturing things quickly in the large-format studio and finds the restrictions of the DIY studio prohibitive stating: ‘Achieving this [a quality production] in a DIY environment can be challenging due to the space and equipment constraints’ (McKercher: interviewed, 27/3/17).

The other 6 producers were positive toward DIY recording, including Steve Schram who enthusiastically stated:

I would not have a career as a mixer without the DIY artists or enjoy myself as much as a producer if forced to only work within the boundaries of a stu-

dio. Mistakes and limitations are crucial to discovery and innovation and present themselves more often in the world of DIY. (interviewed, 22/3/17)

Not only has he drawn links between DIY recording and his livelihood, but also to the abundance of novelty created in the DIY scenario. He comments positively on the spatial effects on creativity in DIY contexts:

A place which may feel homely, or a place removed from the comforts of home. Away from distraction. A producer looking for a space which nobody has recorded in before thereby sounding like no other record made before. Budget restrictions may offer more time for an artist to explore the process. (interviewed, 22/3/17)

Lovejoy added that creativity is more important than fidelity.

The relaxed atmosphere adds to creativity that in my opinion is more important than sound fidelity. There are also more location opportunities like the bedroom or the rehearsal space etc., where musicians and producers can record themselves without pressure of expensive recording budgets of the large format studio. (interviewed, 26/3/17)

Producer Maroudas said that DIY is

... a means to resolving a budget constraint, other times it's a means of creating structural closure, for instance getting out of town and recording in a holiday house by the ocean. Often, it's a means of using the budgetary constraint to our creative advantage by working in a unique space that we may otherwise not have. For instance, I have recorded a large portion in an empty two-story holiday house that had unique reverb that created a unique and interesting sonic identity for the album. (interviewed, 2/4/17)

Mike Howlett explains his motivation for working in his home studio: 'I can control when I work and for how long' (interviewed, 29/3/17). Producer Baldwin had a similar attitude: '[I] like having the artist stay/cook/eat/sleep together, focused, removed from distraction. As far as sonics are concerned, I LOVE the sound of my house' (original emphasis, Baldwin: interviewed, 16/3/17). Producer Whitten adds to the positivity of a DIY scenario: '[s]ometimes cost and sometimes being in an unusual place can have positive/creative effects on people'. (interviewed, 26/3/17)

Studio necessities

The respondents were asked what were the most important elements to make a good recording for an artist. Schram identified '[t]he skill and personalities of the people they choose to work with' (interviewed, 22/3/17). Howlett simply added: 'Comfortable ambience, good headphones' (interviewed,

29/3/17). Responses highlighted the importance of comfort and communication in the studio. Both those elements are independent of spatial concerns and are available in DIY or large-format environments.

Whitten drew attention to the importance of the space in which you record, adding that ‘a stimulating atmosphere with a varied choice of equipment are the two most important for me. The balance of these two elements changes depending on the project’ (interviewed, 26/3/17). That brings into focus what a stimulating environment should be like. The definition of a creative environment is different for different people but is nonetheless a crucial ingredient in the recording studio. As Csikszentmihalyi states, ‘choosing the wrong environment will probably hinder the unfolding of creativity’ (1996, p. 133).

Other respondents provided a list. The most common items included:

A comfortable and creative space: McKercher specifies ‘quality air and light, a cohesive and pleasing interior design that shows some thought and artistry and that inspires artists to do their best work’ with ‘a comfortable and spacious recreation space’ (interviewed, 27/3/17). Maroudas said the space should be ‘isolated and removed from external pressures’ and must also have ‘the ability to easily facilitate the recording of a band’ (interviewed, 2/4/17). Baldwin likes ‘inspiration, energy, comfort and safety (especially for female artists).’ (interviewed, 16/3/17)

Acoustic requirements: McKercher likes ‘musically pleasing acoustics, a number of isolation spaces’ with ‘good sight lines’ and ‘a low noise floor’ (interviewed, 27/3/17). Lovejoy identifies ‘a variety of good acoustical spaces with separation options’ and ‘high-quality monitoring with an even frequency response’ (interviewed, 26/3/17) and Baldwin prefers wood and other natural surfaces. (interviewed, 16/3/17)

Technical requirements: All specify well maintained, and a good variety of equipment. Baldwin also adds that ‘an inspiring environment is way more important.’ (interviewed, 16/3/17). Many of these specifications could, of course, describe a typical large-format studio but they can also be features of a well-chosen DIY setting.

Producer attitudes toward large-format recording

The producers’ responses show that the spatial provenance of a recording is difficult to identify in a final mix recorded by a competent engineer-producer. This research began with questions about the way in which large-format recording studios might be reconceptualised given the current recording studio era. Lovejoy distinguishes between acoustic band performances and purely electronic production approaches.

In my opinion, large-format studios will always be the better setting for recording well-rehearsed organic music played live by humans! Whereas cut and paste music such as electronic dance music has little to no benefit to the large format and would better be suited to DIY recording, as most of the sound manipulation happens inside the computer. (interviewed, 26/3/17)

Most of the producers mirror the thoughts of McKercher regarding the future of the large-format studio:

I see large-format studios as continuing to be useful for certain artists and production requirements, though the demand for, and the number of large-format studios will probably decrease. Large ensembles and orchestras for soundtrack recording will continue to require more spacious recording rooms with low ambient noise floors and the extensive mic kits and number of mic preamps afforded by large studios. Bands that prefer to perform and record simultaneously, to capture the energy they conjure as an ensemble, will need larger spaces to accommodate them along with multiple isolation spaces for their amplifiers. (interviewed, 27/3/17)

While we found the DIY scenario capable for most of the recording requirements for the chosen artists, it was hard to record quieter sounds, particularly autoharp and some vocals. Baldwin adds that

Music has changed so much that they [large-format studios] are becoming less relevant. All that said, as an engineer, it is always such a pleasure working in a beautifully equipped, beautiful sounding studio. That will never change! (interviewed, 16/3/17)

Whitten argued that:

There will always be a need for a “large acoustically designed space or spaces” that allow for musicians to perform together. Perhaps large consoles are not a requirement or a large list of outboard. I think those items are now more about personal choice than need. (interviewed, 26/3/17)

The results of the research show that recording spaces don’t need to be ‘acoustically designed and isolated’ for many types of contemporary music to sound good. However a large space is still an asset. I may have been lucky when sourcing venues for our DIY recording, but it is relatively easy to find an appropriate space through the current Airbnb sharing economy. Although some of the DIY spaces were not large, I still achieved results that made it difficult for professional producers to identify any difference.

Whitten also acknowledges the improvements in DIY technology in such developments. He says that ‘large consoles’ and ‘a large list of outboard gear’ is just matter of personal choice rather than the technical necessity it once was considered to be. Sonically, the research has shown the difference

in audio fidelity among the different recording scenarios is small. However, workflow issues regularly appear in field notes as issues in the DIY space. Producer Schram is of the opinion that the large-format console is less necessary than the recording space but that large-format recording space will endure.

The LFS [large-format studio] will exist for a while to come due to passion of the studio owner but restricted to what a 1 or 2-person operation can offer. The full service of owner, reception, in-house tech, engineer and assistant is no longer sustainable. The large-format console will disappear before the large-format studio does. The space is more critical to multiple genres than the equipment. A larger good sounding space will be in more demand than a large console. Any recording from any format will only sound as good as the song allows and the skill of the mix engineer. (interviewed, 22/3/17)

One implication of the research is that producers will need to become more creative when selecting spaces for recording and more mobile with their equipment. Producer Maroudas takes a distinctly creative angle. However, in describing features of a large-format studio, he could easily be describing those of a DIY space. What's important, says Maroudos, is

the ease for artists being able to create a sonic landscape and for them to be able to be ushered away from the world and into a creative environment where all of the creative tools are ready at hand, make it a relevant, and a necessary ingredient in the production of commercial release music. However, the dynamics of the music industry mean that the economics necessary to be able to build, maintain and keep a large format studio running are presently difficult to sustain. (interviewed, 2/4/17)

McKercher speaks of the efficiencies of the large-format studio:

While the daily cost of larger studios is higher, recording ensembles in a large studio simultaneously can be considerably more time efficient than tracking each member successively on a more restricted setup, making studio recording budgets comparable with those associated with longer schedules in lower daily cost DIY recording environments. (interviewed, 27/3/17)

Of the respondents who didn't choose the producer as the most integral part of the recording process said that time in the studio was the most crucial part of the process contra to McKercher's comments about time.

Conclusion

This research has shown that DIY spatial scenarios are today sonically indistinguishable from those of large-format recording spaces. The seven producers who responded to the listening tests were able to pick the provenance of

the recording space 30% of the time, with only 2 songs out of 17 having been identified with any consistency across all responses. This demonstrates that the sound of a large-format studio can be produced in DIY spaces. Most of the producers were positive about the shift to DIY recording and remarked on the abundance of novelty and creativity such situations produce. The impetus for recording in DIY situations tends to be largely financial. But it was also way to use budgetary restrictions to advantage, allowing more time for artistic exploration, more time to use the studio as the musical instrument it is, or at least can be. Many of the producers listed spatial requirements they felt necessary to facilitate a successful recording. They typically describe a large-format space as most desirable. Many of those requirements can be found in well-chosen DIY settings. Although the producers agree that large-format studios will continue to decline in number, some studios will remain to cater for specific genres and ensemble recording tasks. The need for a large-format console in those studios will be a matter of personal choice rather than necessity.

The recording space does not affect the fidelity of the final recording, at least in the genres explored here. However, the space affected the mood, performance ability, creativity, and productivity of the artists involved. Successful DIY recording requires the right equipment, productive (not necessarily good) relationships, and a skilled technician to achieve good results. The term “good” here refers to sonic and artistic qualities both of which may or may not be required for commercial success.

The recording space is not incidental to recording. It is part of every recording, whether professional or domestic, and so the choice of space needs careful consideration regardless of whether it is a DIY or large format environment. A suitable environment is now as much a part of the recording budget as recording equipment because it is a key factor in achieving maximum creativity from artists. DIY recording is not as technically efficient as large-format studio spaces which are hard-wired and permanently set up to record. The preparation for DIY recording can be immense and, once setup, the lack of time restrictions can lead to spending more time on a recording than might otherwise be the case. Financial necessity drives the use of the DIY studio to some large degree, and considering there are no sonic advantages to recording in large-format studios, attitudes will continue to change, particularly given the current trend towards largely self-funded recordings. Hybrid recording does address some of the shortcomings of DIY discussed here, but even short amounts of time in the large-format studio is financially unfeasible for many self-funded artists.

Having enough time to record is crucial to the success of a recording and the comfort of the artists. However, given lower incomes overall for musicians, time is even more scarce in the current era. The producers saw the future of the large-format studio to continue its decline as a central infrastructure for the recording industry. For the owner of a recording studio an

ability to adapt to smaller, but more frequent jobs, as much as the passion of the owner, will be critical the ongoing operation of any such facility. The novelty of DIY recording can be a catalyst for creativity. However, DIY recording does not suit everyone or every purpose. Repertoire based genres do not require large amounts of creativity and time in the recording studio. The producers propose that orchestras, small string ensembles, and jazz, among many other forms, still require large ambient spaces with a low-noise floor and good separation using isolated rooms.

The era of spending extended periods of time in the large-format studio is limited to very successful artists and is over for the emerging musician unless they enrol in a tertiary education institution that has such equipment. The conservative character of the record industry has once again asserted itself in resisting change and brought the large-format studio to the edge of extinction. Producers have few options other than to adapt their recording approaches to the rise of DIY technologies and spaces.

In the “factory” era of recording, large-format recording studios relied on a healthy music business to pay for studio time, usually as an advance against the artist’s future royalties. As recording revenues have declined, DIY technologies have increased in quality, such arrangements are rare. The current economic state of the recording sector has forced producers to embrace the DIY studio creating further growth in portable recording technologies and new recording paradigms more generally. The high level of creative labour required for recording quality music demands some degree of interplay with the DIY studio. Even when the intention is to record entirely in the large-format studio, artists almost invariably include tracks from a demo, or other elements recorded “at home” on the artists’ own equipment, in the final recording. The DIY studio represents the domestication of an industrialised production process and, therefore, the resurgence of a “cottage industry” approach to production, even while distribution becomes an entirely global and instantaneous affair.

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Discography

https://www.dropbox.com/sh/i36488qqio599kf/AAB1pD0CnnkjsWtHyl0Vt_uia?dl=0

Appendices

Appendix A: Ethics approval forms - https://www.dropbox.com/s/thwi5v248c9d6er/ETH_Info-Consent_Interview_20170303.pdf?dl=0

Appendix B: Producer's survey - <https://www.dropbox.com/s/3f1jpealeh6h8t2/Producers%20survey%20final.docx?dl=0>

Appendix C: Producer's response - <https://www.dropbox.com/s/i1leo92yh9h72cg/Producer%20answers.docx?dl=0>

Appendix D: Technical information - <https://www.dropbox.com/s/exyj43nddjsxa1p/Technical%20Information.docx?dl=0>

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