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The unexplored impact of emergent technologies on music industry stakeholders aspirants, producers and consumers

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The unexplored impact of emergent technologies on music industry stakeholders: aspirants, producers and consumers

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Table of Contents

Introduction	1
Part 1: Autobiographical information and portfolio development	3
1.1 Autobiographical context for the portfolio and research roots	3
1.2 Development of the portfolio of evidence	5
Part 2: Presentation, evaluation and synthesis of the outputs	11
2.1 Evaluative description of the originality of each output	11
2.2 Evaluative review of the contribution made by the portfolio of evidence to the subject area	22
2.3 Description, synthesis and evaluation of links between the outputs and the development of the portfolio of evidence	26
Part 3: Critical reflection on development as a research practitioner, research methodology and discussion for further work	30
3.1 Critical reflection on development as a research practitioner	30
3.2 Discussion of research methodology	33
3.3 Conclusions and suggestions for future work	38
References	41

Introduction

This critical overview draws upon a portfolio consisting of two book chapters, three journal articles and one conference paper all published in international publications between 2011 and the present. The papers have been underpinned, supported and disseminated through 18 conference presentations and a variety of interventions with the commercial environment, all undertaken during the same period. The outputs are cross-disciplinary encompassing technology, acoustics, psychoacoustics, business, music, psychology, physiology, cultural studies etc. The work is tied into two sets of funding from the Higher Education Academy (HEA) focussing on the use of emergent technology to develop music producers' expertise. The work therefore represents a cohesive but diverse set of outputs, and is reflective of the technologically-driven nature of the creative industries, and the multidisciplinary experience of the author.

Aim and objectives

The aim of the portfolio is to identify and examine the unexplored impact of emergent technologies on music industry stakeholders: aspirants, producers and consumers - and centres upon the following research objectives:

- To identify the key contemporary emergent technologies which are having significant impact on music industry stakeholders
- To examine existing research on such technologies, their adoption and application
- To identify and focus on gaps in existing research and apply an appropriate range of research methodologies to explore the nature of the impact on stakeholders
- To summarise the impact examined, make conclusions on the implications for music industry stakeholders and outline further opportunities for research

The aim and associated objectives are based upon the following outputs (chronologically listed), which form the portfolio:

[1] Thorley, M. (2011) 'Assaulted by the iPod: The Link between Passive Listening and Violence'. *Popular Music and Society* 34(1), 79-96.

[2] Thorley, M. (2012) 'Music industry aspirants' attitudes to intellectual property in the digital age' in *Music, business and law: essays on contemporary trends in the music industry*. Ed. by Antti-Ville Kärjä, Lee Marshall and Johannes Brusila. Turku: The International Institute of Popular Culture & IASPM-Norden, 91-116.

[3] Thorley, M. (2012) 'An audience in the studio – the effect of the Artistshare fan-funding platform on creation, performance, recording and production'. *The journal on the Art of Record Production* 7.

[4] Thorley, M. (2013) 'Embedding of employer and practitioner input into student portfolios – results of project commissioned by the UK Higher Education Academy'. *Audio Engineering Society E-Library.*

[5] Thorley, M. (2015) 'Graduate meets employer – A model for embedding industry professional involvement in the development and assessment of student portfolios'. *Journal of Music, Technology and Education* 7(3), 325-329.

[6] Thorley, M. (2016) 'Virtual music, virtual money: the impact of crowdfunding models on creativity, authorship and identity' in *The Oxford Handbook of Music and Virtuality.* Ed. by Sheila Whitely and Shara Rambarran. New York: Oxford University Press, 557-592.

In order to best address the needs of the PhD by portfolio, the critical review document is divided into three sections namely: (i) Autobiographical information and portfolio development, (ii) Presentation, evaluation and synthesis of the outputs and (iii) Critical reflection on development as a researcher and discussion for further work.

1. Autobiographical information and portfolio development

1.1 Autobiographical context for the portfolio and research roots

The portfolio began to take shape in 2011 upon the point of a new personal focus on research. It is, however, rooted in the previous years as an academic teaching and leading on a variety of technologically-driven courses and a prior background as an industry professional.

Prior to academia, I spent over twelve years working in the music and media industries in roles ranging from recording studio manager through to music producer, production company owner, multimedia producer and technical consultant. During this time, I worked for clients ranging from broadcasters (such as the BBC and Capital), through to major record companies (such as Sony and EMI), independent labels, advertising agencies and production companies. The majority of these roles were rooted in the production of a ‘creative’ product (whether a music recording, video, multimedia work etc.), which was achieved through the use of technology. The work therefore spanned a variety of technical, creative and managerial functions. During this period of my professional life, rapid and highly significant technological developments took place in what has often been referred to as the field of 'digital technologies'. For example, during this time, recording audio to computer hard disc became technically and economically feasible. This had a huge impact taking away the need for expensive 15-minute duration 24-track tapes and replacing them with re-usable hard discs. Computer processing power also increased meaning that many processes previously completed within large format analogue mixing desks or processors migrated to within the computing environment. This meant that the type of recording studio which had, earlier in my career, cost me many tens of thousands of pounds could be replaced with a powerful computer and software at a much lower cost. In the same period, the Internet came into being and this also had huge impact on my work. For example, initially I was involved in multimedia production for delivery on CD-ROM, and when this was superseded by delivery via more complex websites, my expertise inevitably had to change. Overall, emergent technologies constantly challenged my professional career. This typically necessitated me quickly grasping the principles of new technology and applying it as effectively as possible in my practice and business.

This 'application of technology' approach also underpinned my move into academia. I initially worked at Staffordshire University where, as the first Music Technology 'specialist', I was a pivotal part of the growth of the provision from around twenty students to a programme of over six hundred students. Much of this growth came from writing new courses which harnessed the application new technology to the production of creative products – courses in Film Production Technology and Games Design are just two examples which followed on from Music Technology. Within the institution, there was little emphasis upon research as all of the concentration was on teaching and learning. My involvement in innovation was therefore in the development in teaching and learning provision in response to industrial trends and developments, and the emergence of new technology. I applied a similar approach when becoming employed at Coventry University, developing courses in Music Technology and E-Music (amongst others) within a Music and Creative Technologies Programme.

Around 2011, I was able to change the focus of my role at Coventry University as I became more interested in research. The Music and Creative Technologies Programme had delivered sets of graduates from all of its new courses, all courses were professionally accredited by Joint Audio Media Education Services (the first time any courses in the department had received professional accreditation), and Coventry University was recognised as a Regional Centre for JAMES. I had also been able to develop staff within my team to take more responsibility for the courses so that I could focus more on research.

The research I have undertaken since then, has broadly speaking been on the impact of technology on the creative industries, in particular music. It has been based upon my background as a classically-trained musician, technologist and entrepreneur. It is multidisciplinary, ranging from more technical publications such as the Audio Engineering Society through to the more creative typified by the Journal of Popular Music and Society. At this point, I have delivered papers at more than 25 international conferences and have around 13 peer-reviewed publications. I have also been successful in obtaining funding from sources such as SIGMA and the Higher Education Academy (HEA).

Of further note is my involvement in music industry organisations such as the Music Producers' Guild (MPG) and Joint Audio Media Education Services (JAMES). In 2007, I became only the second academic to be elected as a Director of the organisation by the members of the MPG. In this role, I took on two specific tasks - firstly to increase regional membership and representation, and secondly, to provide other Directors with a more meaningful appreciation of the role of Higher Education in supporting the development of music producers. I then went on to join the Education Group of JAMES. JAMES represents the MPG, the Association of Professional Recording Services (APRS) and UK Screen, and accredits Higher Education provision on their behalf. This has therefore been an opportunity for me to further links between academia and industry. I have been pivotal in supporting the accreditation of more HE courses by JAMES and also, been involved in many panels in the UK and abroad, talking about the work of JAMES and the relationship between academia and industry generally. Furthermore, JAMES have been involved in my research, and been a useful and effective network for dissemination of my research to other academics and to industry professionals.

1.2. Development of the portfolio of evidence

For the purposes of this critical review, the music industry is taken to consist of the various organisations and individual practitioners who record, produce, publish, distribute and market music. In keeping with Throsby (2002: 2-3), stakeholders in such an industry range from composers and performers, via record companies and publishers, right through to consumers who purchase and listen to music – a seemingly complex and wide range of interested parties. Interrogating the unexplored impact on such music industry stakeholders therefore requires an interdisciplinary stance. This is largely due to the range of drivers of change (technological, creative, social, economic etc.) which have an effect. For this reason, the development of the portfolio has taken place in response to literature from a breadth of fields and also, prompts from the commercial environment. Firstly, in terms of the literature, this ranges from publications on the music industry and/or production, through to cultural industries, 'instructional' texts on utilising emergent technology, piracy and the sharing/peer economy. Secondly, in terms of the commercial environment, the portfolio development has taken place in response to trends and issues which have arisen through my involvement with the MPG and JAMES. As these are both established professional organisations with legal status and over-arching missions, the experience and information which I have gained from such forums has high validity and is truly representative of the professional environment. Additionally, discussion of the use and effect of emergent technologies comes under the scrutiny of these organisations many years before they are examined in the academic literature. This section therefore shows how the literature and the commercial environment have dictated the development of the portfolio.

Fundamentally, an appreciation of the structure and operation of the music industry is required to assess the impact of emergent technologies. Texts such as Passman's *All you need to know about the music business* (2004) and Hull's *The Recording Industry* (2004) have proved to be useful in looking at the complete process from inception through to consumer. Furthermore, works such as Burgess's *The Art of Music Production* (2005) and Moylan's *The Art of Recording: Understanding and crafting the mix* (2007) focus more tightly on the production process. These texts illuminate the fundamentals of operation and are crucial, in that though the music industry is frequently thought of as relatively young (developing from the emergence of sound recording technology), it is nonetheless complex. Furthermore, Katz (2010) examines specifically how technology has catalysed change in the habits of music listeners, in musicians' practice, and the sound of the music they produce. Typical of these is sampling, which McLeod and DiCola (2011) explore from its initial adoption through to its present use. Reflecting some of the conflict between the adoption of new technology and legal frameworks, it shows how creative possibilities are now much more limited, this having implications for the future of cultural production. These works typically inform and underpin outputs [2], [3], [4], [5] and [6], they also highlight the need for the further research which these outputs provide.

The same issue has been reflected in my interface with the professional environment. I observed how many fellow Directors and members of the MPG were finding the need to engage with emergent technologies as their traditional source of work (and income) from record companies was diminishing. They were largely 'experimenting' however, seeking out new ways to connect with consumers, and in some cases, musicians. One example of this was Tony Platt (a co-Director of the MPG) who became interested in and supportive of Sellaband, a new technological platform that allows fans to invest in music projects (almost like the virtual portfolio of outputs [4] and [5]). According to Platt (2015) 'Sellaband has taken all the positive bits from record labels like good A&R, good artist rapport, open-minded attitudes and thrown out all the negative stuff like ego bending self-interest. I actually enjoy making records with these people'. Such a statement shows considerable optimism for this emerging platform and points to the need for the kind of research contained in this portfolio.

The music industry itself also produces a series of publications, which provide some basis for understanding and further work. Examples of these include the British Phonographic Institute's (BPI) *Statistical Handbook* and the International Federation of the Phonographic Industry's (IFPI) *Digital Music Report*, both of which are produced annually and have been used within the portfolio outputs. There are issues with such publications which support the need for the research outlined here. Firstly, these publications have limited scope, seeing the music industry in focussed terms, based around its economic performance, with a tendency to focus on the damaging effect of emergent technologies. They also tend to look back, and do not consider what may be considered to be the 'periphery' of the industry (aspirants, unsigned artists, part-time workers) despite its relationship with the 'core'. This is particularly problematic as much of the emergent technology which is having an impact on the music industry is being developed outside of the core industry (filesharing and crowdfunding are just two examples which follow this principle) and it is often the periphery who stand to gain the most. Despite this, these publications tend to support the status quo as represented by the music industry organisations which fund the BPI and the IFPI. The second issue is that of credibility of the publications within the academic sphere. As the publications are published by industry organisations funded by commercial businesses focussed on profit, there can be an element of vested interest. Writers such as Hayes (2006) and Green (2006) have questioned the validity of such reports pointing out that often, the figures do not add up, and the arguments put forward are unsubstantiated. As publications which are funded by the major record labels, the manner in which they represent multinational business at the expense of musicians (or other creatives) is perhaps not altogether surprising. On this point, Roger's (2013) *The Death and Life of the Music Industry in the Digital Age* also challenges the perception that the Internet is damaging the music industry. Instead, it argues that the dominance of large corporations continues, and the arguments about the proliferation of piracy are merely being used to enable major record companies to reinforce their position of dominance and power. This aspect has also been borne-out by my experience with the MPG. For example, the MPG has undertaken extensive work to see that those involved in music production (in particular producers) are better recognised and recompensed. This has been in response to the existing stance and dominance of the major record labels towards government, consumers and those involved in the production of music. Government publications also have relevance here including works produced by the UK Governments Department for Culture, Media and Sport (2007). Overall then, these works underpin outputs [2], [3], [4], [5] and [6] but again support the value of the additional research contained therein.

The field of cultural industries has relevance, and many of the concepts explored bear further study in the light of emergent technology adoption. In particular, texts such as those of Bourdieu (1993) and Hirsch (1972) are useful in the extent to which emergent technology can impact upon their concepts of 'cultural intermediaries' or 'gatekeepers'. Such texts, rooted in sociology, can form a basis for examining how changes in the environment challenge operation and roles. Later works such as those of Negus (2002) also look at the space between producer and consumer occupied by cultural intermediaries. These works are of particular relevance to outputs [3] and [6]. In addition, more focussed works such as that of Sound Studies Pioneer Bull's *Sounding out the City* (2000) point to the need for the more interdisciplinary approach taken here in the portfolio.

Some texts are aimed squarely at practising musicians and could be said to be fundamentally instructional in nature. These have largely been responsive to the early impact of the Internet on the music business. They portray the Internet as offering an alternative route for the distribution, and to some extent, the promotion of music. Examples of these include Ashurst's *Stuff the music business - the DIY guide to making it* (2000), Gordon's *The future of the music business - how to succeed with the New Digital Technologies* (2005) and Mewton's *All you need to know about Music and the Internet Revolution* (2001). These are interesting works, but to take an academic view, they lack depth and critique. Fortunately, there are works, which, though less accessible for the practitioner merely interested in the 'how to', offer a wider and deeper perspective. These works include Duckworth's (2005) *Virtual Music: How the Web Got Wired for Sound.* Although Duckworth writes from his own perspective as a composer, he chronicles and analyses interactive music over the last century in order to connect the present and future of its practice with its past. Similarly, Hugill (2012) defines what it means to be a 'Digital Musician' as one who not only considers how to use digital technology, but also develops a sense of aesthetic, the changing workplace, business and careers. Related to these works, the portfolio shows how emergent technology has impact by undermining and challenging existing roles – this is particularly evident from outputs [3], [5] and [6].

There are a range of related academic publications which outline the issues of piracy, and how, when music consumers engage with new technology, they undermine the traditional functioning of the music industry. These range from Fairchild's *Pop idols and pirates: Mechanism of consumption and the Global circulation of pop music* (2008) through to Marshall's *Bootlegging: Romanticism and copyright in the music industry* (2005). Focussing completely on filesharing, Matthew's (2010) *Peer to Peer and the Music Industry: The Criminalization of Sharing* exposes not only how radical peer-to-peer technology is, but also how the efforts to stop the practice are ungrounded and somewhat ridiculous. These and others similar are academically sound, and the fact that they show how consumer behaviour is changed by technology further underpins the need for the research within this portfolio, in particular, output [2]. Interestingly, there is considerable tension between these texts and much of the sentiment which I found expressed by members of the MPG. So whilst these texts take a complex view of the issues, the tendency of music producers, has in my experience, been to see any consumption of music other than bought as a damaging practice.

Also from the academic environment are publications which examine how emergent technologies are changing how people participate in the production of culture. Examples include Lessig's *Free culture – the nature and future of creativity* (2004) and Jenkin's *Fans, Bloggers and Games: Exploring Participatory Culture* (2006). These are perhaps more innovative and challenging in their approach in that they point to a complete paradigm shift particularly with a view to intellectual property. Demers (2006) explores some of these issues for music, outlining how increased intellectual property protection and litigation can now limit the options for musicians. The concepts explored in these works have been useful to draw upon and build upon in the portfolio particularly with outputs [3] and [6].

In this section, the scope of research relevant has been outlined together with high validity prompts from my first-hand and continued experience of the commercial environment. This has enabled the contextualisation of the contribution of the portfolio outputs in broad terms and as a coherent collection.

Part 2: Presentation, evaluation and synthesis of the outputs

2.1. Evaluative description of the originality of each output

These works have demonstrated originality through the peer review process – in principle, only those which demonstrate originality find their way to publication. However, some examination of why they are original is of use here. To start with, as Silverman (2010:70) notes, originality is a difficult concept to grasp, particularly in the context of a PhD. Most dictionary definitions make reference to being novel or unusual, or the creation of something not conceived of, or done before. Also, in academic circles, the phrase 'significant contribution to knowledge' is often used – building upon work which has gone before. For the purposes of this review therefore, originality will be thought of as the creation of a new or unusual work which provides a valuable contribution to the field.

A further way of examining originality is by exploring aspects which may typically be thought of as contributing to originality. Phillips and Pugh (1994:61) usefully discuss some typical characteristics which indicate originality in a PhD. They are: providing an original technique observation or result; showing originality in testing someone else's idea/theory; carrying out empirical work that has not been done before; providing a new interpretation of existing evidence/theories; being cross-disciplinary and using different methodologies; and looking at areas not previously explored in a particular discipline. This section will then draw upon this work in order to provide an evaluative description of the originality of each work. As table 1 shows, each output has been mapped against typical criteria provided by Phillips and Pugh, indicating in which aspects it most strongly demonstrates originality. Additionally, the manner in which each output achieves such originality is outlined in greater detail.

Table 1 – Output originality related to the characteristics of Phillips and Pugh (1994)

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Output [1] *Assaulted by the iPod: The Link between Passive Listening and Violence*

A large proportion of music consumers now listen to their music via a portable music player such as an iPod, MP3 player or mobile telephone. As this change has been driven quickly by technology companies typified by Apple, the research on this change particularly at the time of writing was quite limited, though what there is serves to inform and contextualise this output.

Bull's *Sounding out the City* (2000) outlines the positive effects of MP3 player listening, particularly in the manner in which a personal audio experience can envelop the listener as a means of preparation for the day ahead. However, this neglects to consider the effect of this practice on others sitting near the listener – this phenomenon occurs due to sound leakage from the often low quality headphones. Even at its least damaging (and the output argues that the impact is, in fact, greater), the phenomena examined here adds to the amount of music which is heard without what Slobada and O'Neill (2001:416-18) refer to as 'focussed listening'. The work of Williams and Hill (2007) confirms listening to loud music as the second greatest stressor (after insufficient room) in commuting and indicates the need for this particular output. This output also builds upon the issues of personal music listening which though having been considered for some time, have tended to focus on the potential damage to hearing. As examples of this, Wood and Liscombe (1972: 484-87) and also, Katz et al (1982: 1460-61) consider the effects of emerging personal music systems, concluding that they pose a significant hazard to hearing. The work also draws and builds upon the work of Johnson and Cloonan, particularly *Dark Side of the Tune: Popular Music and Violence* (2008). Here, Johnson and Cloonan note that many negative reactions to music are grounded in a sense of lack of control, and furthermore 'one common factor is that imposed music will always tend to constitute a form of violence to a greater or lesser degree' (ibid: 24). So, whilst emerging technology now allows primary music listeners to exert more control over the what and how of the music they listen to, this has a negative effect on others around who do not have the same control (and are also now accustomed to controlling their own auditory environment). This issue of control is central to *Music and Manipulation: On the Social Uses and Social Control of Music* and here, Brown notes that 'control of music can involve suppression or imposition' (2005:12). Furthermore, the chapter in the book by North and Hargreaves (2005: 103-126) outlines how music is used as a means of control in business environments, just as this portfolio output notes the significance of music and noise in work environments. Since publication, works such as that of Krause et al (2015) have reflected some of the concepts discussed in the output. Through a study of 177 respondents, their exposure to music, the device through which that exposure was facilitated and their response was examined. It concludes that 'whereas music heard in public was not associated with being liked or personally chosen and was negatively associated with actively engaged listening consequences' (ibid: 166). Similarly, Groarke and Hogan (2016) deal with the question of how music is used to enhance wellbeing. The article concludes that the participants examined adapted their music listening in order to enhance their emotional wellbeing (ibid: 788). It follows therefore that music listening which is not controlled can be detrimental. Furthermore, this output notes that one of the 'technical' issues with passive listening is the quality of MP3 audio files, which though inferior to prior formats has become ubiquitous in music listening. It is therefore interesting to note the attention given subsequently to the format in *MP3: The meaning of a format* (2012). In keeping with the discussion in this output, Sterne usefully sums up the format as a 'creature of policy as well as of technology, economy and culture' (2012: 130). Also published since the output is Kassabian's (2013) work on ubiquitous listening. Here, Kassibian argues that the majority of academic work focuses on primary music listening whereas music which is experienced ubiquitously can produce affective responses and gives rise to bodily events and emotion. This portfolio output focuses on one particular type of ubiquitous music – that of leaked sound from MP3 player headphones. In many ways, the 'passive listening' examined in this output is the latest incarnation of noise in 'a world inhabited by ever more people who are ever more mobile and possess ever more noisy equipment' (Bijsterveld 2008: 2).

In this context, this paper is the first to show how the act of passive listening brought about by the use of an iPod or MP3 player has health implications and can be considered to be an act of violence. It brings together related fields to explain a phenomenon which has been often commented on anecdotally but not researched previously. It draws upon existing work in communication studies (changes in listening habits), music and violence (torture etc.), acoustics (noise control, acoustic environments), audio production (quality of production and reproduction) and physiology (the stress response and health impact) to define and outline the problem. Having done so, the paper offers a number of strategies to deal with the problem including better audio designs, awareness on the part of employers, application of existing BS4142 standards to passive listening, better management by transport companies and awareness of the problem in the workplace. As such, it offers the potential to inform policy for acoustic environmental design as well as audio hardware. The paper also points to further areas of research such as examining what kinds of sounds (frequency, amplitude etc.) are most annoying, and to whom (based on their culture and previous experience). Since publication of the output though, smartphones have overtaken the use of MP3 players as a means of music listening on the move. The principles are the same however, and as many smartphones include speakers, the problem of passive listening could be said to have increased. Overall then, this is the first work to suggest the concept of a passive listener (the listener forced to listen without choice) and the fact that this produces negative health effects which can be considered to be violence. It is then providing an original observation by interpreting existing evidence and theories and is cross-disciplinary.

Output [2] *Music industry aspirants' attitudes to intellectual property in the digital age*

The habits of consumers who download music illegally are well researched and documented, particularly by industry organisations such as the British Phonographic Institute (BPI), the Recording Industry Association of America (RIAA) and the International Federation of the Phonographic Industry (IFPI). For example, according to Hull (2004: 10), the IFPI estimates that piracy worldwide doubled to a value of $4.2 billion in 2000 from $2.1 billion in 1995. Since that time, developments in technology which allow the illegitimate sharing and copying of music have increased. This reflects the point that Passman (2004: 400) makes that intellectual property rights holders often fail to keep up with developments in technology. In its 2011 Digital Music Report (2011: 14), the IFPI attributes overall downward trend of 31% between 2004 and 2010 to illegal downloading and file sharing. Similarly, in the UK, Harris Interactive carried out qualitative research to be part of the BPI's statistical handbook – the results have been used to lobby governments and inform the public of the perceived problems of illegitimate music consumption.

Writers such as Hayes (2006) and Green (2006) have questioned the validity of publications produced by organisations representing the music industry, stating the figures often fail to add up, and the arguments are unsubstantiated. Furthermore, there is considerable weight of opinion from recording artists themselves, commentators and researchers which takes an opposing stand. Books such as Kusek and Leonard's *The Future of Music* argues that the damage caused by file sharing and is overblown and in fact, emerging technologies present huge opportunities for musicians and music companies willing to embrace them. Also, according to Moses (2007), Trent Reznor of the band Nine Inch Nails admits to illegal downloading himself and has encouraged fans to do the same. Furthermore, there is a raft of publications extolling the virtues of using internet technologies to share music openly – these include Gordon's *The Future of the Music Business – How to succeed with New Digital Technologies* aimed at the aspirant recording artist. From the more academic standpoint, academics such as Marshall (2005) consider what may be termed illegitimate music consumption from a wider perspective.

The originality of output [2] lies in its interrogation of the middle ground between the two opposing points of view outlined. Specifically, it looks at whether their music consumption habits (legal or otherwise) differ from their peers, and how this relates to other research. This is pertinent in that an industry which relies upon the protection and respect for intellectual property conventions is likely to have a shaky future if aspirants can see no reason to act any differently to their peers. Whilst streaming has come into widespread use since the output (and in some ways, replaced MP3 file use), it is still relevant as an examination of aspirants' behaviour, as there are many other ways in which they can consume and appropriate illegitimate content.

In terms of methodology, and to underpin the research with appropriate rigour, the paper gathers empirical evidence using a quantitative and qualitative approach to discover the behaviours and motivations of music industry aspirants. By taking this approach, it provides robust, timely and meaningful information on the sample which is useful to academia and industry alike. It also outlines how the findings compare with other research such as that published by the BPI, RIAA and IFPI and puts the data in the context of published academic work on intellectual property, consumer behaviour and digital media. It does all of this through a framework dictated by my professional experience. Overall then, its originality lies in its carrying out of empirical work not carried out before, its interrogation of areas not previously explored in the field, and its provision of an original result.

Output [3] *An audience in the studio – the effect of the Artistshare fan-funding platform on creation, performance, recording and production*

New technological platforms developed by commercial companies are now allowing musicians to forego the traditional record company model and instead, enabling their audience or fans to fund their projects at the inception stage. Usually termed crowdfunding (though sometimes, fan-funding), the concept follows on from crowdsourcing where technology is used to bring together groups around a common goal. This shift in operation is changing the relationship between musicians or producers and their audience in such a way not seen since the invention of the Phonograph (which arguably brought a new distance between the musician from their audience). This emergent way of working seems to initially offer distinct advantages (control, ownership etc.), which makes it seem very attractive. However, its adoption throws up many issues, most notably that of how the change will effect the musician or producer's mode of working.

This is a new and rapidly changing field and at the time of writing, little research had been done on the subject. The work does however draw on related work such as that on changes in music consumption from writers such as Kusek and Leonard (2005) and the manner in which emerging technology offers new ways for a producer to reach the consumer. Furthermore, it draws upon works such as that of Sparrow (2006) – in particular the way in which the Internet can have significant impact upon the legalities of ownership of works and how they are exploited. There are a number of 'how to' books such as Ashurst's *Stuff the Music Business* (2000) and Mewton's *Music and the Internet Revolution* (2001) and this work, in looking at the empowering effect of crowdfunding follows on from them. Also, in the way in which it shows a new relationship between producer and music consumer, it draws upon works considering cultural intermediaries such as Negus (2002) and Hirsch (1972). Artistshare was chosen here because it was the first crowdfunding platform and is focussed on music. Since the time of writing though, more work on crowdfunding creative projects has emerged such as those of Kuppuswamy and Bayus (2015) which looks at the motivations of funders, and that of Aitamurto (2011) which examines how crowdfunding changes journalism. This reflects the proliferation and differentiation of crowdfunding platforms which have since emerged.

As the paper aims to examine how creation, performance, recording and production are affected by one of the new platforms (Artistshare), the views of musicians and artists using it are crucial. For this reason, the paper undertakes qualitative research to discover the effect on those artists sampled. As such, it offers a robust, timely view of the effects only uncovered through empirical evidence. This approach is grounded in my industry experience such that data gathering took place with an appreciation of typical working methods. It also puts the findings in the context of established work on music consumption, music production, and audience theory. So, though the concepts of fan-funding or crowd-sourcing have gained extensive interest, this is one of the first published works to examine the effect of the fan-funding model on the creative work of a group of musicians or recording artists. Overall then, its originality lies in its provision of original observation, its carrying out of empirical work, its provision of a new interpretation of existing theories, and its examination of areas not previously explored in the record production field.

Output [4] *Embedding of employer and practitioner input into student portfolios – results of project commissioned by the UK Higher Education Academy*

The music industry has undergone significant structural change over recent years, largely driven by technological change effecting the distribution of music. Though the music recording industry was borne out of, and has constantly evolved because of technology, the Internet and related digital technologies have sped up the rate of change. This rapid change presents a challenge for those within the industry (who constantly need to upgrade their capabilities), and also, for aspirants to the industry. As part of their role in supporting aspirants to the music industry, higher education institutions face challenges in preparing graduates for employment in an increasingly fragmented and volatile business.

Much of the published literature points to the need for a better approach to supporting such aspirants. For example, HEFCE (2008) published *Stepping Higher: workforce development through employer – higher education partnership* and as noted by Ashton (2010), this highlights the need for industry and education to improve their networks and means of collaboration. The *Browne Report* of 2010 highlights many of the same issues with employability and this has informed much subsequent work in higher education. Similarly, Dawes and Jewell (2005) note the need for a better emphasis on the world of work within degree courses. Much of my work with JAMES has been centred around building bridges between the professional world of music production and higher education. As part of this, I had noted the limitations of the typical approach of guest speakers or panels. At the same time, I had noted the manner in which professional practitioners though seemingly isolated were often part of an interconnected network, a subject later noted by Watson (2014). The combination of the existing research and my intervention with the professional environment thus informed this output in accordance with Gaunt and Westerlund's (2013) examination of the potential of new technologies to support collaboration and interaction.

The paper outlines the approach of an original and innovative project funded by the Higher Education Academy to deal with the issues discussed. Specifically, the project involved using emergent technology to engage professional practitioners in the development and assessment of student expertise and work, as part of action-research. The originality then lies in its provision of an original technique (repurposing range of emergent technologies), the resultant empirical evidence, and its cross-disciplinary approach. The fact that it was funded by the HEA also supports its originality.

Output [5] *Graduate meets employer – A model for embedding industry professional involvement in the development and assessment of student portfolios*

This paper published in the *Journal of Music, Technology and Education* is a further development of the project funded by the HEA to examine how the input of industry professionals can be embedded in portfolio development. The project itself takes on board much of the literature already published indicating the potential of education and industry networks as well as the particular issues of music-related employment.

For example, as Davis et al (2014) note, the growth in courses in music, music technology and music production has taken place at the same time as the informal apprenticeship system in the music industry has been in decline. The marked growth of 37% since 1996/97 in courses, which aim to prepare students for a career in music, has been noted by Brown (2007), alongside a growth in those that involve preparation for the creative industries generally. The value of the creative industries has also received significant attention. For example, according to Henry and Johnson (2005), they generate £100 billion per annum, employ two million people and contribute 8% to UK GDP. Furthermore, they grew more than other parts of the economy – by 8.6% between 2011 and 2012 compared with 0.7% for the rest of the economy according to the DCMS (2014). Despite this seemingly rosy world of opportunities, in the music industry in particular, advanced communications technology has actually made employment harder to secure (Priest 2010) mainly because, as Lewis et al (2005) note, the barriers to entry are constantly being lowered. Furthermore, a higher proportion of practitioners are self-employed in the music industry – according to the Arts Council of England (2009) this stands at 42% and is much higher than the general population. Furthermore, it is the same in other countries such as the US (Carey and Naudin 2006) and Australia (Bennett 2009).

In realisation, it takes an action research approach which as Denscombe (2010:6) notes, means that its purpose it to solve a particular problem and produce guidelines for best practice. Building upon the results of the project outlined in the previous output, this output proposes a model which can be utilised in this (and other) fields of practice. The advantage and uniqueness of this project is its impact on the various stakeholders involved. This is based on the concept originally highlighted by Lewin (1958:201) whereby 'rational social management proceeds in a spiral of steps, each of which is composed in a circle of planning, action and fact-finding about the result of the action'. In this case, the change takes place locally with the music industry-aspirant group (learners) and, as the paper indicates, with the industry professionals who were involved (drawing upon my own industry experience and credibility). Furthermore, given the innovative use of social media with this project (twitter, blogging, streaming etc.), the set of stakeholders was actually much wider than those immediately involved. In this way, it widens French and Bell's (1973:18) concept of the role of action research in organisation development. In this case, the organisation can be seen as the local music technology student cohort, the music industry professional community or even the JAMES network who were involved in much of the dissemination and comment. The utilisation of emergent technologies is then an essential tool to facilitate this effect. Originality is therefore based upon its provision of an original technique, carrying out empirical work that has not been done before, provision of a new interpretation of existing evidence and being cross disciplinary.

Output [6] *Virtual music, virtual money: the impact of crowdfunding models on creativity, authorship and identity*

Crowdfunding has rapidly gained ground as a viable choice for funding music projects (alongside a host of others such as film, games, technology etc.). According to *The Economist* (2012), there were a mere 100 crowdfunding platforms in 2012 while by 2012, there were 536 (Massolution 2012). Partly because of this choice, crowdfunding forms a compelling option, firstly for music practitioners who see it as an alternative to previous contracts with, for example, record companies, and secondly, for producers who have yet to have their material released commercially. However, due to the speed of its development and uptake, there is a general lack of research. This output draws therefore draw upon existing research to expose ways in which crowdfunding models are having an impact on creativity, authorship and identity.

The output draws upon Pratt's (2008) work on the cultural production chain, and outlines how a music practitioner, in adopting the medium, needs to become more like a 'producer' as defined by either Burgess (2013), or more widely by Du Gay et al (1997). It looks at the possible attractions of the medium particularly in relation to Hirsch (1972) and the manner in which the scenario where a producer has to compete for selection from a commercial organisation, and then for attention from the mass media has now changed. There are opportunities then for different creative outputs, and so works which look at the issues around cultural goods becoming commodities (UNESCO 1982) and the 'standardisation' of music (Adorno and Horkheimer 1977) are discussed. As crowdfunding impacts upon the work of the producer then, reference is made to the reality of the cultural intermediation role as covered by Du Gay et al (1997), and Negus (2002). On this point, note is made of how crowdfunding practitioners often have to pick up aspects of the traditional cultural intermediation. In particular, rather than it being a free for all, to be successful, the professional values of which Ursell (2006: 135) writes are important, as is consideration of how quality in the eyes of the funder can effect the success of a project (Mollick 2013). As the output looks at how crowdfunding changes the fan, further existing research is used. For example, note is made of how, in accordance with Ordianni et al (2011), the music consumer has now become a funder or an investor. As the motivations around this are complex, and relatively unresearched, the principles of Uses and Gratifications Theory (McQuail et al) are important, and have relevance here. The research which has taken place into motivations is examined, such as that of Potts (2012), who notes the way in which fans and recording artists can act together against the usual ways of working in the music industry. Research into how fans now interact online also influences crowdfunding campaigns, and thus, the work of Jenkins (2006: 53) is relevant. Furthermore, research from marketing is applicable, in particular, that which considers the opportunities and issues of involving customers in developing products before they are launched. An example of this is where Bendaludi and Leone (2003) outline that taking such an approach introduces more risk and uncertainty.

This book chapter takes a unique view in looking at how engaging in crowdfunding changes the producer, product and fan. It does so by examining how the creative work of the producer has to change, what the phenomena does for the ownership of the work, and how the crowdfunding user is no longer the practitioner they thought they were. This presents a timely, original and compelling view, which is useful for academic study, and those engaged in crowdfunding not only for music projects but also, other areas. Its originality then lies in its provision of an original observation, its testing of someone else's idea, its provision of a new interpretation of existing evidence/theory, being cross-disciplinary and its looking at areas not previously explored in the field.

This section has then evaluated and demonstrated the originality of each output. This can be seen from both an academic viewpoint and also from the framework provided by my industry experience.

2.2 Evaluative review of the contribution made by the portfolio of evidence to the subject area

Output [1] *Assaulted by the iPod: The Link between Passive Listening and Violence* has contributed to the field by being read, cited, by being presented at conferences, and by being included in curricula. It has been read three hundred and thirty-two times according to the *Popular Music and Society* website and has been cited three times. Citations include in Bodker et al's (2012) 'Time-out/time-in: the dynamics of everyday experiential computing devices' in the *Informations Systems Journal*, Nowak's (2016) 'The multiplicity of iPod cultures in everyday life: uncovering the performative hybridity of the iconic object' in the *Journal for Cultural Research* and Bjorøy and Hawkins' (2014) 'When light turns into darkness: Inscriptions of music and terror in Oslo 22 July 2011' in *Music by July 22*.

The subject of the paper was also accepted for conferences including Euronoise in Prague in 2012, and Internoise in New York in 2012. It has also been included in curriculum throughout the world - these include the 'Writing 11: Music' Course at New York University and the 'Media and Communications Technology' course at Webster University, also in the US.

It has also lead to further work, particularly in the co-writing of a chapter called 'The Singing Voice used to evoke unease, discomfort and violence' (Giuffre and Thorley 2016) in *The Voice in Contemporary Cinema.* This is an interesting development as it has taken my work into the field of Film. There is also the potential to develop this area further particularly taking into account the problematic nature of the public acoustic environment. This could take the form of primary research into the effects on listeners.

Output [2] *Music industry aspirants' attitudes to intellectual property in the digital age* has contributed to the subject area by being cited by a UK Government publication, through academic citation and through conferences. The output has been cited in *Measuring infringement of intellectual property rights* (Collopy et al 2014) published by the UK Government's Intellectual Property Office, thus demonstrating its significance for policy and practice. It has been cited by Phillips and Street (2015) in 'Copyright and Musicians at the Digital Margins' in the *Journal of Media, Culture and Society* and by Vlad et al (2016) in 'Critical success factors of online music streaming services – a case study of applying the fuzzy cognitive maps method' in the *International Journal of Technology Marketing.* Lastly, the research was originally presented at the IASPM Norden conference in Helsinki, Finland in 2010 from which the opportunity for this to become a publication emerged.

Output [3] *An audience in the studio – the effect of the Artistshare fan-funding platform on creation, performance, recording and production* has contributed through conferences, been read, cited and used in student work. It was originally presented at the Art of Record Production conference in San Francisco in 2011 with the journal article development taking place subsequently. It has been cited four times. These include by Galuszka and Bystrov (2014) in 'Crowdfunding: A Case Study of a New Model of Financing Music Production' in the *Journal of Internet Commerce,* and by Wilson and Holland (2015) in 'Technostalgia in Music Production: An analysis of new recording projects by the 1980's "Dunedin Sound" band, the Chills' in the *Journal on the Art of Record Production.* Also, in D'Amato's (2016) 'With a Little Help from my Friends, Family and Fans: DIY Participatory Culture, and Social Capital in Music Crowdfunding' and in Williams and Wilson's (2016) 'Music and Crowdfunded websites' both in the *Oxford Handbook of Music and Virtuality.* Furthermore, it has been cited at conferences in Nicholls' (2013) 'Fan funding – creative impetus, financial stimulus and more' and by student work such as Kershaw's 'Getting close to the fans: the ever reducing gap between an artist and fan-base within pop music' (2014). It has lastly been used in teaching in Australia (for example in the 'Music and Digital Media' Course at the Australian National University) and in the US.

The work has also given rise to further developments including output [6] which takes many of the concepts further. A number of conference presentations have built upon and extended some of these concepts. These include 'The changing role of music listeners in the fan-funding experience' (2013) at the British Forum for Ethnomusicology and ICTM-Ireland conference, 'Fan funding – the biggest change since the Phonograph or just a different route for the money?' (2013) at the IASPM International Conference in Spain, 'Crowdfunding and its potential to create an alternative culture of production' (2013) at the Art of Record Production Conference in Canada and 'Participatory music culture: the challenges for identity, reward and recognition' (2014) at the Creativity, Circulation and Copyright: Sonic and Visual Media in the Digital Age Conference in Cambridge.

The contribution of Output [4] *Embedding of employer and practitioner input into student portfolios – results of project commissioned by the UK Higher Education Academy* (2013) has a slightly different contribution profile due to its orientation as an 'action-research' project, starting with its immediate participants and spiralling outwards. Firstly, it has contributed to the participants of the study in the manner described in the output – this includes not only the aspirants but also, established industry professionals involved in the project. Secondly, it has been presented and disseminated as a 'model' within Coventry University particularly through the Learning Development Unit. This has resulted in its working method being adopted in surprising areas such as Law and Health (in particular for Nursing and Dietetics). Beyond this, it has been widely disseminated amongst the JAMES network. The network of institutions that have JAMES course accreditation presently amounts to around twenty-four in the UK, and as this has been disseminated to the network, it probably amounts to over fifty academics. As the paper was presented at the Audio Engineering Society's 50th Conference on Audio Education, the paper's findings have been disseminated and sometimes adopted by academics at more than thirty US institutions. The model of industry involvement continues to be used in the host institution then, and in various forms, by institutions around the world. Although its contribution is not necessarily best measured by citation, it has been cited twice by Walzer (2015) in 'E is for Expressive: Branding and Customizing E-Portfolios in Audio

Education' and in 'Personal Narrative and Practical Application of Technology: Guiding Undergraduate Music and Audio Students Towards an Entrepreneurial Career Search'.

Output [5] *Graduate meets employer – A model for embedding industry professional involvement in the development and assessment of student portfolios* has only recently been published so its contribution is, at this stage somewhat limited. It was, however, presented at the Researching Music, Technology and Education: Critical Insights Conference, London under the title 'Connecting learners, employers and practitioners through emergent digital technology' (2014) and as 'Embedding employer involvement in final year portfolios – reflections on an HEA Individual Teaching Grant Project' (2013) at the HEA National Conference, Warwick. It has resulted in being asked to discuss the findings on panels at the AES 50th Conference on Audio Education (2013) and at the AES Education conference in Glasgow in 2015 as well as a variety of panels for JAMES including the Music Production Show in London. Lastly, it has been cited by Romeo (2016) in 'Industry professionals' evaluation of apparel design student portfolios' in the *International Journal of Fashion Design, Technology and Education.* This is an interesting development, as it shows the application of the principles beyond the discipline of music and into other areas, such as in this case, fashion.

This output has also given rise to a second HEA-funded project, 'A three-way model involving transatlantic peer assessment and employer-related assessment'. This project initially involved Coventry University with New York University and JAMES, with more partners becoming involved during the project. Additional global institutions have now been involved in using the model, including the University of Michigan, Stellenbosch University, and the University of New South Wales. As a reflection of this impact, at the time of writing, the project has been shortlisted for the 'International Collaboration of the Year' in the Times Higher Education Awards.

Output [6] *Virtual music, virtual money: the impact of fan-funding models on creativity, authorship and identity* has only just been published and is therefore limited in its contribution. However, many of the concepts have been presented and refined in papers presented at conferences such as: the British Forum for Ethnomusicology and ICTM-Ireland conference (2013), the IASPM International Conference (2013), the Art of Record Production Conference (2013), and the Creativity, Circulation and Copyright: Sonic and

Visual Media in the Digital Age Conference (2014). The book was also launched at the Art of Record Production conference in Philadelphia in 2015, and so the content of my chapter was outlined. As part of the Oxford University Handbook series, it is likely to make a significant contribution to the field - it is due to be used in teaching by academics such as Ananay Aguilar at Cambridge University.

This section has evaluated the contribution made by the portfolio. Although much of this can be seen in the 'academic' sphere (both research and teaching), the portfolio has also contributed back to the industry from which many of the prompts for the research emerged.

2.3 Description, synthesis and evaluation of links between the outputs and the development of the portfolio of evidence

The title of this critical review outlines how the music industry stakeholders can be considered to fall into three categories, those of aspirants, consumers and producers. Outputs [2], [4] and [5] focus most deeply on music industry aspirants ranging from how they are consuming and experiencing music, through to how emergent technology is actively used to develop their expertise. Outputs [3] and [6] focus most deeply on the effect on music producers, in particular, how emergent technology models of crowdfunding changes their work. Lastly, output [1] examines an effect of emergent technology on consumers. My extensive industry experience suggests that many issues are commonly shared between these group however, and the portfolio supports this view. The impact of emergent technologies is therefore significant, not only on each set of stakeholders but also upon the relationship between the sets of stakeholders. The linkage, drawing upon industry experience and an academic standpoint is therefore worthy of more exploration.

First and foremost, the linkage is strong because any one person can move between one of the functions through their lifetime, and indeed perform more than one function at any one time through their engagement with technology. So, aspirants primarily want to become producers, and ex-producers can revert to being consumers. However, producers still often consume music as do aspirants (hence the conflict of output [2]).

Furthermore, in the increased capability which consumers have to not just consume but also, 'curate' music, they are performing much of the decision-making of a producer.

Secondly, the impact on all set of stakeholders is driven by the same technological developments, in the form of compressed digital file formats and better production tools based upon improved computing power. Development of compressed file formats (such as, for example, MP3) has driven the use (and abuse) of music listening in output [1], typical illegitimate consumption of music in output [2], sharing of developing work in outputs [4] and [5], and indeed the presentation and communication of projects in output [6]. In this way, it both presents a 'disruption' to the existing situation, and also, an opportunity to alter behaviour in a bid to open new opportunities. Faster computing power and cheaper storage has also improved the capability of, and access to, production tools. This means that the aspirants of outputs [2], [4] and [5] are actually nearer to being the producers which they seek to be, certainly in the manner in which they have the 'tools' for the job to which Burgess (2005) refers. Similarly, the same tools allow the crowdfunding producer to produce compelling content to 'pitch' their project, and potentially undertake the complete project as outlined in outputs [3] and [6].

This situation means more control for individuals (and indeed, groups) away from the established music industry structure reflected in the existing literature. This has sometimes been called the democratisation of music production which as Watson (2015:150) notes can 'enable musicians to record and produce music outside of the "formal” industry, that is to say without the need for record companies or recording studios'. Or, as McLeod (2005:527) outlines, 'Today, the means of producing and distributing music has shifted to individual artists, which means one does not need a major label contract to reach thousands of people.' The gatekeepers of Hirsch (1972) and cultural intermediaries of Bourdieu (1993) therefore seem to have lost their control over the situation. This issue of control (and that of closely-related choice) is, in fact, a common thread throughout the portfolio. For example, it is the lack of choice on behalf of passive listeners in output [1] which creates problems, and the desire for more control which drives the crowdfunders of output [3]. It is therefore interesting that the newfound control seems to create opportunities for some and at the same time, problems for others (in the form of individuals, or indeed whole sectors). Either way, it does so through the fundamental challenging of the existing music industry structures and functions.

Roles have then become at best, fluid and at the extreme, irrelevant and out of date. Consumers have, in the manner in which they manipulate and curate sound, become more akin to producers, and may aspire to share their 'curation' expertise with others. Streaming (which has come to the fore since publication of the outputs) involves huge amounts of choice and continues this trend as users create playlists and share them with others in their social groups. In output [1], the active listener is 'controlling' like a producer – their choice of music in their environment, the manner in which it is reproduced etc., therefore controlling their auditory environment at the expense of those around. Aspirant producers are, in all but name, practicing producers - they are doing the work, though perhaps not making a full-time living from it. They are also consumers – they act like their peers rather than professionals when it comes to experiencing illegitimately acquired music. However, leaving behind an old role is not always straightforward even with the empowering effect of emergent technology. For example, the established producers of outputs [3] and [6] can find it challenging when they endeavour to do the work of the record company by engaging with crowdfunding as they often lack the time or capability to do what is needed.

This fluidity and newfound control seems like a good opportunity, and indeed, if the aim is to express oneself through music production, it is. However, as the portfolio shows, it is a complex situation where there are knock-on effects on other parties. Overall, as Hracs (2015:468) notes, it gives rise to a working environment where musicians have to work harder and smarter to survive. If the huge shift exists alongside the notion that people can 'make-it' in the global music industry (based upon existing 'roles'), disappointment and conflict are likely to arise.

The newfound freedom in fact brings considerable responsibility to the individual in the manner in which they develop, apply and utilise their expertise with emergent technology. Outputs [3] and [6] in particular show how this challenge can be underestimated. Furthermore, outputs [4] and [5] show how they can address this with new hybrid approaches. The challenge to change how someone operates is then often borne of necessity particularly as many emergent technologies come from outside of the music industry. Individuals have to work out how they fit into the new shifting environment, engage with emergent technology from an informed (rather than unrealistically naïve) viewpoint, and adapt their capability accordingly.

This section has explored linkage between the outputs and illuminated challenging new perspective on the very roles of stakeholders. This has taken place in the context of my expertise as a researcher as well as my experience in the industry.

Part 3: Critical reflection on development as a research practitioner, research methodology and discussion for further work

3.1 Critical reflection on development as a research practitioner

As the autobiographical context section outlines, during my professional career, I had to manage my own learning and career development. This is quite common in the music, media and recording industries with its proliferation of small companies and self-employed practitioners. It is, however, often a challenge particularly when existing practices are under constant assault and change from new technology as outlined.

My new focus on research explained earlier necessitated me taking a similar approach, independently deciding what work to undertake, undertaking the work, and thinking about the process and outcome before moving onto the next project. This approach was taken as though I had an established career as an academic, it had been focussed on teaching and student learning. So there was some assumption that I could effectively develop the expertise, a necessity also due to the fact that working in a post-1992 University meant that support for research was limited. The skills of self-development and evaluation learnt during my commercial career proved to be usefully transferable.

This approach follows the concept of 'experiential learning' outlined by Kolb (1975) with its four stages of concrete experience, observation and reflection, formation of abstract concepts and testing in new situations. Schön (1983) develops Kolb's principles further, outlining the concept of the 'reflective practitioner' with the further notions of 'reflection-in-action' (thinking on one's feet) and 'reflection-on-action' (taking place after the event). So although much of my learning whilst in industry may have been 'reflection-in-action' (such as, for example, using new equipment in a recording situation), with my research development, it was more akin to ‘reflection-on-action’, mainly because it is only when a book chapter, journal article or funding bid is returned from review that reflection on what to do can take place completely.

In the practice of reflective learning, deliberate reflection upon experience is essential (Loughran 2002). Table 2 then shows how I have reflected upon the outputs in developing my expertise. It adapts Kolb’s (1975) work and similarly, that of Honey and

Mumford (1982), outlining the 'doing, reflecting, concluding and planning' stages of reflective learning. Planning/Rationale indicates how, deciding to undertake the work was based upon either at one extreme, an active decision on my part or at the other, a passive response to common opportunity. Feedback/Reflection shows the degree of change needed after review, and Conclusion shows the actions I took with that output, and in taking my research development further.

Table 2 – Development related to the concepts of reflective learning

Output	Publication/ Funder	Planning/ Rationale	Feedback/ Reflection	Conclusion
[1]	Popular Music and Society	Passive (general call)	Re-writing required	-Undertook rewrites - Considered wisdom of writing in such a new area
[2]	International Institute for Popular Culture	Active - specific request after conference	Some re-writing	- Undertook rewrites
[3]	Journal on the Art of Record Production	Active – journal after conference paper	Minor re-writing	- Undertook some rewrites/negotiated others
[4]	Audio Engineering Society. HEA-funded.	Active (funded)	No changes needed. Excellent HEA feedback in original funding application.	- Built on with further application to HEA and publications
[5]	Journal of Music, Education and Technology	Active – funded and specific call from Editor after conference presentation	Minor changes (inclusion of one or two references etc.)	- Built upon with further publications
[6]	Oxford University Press	Passive/active – based on existing work	Minor changes	- Built upon with further publications and possible funding

Output [1], published in Popular Music and Society was in response to a general call, and although I had not published in that field before, I was successful. Some rewriting was required by the Editors (Martin Cloonan and Bruce Johnson) partly due to my relative inexperience and partly due to the challenges of pulling together such a multidisciplinary work. Reflecting on this pointed to the need to continue to work on my writing skills, and to consider the challenges of trying to publish in an area so challenging and so multidisciplinary.

Output [2], was more active in its background based on a request to contribute from the Editors (Antti-Ville Kärjä, Lee Marshall and Johannes Brusila). Based upon the feedback, I made changes as required.

With output [3], my undertaking the work was more 'active' in that it had already been presented at an Art of Record Production conference and so I thought it would be relevant to the next issue. When the reviews were returned, my skills were more developed such that I made some changes, whilst negotiating to leave others. Also, reflecting upon this indicated further opportunities for work (such as output [6]).

With output [4], my approach was far more active. It was based upon a funding application to the HEA, and furthermore, the paper itself needed no changes after review. Reflecting upon this, I took forward another funding bid with the HEA (which was successful) which took the principles further.

Output [5] similarly took a more active approach as it was in response to a specific call by the journal's editor to write an article based upon a conference presentation. The changes required were also minor, mainly around inclusion of one or two additional references.

With output [6], although it was in response to a call by the editors (Sheila Whiteley and Shara Rambarran), it was based upon my previous work in the area. Additionally, the required changes were quite minimal.

My development has then through reflective practice, followed a trajectory of improvement. Firstly, my response to opportunities has taken an increasingly active stance, away from the general call for articles towards things that potentially, I am best placed to deliver. These include works which are now within my 'field' and also funded projects which are attractive to funders because they use my unique capabilities. Secondly, generally speaking, the sources of publication are getting better in terms of quality particularly from [3] through to [6]. Lastly, my research skills have also shown to have improved, both in the typical amount of changes required by editors through to how I have sometimes negotiated on changes from a more confident standpoint. As part of this, my work has developed through the use of various research methodologies which is examined further.

3.2 Discussion of research methodology

Whilst methodology has been part of the peer-review process for all of these outputs, it is important to discuss its use in the outputs, and also, to outline some thoughts for future developments.

Surveys were used as part of the portfolio, in Output [2] to examine music industry aspirants' attitudes, and in output [3] to examine the effect of the Artistshare crowdfunding platform on music practitioners' work. Surveys were chosen in these examples to solicit information from the respondents in order to 'learn about their characteristics, opinions, attitudes, or previous experiences' (Ormrod 2005: 183). There are, however, issues to be considered in the choice and application of surveys.

With both of these outputs, selection of the relevant population and sample was crucial in order to maintain credibility. This highlights one issue with surveys which is that of low response rates and how these present a continuing challenge as more and more people are asked to fill in more and more surveys (Berends 2006, Fraenkel and Wallen 2009, Mertler and Charles 2008). According to Rubin and Babbie (2008: 371)) 'a response rate of at least 50 percent is good…70 percent is *very* good'. Gaining as high a response rate as possible was easier with output [3] because I was able to speak to the chosen population to explain the purpose of the (paper based) questionnaire – this ensured a high response rate. With output [3], however, this presented more of a challenge as the survey questionnaire was administered electronically via email. In this instance, having had no prior contact with the users of the Artistshare Platform, obtaining a high response rate was more challenging. In this case then, the cover letter (in this case email) was particularly important. As Brewer et al (2015: 402) note, 'the purpose of the cover letter is twofold: the researcher needs to introduce the research study while at the same time entice the respondent to actually complete and return the questionnaire'. Furthermore, as Rubin and Babbie note (208: 369), it aims to 'alleviate any resistance they may have about participating in the survey'. Whilst good design of the cover letter aided the response rate, as the respondents were self-selecting, their motivations to become involved and the implications for this were not known. So, respondents may have been more motivated to respond because of a positive or a negative experience, or may not be motivated to respond through a lack of time, regardless of their experience. This has implications for the conclusions and any generalisations from the survey – particularly with output [3], the conclusions could only realistically apply to users of the Artistshare platform at that point in time. Although the citation and contribution of this output indicates its value, with the diverse and numerous crowdfunding platforms now available, its application across the board does have limits.

The design of the survey was also crucial in both examples. As Robson (2002: 242) notes, respondents need to understand the questions as the researcher intends, have the information to answer them and be willing to do so. In the case of output [3], this included a large proportion of open questions and although this approach solicits large amounts of information, it presents more of a challenge for interpreting the wide variety of responses. In order to achieve the best results, in both instances, the surveys were piloted to try to minimise ambiguity. There was an issue with output [3] however, particularly with question 3.2 'How has the fan-funded model affected your performance in the studio?' and question 3.3 'How has the fan-funded model affected the technical process of recording?'. It seems that in the respondents' view, these two aspects were inseparable so there was some repetition in answers. This exposes an issue to which David and Sutton (2011: 272) refer where, with reference to the pilot group, they state that 'it is important that the test group reflects the characteristics of the actual sample cases'. In piloting for output [2], I was able to use a test group from the target population, whilst for pragmatic reasons output [3] was tested with a group dissimilar to the target population – the issue with repetition of answers was a result of this approach.

Output 2 actually takes a mixed method approach in that it uses quantitative as well as qualitative data. This includes factors such as the amount of time spent each day listening to music, the proportion of that music obtained from legitimate sources and so on. Quantitative research is not without its critics though. One issue is the fact that respondents do not interpret terms, concepts or questions in the same way. Whilst this can be minimised with the use of closed questions, as Cicourel (1964:108) notes, even this does not really offer a complete solution. Certainly, with this output for example, the use of the term 'legitimate sources' (rather than illegal) could lead to different interpretations. A further issue can be that the manner in which quantitative research supposes that people and social institutions exist and operate in an ordered way just like the 'world of nature' (Bryman 2016: 166). This could be an issue with the field of research in output [2]. The forces which impinge upon the respondents are complex and can be technological, social or economic. Likening this situation to the world of nature is then problematic – it is not that ordered or straightforward. In the case of this output though, it is hoped that such criticism is addressed by using a mixed method approach where the qualitative elements aimed to compliment and address the limitations of the quantitative data.

Outputs [2] and [3] are both 'cross-sectional' rather than longitudinal surveys. They therefore only show the picture at that point in time, and whilst this is clearly important (and has proved valuable to the academic community), it would be useful to look at how behaviour and attitudes change over time. This would be particularly useful given the fact that rapid changes with technology shift behaviour quickly and markedly. An example of this could be where the respondents in output [3] are interviewed over a period of three years in order to illuminate how their practice changes with more engagement with crowdfunding. This could also tie in with, for example, the use of interviews as a more in-depth research tool.

Action research has also been used in the portfolio. Bryman (2016: 387) defines this as 'an approach in which the action researcher and members of a social setting collaborate in the diagnosis of a problem and in the development of a solution based on that diagnosis'. In the case of output [5], the problem was how to develop professional skills in music industry aspirants, with the solution being tested and the findings published.

The advantage of this approach is that the research delivers obvious impact upon the collaborators. This could be seen in output [5] where students, academics and industry practitioners have benefitted from the approach and the findings – this is a significant outcome at a 'local' level. Furthermore, through the publication of the research, it has found impact with others globally – they do not need to interpret complex theories to improve their practice, they can simply adopt a similar approach from an awareness of how it can be done, and where the typical pitfalls lie. Furthermore, action research has a cyclical characteristic with evaluation often giving rise to improvements in the solution. In this instance, adopters of this approach may alter it slightly to suit their own circumstances, and thus, it is a constantly evolving and improving activity. Action research does have its issues though, which bear further discussion.

Firstly, as many people approach action research as practitioners (whatever their discipline), it is often viewed as lightweight and lacking in academic depth. For example, McWilliam (2004:133) uses the term 'theory-free zone' to critique an emphasis on practice which is perceived as too great. It need not be this way though – good action research should be based on an understanding of the background to any actions taken, otherwise the actions themselves are simply local solutions with some form of evaluation. In the case of the action research here, it is rooted in the literature – for example output [5] refers to research in the fields of higher education, music production and employability. Related to this is the criticism that it lacks rigour in its methodology. Eikeland (2003) makes this point as does Greenwood (2002), who also notes that good action research (with an emphasis on stakeholder impact) is not necessarily good research. Here though, this issue was dealt with by the manner in which the data was gathered for the outcomes and evaluation section. Focus groups were used with stakeholders (students and professionals), together with reflections from journals recording the academic view, these being combined to give a more detailed picture. This brings a further issue into sharp perspective however, namely that of subjectivity of the researcher who, by virtue of being involved in realisation of the project, is also a practitioner and collaborator. Where more traditional research demands objectivity by the researcher, in many ways, the researcher's deep involvement in the 'action' is behind much of its appeal. In this instance, as Robson (2002: 219) argues, the lead in such a project becomes a 'practitioner-researcher'. The danger is of course that in arriving at the research findings, the practitioner-researcher is just too close to the action to judge, evaluate and synthesise findings. The only way around this is to be aware of it, and try to negate against the problem, shifting from the perspective of 'doer' to that of objective researcher. In the case of the project in output [5], this was certainly a challenge, particularly given the need to manage the input from industry professionals, co-ordinate the practical realisation of the project, and try to keep some sense of independence to evaluate. A further complication is the involvement of a funder, such that the project needs to meet their objectives too whilst also maintaining rigour. This also relates to a last criticism of action research which is the amount to time it takes relative to its benefits. This is why funding was necessary in this case, and hopefully, the impact over and beyond the local stakeholders justifies this investment of time and resources.

In terms of future opportunities, there are a number of strategies which can build upon these works. Firstly, given some of the issues with surveys, the use of interviews with future research is likely to prove fruitful. With the surveys, there is some limit to what can be achieved, partly through the nature of the questionnaire structure, and partly through the limits on respondents' time. So, for example, in depth interviews with, for example, jazz artists such as Maria Schneider would produce some interesting results on the relationship between crowdfunding and creative output. Interviews are time consuming but present an opportunity to drill down in depth into a number of cases. Furthermore, with output [5], it would be interesting to measure the impact of this approach in other environments where it has been used. In such an instance, a study could also be longitudinal, examining the impact of this approach, say one, two and three years after graduation. This would also have the advantage of moving on from the sometimes criticised action research approach. Lastly (and perhaps of most excitement) given the fact that the research is focussed on emerging technology, there is considerable potential in 'global connectedness' (Brewer 2015:403) to reach a global audience. On this point, Murphy et al (2014:1) point out that researchers should constantly monitor the 'landscape of technological change', to search for improvements to methods. There are many opportunities to take this approach. For example, as most crowdfunding campaigns are online, there is a huge amount of data to be mined and used. Also, campaigns often use other social media such as Twitter. The prospect therefore exists to mine that data to look for sentiments and reactions to campaigns, and the existence of software can help with this task. On this point, Roe et al (2014) explore how researchers can use tweets as part of data gathering particularly when mobile devices are used.

3.3 Conclusions and suggestions for further work

In conclusion, an outlining of the development of the portfolio of evidence has firstly taken place. This demonstrated how the academic literature and my experience in the professional environment prompted the work of the portfolio. Next, a presentation, evaluation and synthesis of the outputs has taken place. Originality, contribution and links between the outputs were thus explored in order to show the rigour of approach. Lastly, a critical reflection on development as a research practioner has taken place. Together, these facets demonstrate that research models can be used to illuminate the unexplored impact of emergent technologies on music industry stakeholders.

In taking this approach, the critical review has demonstrated achievement of the aim stated to identify and examine the unexplored impact of emergent technologies on music industry stakeholders: aspirants, producers and consumers. This has been achieved through the focus on different stakeholders present in each output and the interrogation of technology often common across the outputs. The review also outlined a series of research objectives which have been realised by the combined contribution of the portfolio outputs and the critical review itself. Table 3 illustrates how this has taken place – the contribution of the outputs and critical review is mapped against the objectives, and the depth of tone reflects the relative concentration of the contribution. This contribution is then explored further.

Table 3 – Contribution of outputs and critical review to research objectives

	Objective 1	Objective 2	Objective 3	Objective 4
Output [1]				
Output [2]				
Output [3]				
Output [4]				
Output [5]				
Output [6]				
Critical Review				

All of the outputs contribute to the fulfilment of objective 1 (to identify the key contemporary emergent technologies which are having significant impact on music industry stakeholders). For example, whilst output [2] focuses on the technologies associated with downloading and filesharing, output [6] identifies the technologies of crowdsourcing, sharing and distribution. Similarly, all of the outputs contribute to the fulfilment of objective 2 (to examine the existing research on such technologies, their adoption and application). Whilst existing research for output [1] spans music production, acoustics, and music perception amongst others, output [3] focuses on the shift in music consumption, the legal and business aspects of digital networks and the relevance of 'how to' books. Furthermore, the critical review (particularly in section 1.2 but also throughout) contextualises the body of literature as a whole and outlines its relationship with the overall work as a researcher. In relation to objective 3 (to focus on gaps in existing research and apply an appropriate range of research methodologies to explore the nature of the impact on stakeholders), all of the outputs contribute to this objective. However, in recognition of those outputs which employ forms of primary or action research, the table shows some outputs as contributing more deeply – these include output [2] which typifies the use of a methodology using primary data and output [4] which takes an action research approach. Lastly, all of the outputs contribute to some extent to the fulfilment of objective 4 (to summarise the impact examined, make conclusions on the implications for music industry stakeholders and outline further opportunities for research). However, the critical review itself contributes greatest to this – particularly in the manner in which section 2.3 brings together linkage, interrelationships and how emergent technology effectively shifts the existing nature of stakeholder definitions.

In terms of future plans, it is envisaged that the research focus discussed in section 3.1 will continue, and exploit my unique and established capabilities. Whilst my writing capability is now demonstrated as good, it is likely that action-research projects or those which use technology to gather research data make best use of my skills. Capability in, for example, bid writing, project management and co-ordinating diverse teams (beyond those of academic work) is also appropriate to these types of projects. The potential exists therefore in either (i) harnessing emergent technology as part of the research or (ii) researching on emergent technology use or impact.

There is considerable continued potential in my approach and the field as is evidenced by the impact of my work not only on academic circles but also, industry (through, for example, JAMES and the MPG). Technology continues to be developed by technology companies (rather than rights-holders) such that the impact upon rights-holders (and rights-developers) will continue. Specifically, further work has already emerged from all of the outputs. For example, a further book chapter has followed on from output [1], further funding from the HEA and associated publications has built upon outputs [2], [4] and [5], and further conferences and a book chapter have flowed from output [6]. In future, more work on crowdfunding in particular, and virtual collaboration (drawing on developments such as Blend.io and Pro Tools 12) is likely to emerge.

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