An Investigation into the Implications of Upside-Down Bass Guitar Technique for Pedagogy Theory

A Thesis Submitted for the Completion of Master of Arts in Music

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Different is hard, different is lonely

Different is trouble for you only

Different is heartache, different is pain

But I'd rather be different than be the same

(Different; Witch Hazel, from ‘Pufnstuf’,1970)

Table of Contents

List of Figures 5

Acknowledgements 8

Chapter 1: Introduction

1.1 Introduction 9

1.2 Methodology 22

1.3 Literature Review 24

Chapter 2: Why bassists begin to play upside-down

2.1 The effect of the autodidactic learning approach 30

2.2 Mirroring of other's playing styles 43

2.3 Availability of left-handed instruments 50

Chapter 3: Experiences of Learning bass upside-down

3.1 Experiences with tutors 62

3.2 Adapting specific techniques 76

Chapter 4: Advantages of playing upside-down

4.1 Intuitive aspects of upside-down technique 92

4.2 Using other Musician's instruments 97

4.3 Advantages of specific upside-down techniques 102

4.4 Being unique due to playing upside-down 119

4.5 Upside-down playing aiding creative thought 114

Chapter 5: Challenges of playing bass upside-down, and solutions to these challenges

5.1 Challenges of playing bass upside-down, and solutions to these challenges 118

Chapter 6: Biomechanical Implications of Upside-down Bass

6.1 Biomechanical implications of upside-down bass ……. 146

Chapter 7: Teaching challenges of upside-down bass, and applied solutions to these challenges

7.1 Teaching challenges of upside-down bass, and applied solutions to these challenges ……. 160

Chapter 8: Conclusion

8.1 Conclusion ……. 178

List of figures

Figure 1 - 9th Century illustration of a musician playing a lute-type instrument
https://upload.wikimedia.org/wikipedia/commons/0/0c/Guitar-like_plucked_instrument%2C_Carolingian_Psalter%2C_9th_century_manuscript%2C_108r_part%2C_Stuttgart_Psalter.jpg 14

Figure 2 – Demonstration of how a standard right-handed bass is held and strung.
Photo of author taken by Anita Russo 15

Figure 3 – Demonstration of how a standard strung left-handed bass is played.
Photo of author taken by Anita Russo 16

Figure 4 – Demonstration of a right-handed bass being held upside-down.
Photo of author taken by Anita Russo 17

Figure 5 - Left and Right by William Sydney Mount
Christopher J. Smith. The Creolization of American Culture, Illinois: University of Illinois Press, 2013. 20

Figure 6 - Diagram showing variation in the angles of the thumb joint
http://humangeneticsmyths.weebly.com/uploads/2/5/2/8/25287367/5019095_orig.png 46

Figure 7 - Screenshot displaying Jaco Pastorius' case of extreme hitchhikers thumb
https://www.youtube.com/watch?v=25DXcFg1TFo 46

Figure 8 - Hand position for traditional left-handed slap bass
Photo of author taken by Anita Russo 76

Figure 9 - Thumb technique for traditional left-handed slap bass
Photo of author taken by Anita Russo 77

Figure 10 - Finger popping technique for traditional left-handed slap bass
Photo of author taken by Anita Russo 77

Figure 11 - Index finger technique for Gregory/Sky upside-down slap technique
Photo of author taken by Anita Russo 80

Figure 12 - Thumb popping technique for Gregory/Sky upside-down slap technique
Photo of author taken by Anita Russo 80

Figure 13 - Horne/Mills thumb slap technique for upside-down bass
Photo of author taken by Anita Russo 82

Figure 14 - Horne/Mills finger pop technique for upside-down bass
Photo of author taken by Anita Russo 82

Figure 15 - Cobin thumb slap technique for upside-down bass
Photo of author taken by Anita Russo 84

Figure 16 - Cobin thumb pop technique for upside-down bass
Photo of author taken by Anita Russo 85

Figure 17 - Thumb position for my upside-down slap bass technique
Photo of author taken by Anita Russo 87

Figure 18 - Little finger position for my upside-down slap technique
Photo of author taken by Anita Russo 88

Figure 19 - Technique for performing a bend on the G string with a standard string arrangement
Photo of author taken by Anita Russo 105

Figure 20 - Technique for performing a bend on the G string with an upside-down string arrangement
Photo of author taken by Anita Russo 105

Figure 21 - Fingers crossing over the string when the E string is being fingered with a standard string arrangement
Photo of author taken by Anita Russo 107

Figure 22 - Diagram showing the smaller cutaway on the underside of a bass held upside-down, and the strap cutting across the neck at the 12th fret
Photo of author taken by Anita Russo 122

Figure 23 - Demonstration of how a standard left-handed bass is traditionally held
Photo of author taken by Anita Russo 123

Figure 24 - Jerry Casale with his Steinberger bass guitar
http://www.electricalaudio.com/phpBB3/viewtopic.php?f=4&t=62290 124

Figure 25 - Jimi Hendrix with his guitar, which has been altered so that the strap pin is attached to the opposite horn http://www.rollingstone.com/music/lists/100-greatest-guitarists-of-all-time-19691231/jimi-hendrix-20101202 126

Figure 26 - Diagram showing the location of the components of the bass guitar
http://www.americanmusical.com/content--name-Bass-Buyers-Guide 128

Figure 27 - Close up of the nut of a bass, showing how the grooves are sized for specific strings
http://www.yamaha.co.jp/english/product/guitar/bb/features/page4.html 128

Figure 28 - Demonstration of playing higher frets on the bass by moving the fretting hand between the strap and the body of the bass
Photo of author taken by Anita Russo 133

Figure 29 - Demonstration of playing higher frets on the bass by crossing the fretting hand over the lower horn of the bass
Photo of author taken by Anita Russo 134

Figure 30 – Demonstration of how a bass held upside-down will naturally hang without interference from the performer: Backwards, with the strings and knobs facing the musician
Photo of author taken by Anita Russo 136

Figure 31 - Demonstration showing control knobs for a standard left-handed bass at the bottom of the instrument, with the plucking hand at the top
Photo of author taken by Anita Russo 137

Figure 32 - Demonstration showing control knobs for an upside-down bass covered by the plucking hand
Photo of author taken by Anita Russo 138

Figure 33 - Demonstration of good wrist positioning, referred to here as position 'A'
Photo of author taken by Anita Russo 150

Figure 34 - Demonstration of poor wrist positioning, referred to here as position 'B'
Photo of author taken by Anita Russo 150

Figure 35 - Demonstration of how a bass held upside-down will naturally hang without interference from the performer: Backwards, with the strings and knobs facing the musician
Photo of author taken by Anita Russo 155

Figure 36 - Demonstration of how an upside-down player would turn a bass so that the instrument is oriented in the traditional way, but the upside-down fretting and plucking hands are maintained
Photo of author taken by Anita Russo 170

Figure 37 - Demonstration of a bass guitar being held upright
Photo of author taken by Anita Russo 171

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Chapter 1

Introduction

1.1 Introduction

Advances in all fields, such as science, humanities, and the arts, are consistently achieved, not by adhering to a traditional method of investigation, but by attempting new strategies that go against the traditional perspective. Without a diversity of opinions and approaches, significant advancement may not have come about at all. However, history has shown that humans have a tendency to avoid ideas that are outside our current understanding, and to shun people whose way of thinking is outside the established norm, even when these ideas are scientifically credible.[1] Criticisms of the scientific community have stated that scientists can be, "too conservative in their thinking, too unwilling to accept new ideas".[2] One might argue that pedagogical methods teachers employ when presenting information, and when instructing their students on how to conduct investigations of their own are similar to this criticism. Equally, the way in which members of the academic community present ways of approaching research and learning has been criticized as being too

[1] T.J Sommer, "Suppresion of Scientific Research: Bahramdipity and Nulltiple Scintific Dscoveries." Science and Engineering Ethics (2001) : 77-104

[2] Brett Cooke, George E. Slusser and Jaume Marti-Olivella, *The Fantastic Other: An Interface of Perspectives* (Amsterdam: Rodopi, 1998), 553-555

prescriptive, rendering it “extremely difficult for the individuals to even comprehend alternative ways of pursuing scientific research within their specialization”.[3]

The cycle here is perhaps evident. Over the course of their careers, educators sometimes develop a narrow mindset of how to teach their chosen field, passing this narrow mindset on to their students, who then continue to pass this on to their own students. The solution to this problem is to encourage educators to be more open to different pedagogical approaches, and to be aware that different students may have different reactions to various approaches to learning. In schools especially, traditional expectations of how a teacher should present information can be a barrier to this. Tradition is based on adherence to already established methods, and so the expectation of a traditional way of teaching by parents or management narrows the range of pedagogical techniques available to the teacher.[4] A further issue of maintaining a specific narrow curriculum for learning is that as different curricula become more separated and fragmented, educators following these methods become less critical of them, and so issues with these ways of teaching go unchallenged and unchanged.[5] Furthermore, as educators adhere more firmly to specific methods of learning, they run the risk of excluding particular students, for whom the prescribed traditional way of learning or performing a task, quite often does not work.

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[3] David Harker, *Creating Scientific Controversies: Uncertainty and Bias in Science and Societ*y (Cambridge: Cambridge University Press, 2015) , 200. Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago: The University of Chicago, 1970), 150.
[4] Alexis Kallio, “Drawing a line in water: Constructing the school censorship frame in popular music education.” *International Journal of Music Education* 33 (2015) : 195-209
[5] Kallio (2015)

A widespread example of this adherence to traditional teaching beliefs harming the development of students is the forced use of the right hand for writing and other tasks. Until recently, this was widespread in school systems internationally. In western countries, including the UK, America, and New Zealand, "left-handers experienced unpleasantness during the school years when writing with the left hand was strictly forbidden," until during the 1970s.[6] In countries such as China and India, the practice is still common today.[7] In 2008 a university professor working in China stated:

> [I have] been teaching in universities in China for the past 12 years. Literally thousands of students. Only one has been left-handed. This compares with 10 percent of students when I was teaching in London. I'm sure that the genetic ratio is probably the same but children are forced to use their right hands.[8]

Further evidence that this extreme minority of left-handed students in China is a result of forced right-handedness in schools, rather than genetic or a racial cause, can be seen by comparing proportions of left handed Chinese who were raised in China, and those raised overseas. Worldwide, approximately 90% of people report

[6] Pilvi Kula "Teaching left-handed primary school pupils in Estonia", *Journal of Teacher Education for Sustainability*, (2008) : 58-67

[7] Corey Binns. "What Makes a Lefty: Myths and Mysteries Persist", *Live Science*, (2006)

[8] Ben Ross, "A question of the left being right - and normal", *China Daily*, February 22, 2008; http://www.china.org.cn/english/LivinginChina/243637.htm (accessed June 20, 2015)

being right handed.[9] Compare this to a survey of more that 20,000 Chinese people that revealed that only 0.23% of those surveyed were left-handed.[10] When the same question is put to Asian-American school children, from the same genetic background, but differing in cultural upbringing, 6.5% of students report using their left hand to write.[11] These statistics suggest that this deviation in the proportion of left-handedness from the worldwide norm of 10% is a result of educational and cultural pressure.[12]

Why is this forced right-handedness an issue? Perhaps because there is evidence that this traditional teaching methodology harms student's ability to learn. Naturally left handed students being forced to use their right hand is associated with the onset of speech disorders such as stuttering, and with learning disorders such as dyslexia.[13] This is a clear example of the harm that can result from educators being unwilling to divert from traditional teaching methods, in order to accommodate the way a student is predisposed to learning. Further complicating this is the fact that, "a significant number of elementary school children (9%) are left-handed, justifying a need to pay more attention to their uniqueness. In contrast, 46% of surveyed teachers report not having the necessary knowledge and skills to teach this

[9] H. I. Kushner, "Why are there (almost) no left-handers in China?", *Endeavour*, (2013) : 71-81
[10] Li Xin-tian. "The Distribution of left and right handedness in Chinese people", *Acta Psychologica Sinica*, (1983) : 27-35
[11] E.L. Teng, "Handedness in a Chinese population: biological, social, and pathological factors" *Science* (1976) : 1148–1150
[12] Kushner (2013)
[13] Wendell Johnson and Lucile Duke. "Changes in handedness associated with onset or disappearance of stuttering; sixteen cases". *Journal of Experimental Education*, (1935) : 112-132. Samuel Orton. "Reading, writing, and speech problems in children." *The American Journal of Psychiatry* (1973) : 749-753

population."[14] This leaves left handed students in the difficult position of having a lack of guidance from their teachers, either because they unwillingly to shift their approach to teaching, or they lack the pedagogical methods to accommodate the student.

The struggle of students with a left-handed preference can be seen in the field of music, particularly among musicians who play string instruments. The reason this affects string instrument players specifically, is because these instruments require each hand to perform very different tasks in order to be played: one hand pressing on a string in order to achieve a desired pitch (called 'fingering' or 'fretting'), and the other either strumming, plucking or bowing the string in order to create volume. While it is true other instruments may play different rhythms and pitches with each hand, such as the left and right hands of a pianist playing the bass and treble parts respectively, the action each hand makes is relatively the same, pressing down on the keys. Traditionally, the task of fretting the notes on string instruments was performed by the left hand, and the strumming, plucking, or bowing, was performed by the right hand. This is the most common way these tasks are divided between the two hands, and has been standard practice for as long as records show, as seen in the 9th Century illustration below, depicting a lute-type instrument being played in this way.

[14] Kula (2008)



Figure 1 - 9th Century illustration of a musician playing a lute-type instrument

Because this is the most common way for the instrument to be held, this way of playing is called right-handed, even though this is a two handed task. This presents a dilemma for a left-handed person who wishes to play a string instrument. What way should a left-handed musician hold a string instrument, such as a violin or guitar?

There are three options for a left-handed musician when presented with this choice. The first option is that the left-handed musician could choose to learn with the right-handed orientation, with their weaker (right) hand performing the tasks normally designed for the dominant hand. Musicians who have chosen to do this include Elvis Costello (a songwriter who had a major influence on British popular music in the late 70s), Mark Knopfler (lead guitarist and singer in Dire Straights, a commercially successful British rock band), Paul Simon (an influential songwriter and singer) and

Eddie Van Halen (the iconic lead guitarist from the band, Van Halen). This way of playing is demonstrated in the figure below



Figure 2 – Demonstration of how a standard right-handed bass is held and strung

A second choice would be to buy, or make, a left-handed version of their chosen instrument: a perfect mirror image of the right-handed setup, and what I will refer to as a 'standard' left-handed arrangement. Performers who have chosen this option include Paul McCartney (The Beatles), Kurt Kobain (Nirvana), Iggy Pop (The Stooges), and Jimi Hendrix (who, among other left-handed musicians, restrung a right-handed guitar that was played upside-down and thus created the 'standard' left-hand arrangement). This way of playing is demonstrated in the figure below.



Figure 3 – Demonstration of how a standard strung left-handed bass is played

The third and most uncommon option for left-handed musicians is to use an upside-down style of playing. This involves using a right-handed instrument held like a left-handed version, vertically reversing the physical position of the strings. Musicians who use this way of playing include Jerry Casale (bassist in Devo), Jimmy Haslip (bassist in the Yellowjackets), Otis Rush (a leading blues guitarist), Bob Geldof (the lead singer of The Boomtown Rats), and Albert King (another highly influential blues guitarist). This way of playing is demonstrated in the figure below.



Figure 4 – Demonstration of a right-handed bass being held upside-down

Each of these choices raise questions concerning their affect on the left–handed musician. Within classical music circles, for example, there can be several disadvantages to playing a string instrument in a 'standard' left-handed arrangement, and so many players who identify as left-handed instead play in a right-handed style. Professor Chris McManus of University College London states that research into professional orchestras has shown that the proportion of left-handed persons is slightly higher amongst orchestral musicians than in general society.[15] It is, however, highly unusual for any professional orchestra musician to play with a left-handed, or upside-down string setup. Jonathan Crow, Concertmaster of the Toronto Symphony Orchestra, echoes this opinion, specifically in relation to

[15] Chris McManus is a Professor of Psychology and Medical Education at University College London. Lefty Central, "Is it true that left-handed people are smarter than right-handed people?" http://leftycentral.tumblr.com/post/40602436568/is-it-true-that-left-handed-people-are-smarter-than, (accessed May 17, 2014)

violinists, stating that, 'there are actually many left-handed players in symphony orchestras'.[16] He adds, however, that they would almost all play in the standard right-handed position. Crow also points out that there are problematic issues involved with playing in a reversed position, stating that, 'Performing in an orchestra with a reversed violin could lead to all sorts of logistical problems for a musician … Imagine two violinists sitting side–by– side trying to avoid hitting bow arms on every stroke'.[17] These concerns are common among left-handed players, many of whom worry about a 'standard' left-handed style of playing making it more difficult for them to perform with others. One such musician stated:

> A lot of people like to toy with the idea of playing left-handed, but I find that is going to limit your ability to play with other people, which is what making music is all about. It's not just about aesthetics in the orchestra, but also the direction of your sound from where your f-holes point and not colliding with your stand partner. There are enough challenges presented for both hands that I don't see any particular advantage to being right- or left-handed when playing the violin.[18]

[16] Jonathan Crow is the Concertmaster of the Toronto Symphony Orchestra Philip Jackman, "It's only right for violinists to bow with left," *The Globe and Mail*, May 11, 2012, http://www.theglobeandmail.com/globe-debate/its-only-right-for-violinists-to-bow-with-left/article4108226/, accessed 3rd June, 2014.
[17] Jackman (2012)
[18] Cynthia Darling. "A question of orientation: the left-handed violinist." *Teaching Music* (2011) : 52

These issues are so pronounced that the general consensus among classical musicians is that, if a player were to choose to play left-handed, it would then be impossible for them to join a professional orchestra.[19] Overall, classical musicians appear to view 'standard' left-handed playing as a disadvantage, and believe that, "the violin is played one way, just like you wouldn't change the keys of the piano around for a left-handed person".[20] I would argue however, that this is not true. None of the disadvantages of left-handed playing put forward by classical musicians are actually caused by the instrument itself, but by the way it is expected to be played in a traditional classical setting. Exactly like forced right-handedness by teachers in schools, left-handed violinists are forced to fit into a way of playing that conforms to traditional expectations, regardless of their natural preference.

Outside of this rigid classical framework, musicians are freer to play in whatever way they feel most comfortable. In the case of folk musicians for example, Crow states that, 'It is much more common for violinists in less classical fields (such as [folk] fiddling) to play in a reversed position'.[21] For folk musicians, there are no set rules about how to play your instrument, or how you must sit and perform with other musicians, as there are in the classical genres. Folk music is taught in a more informal way compared to the classical method. In fact, folk musicians are more often self-taught or autodidactic.[22] Without a teacher providing a specific framework for

[19] Talk Classical, "Left Handed violinsts in orchestra?" http://www.talkclassical.com/11050-left-handed-violinst-orchestra.html, (accessed June 24, 2014)
[20] Talk Classical (2014)
[21] Jackman (2012)
[22] Marika Carley. "Libba Cotton's Guitar", *Smithsonian Magazine*, 2000

learning, or providing a prescriptive method of how to play the instrument, folk musicians will discover and adapt whatever learning methods they find best suit them, and play in whatever makes if easiest for them to learn.

A historical example of this folk attitude is shown in the portrait, 'Right and Left,' by William Sydney Mount, featuring a black left-handed fiddle player. The portrait is shown below.



Figure 5 - Left and Right by William Sydney Mount

Contemporary rock and pop musicians share a similar ethos to folk musicians, rejecting the stringent rules of classical music pedagogy, and the results of this more

relaxed attitude towards left-handed playing are striking. The number of notable left-handed classical violinists is barely ten, while the number of notable contemporary guitarists, or bass guitarists, who play in either a 'standard', or upside-down left-handed style, is over 250.[23]

This thesis will focus on a specific sub-group of these contemporary musicians: upside-down bassists. There has been no academic study into this group of musicians, and so there is little understanding of how this style of playing affects the teaching and learning of bass. As I stated at the beginning of this chapter, pedagogy is advanced through willingness to be open to new ways of learning. The goal of this thesis is to investigate this unique way of playing bass guitar, and what implications it has for the pedagogy of bass. This thesis contains interviews with several upside-down bassists of varying levels of notoriety and skill, discussing the origins of their style, how this way of playing affects their ongoing learning of the instrument, and how it affects teaching the instrument. As an upside-down bassist myself, I hope that this work can raise music educators' awareness of the efficacy of this style of bass playing, so that they have the ability to include it as a learning option for their students.

[23] Wikipedia. "List of musicians who play left-handed" http://en.wikipedia.org/wiki/List_of_musicians_who_play_left-handed#Violinists , (accessed June 24, 2014)

1.2 Methodology

I began this the research for this thesis by searching for academic studies on upside-down bass, of which I found none. The only published information on upside-down bass I could locate was from interviews with bassists such as Haslip, from The Yellowjackets, and Jerry Casale, from Devo, and amounts to no more than a few sentences. As will be discussed further in my literature review, I then researched popular music pedagogy. Insight into the formal and informal learning process of popular musicians, and the way popular music learners interact with their teachers is very helpful in investigating the learning process of upside-down bassists.

To gain the best information on the learning process of upside-down bass players, and their experiences with this way of playing, I interviewed sixteen bassists who currently play, or learned to play upside-down.[24] These bassists were from a wide range of ages, from early twenties to sixties, played a variety of different styles and genres; were from many different countries, and had differing career paths and levels of success in the music industry. The only variable I would have liked more range for was gender, as only two of the bassists I interviewed were female. I wanted to have as wide a range of musicians as possible, as I wanted to see what similarities and differences arose in the experiences of different upside-down players. I was not interested only in musicians who were considered experts in their field, as the learning and playing experiences of any upside-down bassist was relevant to my investigation, regardless of fame or perceived skill level. Had I only

[24] The University of Otago Ethics Committee approved these interviews.

focused on one particular group of upside-down bassists, such as those considered experts, I would have overlooked the experiences of bassists that would not otherwise have been brought to the attention of pedagogical research. As my interviews focused on the personal experiences of bassists, they only had to give insight on their own learning and playing, not upside-down bass as a whole. The interviews were conducted by email and Skype. While writing this thesis, I compared the experiences of different players to each other's, as well as my own. I compared these personal experiences with the findings of academic studies on popular music pedagogy that I researched initially. I also consulted with a physiotherapist who specializes in musicians' muscular problems and provided an expert opinion on the effect of upside-down technique on the ergonomics of the instrument.

1.3 Literature review

Academic studies into the effects of environmental pressures on the expression of left-handedness are relevant to this thesis, as my own research investigated the reasons upside-down bassists choose to play in this left-handed way.

Kushner asserts that cultural differences and upbringing have a large affect on a person expressing their natural 'handedness'.[25] He particularly cites surveys in India showing that less than 3% of students identify as being left-handed, and also cultural beliefs, particularly in Asian countries, that regard left-handedness as being spiritually bad signs, and explains how this leads to left-handed people. As previously stated, Xi-tian claims in his study that students in China are far less likely to express left-handedness, only 0.23% identifying their left hand as their dominant hand.[26] When compared to expression of left-handedness by Chinese students studying in American in studies by Teng, the proportion is much closer to the worldwide average of 10%, specifically 6.5%.[27] From this we can conclude that the lower proportion of left-handedness in Asian countries is most likely not due to biological reasons, but instead cultural pressures from parents and teachers. My research is in agreement with this conclusion, as my interviews with upside-down bassists revealed that several were pressured by tutors to play in a right-handed way when their natural preference was to perform left-handed.

[25] Kushner (2013)
[26] Xin-tian. (1983)
[27] Teng (1976)

Having drawn the conclusion that a major influence of the lack of left-handedness is pressure from teachers, academic studies related to the education of left-handed students is therefore pertinent to this thesis. Kula writes that teachers report having insufficient knowledge and resources to teach left handed students in the classroom, particularly during hands-on activities: "Teachers claim that they need additional knowledge to better teach left-handed children. Knowledge and practical skills are needed the most when teaching writing and handicrafts (knitting, crocheting, and embroidering) to pupils… 46% of surveyed teachers report not having the necessary knowledge and skills to teach this population."[28] Williams notes that this lack of knowledge and resources leads to teachers focusing less on the learning progress of left-handed students: "Too many [teachers] have been teaching primarily to the right-handed student, leaving the left-handed student to shift for himself."[29] A lack of instruction on writing can result in a lower level of confidence for left-handers in school and may affect their learning in several subject areas. With regards to young students learning to write, Wasylyk states: "This has not always been easy for left-handers, for whom the process of handwriting often has been frustrating and uncomfortable. Poor handwriting skills sometimes diminish their success in other areas of the language arts."[30]

My research came to similar conclusions about the teaching of left-handed students, as the experiences of my interviewees showed that their tutors did not know how to

[28] Kula (2008)
[29] W. Williams. "Teaching the Left-Handed Child", *Peabody Journal of Education*, (2009) : 77-79
[30] Thomas Wasylyk. "Teaching Left-handers the Write Stuff", *The Reading Teacher*, (1989) : 446-447

teach a left-handed student, and so did not implement any teaching strategies to accommodate this. However, my interviewees reported that this less actively involved approach did not negatively affect their learning. So for upside-down bass students, a lack of attention from tutors regarding their handedness does not appear to have as negative an effect as for left-handed students learning to write.

Research also indicates that left-handed musicians are at no disadvantage in terms of comfort or ability, such as studies showing that musicians tend to show "less asymmetry in hand skill than the general population".[31] This would suggest that even if a musician identifies as left-handed, they are unlikely to struggle with tasks that would normally be considered right-handed. In fact, Darling puts it that, theoretically, when playing in a right-handed way, left-handed violinists may have an advantage over their right-handed counterpart, due to the left hand being used to perform the more dexterous task of fingering the notes.[32] Furthermore, a study conducted by Kopiez *et al* indicated that left-handed violinists who performed using right-handed techniques did not experience any more muscular discomfort when performing than right-handed players.[33] The same study also noted that amongst classical pianists, levels of dexterity in each hand were not affected by the reported handedness of the musician.[34] However, my research does not necessarily agree with these results. Some of my interviewees who played using upside-down left-

[31] L. Jancke, "Hand Skill Asymmetry in Professional Musicians", *Brain and Cognition* (1997) : 424–432
[32] Darling (2011)
[33] Reinhard Kopiez. "No disadvantage for left-handed musicians: The relationship between handedness, perceived constraints and performance-related skills in string players and pianists", *Psychology of Music* (2012) : 357-384
[34] Kopiez (2012)

handed technique reported that their method of playing affected their ability to perform specific bass techniques and others reported specific discomfort as a result of the way they hold their bass. However, as my interviewees perform in a left-handed, upside-down way, while the subjects of Kopiez, Jancke, and Darling's writing all performed using right-handed technique, it is difficult to draw comparisons between these groups of individuals even though they are both left-handed.

As a large focus of this thesis is the learning and teaching experiences of upside-down bass players, academic studies on how popular musicians learn are highly relevant to this investigation. Though none of these studies specifically focus on upside-down bass players, or even left-handed players, they still provide perspective on the ways all popular musicians learn, and how popular music should be taught.

Tim Robinson states that it has been well established in academic studies that contemporary popular musicians tend to be self-taught, or autodidactic.[35] Lars Lilliestram observes that folk and rock musicians will be very self-driven and self-taught, often seeking very little help in the form of formal lessons[36]. This is what I found in my own research, with the vast majority of upside-down bassists having had no formal lessons. Lucy Green states that in the absence of any kind of tuition, self-taught popular music students will create their own learning strategies to achieve

[35] T. Robinson. "Popular musicians and instrumental teachers: the influence of informal learning on teaching strategies", *British Journal of Music Education*, (2012) : 359 – 370

[36]Lars Lilliestam. "On Playing by Ear", *Popular Music* (1996): 195-216.

their goals.[37] My research also reflects this concept, with the autodidactic bassists I interviewed finding their own ways of learning their instrument outside of a formal learning environment.

Green also discusses the fact that there has been a lack of resources for popular musicians in schools.[38] John Kratus holds similar views, stating that schools were not providing resources or curriculum that reflected the interests of students wanting to learn popular music instruments.[39] My interviews and my personal experience also support this, as a lack of popular music instruments in general results in fewer left-handed options as well.

Alf Bjornberg suggests a teaching approach that involves finding a balance between reproduction-based teaching methods and creative teaching methods; so that while the student is learning the fundamentals of the instrument, they can also learn to better express themselves and establish a learning style that is most effective for them personally[40]. I agree with this approach, and I found that this concept of teaching was missing in the formal learning experiences the bassists I interviewed, as well as in my own experience.

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[37] Lucy Green, *Music, Informal learning and the school: A new classroom pedagogy*, (Aldershot: Ashgate Publishing Ltd, 2009), 79-85

[38] Lucy Green, *How Popular Musicians Learn*, (Aldershot: Ashgate Publishing Limited 2001), 55-62

[39] John Kratus, "Music Education at the Tipping Point", *Music Educators Journal* (2007) : 42-48

[40] Alf Bjornberg, "'Teach you to rock'? Popular music in the university music department", *Popular Music* (1993) : 69-77

There are many insights to pedagogical theory that can be gained by examining the learning and development processes of upside-down bassists, and which may have implications for teaching across many fields. When examining an alternative method of learning a task, it is important to consider the origins the style in individuals, the environmental an internal pressures that drive a person to take an alternative approach. Chapter Two of this thesis, 'Why bassists begin to play upside-down', investigates bassists' discovery of, and early interaction with, upside-down bass methods. Chapter Three, 'Experiences of learning bass upside-down', will then investigate the learning experiences of upside-down bassists, taking into consideration both autodidactic, and formal, approaches. Chapter Four, 'Advantages of playing upside-down' will outline and critique specific advantages that upside-down players believe the style has for them, and Chapter Five, 'Challenges of playing bass upside-down', will conversely investigate disadvantages that upside-down players have experienced. Chapter Six, 'Biomechanical implication of upside-down bass', will examine the effects, both potential and realized, that upside-down playing has on the physiology of the performer. Chapter Seven, 'Teaching challenges of upside-down bass, and applied solutions to these challenges', will investigate various aspects of teaching as an upside-down bassist, and assess the effect the style has on music pedagogy for these players. The conclusion will then summarize the findings of this thesis and demonstrate that the investigation of the experiences of upside-down bassists has important implications for pedagogy in the area of music, as well as other fields.

Chapter 2

Why bassists begin to play upside-down

In order to determine whom this way of playing and learning bass may benefit, it is important to examine the reasons why some musicians choose to perform this way. Once it is determined what factors contributed to this choice, it will be easier to identify new players who are in a similar situation, and provide upside-down bass as an option for learning that may benefit them. My interviews revealed many different experiences that upside-down bassists identified as the cause of their decision to play upside-down, and that different players shared the same experiences. This chapter outlines these early experiences in the learning and musical development of the interviewees.

2.1 The effect of the autodidactic learning approach

The majority of the musicians I interviewed were self-taught, as is often standard for popular and contemporary musicians. This trend has been well documented in many studies such as Bennett (1980), Cohen (1991), Berliner (1994), Lilliestam (1996) and Green (2001). Arguments have been made that for certain musical genres, such as jazz, it may be better for a learner to go against "the more orthodox manifestations of formal jazz education, in favour of more heterodox educational ideologies – or

even autodidactic learning cultures."[41] Even within a variety of formal learning environments, it has been observed that it is important for educators to encourage autodidactic learning and problem solving strategies in their students, in order for them to succeed in their field of study.[42]

As an informal and unstructured way of education, autodidactic learning can occur anywhere, and through any number of avenues, often several in tandem.[43] There was no single learning path or process that was applied consistently by all, or even a majority of the upside-down bassists whom I interviewed. Their learning of bass guitar was carried out through a number of sources, including mentors in church groups, older family members, spontaneous learning in a band, aurally learning from records or the radio, or very often, a combination of several of these methods.

Parents and siblings were often an initial source of musical education for the interviewees, such as Keith Horne and Larry Williams. In Horne's case, it was his father who initially taught him guitar, and he was introduced to bass through his father's band. In William's case, his brothers taught him many of the fundamentals of music, and it was their basses that he initially played and practiced on. Though these examples may seem somewhat like a teaching scenario, they are entirely

[41] Sven Bjerstedt, "Landscapes of musical metaphor and musical learning: the example of jazz education", *Music Education Research*, (2015) : 499-511
[42] A. Towle, D. Cottrell, "Self directed learning", *Arch Dis Child* (1996) : 357-359; Judy Robertson, "The educational affordances of blogs for self-directed learning", *Computers & Education* (2011) : 1628–1644
[43] Brigid Barron, "Interest and Self-Sustained Learning as Catalysts of Development: A Learning Ecology Perspective" *Human Development* (2006) : 193-224; Ismael Peña-López, "Heavy switchers in trans–learning: from formal teaching to ubiquitous learning", *On the Horizon*, (2013) : 127-137

dissimilar from a structured learning environment, and were described as more like an exchange of advice and examples than formal lessons.

Learning aurally by emulating sounds from pop music records was also a common narrative amongst the players I interviewed, as it is with many contemporary rock and pop musicians. In her book, 'Music, Informal Learning and the School', Lucy Green states that for self-taught pop musicians "the main method of repertoire- and skill-acquisition involves the copying of recordings by ear", and has re-iterated "listening and copying" as the "overriding learning practice" of pop musicians in other academic works.[44] It is therefore unsurprising that this was a learning method reported by interviewees. Upside-down bassists Scott Reeder and Greta Brinkman specifically cited this as the main way they learnt to play their instrument. As Brinkman described to me: "I'm completely self taught. I taught myself by listening and playing along to the Ramones, basically." (interview with author, 18/10/15)

Ed Kaszuba's early learning experiences were similarly self-directed:

> I would just listen to stuff and play it. And at that time there was no video, no Youtube, you just put on a record or tape and you'd play along with it and try and figure out the notes… I would find the laziest

[44] Lucy Green, *Music, Informal learning and the school: A new classroom pedagogy*, (Aldershot: Ashgate Publishing Ltd, 2009) : 27-28; Lucy Green, 'The Music Curriculum as Lived Experience: Children's "Natural" Music-Learning Processes', *Music Educators Journal*, (2005) : 27-32

> way to play the same notes. That's what it came down to." (Interview with author, 22/7/15).

As well as learning aurally, performing with others in a semi-casual environment, such as a church or youth group, was a common experience, influencing the early learning of several interviewees. Kaszuba was also one of several upside-down bassists whose initial experiences with his instrument were through a church group, as he related to me:

> Somebody at the church we were going to, threw a normal right-handed bass at me, and I immediately flipped it upside-down… I immediately picked out the root notes of whatever we were playing, without knowing what I was doing" (Interview with author, 22/7/15).

Equally, Alwin Mills stated that:

> It started because I was in a gospel group, when I was about 11. Originally I'm a drummer, our bass player quit, and for a while we went without a bass player, and the musical director decided who within the group had enough musical talent to play bass. Being that 90% of the world is right handed, I just picked up the bass that belonged to the band, that was right handed, and my first instinct was to just play it as it is, with me being left handed, that's just the way I picked it up the first time. Nobody said if it was wrong or

right, they were just happy I was able to get a tone out of it.

(Interview with Author, 23/10/15).

An important point here is that none of these situations involved a formal student-teacher relationship. Though there might have been a more musically experienced, older person of authority present, such as a musical director in a church or a parent, their role was chiefly to facilitate the student's self-directed learning, rather than to direct how they played or learnt the instrument.

As very few of the players I interviewed had a tutor, or someone to guide them through their initial experiences interacting with and holding the bass guitar, this autodidactic approach to learning caused them to play in whatever way came most naturally to them. Lucy Green discusses how music learning practices will arise naturally in new performers, without the input of formal education or a tutor of any kind. This means that performers without a tutor will create their own approaches to learning their instrument, and these approaches will ultimately decide how they play the bass guitar, irrelevant of what the 'correct', or 'traditional,' way may be. Williams was strongly of the opinion that this approach to first learning the bass is effective for young musicians, in his words: 'If it's comfortable that way, do it. If its right for you, who is someone else to say its wrong?' (interview with author, 7/8/15). His meaning here is that whether you are playing the bass the 'right' way, or the 'wrong' way, if it feels right to you, and allows you to express yourself musically, you should pursue that method of playing. This notion is a common one, as it was for Jeff Schmidt, who told me that, 'No one instructed me to play any other way - so I just

played the way that felt the most comfortable' (interview with author, 12/8/14). This is precisely the type of experience Williams was alluding to, finding your way of playing without the influence of external pressures. The type of instrument musicians start to learn on can influence this decision as well, due to a similar lack of guidance or pressure. Kaszuba related how his experience of learning the mandolin affected how he chose to play the bass guitar:

> Somebody threw a mandolin in my face and said 'play around with this'. It was a typical mandolin, it didn't have a left or a right, it was a teardrop shape. I tried it [right-handed], and I said, 'I can't do this, my left hand wants to strum' so I flipped it over real quick and just started playing it… Then somebody at the church we were going to threw a normal right-handed bass at me, and I immediately flipped it upside-down. (Ed Kaszuba, interview with author, 22/7/15).

It was not the lack of pressure from a teacher that allowed Kaszuba to find the way of playing the felt best to him. It was the lack of pressure from the design of the instrument that influenced his decision. Because a mandolin is symmetrical, it does not feel any different holding it one way as opposed to the other. However, if Kaszuba has picked up a more asymmetrical instrument first, such as a Fender Stratocaster, which has a very large horn as part of its design, he may have been more likely to hold it right-handed, as the asymmetry of the instrument has a very right-handed ergonomic intention in mind. This multi-instrumental progression of learning is also experienced by bassists who play in the 'standard' left-handed way (G

string at the bottom of the neck, i.e. the high string at the lowest point of the neck). Mike Logie began experimenting with music initially on guitar, and like other left-handed musicians, found playing upside-down to be more natural than playing right-handed:

> I played a lot of air guitar [miming playing a guitar] as a 6 year old and always played air guitar left-handed. I always identified myself as a lefty and I knew nothing about guitar playing or anything like that, so I did not think about playing a right handed guitar in any way, be it upside-down or the right way up or whatever. Before I got my first guitar, I messed around on some right handed guitars but always played them upside-down with a slide. That was fun but, when I took lessons, I wanted to learn how to play guitar "properly" (interview with author, 9/7/14).

Logie mentioned that the issue of his lack of technical knowledge of guitar performance, and having little concept of the traditional way to hold the instrument, influenced this decision. It is also important to note that his change from playing upside-down, to traditional left-handed playing, occurred when he began taking formal lessons. The conclusion can be drawn that some influence in these lessons, and the pressure to play 'properly', as Logie put it, were the major catalyst in his decision to play with a new string setup. The lack of technical knowledge Logie described to me, is a common reason the bassists I interviewed gave for playing upside-down. Terry Gregory mentions a lack of information being a definite deciding

factor in how he plays. He said, 'I started playing left-handed-upside-down-back-to-front as a result of the non-availability of a left-handed instrument and ignorance!' (Interview with author, 25/6/14). The link between Logie and Gregory's experiences is that their choice to play upside-down (temporarily in Logie's case), was influenced by not having to consider whether their playing is the 'right' or 'wrong' way, until, in Logie's case, he began taking formal lessons. Pete Gossett talked about the urge to play in a band being an influence on his upside-down playing:

> I had some friends who were starting a band and they said, 'hey , do you wanna play bass? Its easy'. So, sure. I didn't have any equipment so I started playing on other people's equipment that was right handed. I learned a tune or two and thought, 'I don't wanna bother flipping my strings over, I'll have to relearn Wipeout,' or some silly thing like that. (Interview with author, 13/9/14).

There is a kind of youthful recklessness evident in this approach: wanting to engage with music without fully understanding what is involved, or even understanding one's own instrument. Haslip, of The Yellowjackets, cited the same lack of technical knowledge and eagerness to just dive in and play, being part of the reason he ended up playing upside-down:

> There was never a choice! I was 13 years old when I began playing electric bass and I was studying the trumpet since I was 7 years old. I was playing baritone horn, tenor horn and tuba in the school

> orchestra as well. when I was asked to join a few friends to form a rock band to play parties that Summer. Eager to be a part of this experience, my father agreed to take me to a music shop and I got a right handed, Japanese made electric bass, which, being naturally left handed, I flipped the instrument around (upside-down) and taught myself the few dozen songs in the bands repertoire by ear. That's how it all started in 1963, and I continued to play a right-handed electric bass left handed through out my middle school and high school years. So you see, this odd technique is a result of naivety on my part as a young and eager to learn aspiring musician. (Interview with author, 1/10/14)

Haslip highlights that 'naivety' and lack of technical knowledge about the instrument before learning to play was a large factor in him becoming an upside-down performer. This is a common narrative for upside-down players, and contemporary musicians in general: Young aspiring players aiming to join a rock band as soon as possible, desiring the social experience of being in a band, rather than wanting to become traditionally trained musicians. This leads to them learning by ear and playing however they feel comfortable, rather than mirroring a teacher, or researching how to play the instrument.

A discovery from my interviews, that was somewhat more surprising, was that the bassists I interviewed were not overwhelmingly right or left handed in general tasks such as writing, the classic defining characteristic we use to define handedness.

Going into this research, I expected the majority of the bassists I interviewed to be more ambidextrous. The reason I expected this was because I am fairly ambidextrous myself, and guessed that bassists who played the same way as me, likely had a similar lack of hand dominance. This turned out to be incorrect, as the bassists I interviewed gave varied responses about whether they were right or left handed. It appeared that playing an instrument 'left-handed', in the group of upside-down bassists at least, has very little correlation to which hand they say is their dominant one. Horne was one upside-down player who made special note of this:

> The weirdest thing is I'm a totally right handed person, but I play instruments left-handed. When I was 6 years old, I started playing guitar, trying to play right-handed with my dad teaching me and it just felt weird. … One day I picked it up left-handed and my dad switched the strings around so I learnt to play like that. (Interview with author, 30/8/14).

Horne expressed that he had almost no co-ordination when it came to his left hand, so initially it might seem counter-intuitive for him to choose a way of playing that we refer to as being left-handed. In contrast, Ronn Roberts is an upside-down player who has the opposite hand dominance:

> I pretty much do everything lefty except when I played ball, I batted righty because that's how my righty Dad taught me. Threw? lefty. I

> was never asked or forced to write righty in school. (Interview with author, 14/9/14).

Reeder stated, 'I'm a very dominant leftie, everything I do is leftie.' (interview with author, 24/8/14). Brinkman had a different experience again, showing little dominance of co-ordination for either hand from an early age:

> I was ambidexterous as a child! That got trained out of me by public school, haha. Nowadays the only things I do left-handed are play bass and shoot pool, which I do with both hands (interview with author, 18/10/15).

Significantly, Brinkman's handedness was affected and defined once she attended school, and was placed in a scenario where there was a 'proper' or 'traditional' way of doing things. This relates directly to how an autodidactic, self-taught approach affects a players choice to play upside-down. If a person is told they are 'right-handed' from an early age, and then they begin to play an instrument, and are told by a teacher that there is a 'right-handed' way of doing it, they are more likely to select this way of playing. If however, the player never has this instruction, and is not aware that there are 'right-handed' and 'left-handed' basses, then they are more likely to pick the style of playing that feels most natural to them.

When looking at the bass guitar, it is puzzling that we define either style of playing it as 'right' or 'left-handed', for the obvious reason that virtually everyone uses both

hands to play the bass. Furthermore, the style of playing we call 'left-handed,' is arguably the style that requires more co-ordination from the right hand. When playing bass guitar, one hand plucks the strings, called the plucking hand, while the other frets the notes, called the fretting hand. When playing, the fretting hand is the one that moves the most and does the more complex tasks, as this hand must move between different strings, as well as up and down different frets and positions. For most players, this involves all the fingers on their fretting hand. The plucking hand, however, most often only requires 2 fingers (through occasionally 3 for some techniques, and the thumb for slap bass technique), and only has to change between different strings, even when a pick is being used. Though both tasks require considerable practice and dexterity, the fretting hand virtually always has to move more often, and perform more precise actions than the plucking hand. Classical violin educators have noted that left-handed players often find fingering easier, as the muscles in the left hand are more developed for fine, dexterous movements[45]. Following this reasoning, it is logical that a player who is otherwise right-handed may find themselves better suited to a left-handed style of bass. It is a peculiar feature of bass technique that the way of playing we call 'right-handed,' favours the left hand as the fretting hand, and the way we call 'left-handed,' favours the right.

Given these details about how the instrument is played, I think it is unsurprising that a number of upside-down players say that their right-hand is dominant, especially given that many had no guidance from teachers, or mentors, when they first played

[45] Cynthia Darling. "A question of orientation: the left-handed violinist." *Teaching Music* (2011) : 52

the bass guitar. If players, such as Horne or Brinkman, had begun learning with a tutor, then it could be argued that they would have been more likely to play 'right handed', because music teachers have pre-conceived notions of how a 'right-handed' player should hold the bass. However, because Horne and Brinkman both had little guidance from a teacher, or any other bassists, and had no pre-conceived notion of there being a 'right' and 'wrong' way of playing, they simply played in the way that felt best to them. Similarly, if Roberts or Reeder had had teachers in the beginning of their playing, they would have been exposed to the teachers ideas of how a 'left-handed' bassist is meant to play, and so may have been more likely to play with a 'standard left-handed' string arrangement. It is in these ways that autodidactic learning led to them choosing, and continuing to pursue, the upside-down style of playing bass.

2.2 Mirroring of other's playing styles

As stated in the previous chapter, my interviews indicate that, for upside-down musicians, the orientation of their instrument was not a considered decision. They did not objectively decide that playing upside-down was more efficient or better. It was based on how the instrument felt in their hands. It also appears that upside-down musicians do not choose to play this way because they are mirroring another player they admire. In fact, many upside-down bassists do not have any knowledge of others who play the same way until later in their performance careers. When I asked Polar Sky, a regular performer in the Melbourne music scene, if there were any upside-down bassists who she emulated or copied, she informed me that:

> In all honesty, no, I'm a bit of a weirdo. I have a couple of bassists I like, but I do not have any that I kind of look up to… I look up to them but I don't look and go 'ooo I should do that for my technique' sort of thing. As for upside-down bassists, I've only recently started discovering people that play upside-down. (Interview with author, 27/8/14).

This concept is significant as it highlights how playing upside-down was a subjective personal decision, rather than mirroring another player's style, or researching different techniques and choosing the one that was objectively the best. I also asked Horne if he was aware of other upside-down bassists when he first started learning, and whether they influenced his choice to play upside-down:

> No, as a matter of fact I didn't know any at that time. The first one I ever really met was Jimmy Haslip. He's such a sweet guy. We met when I was in a jazz/fusion band when I lived in Virginia. Band called Secrets. … It was a smoking jazz/fusion band and we opened up for the Yellowjackets and that was the first time I had met Jimmy. I had seen him play on TV with some different people and of course with the Yellowjackets seeing them play on videos and stuff. That was the first guy I met that played like that. (Interview with author, 30/8/14).

Due to Horne not knowing of any other bassists playing upside-down during his most formative years of learning bass, he therefore could not have been influenced to play upside-down by mirroring other players. By the time he saw Haslip playing on TV, and met him personally, he had already established his own style and was playing in successful bands.

Mark Dyer, a bassist who has played with professional bands since the late 1980s, said:

> I'm glad you're [writing this dissertation]. When I was younger and was playing upside-down you do feel kind of isolated, like you're the only one you know. (Interview with author, 6/9/14)

This is the same as my own experience. When I began playing bass, I had no idea there were other musicians who played the same way as I did, and thought I was the only one who played upside-down. It was not until well after I had established my own technique, and way of playing, that I began to discover musicians like myself. This was approximately five years after I started playing. This appears to be the same experience as other upside-down bassists. It could be that this way of learning has long-term benefits for upside-down players, because they are engaging in a method of trial-and-error with their instrument, rather than copying the technique of another player. This experimentation means that they are more likely to find the technique and way of playing that best suits them. If, on the other hand, they attempted to copy the physical movements of another bassist, upside-down or otherwise, then the techniques they use would not be adapted to them personally, and may not be as comfortable or efficient.

An example of experimentation that applies to both upside-down and regular players is the case of 'hitchhiker's thumb'. Hitchhiker's thumb is a condition whereby a person's thumb bends backwards to almost 90 degrees when in a 'thumbs up' position. Normally the condition is not associated with any physical difficulties or weakness, except when associated with a joint malformation such as Ruhinstein-Taybi syndrome, a condition that causes large and malformed thumbs, amongst other symptoms[46]. However, because there is wide natural variation in the angle of thumb joints (see figure below), this means that for more specific fine motor

[46] V. E. Wood, J. H. Rubinstein, "Surgical Treatment of the Thumb in the Rubinstein-Taybi Syndrome", *Journal of Hand Surgery* (1987) :166-172

movements, such as those involved in playing bass, there is a resulting variation in how different players hold their hands when fretting notes.



Figure 6 - Diagram showing variation in the angles of the thumb joint

Jaco Pastorius is likely the most well-known bassist who had an extremely pronounced hitchhickers thumb, and this resulted in him having an extremely distinctive way of holding his left hand. The figure below shows the extreme angle of Pastorius' thumb on his fretting hand.



Figure 7 - Screenshot displaying Jaco Pastorius' case of extreme hitchhikers thumb

If a player, without the hitchhicker's thumb condition, attempted to emulate the exact technique exhibited by Pastorius, they would be physically unable to accomplish this, or would hurt themselves trying, due to the joint having a limited range of movement. Therefore, the more acheivable way for a bass player to emulate Pastorius' style of playing, is to focus on, and attempt to reproduce what they hear, rather than by attempting to play in the exact same way. Each bass player has different physiology, and so finding a way of playing that best fits their body will undoubtedly benefit their long-term playing.

Several of the bassists I interviewed echoed the idea that it is more important, and beneficial as a learner and player, to focus on the sound of a player rather than their physicality. Kazsuba expressed this idea succinctly:

> To you, the notes are the notes, whether you're playing it with your nose or your third finger, it's the same note you're hearing and works in the song. As long you're getting the sentiment across that you want to, you could be blind and it'll sound good. Doesn't matter what technique you're using. (Interview with author, 22/7/15).

As did Williams:

> People don't hear left handed or right handed, people hear bass. If you're gonna be a bass player, play bass, don't worry about being upside-down (Interview with author, 7/8/15).

Both Kaszuba and Williams highlight here the unimportance of received traditional technique, as long as the music is not being affected negatively. Their opinions on this matter could well be a result of not having other musicians to precisely emulate when they were initially learning, bringing them to the realization that it would be more effective to focus on their own technique, rather than mirroring another player. In this way, being an upside-down player may be more beneficial to a student than using standard bass technique, as by not mirroring their tutors, or other musicians, they may become more reflective about their own playing, and evaluate their techniques.

Alternatively, this way of learning by self-experimentation required by upside-down bass technique could be seen as a limitation. In the case that an upside-down bassist is attempting to emulate a particular sound or technique, such as slap bass, they may not be able to find a way to re-create the same sound with their upside-down string setup. In this instance, it would be useful for an upside-down bassist to watch another player demonstrate how they could overcome this problem, and then copy and adapt their style. Ideally, a balance could be found between emulating other players' techniques, while applying critical thinking and problem solving to their own playing, to ensure they find the most efficient way to produce the sounds they desire.

Furthermore, it is worth considering that, from the perspective of an upside-down bassist, their playing style does not seem unusual. When a bassist is first learning, the only time they see themselves playing is if they are watching themselves in the mirror, a very common experience for any 'pop' musician. Because the image they see of themselves is flipped, they appear to hold the instrument the same way around as any right-handed player they would see in videos, pictures, or at live performances. This may change, or may have already changed, with home video technology becoming more readily available, and young players beginning to film themselves, and watching their own playing. On video, the image is not reversed, and the players can watch a true representation of themselves. This may cause some beginner players to rethink playing left handed, or upside-down, and instead to mirror other musicians they admire. Moreover, the majority of upside-down bassists I interviewed were over 45 years old, and only three, including myself, were under 25. This skewing of ages could, however, be a case of sample bias, as the reason I was able to locate the majority of these upside-down bassists, was due to them being already accomplished, musicians. It may be that there are many young upside-down bassists who have not yet reached a level of establishment that makes them easily locatable when attempting to search for, and contact upside-down bassists.

To conclude, I believe that most upside-down bassists, and musicians in general, would stay with the most comfortable method of playing for them physically, rather than drastically altering a technique they are already comfortable with, simply to emulate the technique of a bassist they admire.

2.3 Availability of left-handed instruments

Another influencing factor in the choice to play upside-down, is the limited availability of left-handed instruments. Because left handed people make up only a minority of the population, and left handed musicians an even smaller portion, it is unlikely that a beginner left-handed bassist will have a left-handed instrument readily available to them during their first experiences with the bass. This was a factor noted by several interviewees, especially in the case of them being taught initially by a family member, as discussed previously. Williams explained his lack of choice to me:

> I have an older brother who played bass, and, as you know if you are a younger brother, if you tamper with anything of your older brother's, you get your ass kicked. So I wasn't able to change the strings around. (Interview with author, 7/8/15).

As is the case with many beginning musicians, Williams' initial lessons and experiences with the bass were on another person's instrument, which meant that he had an instrument that was not ideal for his way of playing, and he could not alter his instrument to better suit his own needs. Reeder relayed a similar experience:

> Being around my dad and granddad, they were both right handed, they always had guitars [and other instruments] around, and I would just flip the stuff over and figure out little

> riffs, and by the time I got my own stuff it was too late, that was how I learned. (Interview with author, 24/8/15).

From this information, I conclude that, had Williams' brothers, or Reeder's father, also been left handed, or had a left-handed instrument with a standard string setup, they would have been much more likely to play with a standard left handed string setup. Williams also stated that he "didn't see anything wrong with it at the time, 'cos if you don't know better, you can't do better. I had no idea that there were left handed basses" (Interview with author, 7/8/15). From Williams' anecdotes, it is evident that he was aware that playing in a way that reversed his string setup was abnormal, and potentially an issue, but without the availability, or even knowledge of the existence of left handed basses, he was resigned to playing upside-down.

One of the more unique anecdotes related to me was Brinkman's story of her first bass, which she inherited from a band mate:

> My first bass was so badly made and so crappy that I couldn't finger it properly with my left hand, the action was too high. So I just decided to flip it around and finger it with my right hand, because my right hand is stronger and it seems like the fat string should be on the bottom anyway, so what's the difference. What kind of difference could it make?" (Interview with author, 18/10/15).

In this case, it was the combination of limited musical instrument resources, and some unique problem solving, that led Brinkman to her upside-down playing. Although this situation was not one experienced by any of my other interviewees, and may be unique to Brinkman, it is still worth exploring its implications. Her information implies that her access to different basses was so limited that she found it more convenient to alter her technique, than to find a different bass guitar. It is clear that had the bass been of better quality, and easier to play, Brinkman would not have needed to alter her technique by turning her bass upside-down, and would therefore have played the bass in the right-hand style.

School is often the first place a person begins to learn an instrument, and a lack of left-handed resources at school is a common reason for 'left-handers' to play upside-down. As Sky recounted:

> I wanted to play bass, but at the school when I started I was a teenager they only had a right-handed bass, they didn't have any left handed ones, and I couldn't afford it. …As you know, it's quite difficult to find a lot of left handed basses I can just pick up any bass and play it without having to worry. So, [I] stuck [it] upside-down. (interview with author, 27/8/14).

This is not a problem for left-handed musicians only. Lucy Green maintains that there has been a lack of resources for popular musicians, specifically a lack of

contemporary rock and pop instruments, such as guitars, basses and drums[47]. John Kratus echoes a similar lack of resources and focus on popular music instruments in the school curriculum, stating, "music education has become disconnected from the prevailing culture"[48]. Since there is a lack of these instruments in general, it follows that most schools will have very few, or no, left-handed, popular music instruments.

Sky's experience is similar to my own in choosing to play bass upside-down. As part of the music class at my school, it was compulsory to learn guitar. I knew, at this point, that holding a guitar left-handed felt the most comfortable. The issue arose that there were more 'left handers' in the class than left-handed guitars, so I decided to use a right-handed guitar, and make it work for me. Due to the teacher being unaware of the issue, my technique was not corrected for the remainder of the class. The department also had no left-handed basses, which meant that if I wanted to play electric or upright bass at school, I would either have to purchase and bring in my own instrument, or I would have to play upside-down, as I did. Furthermore, left-handed instruments are difficult to source, and are more expensive than their right-handed counterparts. Schmidt says that this was why he began playing on right-handed basses:

> The only guitars available to me when I first started were right handed. So I played a righty guitar for a few months but

[47] Green (2001)
[48] John Kratus. "Music Education at the Tipping Point", *Music Educators Journal* (2007) : 42-48

> switched to bass to join a band. The only bass I could get was also a right-handed bass. (Interview with author, 12/8/14).

Similarly, Gossett also talked about the lack of availability and unbalanced price of left-handed instruments, "… the fact of bass availability, my first bass was a right handed bass. Finding a left handed bass wasn't easy and then [when] you did they were way more expensive." (Interview with author, 13/9/14)

Roberts shared his story of beginning to play bass, an end that required less than legal means:

> I was in high school, my senior year in high school in 1976, and I decided I wanted to play bass… At night, after everybody had gone to bed, I would sneak out of the house and run a few blocks down the street to a church and crawl in a back window and they had a right handed Fender Jazz bass and a Fender Bassman [amplifier]. I would play on that upside-down for hours and then put everything back the way it was, sneak back out the window, sneak back into my room and get a couple hours sleep before my mom would wake me up for school. I did that for a few months until I had enough money for my first bass. At the time, it was very difficult to find left handed basses, so I bought a cheap Kay. It was an SG shape so it didn't look too weird upside-down. But by the time I got that bass, I was used

> to playing it that way from playing it that way with the church's bass. That's just how I learned. (Interview with author, 14/9/14).

This is a common theme in the interviews I conducted: upside-down bassists making do with whatever instrument is available to them, and make it work for their style and situation. Horne talked about how he had to make playing right-handed instruments work for him, until he became successful enough in his career that he could afford to have basses custom built for him:

> Back then there was no availability. I mean very, very seldom you might see [left handed basses] in a music store, but it was very rare. I always played right handed-basses upside-down until I moved to Nashville in 1990 and I was playing a right-handed Ken Smith upside-down 6 string. Then when I got an artist gig … I started making a lot more money than I was ever making before, you know. So then I was finally able to get something custom made, you know. That's when I called Ken Smith up … 'cos I'd bought a couple of right handed ones from him, and he had seen me play and he's like, 'Yeah you definitely need a custom instrument so you don't have to try to go around the big horn and the strap is in the way and the knobs are in the way,' cos I'd dealt with that all my life. It took being able to make the money to afford to get them custom made. (Interview with author, 30/8/14).

As with Horne, the majority of the musicians I interviewed talked about how difficult it was to obtain left-handed instruments when they started playing. Most of the interviewees began playing and taking bass seriously during the 1970s and 1980s. Given that bass was still a relatively new instrument at this time, having only begun to be mass produced less than twenty to thirty years earlier, it is not surprising that there were not as many left-handed models. Dyer discussed his similar experiences buying basses when he first began playing in the 1980s:

> Cost, mainly of getting a decent left-handed instrument, was probably one of the main reasons why I played upside-down. … I'm in my late 40s now and started playing when I was in my teens. There weren't a lot of left handed basses for me to go and purchase really, so a good instrument, at a good price, was right handed, so it was upside-down. … Money is a factor when you're younger, you can't buy the basses you want, and if you're a left handed you've got limited options anyway, and the good stuff tends to be very expensive. Years ago, I would not have been possible to afford that kind of instrument, so it was more a case of taking what you can get on the second hand market, and it was limited if you were a left hander. (Interview with author, 6/9/14)

Due to factors of cost and instrument quality, Dyer recognised that the best option, for a beginner, was to adapt his playing to suit a right-handed instrument. Gregory recounted a similar situation when he began learning, a right-handed bass being the only instrument available and affordable enough:

> I saw a right-handed bass in a second-hand shop and bought it with a loan from my father. I practiced some songs at home, and then went to rehearsal, where I had to sit down! After rehearsal my Dad took off the strap button and put it on the other wing of the bass body… I could wear a strap and stand! (interview with author, 25/6/14),

There are exceptions to these experiences, and some upside-down bassists do have access to left-handed instruments early on in their playing. Ed Kaszuba was one example:

> My parents saw a passion and an ability, and decided, 'lets give him a good instrument so he can get better,' instead of struggling with an upside-down instrument. And, at that point, it would still work because the curvature of the back of the neck isn't set right or left handed, it's universal... We knew a couple of music storeowners and one of the music stores had a black left handed 4003 Rickenbacker. So I grabbed it and it felt fantastic. All of a sudden I was playing a

> left-handed bass and it was strung left handed, so they just quickly reversed the strings (Interview with author, 22/7/15).

This is, however, not common. In my own experience, my tutor did inform my parents that they should buy me a left-handed bass. At this time, I had only just begun learning, and my parents did not want to invest further in an instrument, particularly a left-handed model, which would be potentially more expensive or difficult to find, which I may only play for a few months and then lose interest, as young people often do. Whether or not my parents' decision was the correct one to make, it was certainly one that influenced the way I played bass.

Reeder is another bassist who has had ample access to left-handed instruments early on in his career, and describes his situation as 'lucky': "I haven't had that many right handed basses, I've been lucky enough to get lefties". (Interview with author, 24/8/15)

Furthermore, although Kaszuba was fortunate enough to have access to left-handed bass early on in his experiences with the instrument, he still says that the availability of left-handed instruments is frustratingly bad:

> It's been so long since I've been forced to play with a backwards bass, I have that issue only if I go in to try interesting basses in music stores, but I don't anymore, that's why I've made my own, because I got so frustrated with that idea, you can't find left handed basses

> anywhere. Occasionally you can, but they're the standard beginners models that Yamaha or Ibanez might produce. They're always the cheapest models, they're always black, and they're strung [left-handed], but at least you can get an idea of how it feels for weight. I've never gone into a store where they've had a really, really good left-handed bass. (Interview with author, 22/7/15).

Sky, similarly, voiced her frustration on the difficulty of locating left-handed instruments in Melbourne, Australia:

> I couldn't find anything in a store, even just a full left handed bass, there was nothing. I travelled like three hours so ha ha, its crazy … its crazy and you're like, 'We've got bass centre and everything,' and just, nothing. (Interview with author, 27/8/14)

Sky is younger than the others I interviewed. Her learning experiences began in the mid 2000s, at a similar time to my own. I think it is significant to note the similarities between the experiences of Sky, myself, and the older players I interviewed. Left-handed instruments could have become more available over time, but this does not appear to be the case. Older players, such as Gregory and Horne, experienced similar difficulties acquiring left-handed instruments in the 1970s and 1980s, as Logie did in the 1990s, and Sky and I did in the 2000s.

In my experience, it is not especially difficult to buy beginner, left handed basses, such as in the starter packs that music stores sell, which contain a basic guitar/bass, tuner, amplifier, bag, strap, and lead. These packs also generally do not have the usual markup for the left-handed option. Past this starting point, it becomes increasingly more difficult to find a left-handed bass. Generic, factory made basses are easy enough to find in a music store, but anything more specialized is unlikely to be readily available. I have found that fretless and 5/6 string left-handed basses are particularly hard to obtain. There is the option to order the left-handed version of many basses, without being able to play it in advance, but the problem with this option is that you do not have a chance to judge how the bass feels before ordering it. Assessing issues such as the sound, and tone of a bass, can be done easily with a right-handed bass, but one cannot be certain how the bass feels to play, and how easy it is to play until you hold it.

This is less of a problem if a bassist lives near a store such as The Bass Centre in Melbourne, or The Bass Lounge in London, as these stores specialize in bass guitars, and stock many left-handed models of different basses. Stores like these are not common enough to be an option for most left-handed musicians however, and sometimes these specialised bass stores still do not have left handed basses, as was Sky's experience:

> Melbourne is quite big, but there's nothing, there's one in every shop if that … Its crazy, you're like, 'We've got bass centre and everything' and just, nothing (interview with author, 27/8/14).

In conclusion, there are many factors that pressure bassists to choose to play upside-down, and when several of these pressures combine with an inclination to hold a bass left handed, the conclusion players come to becomes practically inevitable. The nature of music as an auditory medium, means that players do not have to learn by copying the playing styles of others, but can listen to sounds, and re-create them in whatever way comes easiest to them. Adding to this is the lack of musical instrument stores and manufacturers that cater to left handed players, and rather than taking on the extra cost and inconvenience of acquiring a left-handed instrument, players make do with the most common alternative: using a right-handed bass.

As discussed in this chapter, it can also be a lack of pressure from tutors or mentors to play in a specific way that can influence a bassist to perform in the way they are most comfortable. This lack of pressure from mentors stems from the autodidactic, self-taught approach that so many contemporary musicians take to learning their instruments; a style of learning that encourages musicians to develop their own unique ways of playing. But what about students who are less autodidactic in their learning? What are the experiences of upside-down bassists who seek out guidance, and what are their tutors' reactions to this way of playing? The next chapter of this thesis explores these questions, and investigates the effect of self-directed learning on the specific bass techniques of upside-down players.

Chapter 3

Experiences of learning the bass upside-down

The manner in which a teacher interacts with a student and their way of learning, has a major effect on how well the student absorbs the information presented, and their progress in an area of study. In order to better inform what pedagogical techniques a tutor could apply to best teach an upside-down player, it is important to examine the positive and negative experiences that upside-down bassists have had with teachers. Once these have been determined, teachers can be made more aware of what teaching approaches work best for upside-down students, and which would be better to avoid.

3.1 Experiences with tutors

The best way to ensure progress in a student's development is to encourage them to play in a way that makes them most comfortable, so as to keep them enthused and inspired to continue learning. Making students play in a way that feels unnatural to them may lead to practicing less, developing at a slower pace, and growing more distant from the instrument. If a method of playing is not working for a student, or they are demonstrably making playing harder for themselves, the tutor should then encourage the student to re-evaluate their way of playing. Alf Bjornberg supports this approach to teaching: finding a balance between a focus on reproductive

teaching methods; whereby the student follows and reproduces the steps in already present musical models; and creative ones, where the student departs from established learning ideas, and creates a model of learning with which they feel most comfortable[49].

When I first started learning bass upside-down, a major challenge was convincing my tutor that I was capable of playing well in the style I had chosen. Initially, I was told that playing upside-down was not ideal, and that I should buy a left-handed instrument. His reason for advising this was that he believed I would not be able to apply as many playing techniques, and consequently not play as well as others. It was not until I proved to my tutor that I could find effective solutions to the challenges that playing upside-down brought, (in particular developing my own slap bass technique), that he was convinced I could learn to play well.

Sky had similar experiences trying to find a tutor: "I found a lot of people are put off teaching me bass because I play upside-down, and they get confused." (Interview with author, 27/8/14) Sky's tutors simply were not able to come to terms with the upside-down technique, and so decided not to teach her. Though this is, in my opinion, a questionable attitude, it is probably better than attempting to make Sky change her way of playing to suit them. This second option was my experience. My tutor would often point to specific techniques I was having trouble with, and attribute my difficulty to result of playing upside-down. It was only after I became

[49] Alf Bjornberg. "'Teach you to rock'? Popular music in the university music department", *Popular Music* (1993) : 69-77

fluent in these techniques that he realized I was having no more difficulties than any other students. In hindsight, it would have been easier for me to find another teacher who was more willing to work with my style, but due to the convenience of this teacher working at my school and my being a shy, unconfrontational child, I never did.

Schmidt had a similar experience when he was looking for someone to teach him bass, and changed tutors several times:

> That was a challenge. I went through a few different instructors [who] had a really difficult time getting past the visual part of seeing everything upside-down. I eventually found an excellent instructor for whom that was not a problem … It definitely intrigues people. Some of my instructors were challenged by it, even though I was saying, 'I'll do all the work, all the mental flippery'. (interview with author, 12/8/14).

Finding a tutor who can work with the way you play, and learn, is extremely important in developing oneself as a musician, and though this is particularly an issue for upside-down players, it is advice I would give to any new player. However, a musician playing in an alternative way must also be willing to take responsibility for their own learning, as Schmidt did. The relationship between tutor and student is a two-way one, and each has to work with the other.

Some of the most negative experiences recounted to me came from Ed Kaszuba, due to the attitude of some of the lecturers he encountered at university:

> There was one bass player who came in and he did a clinic. Somebody told him about a left-handed bass player, and he, right in front everybody, said 'left-handed bass players? They'll never do anything, don't even worry about em'. And I thought, 'Oh you fucker…' (Interview with author, 22/7/15).

This opinion was not directed at upside-down playing, such as Kaszuba's, but at left-handed playing in general. This is a discouraging piece of advice for a musician at the start of their career, being told that a certain playing style resigns them to "never do[ing] anything" (Interview with author, 22/7/15). Studies have shown that a lack of collaborative, familiar, or positive relationships with educators, particularly within the first two years of university, results in students feeling unable to approach staff members when they need assistance[50]. In particular, negative re-enforcement from tutors, such as the feedback Kaszuba received about left-handed playing, has been shown to contribute to feelings of lower self-efficacy for students[51]. This can result in lower motivation and drive to achieve, as students who attribute their success or failures to a source they believe is beyond their control, such as the way they hold a

[50] Colin Bryson, *Understanding and Developing Student Engagement*. (Florence: Taylor and Francis, 2014), 231-232

[51] Albert Bandura "Self-efficacy: Toward a Unifying Theory of Behaviour", *Psychological Review* (1997) : 160-162

bass, feel less able to improve their performance, and so put less effort into their learning[52].

However, the majority of Kaszuba's experiences at university were not this negative in nature. Most of the noteworthy events he recounted to me indicated that his tutors were, for the most part, neutral towards his upside-down playing. Kaszuba found confusion to be a common response:

> University level was when I first got some formal teaching, and then it really wasn't technique per se, it was more theory … My first professor at Humber was an old jazz symphony player, great bass player, great lines. First time I met him he sorta looked at me and said, 'Uhhhh, ok. So. We'll teach you theory.' He didn't pay attention to anything else, because he couldn't really understand the technique behind it. You do get a lot of strange looks."
> (Interview with author, 22/7/15).

This laissez faire approach taken by Kaszuba's professor did not seem to negatively affect Kaszuba's playing or learning, and likely helped more than an interfering, hands-on approach would have done, as Kaszuba could move forward with learning musical theory, rather than correcting the technique he had already developed to a skillful level. Joanne Cheetham has written that a more supportive, rather than directive, way of teaching can be a more effective approach for many music

[52] Bandura (1997)

students, in particular rock musicians, and Kaszuba's feedback on his learning experiences support this idea.[53]

Kaszuba also said that the physicality of upside-down playing likely helped him to develop good technique and posture early on:

> By [university] I'd already formed a lot of my technique, which they indicated they wouldn't correct because it wasn't bad. I was already holding the bass at the correct angle; I was already holding it high, just out of the fact that I realized I had to clear the bottom string to get to the top. (Interview with author, 22/7/15).

Overall, Kaszuba's experiences with tutors were neutral and did not get in the way of his learning, though some did leave him with a negative impression. Reeder also had mixed experiences with tutors reacting to his left-handedness. Although in the case he relayed, he was being taught drums, the principles of approaching the teaching left-handed players still stand. His experiences with his first drum tutor were positive, and his tutor did not object to his setting up a drum kit left-handed, and in fact worked with the style positively:

[53] Joanne Cheetham, "An After School Rock School Investigated: Why Are They Here?", *MasterClass in Music Education*, A&C Black (2013) : 151-156

> [My drum teacher] would set up across from me and we were the mirror image of each other and I would mimic what he was doing. (Interview with author, 24/8/15).

Reeder's experiences with a band leader/teacher were far different, however, as the teacher attempted to correct his technique, and make him play with a standard set up, rather than the way he had already learned and was most comfortable with:

> It really messed me up. To this day I keep leading fills with the wrong hand and, it, it did some damage … I think he had some good intentions for me, but it really messed me up for a while (Interview with author, 24/8/15).

Playing drums in a left-handed setup is a difficult issue, and the teacher likely did have good intentions in mind when he attempted to correct Reeder's technique, such as convenience of setup. However, it seems from this account that the teacher did not communicate enough with Reeder about how these teaching methods were affecting Reeder's learning. Peter Mortimer puts it that, "The best kind of learning is active and needs to be embraced by the learner", demonstrating that the type of instructive teaching Reeder experienced has been shown to be less effective than collaborative learning, where both teacher and student are actively engaged with the task.[54] Rather than using the situation as a two-way, self-investigative learning

[54] Peter Mortimore. *Education Under Siege : Why There is a Better Alternative*. (Bristol: Policy Press, 2013) : 10

experience, Reeder's teacher took a rigid and instructive approach, which affected Reeder's playing negatively.

Williams experienced a similar event with a bass tutor:

> One of my teachers had me turn the bass around right-handed and I had to play it for about a week and it just didn't work. I walked out of those classes many times on account of that. As a younger man I was very rebellious, if I couldn't do it my way I really didn't want to do it. (Interview with author, 7/8/15).

As with Reeder's experience, this approach, as well intentioned as it may have been, did not work for Williams. His experiences with this teacher were evidently poor and had a negative effect on his learning, as they led to him leaving lessons due to his frustrations with the teacher's method. However, Williams does not look back on these experiences as an overall negative experience:

> I wouldn't call him a bad teacher. I would call him a good teacher. A lot of the times people are going to come into your life that are going to discourage you, tell you that you can't, you shouldn't. And you could either take that and roll over, or you could run with it. (Interview with author, 7/8/15).

Schmidt expressed a similar attitude towards his own negative experiences with tutors:

> That's what you need sometimes, is somebody saying you can't do something. (Interview with author, 25/7/15).

With enough drive from a student, a tutor taking a non-ideal approach can still, sometimes inadvertently, create a learning opportunity. For young, anti-authoritarian, obstinate pop and rock musicians, adolescence is "a period associated with an increasing self-awareness and concern for one's identity". [55] This means that during this period, young musicians may be particularly motivated to play their instrument in their own unique way, and being told they cannot perform in a particular way may cause it seem all the more enticing, and could drive them to pursue it further. Having said this, credit for this lies with the student, as the teacher's pedagogical methods are still questionable and potentially discouraging.

In contrast to these negative experiences, Gossett reported a positive learning relationship with a tutor, even stating a way in which learning upside-down benefited him:

> There was a local music store I went to and took some lessons. But it was more a situation where he said 'okay bring me a song you

[55] Jeffrey Arnett, "Adolescents' Uses of Media for Self-Socialization", *Journal of Youth and Adolescence* (1995) : 519-533. Mark Tarrant, "Adolescent Peer Groups and Social Identity*", Social Development*, (2002) : 110-123

> wanna learn.' He'd show it to me and I'd follow along. To me following someone who played normal right handed was easy because looking at their fretboard was like looking down at my fretboard. So the perspective of it didn't seem to be a problem. It wasn't about hand position; it was note positions relative to vision. (Interview with author, 13/9/14).

I can relate to this experience, as it was similar to the way in which I learned songs with my first tutor. He would demonstrate how to play a particular line, and rather than think, I need to hold my hand like this to play the note, I would think, the note is here on the fretboard, how should I get there? I believe this way of learning may have made me more aware of my own playing at an early point in my learning, than regular players may have been. This type of self-focused and reflective engagement with one's learning is encouraged by several pedagogical methods, such as the Arts PROPEL approach, and so suggests that the more self-centered learning that upside-down playing encourages could benefit learners[56].

For the most part however, the bassists I have interviewed are self-taught, taking the autodidactic approach I outlined earlier. Gregory recounted the one occasion he sought out tutoring:

[56] Arts PROPEL is a pedagogical method that focuses on students production, perception, and reflection of art, encouraging students to direct and assess their own learning goals. ; Marsha Smith, *Comparison of Arts PROPEL and teacher-directed approaches to teaching music education to preservice teachers*. (Boston: Boston University, School of Education, 2002) : 150-210; Ellen Winner, *Arts PROPEL: An Introductory Handbook*, (Cambridge, MA, Harvard Project Zero, 1991) : 53

> I had no formal tutors/teaching – I learned largely by listening and copying. During a [difficult] period I visited a teacher who asked me to play specific things and then said 'well you can do it so what's the problem – just keep going!' Great advice! (interview with author, 25/6/14).

This experience differs from Sky's or my own, particularly because Gregory had already taught himself more than the basics of how he could play upside-down, whereas Sky and I were looking for someone to teach us from a beginner level. It is thus possible that it is more difficult to teach someone who plays upside-down, unless they have the basic skills necessary to play the instrument already in place. The reason for this could be that a lot of early lesson time is spent demonstrating technique, then having the student copy the teacher. This is especially true in the case of younger students, and could potentially be confusing for both parties, and hold back a student's progress.

Haslip's experiences differed again from this, as the majority of his tutors were not bassists, but still taught him elements of musical performance:

> My tutors/teachers had no problems with me along upside-down. Primarily because most of my tutors/teachers played other instruments. My first teacher, Ron Smith, was a bass player but he also played tuba. I studied with guitar players quite a bit, and piano

> players. The one teacher that I had for a handful of lessons in the course of one year, and was most helpful in a big way, was Jaco Pastorius, and he had no problem with working with me. I have also done quite a bit of studying on my own and there's obviously no problems there either. [It's] all a work in progress and I continue to spend a lot of time studying on my own and with other musicians. (Interview with author, 1/10/14).

It may be logical that tutors whose first instrument is not bass are less likely to correct an alternative playing style. If a person plays only one instrument, they are more likely to slip into a pattern of playing, and assume it to be the only correct way. Music educators often have difficulties adjusting to new teaching techniques, and a common reason for this is that they believe the way they learned, or were taught, to be the only effective method, thus making adjusting their own teaching methods a more difficult task. [57] However, if the teacher has had past experiences with different ways of learning, such as, in the case of Haslip's teacher, the contrasting experiences of learning different instruments like tuba and bass guitar, then they may be more open to altering their methods to adapt to a students preferred way of learning.

Haslip also stressed that although he did seek out tutoring at times, the learning and studying he did on his own was just as important, if not, more so. Green points to

[57] Green (2008). V. R. Lind, "Designing case studies for use in teacher education". *Journal of Music Teacher Education*, (2001): 7–13. R. Hourigan. "The Use of the Case Method to Promote Reflective Thinking in Music Teacher Education", *Applications of Research in Music Education* (2006) : 33-44

this conclusion also, particularly among young musicians who have become "disaffected" with school music, or traditional pedagogical methods, and argues that very lightly guided autodidactic methods can be a more effective pedagogical approach for certain students.[58]

In a similarly autodidactic approach, Horne said he did not have any tutors while he was learning bass because he simply did not feel he needed them:

> I did not, not at all, no. Like I said I was teaching myself. … 'Cos I'd already played guitar, I was just teaching myself the country fundamentals [of bass]. Y'know, walking, the 2-4 and all that, because that's all that I was playing, was just country and the doobie brothers, that kinda rock but it wasn't real hard. So no, never had any teachers. (interview with author, 30/8/14).

Horne also shared his opinion on teacher's attitudes towards left-handed students:

> If you went in to try to play upside-down 'cos something, they'd be like 'no, no, you can't play like that'. I know some people that they wanted to play left handed, that's the way they felt comfortable, and the guitar teacher would try to make them change to right handed, and it was just totally wrong. You need to play the way [you feel most comfortable]. (Interview with the author, 30/8/14).

[58] Green (2008) : 27-28

Based on the experiences of the bassists I interviewed, many students expressed a need for tutors to be more flexible with their student's learning. The most negative experiences shared were from tutors who took a stricter pedagogical approach to teaching the instrument, leading to students being driven further from the instruments and lessons. In comparison, the more positive experiences were not with teachers who actively encouraged the students to pursue an alternative way of playing, but rather took a passive approach, allowing the student to find the way the instrument works best for them. Given the results gathered from the fieldwork I have carried out, it is this flexible and supportive approach, rather than a leading one, that I believe is best for tutors to apply in their teaching, as it is the way that ensures the student will become most comfortable with their instrument, and remain engaged in their learning.

3.2 Adapting specific techniques

Playing ‘Slap bass’ is a major challenge for all upside-down bassists. Slap bass lines are a percussive way of playing bass, that typically involves striking lower notes with the thumb (called ‘slapping’), and plucking higher ones with the pointer or middle finger (called ‘popping’). The figures below demonstrate how the hand is positioned for this technique.



Figure 8 - Hand position for traditional left-handed slap bass



Figure 9 - Thumb technique for traditional left-handed slap bass



Figure 10 - Finger popping technique for traditional left-handed slap bass

As can be seen from these figures, the thumb and fingers can rest naturally in the desired position for slap bass. Bassists with an upside-down setup have to adapt a different technique, as the reversed string setup means that the thumb and fingers

are not automatically in place over their respective strings, as when playing with a standard string arrangement. The upside-down string arrangement means bassists have to find other creative ways to emulate the sound and technique. Some bassists I interviewed, such as Brinkman, saw the upside-down string arrangement as an absolute barrier to playing slap bass:

> As I moved on in my career, and started to learn about other types of music, it's completely impossible to play funk because the slapping and the popping is backwards with the backwards strings. (Interview with author, 18/10/15).

Some bassists see this as a barrier, though other upside-down bassists, including myself, have developed ways of playing slap bass effectively. I have found four ways of playing slap bass upside-down throughout my interviews, all of which the performers discovered themselves through experimentation and attempting to emulate the sound of slap bass. Hopefully this chapter may educate other upside-down bassists on the possible techniques that are available to them.

Gregory said slap technique was his biggest challenge when learning bass:

> The biggest challenge was learning to slap, which was big in the 80s! I found a way of making Larry Graham/Marcus Miller type slap noises by slapping with my left hand, third finger (ring finger) and

> pulling with my thumb i.e. back to front! (Interview with author, 25/6/14).

This technique has been discovered and implemented by other bassists as well. Sky developed the same technique when she was experimenting with the style:

> Basically instead of using your thumb to thump and you use one of these fingers to pluck, I use [my index and middle finger] to slap and then I use my thumb to pluck, so I kinda do it upside-down because its more 'spank' bass than slap bass. I find if I'm using my thumb, and I'm using that as a kick, I'm constantly moving my hand up and it's just more movement, if that makes sense? So if I want to play something fast, it gets in the way. (Interview with author, 27/8/14)

The technique they describe is demonstrated in the figures below



Figure 11 - Index finger slapping technique for Gregory/Sky upside-down slap technique



Figure 12 - Thumb popping technique for Gregory/Sky upside-down slap technique

While this is an innovative technique, it comes with certain advantages and disadvantages. Sky points out that this technique eliminates movement as it does not require a change in hand position. However, the slap element of this technique is

also not as fast as others. Traditional slap and other adapted upside-down techniques employ rotating at the wrist as the method of producing the 'slap' sound with the thumb, whereas this finger slap method requires the energy to be produced in an up-down motion with the finger, leading to the note not being as high in volume and slower to produce.

After comparing this technique with other adapted slap techniques, I do not believe this technique to be as effective at emulating the sound of traditional slap bass as other adapted slap techniques. Reeder said he used a similar technique, though said his style was more akin to striking the notes "like a piano hammer", and produced a different sound to standard slap technique. (Interview with author, 24/8/15) Sky's description of the technique as 'spank' bass may be more accurate, and it does produce a different sound, which is something that should be encouraged. So while I believe it is not the ideal technique to recreate the slap bass sound, it is still a worthwhile technique for a bassist to express their creativity, and achieve a more percussive sound through the instrument.

A second popular technique is demonstrated extremely well by Horne and Alvin Mills, and involves playing slap bass with the traditional fingering: slapping with the thumb, and popping with index or middle finger. This means that this technique emulates standard slap technique as accurately as possible, as it is produced via the same finger techniques. The figures below demonstrate the elements of this technique.



Figure 13 - Horne/Mills thumb slap technique for upside-down bass



Figure 14 - Horne/Mills finger pop technique for upside-down bass

As Sky stated earlier, this particular way of playing would mean that she would have to move her hand to the bottom of the bass to slap lower string, and then move back to the top to pluck higher notes. This creates a lot of physical hand movement that is

not necessary in 'traditional' bass playing, and is thus not very efficient. Horne added:

> Later on, especially when I was getting into the thumb thing I was like, 'god it'd probably be easier to thump like that and pluck on the bottom string', but I've already gotten used to playing like this you know'. (Interview with author, 29/7/14).

Having said this, both Horne and Mills have become extremely adept at this style of playing, and this extra movement involved in the technique has not stopped them from playing fast, slap bass lines, as songs such as Horne's *Bassball,* and Mills' *Watch the Slap,* demonstrate[59]. Schmidt said he had also seen some younger players also achieving speed using this slap technique:

> I've seen kids on Youtube posting videos in their bedroom playing slap with the strings inverted, and they're doing a lot of extra work to make the same amount of sound. But they are doing it, they just have to be so quick because their thumb has to hit the low string, and they have to come back up to hit the high string. So the economy of motion is not there, but they've done it enough that they can do it fluidly and it sounds good. (Interview with author, 25/7/15).

[59] *Bassball*, Keith Horne, Namm, 2002 ; The Alvin Mills Project, "Watch the Slap," in *Head To The Sky,* CHASIM music, 2010, itunes.com

Though, as Schmidt says, it involves more work from the performer, the majority of the inefficiency of this technique can be overcome. The player would have to practice moving faster, as they have to cover a greater distance than players using regular slap technique, and as evidenced by Mills' and Horne's performances, this is a possibility.

A third technique is that used by Rico Cobin, wherein the thumb is used to perform both the slapping and popping motions. The finger positioning for this is shown below.



Figure 15 - Cobin thumb slap technique for upside-down bass



Figure 16 - Cobin thumb pop technique for upside-down bass

As with the previous technique discussed, this way of playing requires extra movement, as the thumb has to be constantly moved from a lower position to a higher one, and also must perform a different movement each time. However, the 'all-thumb' technique does closely emulate the sound of traditional slap bass, and like other alternative slap technique, inefficiencies of motion can be overcome through practice. It is important to note, however, that this technique does place more strain on the thumb than other other techniques, and could have biomechanical implications on the healthiness of the joint (this will be discussed in chapter 6, which examines the effects of upside-down playing on biomechanics).

Williams is different from other upside-down bassists, as he incorporates all three of these slap techniques into his playing, and is aware of what each one can do to benefit his playing. He began playing using the thumb only technique, similar to Cobin's, which worked for his playing for some time. He was forced to rethink his

technique when he tore the nail off his left thumb. While he could still create the slap sound with his thumb in this state, it caused pain to create the pop sound. As a result of this, he changed his technique to one similar to Horne's and Mills', slapping with the thumb, and popping with his forefinger. Williams had to rethink his technique again when he discovered a sound Louis Johnson was creating:

> Louis Johnson would constantly do this thing called a triplet, and I'd never heard of a triplet at that time, and Orlando did it so quick, and so smooth, that it was ridiculous. I wanted to quit playing bass at that time, because I said, 'If this guy is playing like this, there is no way I'm gonna do that'… I could do it slow, but I couldn't do it fast. (Interview with author, 7/8/15).

The 'triplet' Williams mentions here is a bass line that involves playing two lower slapped notes, followed by a higher popped note[60]. The main issue for Williams imitating this sound was the speed, as the techniques he had been using so far required too much inefficient movement to achieve the speed required for the technique. His solution was to apply the 'finger slap/thumb pop' technique covered earlier, which meant the inefficient movement was eliminated, and he could perform the movement faster. Though the issue of speed was solved, Williams did note, "It doesn't give the same effect as a right handed bass player" (Interview with

[60] Rhythmically, a triplet is a grouping of three notes of equal duration within the space of a single a single beat (M. Schonbrun, *The everything music theory book : a complete guide to taking your understanding of music to the next level*. (Avon, Mass: Adams Media, 2007)

author, 7/8/15). However, the sound the technique produced was a close enough approximation of the original technique that he could make it work in his playing.

I have also developed my own technique for playing slap bass upside-down, and it is a technique that I have not seen other players use. The technique involves slapping with the thumb, and curving the fourth finger underneath the hand to pluck the higher strings. The images below show the hand position involved in this technique.



Figure 17 - Thumb position for my upside-down slap bass technique



Figure 18 - Little finger position for my upside-down slap technique

This technique creates a sound that emulates traditional slap bass as well as possible, and that I believe other techniques such as the 'finger slap/ thumb pop' technique do not achieve as effectively. This is partially due to the thumb performing the slapping action rather than a finger, but also because the force of the slap is generated by rotating the wrist, rather than the up and down motion used in the 'finger slap/ thumb pop' described earlier. Due to the downward angle at which the hand is held, I also do not have to move my hand up or down constantly to place my fingers over the correct strings, unlike the slap bass styles used by Horne, Mills or Cobin, which could slow down playing. When I demonstrated the technique to Williams, this was one of the first positive aspects of the technique he noticed:

> It makes a whole lot of sense when you think about it. Like you said, the right-handed bass players, when they're playing here and

> they're plucking down [with the string at the bottom of their bass], and if you turn your hand up, that G string is right there. (Interview with author, 7/8/15).

Given Williams' experiences using all upside-down slap bass techniques, his positive views on the technique are encouraging as to its efficacy and effectiveness.

The only issue with my style is the cramped left hand position, which, while it does not cause any significant discomfort currently, may lead to repetitive strain injury (RSI), or joint problems later in life (this will be discussed further chapter 6 on the effects of upside-down playing on biomechanics).

This technique also caused an issue when trying to pop more than one note at a time, performing what is called a 'double stop'. Players with a traditional string setup, pop using their index and middle finger when popping two notes simultaneously. My solution for this was to practice popping notes with my little and ring finger; a technique which I found to be highly effective.

Upside-down, slap bass techniques are specifically interesting to study as the style is so physically specific, and different from other string playing techniques, in a way that makes it almost unique to the bass guitar. The diversity of styles that different upside-down players have discovered to emulate the technique is also a testament to the effectiveness of autodidactic learning, and the importance of experimentation

and determination for players when they encounter a challenging sound or technique.

The technique of upside-down playing does not only affect the learning process. Using a different technique to play bass will affect how the player will perform long term, and it is important to take this into consideration when a student is deciding how to play. The following chapters will address positive and negative effects that players believe their upside-down technique has had on the way they interact with their instrument, and what the broader consequences of this are for pedagogy.

Chapter 4

Advantages of playing upside-down

The previous two chapters have examined both the autodidactic, and teacher driven learning processes of upside-down bassists. Now we must consider the effect of upside-down technique on bassists outside of the learning process, and the long-term implications the technique has for the playing of the bassist. This information is important for beginning students, as the technique they choose to apply to perform their instrument will be the driving factor in how they interact with their instrument.

Logie, a bassist who utilises a standard left-handed method, talked about how he thinks spending more time playing upside-down could have made his musical development easier:

> Often, I have regretted not learning right handed, or dedicating my practice time to playing guitars and basses upside-down. I often envy players who made that decision and make it work for them well. (interview with author, 9/7/14).

Logie, although he is an accomplished and proficient player in his own style, expresses here that he recognizes that playing upside-down can have benefits and advantages for players who choose to use this technique. During my own

experiences playing upside-down, and learning to play in a standard left-handed way, I have found certain aspects of playing more intuitive and easier when played with a reversed string arrangement. Other bassists I interviewed have had similar experiences, where they believe that certain techniques and ways of approaching music are made easier by playing upside-down. Some bassists also reported that being a player with a unique approach to the instrument makes them more memorable, and can also lead to ways of creatively approaching the instrument that may not be apparent to players with standard strung instruments. This chapter explores some of the advantages upside-down players have identified that this way of playing has given them.

4.1 Intuitive aspects of upside-down technique

Some aspects of playing upside-down are more intuitive than standard playing, and may give a small advantage to bassists who play in this way, particularly during their earlier learning experiences with the instrument. One aspect is that the lowest string on the bass, the E string, is in the lowest position on the neck, and as the strings move upwards in physical position, they move upwards in pitch. As Ed Kaszuba recounted:

> I started learning the notes of the bass from the standpoint that my E string was on the low end, not the top, and once you start learning from that framework, everything starts falling into place…

> Logically, when I go higher in notes, I go up the neck. I found that very logical (Interview with Author, 22/7/15).

Though initially one might assume this does not have a significant effect on how a bassist performs, this could make a difference in an early learning environment. All bass and guitar teachers, who have experienced teaching beginners, are familiar with how frustrating the homographs 'lower,' and 'higher' can be. The confusing nature of the way the strings on a guitar are positioned has been noted by music educators: "As guitarists learn to produce pitches on the fretboard, they can easily encounter directional reversals… The string positioned at the vertical top of the guitar produces the lowest pitches. The string at the bottom makes the highest pitches".[61] When instructing a beginner which string to move to, it is common to say a phrase such as: 'Start on the third fret of your lowest string,' and for the student to end up on the G string, instead of the E. Or, when giving the instruction, 'Move one string lower', and the student moves to a string that is physically lower, but higher in pitch. Naturally, this is not a problem with upright bass, as the strings are positioned horizontally (although there is still the confusion of moving 'up' in pitch on a specific string, meaning to move your fretting hand down towards the ground), but for bass guitar, where the strings are spread vertically, this can cause confusion to less experienced players. Again, this may seem like a minor observation, but this concept of higher and lower notes being physically higher and lower is present in many musical ideas. In choirs for example, studies have shown that performers sing more

[61] Eli Harrison. "Challenges Facing Guitar Education", *Music Educators Journal*, (2010) : 50-55

accurately to pitch when their singing is conducted using vertical hand movements, rather than horizontal or otherwise[62]. Though these studies were limited to vocalists in choirs, these studies still nonetheless demonstrate the link musicians perceive between high and low pitch, and high and low positions in space.

This phenomenon is the same for the transcription of music. On a musical stave, the notes lowest in pitch are at the lowest point, and the highest at the highest point. It is evident that these concepts of 'high' and 'low', are ones that permeate throughout music, and makes it less intuitive for traditionally strung guitarists and bassists when they are told to play 'lower', but have to think 'higher' on the fretboard, which can be challenging for younger students when they first begin learning.

Tablature provides an even more complex aspect of this confusion. Tablature is a method of notation based on where the fingers are placed on the fretboard. It describes where notes are located on the bass. The aim of tablature in general is to notate music in a less abstract way than traditional western notation methods, and to describe the physicality of playing, where the music is generated in physical space[63]. It is thus peculiar that, while a traditional string setup has the lowest string

[62] Melissa Grady. "Effects of Traditional Pattern, Lateral-Only, and Vertical-Only Conducting Gestures on Acoustic and Perceptual Measures of Choir Sound: An Exploratory Study", *International Journal of Research in Choral Singing*, (2014) : 39-59. Melissa Grady. *The Effects Of Nonverbal Behaviors Exhibited By Multiple Conductors On The Timbre, Intonation, And Perceptions Of Three University Choirs, And Assessed Relationships Between Time Spent In Selected Conductor Behaviors And Analyses Of The Choirs' Performances*, (University of Kansas, 2014)

[63] Juraj Kojs. "Notating Action-Based Music." *Leonardo Music Journal* (2011) : 65-72. D. Thompson. "Speaking Their Language: Guitar Tablature in Middle School

at the highest position, and the highest string at the lowest position, that tablature is written with the lowest string in the lowest point, and the highest string in the highest position. Sky told me she also found this confusing: “I remember the first time I used a tab, it was like, ‘wait, why am I not flipping this upside-down, like, what? I don’t understand..’”(interview with author, 27/8/14).

This was also the first thing that occurred to Roberts when I asked him if playing upside-down gave him any specific advantages as a player.

> One thing that comes to mind is when you’re reading tab. The low notes are on the bottom and the low notes are at the top. So tab is laid out how it is on our basses. I suppose that’s one thing that comes to mind. … That’s one handy thing. (interview with author, 14/9/14).

As Roberts says, this is just ‘handy’, not necessarily an advantage an upside-down player has over a traditional player. However, things like how tab is written, and the placing of the lowest string at the lowest point, does make upside-down playing feel more intuitive.

My opinion on this higher/lower problem, is that upside-down playing removes a step of thinking from the process of learning bass, and from reading music early on.

Classroom”. *General Music Today* (2011) : 53-57. Don Randel. *The Harvard Biographical Dictionary of Music*, (Belknap Press, 1996)

For traditionally strung players, there is a period of ‘un-learning’ that has to occur; the beginner must learn that the ‘highest’ string on their bass is not the one in the highest physical position on the fretboard. However, in the case of upside-down players, who do have their highest string in the highest physical position, there is no contradiction between pitch and position that has to be explained. In my own experience teaching beginners, I have found it much simpler, and more straightforward, to describe which string to move to an upside-down student, than with standard strung students. Similarly, a step in cognition is removed when reading music. Instead of reading a note low on the stave, and playing it high on the fretboard, an upside-down player simply sees a low note and plays low, in the same way as reading tablature.

4.2 Using other Musician's instruments

An advantage that upside-down playing has over standard left handed playing, is the ability to borrow basses from other performers. As has been covered in chapter 3 on why bassists play upside-down, Logie is an example of player who only plays upside-down in this scenario, when a string breaks or his own left-handed instrument is not available to him:

> These days, the main time I play bass upside-down is if I break a string while playing live and have to borrow someone's 'righty' bass, which I quite enjoy, because it hands you an unexpected challenge. This happens surprisingly often as in my current band I play quite aggressively, but fortunately, a lot of the bass lines are mostly sliding up and down one string, as opposed to jumping from string to string. (interview with author, 9/7/14).

I have always thought this was a major advantage for upside-down players, as well as for myself. In fact, Brinkman stated this was the biggest advantage of the playing style over traditional left-handed playing:

> Its really not that hard to just take a person's right-handed bass, flip it over, and play it. The horn is gonna be a little unbalanced on most basses, but its not problem that you can't work with. To me, the biggest advantage is if I'm in a spot and need to borrow

> somebody's bass, I just pick up a right-handed person's bass and turn it over. (Interview with Author, 18/10/15).

In a situation involving time constraints, such as a string breaking, or an instrument malfunction, it is necessary to have the skills to play other people's instruments. You cannot always rely on having your own gear with you at all times, and being able to improvise a solution to technical difficulties is an essential skill for working musicians. Reeder shared an anecdote where this was the case:

> [My instrument] wasn't working and I borrowed a bass from somebody and I had to sit down to get through the show on somebody else's bass, because a lot of the notes were past where the strap was going, I had to jump on top of my cabinet and sit down so I could reach the frets… I saw a review of the show that was horrible; it said, 'the bassist was so bored that he sat down throughout the show.' Rough. (Interview with Author, 24/8/15).

Though Reeder was not able to play at his optimum level due to not having his usual bass with him, and a specific review of the show may have reflected this, he was still able to perform the gig. Had he not been able to use somebody else's instrument, and make it work for him as best he could, the consequences would have been unfortunate.

Furthermore, being able to pick up another person's instrument, and jam, is a large part of pop music culture, and happens often at jam nights, 'open mic nights', and recording studios. I would have missed out many opportunities to perform with, and in front of others, if I had not been able to play a right-handed instrument. Logie also talked about casual social situations, where it is advantageous to be able to play at least a little upside-down:

> Like any musician, most of my friends are also musicians and when I go to their house I see their nice looking bass or guitar and want to play it. Then I pick it up and do my playing upside-down thing. I know a bunch of bar chord shapes upside-down and I guess the more you play upside-down, the more comfortable you get with playing melodic lines upside-down. I play bass upside-down less often because, I guess, bass is a less common instrument and is less satisfying to mess around with when it's not plugged in, 'cos you can't hear it as well as an unplugged guitar. (interview with author, 9/7/14).

Casual situations such as these are important ways for rock and pop musicians to meet and collaborate, and not being able to participate because of a lack of ability to play the instruments available, could result in missed opportunities to network with other musicians, or to further their learning. This is part of the culture in popular and folk music, and is an essential mechanism in the process of jamming and sharing musical ideas. This collaborative culture is also said to benefit the informal learning

process of pop musicians. As Lucy Green notes, "The other main learning practice takes place in groups and involves conscious peer direction and unconscious learning through peer observation, imitation, and talk."[64] This demonstrates the importance of maintaining the ability to use instruments in a communal and collaborative way, in order to further a musician's learning. As well as casual social performance situations, Dyer said this availability of instruments was a major professional convenience of playing upside-down:

> Studios tended to have stock basses that they like you to use, and me being a left-hander meant I had to play them upside-down, they were right-handed instruments. That pushed me into playing upside-down a lot (Interview with author, 6/9/14).

The opposite scenario is also advantageous, other musicians being able to use the upside-down players instrument. Although it is less common for other musicians, such as brass or woodwind players, to share their instruments, for understandable sanitary reasons, most contemporary musicians will let other play on their instruments (unless they are especially rare or delicate).[65] At jam nights, it is common to have house instruments that any musician can use, and in a band

[64] Lucy Green. "The Music Curriculum as Lived Experience: Children's 'Natural' Music-Learning Processes", *Music Educators Journal* (2005) : 27-32

[65] J. Moore, "Always blow your own trumpet! Potential cross-infection hazards through salivary and respiratory secretions in the sharing of brass and woodwind musical instruments during music therapy sessions", *The Journal of Hospital Infection* (2004) : 245. Bonnie Marshall. "Microbial contamination of musical wind instruments", *International Journal of Environmental Health Research*, (2011) : 275-285

environment, it is common for members to use each other instruments to demonstrate ideas. In these situations, a traditional left-handed player is not as easily included, as they are not able to use other's instruments, and others present cannot play their left handed instrument. Playing upside-down solves this issue, and allows for much easier sharing of instruments among peers.

4.3 Advantages of specific upside-down techniques

During my interviews, many bassists reported that there are specific techniques, that they believe, are easier to integrate into their playing, due to their upside-down string orientation, or that would be impossible for standard players.

An aspect of playing I have always found both enjoyable, and easy, is raking from the low to high strings on the bass. Though this can be done with a standard string setup, it is much faster and easier to do this with the strings in the upside-down setup. When a standard strung player wants to play a rake from low to high, their options are either to use only their thumb, and sweep it downwards across the string, or to use a combination of their thumb and fingers, and pluck the strings to imitate a raking round, similar to classical guitar technique. The issue with both of the approaches is that it displaces the fingers and thumb, removing them from their standard positions, which have to be moved back to resume normal plucking. This results in the raking technique being slower, or overall less efficient. The alternative is for standard bass players to walk up the strings, as they would normally play, though this would result in the lower notes being muted by the fingers when they walk from one string to the next. Comparatively, for upside-down players, raking technique simply involves pulling one finger from the lowest string up to the highest, letting all the notes ring out. This way, normal hand position is not altered, and the performer can transition into the next part of the piece smoothly. I have observed this in Schmidt's performances, as he often makes use of this technique very often,

and to great effect. The sound is similar to the way in which pianists play a scale or arpeggio, one note at a time, from low to high, with the sustain pedal held down.

Horne applies this motion in a similar way:

> Yeah, I've had guys ask me, I can do pretty quick, fast harmonics, and they've said, 'that's because you're going this way instead of having to go like that, you're doing almost a sweeping motion of harmonics stuff, and you can actually do it quicker than going this way'. That's definitely an advantage of doing that. (interview with author, 30/8/14).

An interesting aspect of this account is that Horne did not initially consider upside-down technique to be a specific advantage in this way, until other players pointed it out to him. His aim was not to take advantage of his unorthodox way of playing, instead, he fell into applying this technique naturally, as it came easier to him than it would to standard players.

Naturally, the tradeoff for this raking advantage is that moving from high to low takes more effort. This can be a challenge when covering songs written by standard players, who apply a high-to-low raking technique. Portrait of Tracy, by Jaco Pastorius, is one such example, and when playing this piece, I find myself plucking the notes away from the instrument, rather than 'dragging' across it. Though the piece is certainly still playable, an upside-down player has to adapt and alter their

technique in a way that may be less efficient than the standard way of playing. So, while an upside-down string setup does give a bassist easier access to this particular raking low-to-high technique, that may not be as available to other players, it does make covering certain pieces less natural, though not impossible with some creativity.

Horne adds that playing upside-down makes it easier to play certain chord inversions, and to bend strings in ways traditional players would find difficult:

> After I played bass upside-down for two years, I ended up switching to [playing] guitar that way too and I've had tons of right handed guitar players go, 'man you're doing three and four string bends because you can pull down, we have to push up, and it's a lot easier to pull down. The way you position your hand, you can get all kinds of wild chord inversions that right handed players can't get. Brent Mason saw me play one night at a club playing guitar and he was like, 'wow man, you were doing these bends because you're playing upside-down, you can pull down and connect strings together, I can't, its just physically impossible'. There are definitely advantages to it too. (interview with author, 30/8/14).

Bending higher register strings is made significantly easier when the string arrangement is reversed. As shown in the figure below, when a standard-strung bassist is performing a bend on the G string, they have to move the string towards

the centre of the fretboard using an upwards pushing motion. However, when an upside-down player bends the G string, they use a downwards pulling motion, also shown below.



Figure 19 - Technique for performing a bend on the G string with a standard string arrangement



Figure 20 - Technique for performing a bend on the G string with an upside-down string arrangement

The reason this is easier for upside-down players is because this pulling motion involves muscular 'flexion', while the standard player's pushing motion involves 'extension'. The flexors in the forearm and wrist, used for this bending movement, are approximately twice as strong as the extensors, meaning that stronger force can be applied with greater ease when the fingers are pulling a string, than when they are pushing[66]. Overall, this means that upside-down bassists can play more dramatic bends in pitch than standard players, while placing less strain on the muscles in their hand, wrist, and forearm, as will be covered further in chapter 6 of this thesis.

Ed Kaszuba shared that he believed his affinity for using harmonics in his bass lines stems from his upside-down style:

> Harmonics. I love using harmonics… Whenever I'm doing something free off the cuff I always tend to incorporate harmonics on top of stuff, in the right context… In a lot of places you can slip in a harmonic and it really works. Double stop harmonics, triple stop harmonics. So I think it's because when I'm doing a style where I'm playing a lot on a E string, that leaves the other ones open for other stuff so it can become more chordal, by using harmonics… I think [upside-down playing makes it easier]. Not being a right handed player, I don't know… The harmonic idea is

[66] Monan Singh, Peter Karpovich. "Strength of forearm flexors and extensors in men and women", *Journal of Applied Physiology*, (1968) : 177-180

easier because you're not near that string where you're using the harmonic. (Interview with Author, 22/7/15).

The reason this technique works well with an upside-down string setup, rather than a standard setup, is due to the fact that when a fret on the E string is fingered upside-down, the fingers on the fretting hand do not cross the other strings, as in the figure below. For standard players, when the E string is fingered, the fingers cross over the string, also shown below.



Figure 21 - Fingers crossing over the string when the E string is being fingered with a standard string arrangement

When playing a harmonic, in the case Kaszuba is referring to, ideally the player wants to allow the harmonic to ring out until the string is then purposefully muted again. This is difficult to do when the fingers are crossing the strings, as it is easy to accidentally touch the string on which the harmonic is being played, and stop the

note. In upside-down playing, where the fingers are further away from the harmonic string, it requires less concentration to not accidentally mute the note. Of course, a standard strung player can also play a bassline on the E string while adding harmonics over the top, as Kaszuba describes, but it requires less effort as an upside-down player, meaning it is easier for bassists, such as Kaszuba, to experiment with this sound, and drop it into songs.

Reeder also described a technique that is achieved more easily with an upside-down string setup: “I do a lot of stuff where I’m droning on the A and then playing chords, playing the double stops with my thumb” (Interview with Author, 24/8/15). Here, Reeder is describing plucking single notes on his A string with his first and second fingers (as is standard for any bassist), while adding chordal notes on higher strings with his free thumb. If a standard player were to imitate this technique, they would either have to switch their plucking fingers between the A string and higher strings, which would result in the lower droning note being lost momentarily, or plucking the low note with their thumb, and adding the high notes using their fingers, which would be difficult at higher tempos, as a single thumb could not play the drone notes as fast as two fingers. Again, this sound is absolutely achievable for a standard player, but would come more naturally to an upside-down player.

The majority of these technical advantages are small ones, and some, such as the low-to-high raking, come with a complimentary disadvantage. However, although these advantages may be minor or niche, they do have an impact on how upside-down bassists approach writing their music. It does not take much encouragement

for an experimenting musician to use a particular advantage that their technique has given them, and if they continue to develop these new techniques, then they become a part of their signature style, and an integral element of their playing that sets them apart from other bassists, who do not have the same advantage.

4.4 Being unique due to playing upside-down

As a performer, it is always important to be noticed, and you are at an advantage if you have a feature that is exclusive to yourself, or sets you apart from other performers. Any kind of novelty, or 'quirk', can make you more memorable, and many marketers within the music industry exploit this.[67] I have found that people tend to remember my playing far more often than I would expect. I am often recognized as, 'That guy from that band, who plays bass upside-down'. Sky talked about this being a both blessing and a curse:

> People are more likely to pay attention to what you're playing because they notice you're upside-down like, 'You better be able to pull this off, or you're an idiot,' sort of thing (Interview with author, 27/8/14).

Horne says that his playing, specifically his similarity to Haslip, has helped him to become more recognised in the industry:

> I'd have guys around the United States go, 'Man I went and saw Jimmy Haslip at a clinic and he talked about you!' I'm like, 'What?' He's like, 'Yeah, cos he was like, "y'know, I'm not much of a slap

[67] Brian Hracs, Doreen Jakob, Atle Hauge. "Standing Out In The Crowd: The Rise Of Exclusivity-Based Strategies To Compete In The Contemporary Marketplace For Music And Fashion", *Environment and Planning A* (2013) : 1144-1161

> guy, but if you wanna see somebody slap you need to see Keith Horne". (interview with author, 30/8/14).

This is the type of attention that many musicians thrive on professionally. While performing something with a high level of skill will gain a musician notoriety, doing this in a way that is new and different will even more so. Dyer also agreed that playing upside-down does make others notice your playing more, simply because it is an uncommon thing to see:

> If you're not already standing out as a left handed player, which you do tend to, to an extent, when they see you play upside-down that's it, you're just an oddball as far as they're concerned. So you do get that kind of attention. In a good way, they'll say, 'how do you do that?'(Interview with author, 6/9/14).

Some bassists I interviewed had a drive to be unique that did not come from an external source. Many musicians simply enjoy their way of playing being different, such as Williams:

> I was watching myself perform on this left-handed bass, and to me, it took the mystery out of it. To me, it's more of a mystery playing [a right handed bass] upside-down than playing a left-handed bass. And, even though I can do it, I like the mystery more." (Interview with Author, 7/8/15).

Williams did not cite the feedback of anyone else as his reason for wanting a unique look to his playing style. The drive came from self-evaluation of his playing. It is also worth noting here that Williams chose to pursue this more unique aesthetic over the possibly easier route of using a left-handed bass, which was available to him. Reeder was another bassist who shared a similar, but contrasting opinion:

> I've been kind of spoiled, I've had custom made basses for the last 20 years or so. But I think the uniqueness of playing this way would far outweigh the convenience of being able to buy some bass off the wall at a shop… It's difficult.. I think there are definitely advantages to being unique, and being able to explore certain positions that wouldn't be possible otherwise. (Interview with author, 24/8/15).

Unlike Williams, Reeder always, or as often as possible, uses basses that are custom made for him: this being left-handed basses with a right-handed string setup. However, he still values the uniqueness of his way of playing, although it is different from Williams'. The similarity here is that, both and Williams recognise that they are giving up something in order to be unique, and they believe this sacrifice to be worth it. In Williams' case, it is standard left-handed instruments, and in Reeder's, it is being able to use any bass in a music store.

Although all bassists would strive to be recognised as a great player, rather than as an upside-down novelty, any extra attention that people afford a musician due to some unusual or uncommon way the musician plays, can help them gain recognition in the music community. Furthermore, the motivation to be unique as a performer does not have to come from external sources, but internally as well. Though viewers may be initially perplexed by the upside-down technique, it does not take an audience long to look past the unorthodoxy of this way of playing, and recognize the skill and musicality that the technique is being applied to produce. The pressure is then placed on the upside-down player to prove that they are, in fact, a capable musician, rather than just using a novelty playing style, and it is up to them to rise to this challenge.

4.5 Upside-down playing aiding creative thought

Playing upside-down encourages players to think creatively, in order to find their way around problems the playing style presents. Because there are no resources available to guide bassists who play upside-down, players have to problem –solve, and discover their own ways of creating the sounds they desire. Studies have shown that, "contrary to many help-seeking theories, avoiding help (and failing repeatedly) is associated with better learning than seeking help on steps for which students have low prior knowledge", and that having autonomy when learning a task is more beneficial to learners.[68] This means that an approach to learning that embraces self-directed problem solving, such as that employed by upside-down bassists, can benefit learners more than guided problem solving, or direct instruction with the aid of a tutor.[69] This way of learning results in the players finding new and unique ways of playing, and gives them their own individual sound and technique.

So far, I have not found any two upside-down bassists who play in exactly the same way. There is always some technique that distinguishes them from others. Schmidt summarised this idea in our interview:

[68] Ido Roll. "On the Benefits of Seeking (and Avoiding) Help in Online Problem-Solving Environments", *Journal of Learning Sciences*, (2014) : 537-560. ; T. W. Taris, "Costs and Benefits of Autonomy When Learning a Task: An Experimental Approach", *The Journal of Social Psychology*, (2011) : 292-313

[69] Katharina Loibl. "The Impact Of Guidance During Problem-Solving Prior To Instruction On Students' Inventions And Learning Outcomes", *Instructional Science*, (2014) : 305-326

> [Playing upside-down] forced me to think differently from the very beginning, as it took some common techniques and approaches off the table. For example - playing Chord Melody style is very challenging with an upside- down string orientation. Slap and pop style also presents challenges. My solutions to those styles were not so much trying to figure out how I could overcome the string orientation - but instead use the string orientation to 'replace' those popular approaches with something more my own style. (Interview with author, 7/8/14).

As I have stated, Schmidt is a very unique sounding bassist. As well as playing upside-down, he uses a piccolo bass, which has strings in a much higher range than ordinary bass strings. The majority of his compositions are for solo bass, and employ many effects and techniques other bassists may not use to approach writing for bass. From the very beginning, he did not see the challenges upside-down bass presents as problems, but rather as opportunities to think differently about how he could play the instrument.

Gregory has a similar perspective on the topic:

> It makes some things trickier (which makes you work!) and other things easier – the combination of which leads to personal expression … Ultimately, as an artist, you work with what you have – and work around what you don't. I think it makes you stronger.

> Personal investment and development. (Interview with Author, 25/6/14).

Gregory's message here applies to all performers, not just those who play upside-down. Any advantage, or disadvantage, that some part of your technique presents you, affects how you grow and develop as an artist, and rather than focusing on what they can't do, artists should focus on what they could potentially do. This message is especially poignant for upside-down players, however, as their change in technique is especially dramatic, and results in more extreme advantages and disadvantages than other players.

Williams specifically cited a lack of fret markers as a barrier that upside-down players have to adapt to:

> Your thought process has to be that much more creative to know that you're not playing by markers, you don't have a guideline to go by… This is why I love my left-handed (upside-down) bass players. We have to adapt, we have to make it happen. (Interview with author, 7/8/15).

On basses, there are markers on one side of the neck that show where certain frets are located, as placeholders for the bassist. However, these markers are only on one side, and so are not visible when the instrument is turned upside-down. This means that upside-down players do not have this extra guidance from the instrument, and

have to form their own strategies for how to locate frets. This could be as simple as drawing fret markers on in pen, or building up a strong muscle memory and physical awareness of the instrument. Either way, this will affect their style and how they perform.

Challenges do not have to be disadvantages. With the correct mindset, they can be opportunities for personal growth as a musician, as autonomously discovering solutions to problems can improve a player's ability to learn in the long term.[70] Ultimately, how upside-down bassists overcome and find ways around these challenges, can add to their unique playing style, and make them better musicians by placing them in positions that force them to approach their instrument creatively as a default.

However, not all challenges involved in playing an instrument upside-down result in a positive outcome. During my interviews, many bassists expressed disadvantages to this way of playing that made performing more difficult, and did not contribute to their growth as a musician. Rather, these specific disadvantages had to either be accepted, or overcome in ways that were laborious and not ideal. The next chapter outlines these difficulties, and the solutions bassists applied to overcome them.

[70] Taris (2011) : 292-313

Chapter 5

Challenges of playing bass upside-down, and solutions to these challenges

5.1 Challenges of playing bass upside-down, and solutions to these challenges

As has been stated in previous chapters, choosing to play bass upside-down does present certain challenges and disadvantages. I have given the example of how to approach/adapt slap bass technique as a challenge many players have overcome. Some bassists, in fact, feel that playing upside-down is only a disadvantage, and that any other way of playing is better. Dyer supported this view when I asked him whether he felt there were any advantages to playing bass upside-down:

> Where I am, at my age now, the amount of time I've been playing and now that I've swapped over, I would honestly say no. I wish I had swapped over earlier to be honest. Again, there were factors that meant I didn't push myself to do it. It wasn't always a case of, 'today I'm going to change'. No, I wouldn't say there are any advantages. I've never boasted about [playing upside-down] because, to be honest, I always felt it just held me back. (Interview with author, 6/9/14).

Dyer is a bassist who began learning bass upside-down and played this way for many years, but switched to traditional left-hand technique when this became a feasible option for him due to financial reasons (as left handed basses tend to be more expensive). Though he still managed well at the time, he clearly believed that he should have made the change to traditional left-hand playing as soon as it was possible. Logie is another player who occasionally plays upside-down by necessity, but actively avoids it as much as possible, even if this means he often has to use less well-made instruments:

> For me personally, I believe the guitar was designed/evolved the way it is for good reason, and it feels comfortable holding a guitar the way it was intended. So I will take whatever terribly made [left-handed] instruments people hand me, and make them work in my own clunky, heavy -handed way, until I meet a good lefty luthier...and when that happens, I think, I'm so used to playing ugly guitars, I'd like to think I'd still make the nice guitars sound ugly. But that's fine with me! (Interview with author, 9/7/14).

Both Dyer and Logie believe that playing upside-down brings with it far more disadvantages than advantages, and so both use a traditional left-handed setup as often as they can. I have discussed Logie's point on the ergonomics of a bass earlier: that it is an instrument designed with a specific ergonomic intention, and is likely to not be as comfortable, or efficient, when it is used in a way for which it was not designed. Reeder said he realized this himself when he first played a left-handed

bass: “Once I got a proper [left handed] instrument, I was like, ok, this is how it’s supposed to be.” (Interview with author, 24/8/15). Williams also said that using a left-handed instrument felt more natural: “Playing on left handed basses is real comfortable, it was good. I think my chops were… I’m not gonna say better, but they were more do-able.” (Interview with Author, 7/8/15).

Other bassists who continue to play upside-down, believing it is the style that best suits them, also acknowledge there are specific disadvantages or irritations that are unique to playing bass upside-down. Logie’s point about a bass not being designed to be held upside-down, was one echoed in many of the interviews I conducted, specifically the issue of reaching higher frets and positioning of input jacks and control knobs. Schmidt had this to say on the challenges upside-down bass:

> The first and obvious challenges were the body shape cutaways were wrong, and so I couldn’t access the higher frets easily. I always played right-handed basses and just flipped them, but my challenge, of course, was that the cutaways were always reversed and I could never get much past the 13th fret. Also, with the righty bass flipped upside-down, if I was sitting and just had it in my lap, if I took my hands off the instrument, the headstock would fall into the ground. Whereas, my lefty basses, they will stay put because they’re properly balanced (Interview with author, 12/9/14).

Dyer also cites the position of the strap and horns as a disadvantage to playing upside-down, and makes the point that some solutions to this problem can have unintended consequences:

> The other [issue] is the neck dive and the balance of the bass. Because the bass is upside-down, the horn is the wrong way, so for the neck dive, you've had it. You've also got [the problem] with certain basses, that your strap gets in the way of the high register, so you have to try and adapt the bass to that, try and put the strap lock in a different position and then the neck dive goes out the window completely (Interview with author, 6/9/14).

Body shape blocking higher frets is a problem I have encountered myself. On all of the basses I have owned, I have not been able to easily play any notes past the 12th fret while standing, as the way the strap cuts across the neck blocks my hand. Even when sitting down, the smaller cutaway on the side nearest the low string prevents me from playing any notes past the 15th or 16th. The figure below demonstrates this issue.



Figure 22 - Diagram showing the smaller cutaway on the underside of a bass held upside-down, and the strap cutting across the neck at the 12th fret

It was suggested to me by several people that I should move the strap pin to the horn on the other side of the bass, or to behind the neck, which is a common modification for upside-down bassists to make. Removing 'horns' and moving the strap lock are common alterations for an upside-down player to make, as it eliminates the issue of the cutaway blocking the higher frets, and the strap crossing the neck with the same result. Roberts altered his early basses to suit his needs, in a more garage-DIY way than others I interviewed:

> What I usually did was, most of my early basses were bolt on neck basses and I would just back off one of the screws that held the neck on, and I would just put the strap on that with uh... I'd take the screw out then put the strap back on, and I'd have a bottle cap that I'd drilled a hole in, then I'd screw the cap on over the strap

and it just held everything on. You do what you gotta do. (Interview with author, 14/9/14).

Roberts' decision to move the strap button to the other side, or centre, of the bass is worthy of discussion, as it eliminates one of the main issues that comes with playing a right-handed bass upside-down: the strap blocking access to the higher frets. Figure 20 shows the usual way a standard, left-handed bass guitar is traditionally held with a strap.



Figure 23 - Demonstration of how a standard left-handed bass is traditionally held

Note the positioning of the strap on the bass, which is attached to the strap pin, approximately level with the twelfth fret, but on the opposite side to the fretting hand. Not all bass models have a strap pin located in this same position, however, several makes have the pin attached directly behind the neck in the middle of the bass, such as Gerald Casale's Steinberger L2 bass in the figure below.



Figure 24 - Jerry Casale with his Steinberger bass guitar

Casale's choice of this bass could have been affected by his upside-down style, as having the strap pin in the centre of the bass means the strap does not get in the way of playing notes higher on the fret board. This was exactly what Dyer did to solve the problem of his own upside-down bass being unbalanced:

> I was with professional bands, gigging all the time and there's only so much time you can spend onstage with a bad bass, it just starts to annoy you … I ended up getting a headless Steinberger. The thing with that is, it doesn't matter if you're right or left handed, the bass is balanced. (Interview with author, 6/9/14).

Similarly, Casale's first bass, the Gibson EB-3, is another bass with the strap button attached in the centre of the instrument. His second bass was a Gibson Ripper. He sawed the 'horns' off this bass, and moved the strap button to a central position, essentially creating the same symmetrical shape that the Gibson EB-3 and Steinberger have.

Brinkman also recalled, "An old Kent from the 50's that was symmetrical, and I loved that bass because it was really comfortable and evenly balanced." (interview with author, 18/10/15). From Brinkman's recount of events, it is clear that this bass stood out to her due to its ease of use, which was a direct result of the way the symmetrical design distributed the weight of the instrument, regardless of handedness.

Purchasing and playing basses with a central strap pin position is a solution to the problem, though perhaps not the most effective as this greatly limits the player's choice of instrument and, consequently, sound. As discussed previously, moving the strap pin to either the centre of the instrument, or to the horn on the opposite side of the bass, is another solution, demonstrated on the guitar by Jimi Hendrix below.



Figure 25 - Jimi Hendrix with his guitar, which has been altered so that the strap pin is attached to the opposite horn

However, as Dyer pointed out, this solution may not be ideal, as a guitar or bass is an instrument designed with a specific ergonomic intent, and shifting the weight distribution of the bass towards the fingering hand could dramatically change the playability of the instrument, particularly for basses made from heavier woods.

Francis Joung, a leading New Zealand musician physiotherapist, also stated that upside-down bassists would be, "better off getting a symmetrical bass, really" (Interview with author, 27/7/15), rather than changing the position of the strap pin. The reason for this is that if the strap pin is moved from its original horn to the other, or to a central position on the body of the bass, then the distribution of weight will be shifted towards neck of the bass, like moving the fulcrum on a see saw. If the neck is heavier, and therefore being pulled down more, this means that the players has to compensate for this, and hold the neck of the bass up, dividing the players attention from their playing, and leading to more strain being placed on the arm

muscles and tendons. The positioning of the strap pin on a bass is designed to minimize or eliminate any effort the player has to put into holding the bass, as this role ideally should be taken up entirely by the strap, freeing the bassist to play unimpeded. Changing this position can have negative, and somewhat unpredictable consequences. Francis also said that this is more of an issue for bassists that guitarists, because basses are most often heavier that guitars, particularly the neck, as it has to be wider and thicker to accommodate larger strings.

Even obtaining a left-handed bass often cannot solve these issues, as there are other alterations that have to be made to suit an upside-down player. The strings have to be reversed, and in order to do this the nut, and sometimes the bridge, have to be reversed. These parts are labeled in the figure below:



Figure 26 - Diagram showing the location of the components of the bass guitar



Figure 27 - Close up of the nut of a bass, showing how the grooves are sized for specific strings

As can be seen in these pictures, certain parts have to be reversed as they are built to keep the strings in place in a specific order, and the grooves in the nut only accommodate a specific size of string. If the string order is reversed, these parts must also be reversed. These changes are not difficult and could be done by a luthier, or even by bassists themselves. This is a good solution, as it means the bass has been designed with left-handed ergonomics and technique in mind. The main disadvantage with this option is the cost, as left-handed guitars and basses tend to have a 20-30% price increase compared with their right-handed equivalent. Logie had some especially strong feelings on the state of the left-handed instrument scene:

> I have the firm belief that there are next to zero good left handed guitar luthiers, or even guitar techs in the world. This is a very sore spot for me. I don't like it when people want to talk about, "nice guitars/basses," because the majority of these instruments are right handed. When I see a nice righty guitar, I just get bummed out. People try and be helpful by saying, "just do a Jimi man" meaning "flip it upside-down". My problem with that is I want a guitar that was made for ME to play. I don't have the money to purchase an instrument that costs $3000, and I don't know when that kind of quality will become a priority for me. This works well for a right-hander, because they can buy a mid -range instrument and get a good guitar tech to set it up really nicely. This doesn't work well for a left-hander, because there are next to no left

> handed guitar techs. Even if I was to spend $3000 or over, I feel that the person who made/set up the guitar was right handed. So if they weren't able to play it when it was set up, they can't truly know if it has been set up well. (interview with author, 9/7/14).

I agree with some of the points Logie makes here. He suggests that the solution of flipping a right-handed bass upside-down is not ideal, as you are not playing the instrument in a way it has been designed to be played. Certainly more symmetrical basses, such as Gibsons, or Steinbergers, are easier to play upside-down, but certain design elements, such as the placement of volume knobs, and input jacks, are ill-suited for upside-down playing. I am less sure about Logie's views on the lack of left-handed guitar technicians and luthiers. His argument that, "Even if I was to spend $3000 or over, I feel that the person who made/set up the guitar was right handed. So, if they weren't able to play it when it was set up, they can't truly know if it has been set up well," is compelling, however other bassists I have interviewed, such as Horne and Gosset, have only spoken positively about the left-handed basses they have had made (interview with author, 9/7/14). Logie is justified in his opinion, as this is an issue he has had 'hands on' experience with throughout his musical life, and I have no experience in this area as I have not had a custom made bass. It is not however the same experience others have had when buying custom made basses.

It is a common progression for upside-down bassists, to initially use an non-ideal right-handed instrument, and make it work until they can afford to have a bass built specifically for their needs. Horne and Haslip are examples of musicians who used

right-handed instruments until they could afford to have their ideal bass custom made for them. I suggest that many musicians would like to have an instrument that is made specially with them in mind, but for players with a technique as niche–orientated as playing upside-down, it becomes almost essential to order a custom bass, build your own, or customize the instrument available to you. Of the 16 bassists I have interviewed, 12 of them either own a custom built instrument, or have customized a right-handed bass to suit their needs.

As well as ordering a custom bass from a luthier, many bassists will make their own bass suited for their needs. As mentioned previously, it was lack of left handed basses in music stores that motivated Ed Kaszuba to build his own instruments: "I have that issue only if I go in to try interesting basses in music stores, but I don't anymore, that's why I've made my own, because I got so frustrated with that idea, you can't find left handed basses anywhere" (Interview with Author, 22/7/15). Similarly to Kaszuba, Sky expressed how lack of selection of basses resulted in her building her own unique hybrid bass guitar:

> Melbourne is quite big but there's nothing, there's one [left-handed bass] in each shop if that. I've got kind of a hybrid bass at the moment, it's a left hand body with a right hand neck and I had to buy the body online... I still wanted to keep the upside-down look so I decided, 'I'm gonna get an upside-down neck to kind of pay tribute. (Interview with author, 27/8/14).

Rather than modifying an instrument, or building a custom bass, my solution to the issue of blocked frets was to buy a six string bass that had a high 'C' string above the 'G'. This meant I could play higher notes by moving to a higher string, rather than being blocked from them by the cutaway or strap. Of course the higher notes on the 'C' string are still out of reach, but as these are not notes often played on the bass, this has not been an issue in my playing. Williams found the same solution to this problem. However, he pointed out that this can become an escalating issue:

> I did that too but, you being the bass player you are, once you get to that 6th string and you're on that 12th fret, you're going to want to go further. … I wanted more, so I bought a seven string bass, you will never be satisfied haha. (Interview with author, 7/8/15).

This felt particularly accurate, as the day before I interviewed Williams I had been considering purchasing a seven string bass. Williams demonstrated to me other ways he solved the strap cutoff problem, which focused on changing playing technique, rather than changing the instrument:

> With that cutoff point you can do one or two things: while you're playing you can adjust the bass up, and that will let you get to your other notes. Or you can go here [between the strap and the body of the bass], but then you have to jump back around. Or you can come like this [crossing the arm over the horn], I've done that quite

a few times when I want to get to the higher register (Interview with author, 7/8/15).

The first method Williams demonstrated, moving the hand between the strap and the body of the bass, is shown below.



Figure 28 - Demonstration of playing higher frets on the bass by moving the fretting hand between the strap and the body of the bass

This method does provide a stable grip and position for the bassist to use these higher frets, and is similar to how a standard strung player would play these higher notes. However, as Williams mentioned, this method means that the performer would have to remove their hand from the fretboard entirely every time they adjusted their position from above the 12th fret, to below it. This would slow the player down considerably, and increase the potential for error and wrong notes. This method also restricts some playing techniques, as Reeder mentioned:

> I had the strap attached to the bottom (original) horn, and I couldn't reach the upper frets. That's how I was playing it at that time. These days I can't do that. I sweep up an octave all the time, so I've got to be able to reach those top frets. Warwicks go all the way up to the 24th fret, I find myself using that all the time. (Interview with author, 24/8/15).

To apply this technique of sweeping up an octave, with the strap cutting across the fretboard, the performer would have to apply the second method Williams described, which is demonstrated below.



Figure 29 - Demonstration of playing higher frets on the bass by crossing the fretting hand over the lower horn of the bass

This technique allows freer movement for the performer to shift above, and below, the 12th fret. However, as can be seen from the diagram, the thumb of the right hand has to move from behind the fretboard to a 'floating' position, in the front of the fretboard. This leads to the fretting hand being less secure, and possibly more prone to error.

Cutting across the fretboard is not the only issue caused by the strap position. Sky said she believed that, particularly when playing live, upside-down players have to be more aware of the balance of their instruments, distracting them from playing optimally:

> I find it's a bit harder when you play upside-down, cos you've got a bit more to worry about. If you're on stage, you've gotta make sure your bass isn't falling forward or tilting, you've gotta make sure you don't hit the tone and control knobs. So to get past that, and then to make your chops even better, is quite admirable. (Interview with author, 27/8/14).

The falling forward or tilting that Sky mentions is something I have always been very aware of in my playing. Because the bass is being held upside-down by the strap, instead of simply hanging by two of the highest points on the bass, the bass has to be balanced on the two lowest points. The bass is far less stable in this position, and I have occasionally found myself leaning back slightly to avoid the bass flipping over.

The figure below demonstrates how the bass naturally hangs when held upside-down and is not supported by the player.



Figure 30 – Demonstration of how a bass held upside-down will naturally hang without interference from the performer: Backwards, with the strings and knobs facing the musician

Brinkman stated the unstable balance was the main issue that forced her to adjust the position of the strap on the bass, and that led her to use basses with a more symmetrical design:

> On my personal basses, I would move the strap pin to the other horn. The bottom horn is too long and just makes it overbalanced, and the neck wants to fall down… I had an old Kent from the 50's that was symmetrical, and I loved that bass because it was really comfortable and evenly balanced. (Interview with author, 18/10/15).

Williams had noticed this problem also, but solved this issue by adapting and holding his instrument higher, in order to eliminate the problem of balance: “If you play your bass up on your chest, it ain’t going nowhere.” (Interview with author, 7/8/15). Overall, I believe most bassists compensate for the unbalance unconsciously, though it is another potential distraction that could take the player’s mind off the music.

Another significant issue is the positioning of the tone/volume knobs and the output jack on the bass. This is a disadvantage unique to upside-down players because, for right handed and traditional left handed players alike, these controls and the output are all on the opposite side of the bass to the plucking hand. This difference is highlighted in the figures below.



Figure 31 - Demonstration showing control knobs for a standard left-handed bass at the bottom of the instrument, with the plucking hand at the top



Figure 32 - Demonstration showing control knobs for an upside-down bass covered by the plucking hand

Schmidt noted this was one of his main frustrations when he was using right-handed basses:

> All the volume and tone controls were right under my left hand so I was constantly bumping them, changing their settings without intending to. My first bass also had the input jack right on the front panel, so that was also right under my left arm too. (Interview with author, 12/9/14).

Sky said she is especially aware of this when performing live: "I find in between breaks I've got to double check I haven't hit the tone. And I found I got a lot of stress in my hand from [bending unnaturally], to make sure I don't hit anything." (Interview

with author, 27/8/14). Brinkman reported similar discomfort due to the position of the controls: “Also, the controls are right here, and it can be really in the way, rubbing it with your wrist and whatnot.” (Interview with author, 18/10/15). This added strain, discomfort, and distraction is a serious downside, and could definitely affect a performers playing in the long term. Williams noted this issue when playing too:

> If you play with your thumb a lot, you find yourself in this position [arm crossed over the bass, bicep on top of the knobs], and if you start moving your hand around, you hit the toggle switch, the tone and volume. And the worst thing is to be playing your bass, and in the middle of your solo, the tone goes terrible. (Interview with author, 7/8/15).

Williams also had a radical way of solving this problem:

> I took the knobs off, haha. I took the knobs off because that bass was notorious for changing the tone. (Interview with author, 7/8/15).

As did Reeder:

> When I had that right-handed bass, I would tape up the knobs. I would hit them and it would cut off volume in the middle of a

> show… That's the problem with buying a right-handed bass, you keep hitting the knobs. (Interview with author, 24/8/15).

The disadvantage with these solutions is that, although it makes it more difficult to alter ones tone by mistake, it also makes it slightly more difficult to alter intentionally, which could be a disadvantage if Reeder or Williams wanted to change their tone mid-performance. It makes the performer less flexible as a musician.

Personally, I do not find this to be as much of a problem when I am playing fingerstyle bass, as I anchor my thumb in such a way that my hand does not drift and bump the control knobs. I do, however, encounter issues when playing slap bass, or using a pick. I rarely use a pick in my playing, so this issue does not present itself often, but on the occasions I do, I find that my hand bumps the control knobs due to the position that the hand is placed in for picking.

Sky said that before she had the chance to build her own 'Frankenstein' bass, she would get abnormally bad strains: "I don't know if its coincidence or not, but I used to get a lot of really bad strains, and ever since I switched over to the left hand body that's completely gone." (interview with author, 27/8/14). She did not express exactly why this was, whether it was due to the balance of the upside-down bass being askew, or the positioning of the knobs, strap, et cetera, causing her to hold her hand in an odd position, or an adapted technique that was ergonomically not ideal. It certainly appears that playing upside-down was the cause of these strains, as they

stopped as soon as she switched to a left-handed body, but it is difficult to say what aspect of playing upside-down was causing this.

Another disadvantage of upside-down playing is that some performers believe that there are certain techniques that they are unable to apply due to their inverted string layout. Schmidt mentioned some specific examples of these, such as emulating the signature style of Victor Wooten:

> That whole world of playing is really not possible when the strings are inverted. You could do something similar, but if you wanna play thump, you're gonna have to find a different way to play it. (Interview with author, 12/9/14).

He also cited the chordal style of bassist, Todd Johnson, as being more difficult for an upside-down player to achieve:

> That world is not completely off limits when the strings are upside-down, but it's much harder. To me, it was prohibitively harder. There's so much effort I have to put in to be able to pull that off, just to sound like everybody else. Why bother? That felt like a handicap. I think there are a lot of techniques that have developed for properly oriented strings that are difficult, if not impossible, with the strings inverted, and I don't think that there are a lot of advantages to having the string inverted. (Interview with author, 12/9/14).

These are reasonable concerns, and the extra effort involved in approaching and adapting these styles should be taken into consideration if a bassist is deciding whether upside-down playing is right for them.

I have also mentioned previously that my upside-down slap bass technique is slightly odd, and perhaps not ergonomically sound, and that this could cause strains or pain, which other techniques would not cause. When I demonstrated my slap bass technique to Dyer, he said, "I think you'll find as you get older, it might start to hurt a bit." (interview with author, 6/9/14) However, I cannot know this until I have been playing for a longer period of time. We cannot know the consequences of unique upside-down techniques until they have had a chance to develop and be studied over a longer period of time. Dyer said that the difficulties involved with slap bass technique were one of the major disadvantages to playing bass upside-down:

> When it became apparent that it was a disadvantage, to a certain extent, was when I started to learn to slap. … That's purely a physical thing, there are some things you cannot do upside-down with a slap technique, you just can't do them. Your hand is the wrong way round for the technique. You need the low strings on top to do it properly. You have to compensate and you just simply can't play as well as an orthodox player really. … If you're looking at someone like Flea or Mark King, you can't do that sort of thing upside-down, you can't do it. … If you're aspiring to use that

> technique, upside-down inhibits you severely. … I used to slap upside-down. I'm still doing it the same, but your hand tends to be twisted, and speed in a thumb and plucking technique is crucial, you just build up muscle memory to do it. But as I said, I've swapped now, and looking back it held me back, no doubt about it. (interview with author, 6/9/14).

Though I disagree with Dyer's views on upside-down bass, he is not the only bassist who feels this way about this style of playing. In the case of a bass player who is a beginner, it is possible that without a tutor presenting the different slap bass techniques available to them, or being aware of other upside-down players whose techniques they can emulate, that they will see slap bass as a method of playing not available to them. Horne also said that playing upside-down negatively affected his slap bass technique:

> I've always asked if there are advantages, disadvantages. Yeah, the disadvantage to me used to be when guys like Larry Graham, they could keep that thumb E string going the whole time when they're plucking underneath. I never could do that because I always had to stop it to go pluck. (interview with author, 30/8/14).

However, I believe these issues are solvable for upside-down bassists. In Dyer's case, the solution to this issue is to make more resources available to upside-down players and to tutors teaching upside-down players, so that they are aware of the different

techniques available to them. Similarly in Horne's case, had he been shown a technique similar to my own thumb-little finger slap technique, he could have applied this technique to bass lines he was having difficulty with, and expanded the number of songs he could play. In my opinion, I do think my technique could have solved his problem playing Larry Graham type lines, specifically because my own technique removes the need to move the hand up and down the strings to change between slapping and popping, which is what prevented Horne from playing these lines.

Due to some aspects of how the bass guitar is designed, and how certain techniques have developed over time with a specific string arrangement in mind, there are disadvantages and challenges that are unique to upside-down bass playing. Whether these are disadvantages that lead to strain, or extra work for a bassist when performing, they should all be taken into account when a bassist is considering the upside-down style of playing. Upside-down bassists have discovered ways to adapt techniques and alter their basses, in order to negate these disadvantages, but the extra effort and creativity involved in these processes cannot be ignored, and upside-down bassists should be aware of this in order to make informed decisions about their playing. While it is important for educators to be open to a range of learning options for students, it is also important to remember that no way of learning is perfect. Each has its weaknesses, and it is up to both the student and the teacher to assess whether the disadvantages of a way of performing bass outweigh the potential benefits.

A particular aspect that should be considered, is what the long-term effects of the technique are on the physiology of the performer. Performing an instrument is inherently a very physical task, so if a particular way of playing either enhances or diminishes the physical strain of performing, then this is worth considering when making the choice of what technique is right for the player. The following chapter discusses the biomechanical implications of playing the bass guitar upside-down, and the potential long-term results of this way of playing.

Chapter 6

Biomechanical Implications of Upside-down Bass

6.1 Biomechanical implications of upside-down bass

Musicians are often prone to suffering from musculoskeletal injuries as a result of their playing. Studies have shown that between 73.4% and 87.7% of musicians report discomfort and pain symptoms from musculoskeletal disorders.[71] Out of those musicians, approximately 37% report that their injury negatively affects their technique.[72] Both of these proportions are causes for concern, as these types of injuries may affect a musician's livelihood and career opportunities. The majority of the injuries affecting musicians occur due to overuse of a particular technique, coupled with a lack of stretching and breaks. The most prevalent of these include overuse syndrome, muscle-tendon syndrome, focal dystonia, hypermobility syndrome, and compressive neuropathy.[73]

Of all musicians, string players are the group that shows the highest prevalence of musculoskeletal problems, such as joint pain, repetitive strain injury, and general

[71] Han-Sung Lee. "Musicians' Medicine: Musculoskeletal Problems in String Players." *Clinics in Orthopedic Surgery* (2013) : 155–160 ; Jaume Roset-Llobet, Dolors Rosinés-Cubells, Josep M. Saló-Orfila. "Identification of risk factors for musicians in Catalonia (Spain)." *Medical Problems of Performing Artists*. (2000) : 167
[72] Jaume Roset-Llobet, Dolors Rosinés-Cubells, Josep M. Saló-Orfila (2000)
[73] Lee (2013) : 155-160

strain, and of these musicians, guitarists are the most at risk.[74] This elevated risk is likely due to the nature of the movements required to play string instruments. Compared to percussionists or drummers, for example (who report musculoskeletal disorders far more rarely than other groups of musicians[75]), the movements used to play a guitar or violin are extremely localised. While a drummer uses the majority of the muscles in their arms and legs to play their instrument, a guitarist almost exclusively uses the muscles and tendons in the hand, wrist, and parts of the forearm. The result is that, while the effort required to play the drums is spread across several muscles, lessening the strain on any single tendon or muscle, the effort to play the guitar is placed upon very few, much weaker muscles, resulting in the strain being focused on one point. This is exactly the type of scenario that causes repetitive strain injuries: repeating an unnatural task that places strain on a specific muscle or tendon, without allowing sufficient rest time for muscle and tendon recovery.[76] Studies have shown that guitarists are almost twice as likely to report suffering from musculoskeletal problems localised in the wrist than other musicians (66.7% compared to 34.6%).[77] These problems are also elevated in the areas of the wrist (58.3% compared to 43%) and upper back (41.7% compared to 24%).[78] The reasons for guitarists having the highest reported number of injuries and strains amongst string players is somewhat unclear, but is likely due to the less formerly

[74] Ke Roach. "Musculoskeletal Problems In Musicians Who Play Guitar" *Physical Therapy.* (2001) : 30.
[75] William Dawson. "Upper-extremity problems caused by playing specific instruments", *Medical Problems of Performing Artists*. (2002) : 135
[76] M. Van Tulder, A. Malmivaara, B. Koes, "Repetitive strain injury". (2007) : 1815–1822.
[77] Roach (2001) : 30
[78] Roach (2001) : 30

structured nature of learning these instruments. Though both the violin and guitar emerged and developed at similar times in history, the way the instruments are taught and learnt deviates considerably.[79] While violin is taught with a very specific and rigorously tested technique and posture, the less formal and often autodidactic nature of modern guitar tuition, leads to a less strict approach to posture and technique. If a guitarist teaches themselves how to hold a guitar and finger the notes, without a teacher to correct their technique, the player may fall into the permanent habit of playing in a way that is ergonomically harmful and inefficient. This is compounded by the fact that symptoms of repetitive strain injuries are often not immediately apparent, and instead, are only revealed after many years of compounding strain, meaning that, strain resulting from poor technique, may not be revealed until the damage has already been done.

Given that contemporary guitarists and bassists are already at an elevated risk of developing a repetitive strain injury, and the causes behind these injuries are rooted in technique, it is important to examine whether playing upside-down affects a bassist's likelihood of incurring an injury. If playing a bass upside-down increases an already elevated risk of repetitive strain injury, then this is a severe disadvantage of the technique, and must be taken into account, alongside other advantages and disadvantages of the playing style. Arguably, whether a particular technique affects a

[79] John Morrish, "The Classical guitar: a complete history" (Backbeat Books, 2002). David Dodge Boyden. "The History of Violin Playing from Its Origins to 1761: And Its Relationship to the Violin and Violin Music", (Clarendon Press, 1990)

performer's health and the longevity of their playing career, is the most important factor to consider when assessing its effectiveness.

In my research for this topic, I consulted with Francis Joung, a New Zealand physiotherapist who specialises in musicians, and works closely with the performers in the Auckland Philharmonic Orchestra. He is also a classical guitarist. Although he has treated a large number of guitarists, he stated he has had very few patients who played upside-down: "I had one player who played guitar upside-down, not a bassist though." (interview with author, 27/7/15) Even this player was not completely upside-down, but used right-handed instruments with a left-handed string order. However, although Joung has had little experience with upside-down players, he still gave an informed opinion, based on his experience with other musicians, of the efficacy of upside-down technique.

I met with Joung at his practice and demonstrated to him both standard and upside-down, left handed technique. The first, and most important, element of technique that Joung pointed out was the angle of the wrist on the fretting hand; "Biomechanically the kink of the wrist is the most important thing" (interview with author, 27/7/15). Essentially, the more the wrist is held in a severely bent position, the greater the strain placed upon tendons in the wrist. Examples of good and poor wrist positioning are shown below.



Figure 33 - Demonstration of good wrist positioning, referred to here as position 'A'



Figure 34 - Demonstration of poor wrist positioning, referred to here as position 'B'

The reason that position ‘A’ is better than position ‘B’ is due to the wrist being in a resting position of neither flexion, nor extension, often called ‘monkey grip’, which Joung described as, “the [position] that places the least loading on the hand”

(Interview with author, 27/7/15). However, position 'B' has the wrist in a position of permanent flexion[80]. When muscles and tendons are held in positions of flexion for unnaturally long periods of time, this places the musician at risk of repetitive strain injuries such as tendinosis, carpal tunnel syndrome, or other similar injuries. Muscles at heightened risk of these injuries included the digitorum superficialis and digitorum profundis[81]. If the wrist is held in a flexed position for prolonged amounts of time, nerves associated with these groups of muscles and tendons can become compressed, or collagen within the tendons can degenerate. Both of these scenarios lead to extreme pain and loss of strength in the wrist and fingers if left untreated. As the name suggests, these types of injuries are caused by repetitive and unnaturally long periods of flexion of the muscles without sufficient stretching and rests, and is exacerbated by the tension required to press the fretting fingers into the strings. The more often the wrist is placed in this position of flexion, the greater the risk of developing an injury becomes. It is this accumulation of strain over time that puts players at the most risk, as Joung said: "Overuse occurs not only if there is a biomechanical inefficient problem, in fact our body can handle a lot of that, but if it accumulates [then strain can occur]." (Interview with author, 27/7/15). The resulting question is whether playing upside-down causes the performer to place the wrist in this more kinked position more often than when using standard technique.

[80]Cast Online. http://www.castonline.ilstu.edu/Thomas/181/Muscles%20of%20the%20Wrist%20and%20fingers%20DT.pdf, (accessed January 1, 2016)

[81] Richard Drake. A. Vogl, Adam Mitchell. *Gray's Anatomy For Students, Third Edition*. (Churchill Livingstone, 2015) : 780-781

A performer's wrist is most crooked when they are reaching for the string on the highest position of their fretboard. For players who play using standard technique, this means that their wrist is in its most kinked position when they are fingering notes on the E string (or whatever their lowest pitched string is), and for upside-down players, it is most kinked when they are playing the G string (or their highest pitched string). The result of this is that both ways of playing place the wrist in an un-ideal position when playing on opposing strings. Thus, it would appear that both ways of playing place equal strain on the wrist.

However, it is worth noting two things about playing bass: that most often the role of the bassist in music is to play root notes of chords, and that it requires more pressure and tension to play larger, lower pitched strings than higher strings. Most often, the role of the bassist is to highlight the lower register elements of a chord, and this means that the most common notes a bassist plays are located on the lowest strings. Thus, the standard way of playing places the wrist in a kinked position more often, and because repetitive strain injuries are a cumulative injury, this suggests standard strung players are at greater risk of repetitive strain injuries. This is not the case for upside-down players, and due to their lowest pitched and most frequently used strings being at the bottom of their fretboard, this means the wrist is placed in a neutral ergonomic position when playing the most common bass notes, a benefit Reeder had noticed in his playing:

> Most normal playing is on the lower strings, E and the A, and you don't have to reach all the way across the fretboard to play those

> notes. It's more of a comfortable hand position to stay on those lower strings. (Interview with author, 24/8/15).

Secondly, the thickest (lowest in pitch) strings on the bass require the most force to create the desired sound (for both standard and upside-down players). This means that the flexor muscles of the hand and wrist are placed under more strain when playing lower register strings, and because, with standard tuning, the wrist is already in a more compromised position, this again compounds the factors which put the player at risk of injury. For upside-down players, the ergonomically neutral position of the wrist, when playing these strings, means that the increased tension required to play lower register notes is less likely to compound and cause long term strain.

Conversely, there are also potentially ergonomic disadvantages to upside-down technique. As discussed previously in this thesis, playing 'bends' on higher register strings are likely to be easier when playing upside-down, as the motion required involves flexion rather than extension. Joung also stated that pulling rather than pushing strings to bend them is likely better ergonomically:

> I'd expect pushing to be more effort than pulling, because when you are pulling, you are moving towards the stronger position, whereas, with pushing, you are moving towards the more vulnerable. Whether you're upside-down or not, pulling would be definitely recommended. (Interview with author, 27/7/15).

Though this is an advantage for upside-down bassists when playing these higher register bends, this comes with the trade-off of making it more difficult to play bends on the lower pitched strings. This is compounded by the earlier mentioned fact that these lower pitched strings require more force to play, and so, also require more force to bend. The result of this is that, for upside-down bassists, playing bends on the lower register strings greatly increases the strain on the wrist in a way that would not occur for standard strung players. However, it is also worth noting that playing bends on lower register strings simply is not as common on bass guitar, and so, unless an upside-down bassist is purposefully composing bass lines which involve frequent lower string bends, this ergonomic disadvantage is unlikely to affect players in a significant way.

The placement of the strap, and distribution of the weight of the bass across the shoulders, is also an important ergonomic factor to consider for upside-down bassists. As has been discussed previously, the strap placement on the bass is an issue for upside-down players as it cuts across the neck when the strap pin location is not adjusted. This also affects how the bass sits on the player, as instead of naturally hanging in position, the bass has to be steadied by the player to stop it from falling forwards or sloping backwards. The figure below demonstrates how an upside-down bass naturally hangs on the player.



Figure 35 - Demonstration of how a bass held upside-down will naturally hang without interference from the performer: Backwards, with the strings and knobs facing the musician

Joung explained how having a bass set up so that, without constant support, it will fall forwards, could have a negative impact on playing and ergonomics:

> The first thing would be that, because the bass falls forward, you have to grab or balance it. The fact you have to balance, it is extra energy, you want it to sit there, you don't want to have to think about holding the instrument. That is a major minus. (Interview with author, 27/7/15).

The source of the 'extra energy' Joung talks about here, is important in assessing the effect of this strap imbalance, as the muscles engaged to perform this movement are the ones that are being placed under ongoing strain while playing. There are two likely ways upside-down players could be balancing their bass. Firstly, they could be

using their left hand and arm, pressing into the bass in order to stop it falling forwards. In this case, the strain would be placed somewhere in the wrist joint, or elsewhere in the left arm. Secondly, the player may compensate for the unbalance by altering their posture, placing the strain on their shoulders and back. This second scenario could be extremely problematic as string players, and guitarists above all, are at high risk of developing back and shoulder injuries that can affect their playing, and adding extra strain to these areas can have harmful ergonomic effects.[82] Alwin Mills identified his back as the area he was engaging to balance his bass, and reported severely negative effects:

> Playing left handed and upside-down, your upper horn is on the bottom, which causes an imbalance in how you hold it. Those years that I played a right-handed bass, I developed back problems, because the bass was unbalanced. I had to figure out that, in order for me to get rid of it, I'd have to get a left handed bass, but still strung for a right-handed person. (Interview with author, 23/10/15).

[82] A. Brandfonbrener. "Musculoskeletal problems of instrumental musicians", *Hand Clinics*, (2003) : 231–239. Danelle Cayea, Ralph Manchester. "Instrument-specific rates of upper-extremity injuries in music students", *Medical Problems of Performing Artists* (1998) : 19-25. Anncristine Fjellman-Wiklund, Kris Chesky, "Musculoskeletal and general health problems of acoustic guitar, electric guitar, electric bass, and banjo players", *Medical Problems of Performing Artists*. (2006) : 169

Alwin's account clearly demonstrates how serious the imbalanced nature of upside-down bass can be, and the importance of upside-down bassists being aware of the strain they may be placing on their backs.

Furthermore, this problem is not easily solved by moving the strap pin, a modification that has been mentioned earlier in this thesis, as when the strap pin is moved, the weight of the bass is shifted towards the neck. So, while a bass modified in this way may hang freely without falling forwards, there is still an imbalance in the weight distribution of the instrument, which again adds strain to the back and shoulders.

Lastly, my own slap technique, involving popping using the pinky finger, could present issues, as it is a more unnatural position for the hand to be in than any other technique presented. However, this may not be the case, as Joung explained when I demonstrated the technique to him:

> Theoretically, it is not recommended for that particular tendon to be kinked up like that all the time. If you are practicing a piece that required that technique for four hours a day, then it's definitely troublesome. However, if you get your practice technique right, and are only practicing for a short amount of time, then it's no problem. As long as you don't overdo it, that would be ok. That would be the case for a lot of instruments. (Interview with Author, 27/7/15).

Essentially, the technique is not ideal, and places the muscles and tendons under unnatural strain. However, as long as standard principles of practice, rests and stretching are observed, then there will likely be no long term damage done to the components of the joints. This would appear to be the case for most of the alternative aspects of technique for upside-down bass, as Joung puts it:

> It's not so much the playing upside-down, it's more to do with your basic fundamental technique… As far as upside-down bass is concerned, there are two or three main points that make a difference. Other than that, the general principles of overuse and biomechanical efficiency of techniques will remain the same. (Interview with author, 27/7/15).

Without proper practice methodology, all bass playing techniques take some toll on the body, however, as playing upside-down is such a dramatic departure from standard bass technique, it is worth noting some specific aspects of the style that affect the biomechanics of playing the instrument. The decrease of the bend in the wrist when playing the lower string, for example, can have a positive effect on an upside-down bassist over time, as this lessens the strain placed on the wrist joint. Similarly, the way flexor muscles, rather than extensor muscles, are engaged to perform bends on the higher pitched strings also benefits a player, as the movement is employing stronger muscles to achieve the desired sound. The placement of the strap, however, is shown to be a considerable negative. The unbalanced way the

bass hangs when played upside-down can result in shoulder and back discomfort, due to bassists unnaturally altering their posture to compensate for this. Mills' self-reported discomfort supports this. Furthermore, adjustments made to the bass to negate this, such as altering the strap pin position, can have a negative effect on the distribution of the weight of the bass, and potentially cause further imbalance and strain. Though there may be some biomechanical differences, both positive and negative, between upside-down and standard bass, it should be considered that, so long as players take sufficient rests and practice intelligently, then any strain they endure is unlikely to accumulate and develop into a repetitive strain injury, regardless of whether the bass is held upside-down or not.

So far, this thesis has focused solely on how playing bass upside-down affects the individuals applying this technique. But it is also important to examine the effect this way of playing has on others, specifically, the students of upside-down players. The following chapter investigates the experiences of upside-down bassists teaching others, and what pedagogical strategies upside-down teachers apply during their lessons that are affected by their way of playing.

Chapter 7

Teaching challenges of upside-down bass, and applied solutions to these challenges

7.1 Teaching challenges of upside-down bass, and applied solutions to these challenges

It is important to examine how playing upside-down can affect a bassist's teaching methods. There are three reasons why this is important. Firstly, teaching is a source of income for almost all musicians at some point in their career, accounting for 22% percent of the total income for musicians[83]. If playing upside-down affects their teaching, or their students' learning negatively, it would in turn impact the upside-down player's ability to sustain their career. Conversely, if playing upside-down improves their teaching, this is also worth investigating to improve pedagogical methods for all musicians. Secondly, through upside-down player's teaching, new players would be made aware of this alternative method of playing. This is arguably a good thing, as it could be that the new player discovers that playing upside-down is more comfortable for them, or solves an issue they were facing with their playing. Thirdly, as previously stated, none of the upside-down bass players I interviewed were aware of any other upside-down players, and had no upside-down tutors available to them during their first encounters with the instrument. Several problems

[83] Peter DiCola. "Money from Music: Survey Evidence on Musicians' Revenue and Lessons About Copyright Incentives", *Arizona Law Review* (2013)

upside-down bass players encountered with their way of playing, could have been solved simply by having teaching resources available to them, making them aware of other upside-down techniques, such as various slap bass techniques they could apply.

Gregory, a founding member of the Basstech school at the Institute of Contemporary Music Performance, London, said all his teaching experiences were positive:

> I usually tell students that if I can do it the wrong way, they should be ok – provided they do the work! Ultimately, as an artist, you work with what you have – and work around what you don't. I think it makes you stronger. … I don't recall any students experiencing difficult learning with me and my unorthodox technique/style. (Interview with author, 25/6/14).

Gregory's experiences are worth considering, because, over several decades of teaching other musicians, he has indicated that playing upside-down has not negatively impacted his teaching at all, at least not in any way that Gregory has noticed in his students. It is also worth noting, however, that Gregory specialises in teaching at a higher university level. Players learning at this level have likely already been playing for many years, and have established, or are in the late stages of developing, their own style. Less experienced, or beginners, could be more easily confused, as they are less used to their instrument, and are still at a stage of learning where they are mirroring other musicians to learn.

However, Ed Kaszuba's experiences teaching bass suggest that this may not be the case:

> My teacher at my prep theory course at Humber said, 'listen, we don't have a bass teacher, how would you like to teach some students?' And I play upside-down and backwards, how the hell are we going to do this? And he said. 'Yeah, but, we're not talking about really advanced students, we're talking about beginning students that just want to pick up simple licks.' And I thought, let's give it a shot! We just went through fundaments, notes on the fretboard, simple scale patterns, and positions. (Interview with author, 22/7/15).

Kaszuba reported that overall he did have success with students during these lessons. However, he stated that he would no longer teach regularly strung students:

> At this point, I wouldn't consider teaching. If I had a left-handed student, they would have to be a left-handed, upside-down student for them to really benefit from my teaching style. I can teach them theory, and I can teach them lines, and the musicality of it, but you also go to a teacher to learn technique. And technique, for a large majority of beginning players, is more important than lines. (Interview with author, 22/7/15).

Other upside-down bassists were of the same opinion as Kaszuba. Schmidt expressed this when I asked him about whether he believed playing upside-down affected his teaching:

> I don't teach for that very reason. It really is too much to expect a beginner to overcome. The few "lessons" I have offered have always been about getting out of the box and opening yourself up to creative solutions rather than teaching basics. (Interview with author, 12/9/14).

In a later interview, I asked Schmidt what his response would be if a right-handed student approached him specifically for lessons, and he stated similar ideas:

> There's gonna be a lot of translation, it's gonna be a lot of extra effort for me to show you things and have you pick them up. It's not going to be simple. I would tell them, 'Your best bet is to find a teacher who plays the instrument the same way you want to play it.' It's extra mental gymnastics you have to get through, if we don't share a common language, it's really challenging. I always felt like, self-consciously, I would be short-changing the student. (Interview with author, 25/7/15).

Schmidt's reason for not teaching is that a beginner, who is learning through mirroring their tutor, would find it too difficult to follow an upside-down teacher. However, in the case of students who already have some confidence in their playing, he was more open to teaching:

> If a student came to me, [already with some playing experience] and they want to further themselves, then I don't have to teach the basics at that point, they're already used to doing things that way. So really it would depend on where that student is [at]. (Interview with author, 25/7/15).

Due to the way he plays, Schmidt's teaching focuses on the broader idea of musical creativity and problem solving, rather than on basic fundamentals of playing, as he believes his style would render his teaching of this ineffective. For a student, being taught ideas like this by a teacher who plays in a way as different from their own as possible, could in fact, be beneficial, as the teacher would themselves be an example of playing in a way that deviates from the norm. Assuming they are a good player, they would also be a testament to how playing differently can be successful.

However, many upside-down bassists are still wary of teaching due to their alternative playing style, and believe they would only be useful teachers for others who play like them. This was the opinion of Brinkman:

> I haven't [done any teaching], and mainly it's because I would have to teach someone [the wrong way round]. So it would be difficult to teach someone right handed. But if it was a left- handed, upside-down person who wanted to learn my style, I could do that. (Interview with author, 18/10/15).

And also of Reeder, who had in fact been approached by students and told he should teach:

> My style is so weird… I don't know. I've never tried to impart anything to a student. I'm sure I could show them a thing or two… But it seems like everything I do is wrong, I don't see many people who play this way. I've been asked by a couple of [Warwick Bass Camp] students last year, who said, 'Why won't you be a professor here?' and I'm like, 'Because I do everything wrong, it would be weird!' (Interview with author, 24/8/15).

Dyer expressed similarly negative opinions around teaching bass as an upside-down player when I asked him if his playing style affected teaching and demonstrating musical ideas to other musicians:

> Absolutely. I had no problem looking at other guitarist's necks- you just get used to it. But, when they look at an upside-down player,

> it's confusing for them. Especially when you're onstage and the light is low. (Interview with author, 6/9/14).

Dyer makes an interesting point here. In theory, it should be no more difficult for traditionally strung players to follow an upside-down teacher, than it is for an upside-down player to follow a traditionally strung teacher, as in both cases, the learner has to flip the instrument and techniques in order to transfer it to their own instrument. Dyer makes the point, however, that while upside-down players are surrounded by traditionally strung players, and so become conditioned to 'flipping' other's playing upside-down, this is not the case for traditionally strung players. Although traditionally strung players beginning to learn bass, could become used to their upside-down teacher's way of playing after time, it is likely that this would slow down their learning, or delay some stage of their progress until they have become used to this way of playing. Reeder said that this was what he had experienced when jamming with other musicians, that there was a time of adjustment required for the other musicians:

> I notice when I'm jamming with a new guitar player, and I'm trying to show them a riff, and they're looking, like, 'Whaat?', It's really confusing. But, when I've played with somebody for a long time, they get used to it. It's always awkward at first when they're trying to follow what you're doing, but you just get through it. (Interview with author, 24/8/15).

Roberts also expressed this when I asked him about his teaching experiences, as well as sharing his thoughts on traditionally strung left-handed teachers:

> I've had several people over the years ask me about lessons, but you know, if I had it strung properly, it would probably be good. If they're a right-handed player, it would be like a mirror if we were sitting across from each other. I think being a lefty, that would be a good thing. But since I'm upside-down, I think it would be a hurdle to get over as far as teaching somebody. (Interview with author, 14/9/14),

Roberts' thoughts on left-handed teaching are worth investigating, as it does seem logical that seeing a mirror image of your own technique would be easier. This is the solution I apply in my own teaching. Essentially, I taught myself to play a standard strung, left-handed bass so that I could teach students without the possible confusion that an upside-down string setup may create. This did not prove to be a time consuming task for me, and took me under two weeks of casual practice to become used to switching between standard and upside-down string arrangements. I have found this to work, so far, for teaching beginner students, and there have been no communication difficulties due to me playing left-handed. Kaszuba expressed that learning to play left-handed could benefit one's teaching methods: "The fact that you're doing that means that your brain is thinking in multiple dimensions and ways. So again, you're becoming a more effective teacher." (Interview with author, 22/7/15).

This “thinking in multiple dimensions and ways” is a direct example of a teacher benefitting from being open to multiple pedagogical methods. By approaching the task of playing, or learning bass in both upside-down and standard styles, this can expose the teacher to new ways of performing particular tasks, and make the teacher more aware of issues the student may be having with their playing. For example, as stated previously in this thesis, it is easier to finger notes on the low E string when playing upside-down due to the position of the wrist. By learning to play in a standard left-handed way, I became more aware that this movement was less comfortable for right-handed students, especially beginners, and allowed me to accommodate for this in my teaching.

With regards to Kaszuba’s comments of, “If they’re a right-handed player, it would be like a mirror if we were sitting across from each other”, it is difficult for me to say whether teaching standard left-handed is an advantage at all due to the mirrored perspective of demonstration, but I can say with certainty, that it is at least not a disadvantage and has not negatively affected my teaching.

However, and as Roberts points out, this is not an advantage an upside-down teacher shares, even though this style would often be called left-handed. Instead of a mirror image of themselves, or an image of a playing style they are used to seeing, the student of an upside-down teacher is confronted with an image that they both have to mentally flip upside-down, and they are not used to seeing. It is clear that this could be off-putting to beginner players.

Sky also said students she has had can become confused by her way of playing, but that she finds solutions to these problems:

> Most people are OK with it. I teach a lot of people that have got a basic musical background. Occasionally, it gets a bit confusing, so I do turn the bass upside-down and give them a rough idea of what it's like, bass lines I might show them. But generally speaking, people just kinda watch what I do, and flip it upside-down. Which is exactly what I did when I was learning bass, so yeah. It's kind of funny seeing it the other way around for something kind of normal. But, yeah, it doesn't get in the way as much as I thought. (Interview with author, 27/8/14),

This can be seen as one advantage of an upside-down player using a right-handed bass, rather than a left-handed one, with the strings reversed, or a custom made instrument. When a student is confused, the teacher can flip the instrument so that the student can mirror their actions. Of course, this solution bring its own problems with it, namely that the teacher has to play in a way at which they are not as proficient, and so cannot demonstrate particular techniques or bass lines as fluidly.

Kaszuba took a similar approach to Sky's when his demonstrating to students:

> Students tilting their head was common. Or else, you ended up doing this [turning the bass the other way up, while still holding it with original and position]. That is what started to indicate to me that, to play right-handed, you need a right handed teacher: you play left handed, you need a left handed teacher. (Interview with author, 22/7/15).

The style Kaszuba is describing is demonstrated in the figure below.



Figure 36 - Demonstration of how an upside-down player would turn a bass so that the instrument is oriented in the traditional way, but the upside-down fretting and plucking hands are maintained

This position is awkward, and I believe would only further complicate the teaching situation, rather than to make the demonstration clearer to the student.

Williams also altered how he held his bass to demonstrate to his right-handed students, however, he found a middle ground that suited him well:

> When you're teaching a right-handed bass player to play, this is what my brother taught me, is when you get the bass, and you hold it upright, it's not left handed or right handed, it's just a bass. (Interview with author, 7/8/15).

This way of holding the instrument is shown in the figure below.



Figure 37 - Demonstration of a bass guitar being held upright

As an upside-down teacher, this teaching approach would be the clearest way to demonstrate a bass line to a student. This approach has the benefit that the teacher does not have to hold the bass awkwardly, or change which hand they are performing the fingering or plucking with, as well as the student only having to mentally rotate the image of the bass 90 degrees, instead of 180 degrees, in order to apply the information to their instrument.

Kaszuba also said he found himself placing beginner student's fingers on the notes they needed to reach, as an alternative teaching method to demonstrating to students and then having them copy his technique:

> I found that with very rank beginners, you could put their fingers on the right spots. But, it still confused them when they tried to see what your hand was doing, and it wasn't the same as what their hand was doing. (Interview with author, 22/7/15).

Kaszuba had also theorized some ways in which technology could be implemented to improve the teaching methods of upside-down players:

> I've thought about if you were to teach something now, with all the technology that's available, could you not do video lessons of, say specific spots on the fretboard, and then flip the image? Your fingers might be a little funny, but the pattern would be there for the student to pick up. (Interview with author, 22/7/15).

This would not be a difficult process for a teacher with even a basic knowledge of video editing software, and would not take up a large amount of time, as the same video resources could be re-used for different students. Studies have also shown that using video resources to supplement teaching can have positive learning outcomes.[84] However, it seems to me that in this case, this would further complicate the lesson, and not make the demonstration any clearer to the students. This is because, if a video of an upside-down player was 'flipped' vertically, so that the strings were in the standard order, then the hand of the player would be reaching down from above the fretboard to finger the notes, rather than underneath the fretboard, an image which would be even more unfamiliar to the student.

There were also some potential positives of upside-down teaching that upside-down players reported to me. Kaszuba reported that because the students could not rely on copying his technique, this made them focus on the aural aspect of playing instead: "[I told my students] what you've really got to do is listen to what I'm playing, and then try and mimic it, and that was my approach for those young kids." (Interview with author, 22/7/15). This may expose them to learning pathways which they would otherwise have avoided, and could benefit some aspects of their learning. This is an example of how teaching as an upside-down bassist encourages a blend of teaching styles, rather than a single pedagogical approach, which, as has

[84] Roshier, A. "Veterinary students' usage and perception of video teaching resources", BMC Medical Education, 2011, DeCesare, J. "Streaming video resources for teaching, learning, and research", Library Technology Reports, 2014

been established previously, benefits the learning process of the students.[85] Williams also said that as a bass teacher, "You really don't want them watching your neck, you want them concentrating on what they're doing," (Interview with author, 7/8/15), meaning that students gain the most learning by focusing on their own playing, rather than that of others, including their teacher's. Because the students of an upside-down bassist cannot directly copy the technique of their teacher, learning from an upside-down bassist would, in a way, force students to focus on their own technique, and could benefit their learning. This type of teaching, which is centered on the student, has been shown to be effective in many fields, and promotes greater problem solving skills and self-efficacy than more traditional, lecture-style teaching methods.[86] Furthermore, by forcing the student to focus more on their own playing than their teacher's, this can be an opportunity to encourage self-reflection and self-assessment of their progress, and make them more aware of their own playing. This is an extremely important aspect of learning, as Csongor (1992) writes: "[Students] must be taught to assess their own performance realistically with respect to given standards and to use this knowledge for optimal learning".[87]

I also asked my interviewees if they had any experience teaching another upside-down style bassist. Overall, the response was that they had not, and Gregory noted that in his long teaching career, he had not had any left handed students at all: "I

[85] Elsayed Aboukhatwa. "Blended Learning as a Pedagogical Approach to Improve the Traditional Learning and E-Learning Environments", *The Second International Arab Conference on Quality Assurance in Higher Education*, (2012)
[86] Mitchell Walcrop. "Why we are teaching science wrong, and how to make it right", *Nature*, (2015)
[87] Julianna Csongor. "Mirror, Mirror on the Wall… Teaching Self-Assessment to Students", *The Mathematics Teacher*, (1992) : 636-637

don’t have any leftie students, and surprisingly, never have!” (Interview with author, 25/6/14). The only exceptions to this were Horne, who had given some bass lessons to Cobin (another of my interviewees), and myself. Cobin spoke highly of Horne’s teaching, and was working with him to improve his slap technique. My own student, is at a beginner level, and was recommended to me due to her being most natural at holding a bass left-handed. During our first lesson, I outlined the advantages and disadvantages of the style, and she decided that upside-down would be the right style for her. So far, our lessons have gone well and we have not encountered any barriers to her learning due to the upside-down style she has chosen, though since she has only had lessons for less than a year, some may yet be encountered.

Often though, other upside-down players said they would steer students away from playing upside-down, rather than encouraging beginners to learn in this way. Schmidt was especially emphatic about this:

> I wouldn’t have [left-handed students] do it the way I do it. The assumption is that what they’re gonna want to do, once they get some level of competence, is play in bands, mimic their favourite players, have the whole world of music open to them with instructors and being able to walk up to any instructor and learn. I certainly wouldn’t advise a student to turn the strings upside-down, that’s something they can do later on if they wanted to. I would never ever recommend anybody do this intentionally. I can’t say, ‘Hey everybody, follow me, I’ve found a great new way to

> attack this instrument,' because I don't feel that way. (Interview with author, 25/7/15).

Cobin also felt the same way about the style, saying that playing left-handed creates more work for you as a student:

> From where I'm sitting, I would tell somebody to play right handed. I think left-handed is way too much work. That's just my opinion. Especially learning different techniques with speed, it's pretty different. You have to sit there and iron it out, and figure out what going on. (Interview with author, 1/8/15).

This was a common theme among my interviewees, the idea that they have made playing upside-down work for them personally, but that they would not recommend the same way of playing to anyone else. Though this is not a view I share, it is understandable that some upside-down players may not want to pass on this technique to their students, as they know first-hand the challenges this way of playing brings with it. However, I believe that upside-down players should not let their style of playing deter them from teaching others, as there are many teaching strategies that tutors can apply to overcome the challenges that the style presents, and students can still achieve effective learning with an upside-down style teacher. I would encourage upside-down bassists not to be put off by these potential difficulties, as this way of playing offers a unique perspective on how the bass can be

approached and played, and these perspectives should be shared so that others can benefit from them. As I stated at the beginning of this thesis, having a diverse range of approaches to learning improves the field as a whole, but these different approaches do not benefit the field unless they are shared.

Chapter 8

Conclusion

8.1 Conclusion

Innovation in any field, including pedagogy, is driven by change, and this change is generated by the different approaches and ideas of individuals. Because of this, rather than adhering to a specific system of learning an instrument, we should remain open to the unique styles of individuals. Upside-down bass technique is unlikely to spearhead a revolution in playing the instrument and I am not arguing that this technique is the ideal way of playing for everyone. However, for some, this technique may be the way of playing which enables them to play at their best.

As this thesis aimed to demonstrate, there are many different factors that push a bassist to choose to play upside-down. The autodidactic system of learning that is common among all rock and pop musicians is a large contributor to this issue. For bassists such as Brinkman, Horne, Williams, and Kaszuba, the lack of pressure from a tutor gave them the freedom to play in the way that made them most comfortable. They were able to experiment and discover their own ways of generating the sounds they desired, without the structure of a formal learning environment, which may have caused them to alter the way they played.

Furthermore, many interviewees stated that playing in this way aided their creative thought, and gave rise to new and unique techniques that would otherwise not have been discovered. Because certain traditional bass techniques cannot be directly transferred to a reversed arrangement of strings, players had to adapt previously established techniques, and in some cases, invent their own, in order to achieve the sound they desired. An especially noteworthy result of this experimentation were the many distinct ways of achieving a slap bass sound that each bassist had discovered via their own self-learning methods. These accounts give us insight into the effect of self-directed approaches to learning, and demonstrate the importance of studying autodidactic techniques. By taking note of these approaches, educators can provide students with better techniques for directing their own learning, and this can benefit pedagogy as a whole.

In contrast, several bassists stated that tutors often pressured them to change the way they played, which only reinforced their intention to play upside-down. Williams, Schmidt, and I, experienced and expressed this, perhaps stemming from the anti-authoritarian nature of rock and pop music; the need to break convention and play in one's own style. This concept, combined with the formative age at which players begin discovering and experimenting with their instrument, means that learners are likely to see the statement, 'you cannot do this,' as a challenge to be met. Again, these experiences can be used to critique and improve pedagogy. This raises questions of how and when we should correct a learner's approaches and techniques. It is important to consider that occasionally the feedback we give can result in the student doing the opposite of what we suggest, and this should be

taken into account when giving feedback. These experiences demonstrate that an approach that encourages self-evaluation and exploration can be more beneficial to learners than purely instructive teaching, as previous research above has also demonstrated.

There are also pragmatic reasons why bassists turn to upside-down playing, with availability of instruments being a key factor. There is a lack of availability of left-handed instruments in music stores, and when a bassist can locate a left-handed model, they are most often more expensive than their right-handed counterpart. Furthermore, the type of instruments that are available to learners in their homes or in schools can affect this choice significantly. We should therefore consider the importance of having left-handed materials available to music students, and how a lack of these materials can impact their learning.

The ability to use other's instruments was also a formative aspect of why upside-down bassists chose to play this way, as it placed them at an advantage to musicians who chose to play in a standard, left-handed way. While a left-handed musician must have their specific instrument with them in order to perform due to there being fewer left-handed people, an upside-down player can use any other performer's instrument should the need arise, due to right-handed instruments being the most common. This means players can engage in more networking opportunities, and take part in more collaborative music environments, which studies have shown benefits learning.

As well as helping them to fit in, playing upside-down can also help a player to stand out. Upside-down playing is an uncommon way of playing, and every upside-down player stands out as unique and different amongst other performers. The importance of being noticed and gaining people's attention is well documented by marketers, and so having a 'quirk' in one's technique can only help a rock or pop musician in furthering their career.

Part of many musicians' careers is teaching, and so the impact of playing upside-down on a player's teaching ability is an important issue to address. Of the performers I interviewed who had teaching experience, there were mixed responses. Upside-down tutors, such as Gregory, who were teaching students with an already firm knowledge of their instrument, reported few problems with communication between teacher and student. For upside-down tutors, such as Ed Kaszuba, with less experienced students, more communication issues were reported. Kaszuba had to compensate for these issues by correcting the student more, and holding his bass in a cumbersome way, affecting his ability to demonstrate effectively. It would seem that as an upside-down tutor, teaching students who play in a standard right-handed way, could be an issue in circumstances where the student has little prior knowledge of this instrument. Concerns over communication issues like this deterred the majority of the bassists with whom I talked to from attempting to teach others. This has a negative impact on upside-down players, as it limits their ability to earn a living as a musician and expand their career opportunities. However, there are pedagogical methods which upside-down tutors, like me, apply that could be employed to overcome these communication difficulties. These included holding the bass in

different way to demonstrate technique, using a standard strung left-handed instrument to teach beginners, and encouraging the student to focus more on their own playing, rather than mirroring their tutor's movement. Studying teaching techniques, such as these, could inform pedagogical theory as a whole on better ways to relate ideas and concepts when there is some kind of communication barrier between teacher and student.

The topic of whether playing upside-down negatively affected a performer's comfort on a biomechanical level was also not definitive. Positive aspects included that upside-down playing places the wrist at a more neutral angle when fingering the lower strings, resulting in less strain on the wrist/hand joint. Similarly, bending higher string using a pulling, rather than pushing motion, means that stronger muscles, which are less likely to experience strain, are engaged to perform the motion. Conversely, the uneven balance across the shoulders of an upside-down bass means that performers are at a greater risk of strain, particularly when modifications to the position of the strap pin have been made. Mills, in particular, talked about his experience of suffering from shoulder pain while playing, until he managed to procure a left-handed instrument, which alleviated the discomfort. This is a serious issue for upside-down players, as this type of discomfort can seriously impact their playing and their overall health.

There were other negative factors to playing upside-down that are specifically related to the physical characteristics of the instrument. The strap cutting across the fretboard was an aspect of the instrument that was cited by all interviewees as a

point of frustration. Solutions to this problem ranged from adapting particular ways of moving the fretting hand above the twelfth fret, to purchasing basses with higher register strings, to altering the position of the strap pin, which as mentioned previously, can negatively affect the balance of the instrument. Also mentioned above was the position of the tone, volume knobs and input jack, which get in the way of performers when playing. All of these disadvantages can negatively affect the bassist's performance, and it is important for a player to take these into consideration, alongside any advantages, when making the decision to play upside-down.

In choosing to play bass upside-down, I have, perhaps, made aspects of my playing harder, but these obstacles are not immovable barriers to learning. With determination, these challenges can be overcome, and I have grown more as a musician because of them. As educators, we must be open to the possibility that the traditional and conventional pedagogical theory we have been taught to apply, may not be the best way forward for some individual learners, and that some learning methods that appear unconventional are the best way forward for some of our students. The advantages, and comfort that playing upside-down has brought me, far outweigh any negative factors that I have encountered, and I feel that I would not be the bassist I am today without this unique style of playing. Playing upside-down has arguably made me a singular unique bassist in many respects, and, even with the disadvantages, I'd rather play different, than be the same. The issue of the effect of handedness on a musician's performance is a largely un–researched area and it is worthy of further research among many other instrumentalists playing in different

styles. Furthermore, the implications that the learning experiences of upside-down bassists have on the whole field of pedagogy deserve further investigation. The success of players using upside-down style demonstrates that self-driven, alternative, approaches to learning can be effective, a conclusion which should be examined in other fields of learning, to better inform and refine pedagogy as a whole.

Bibliography

Aboukhatwa, Elsayed. “Blended Learning as a Pedagogical Approach to Improve the Traditional Learning and E-Learning Environments”, *The Second International Arab Conference on Quality Assurance in Higher Education*, (2012)

Arnett, Jeffrey. “Adolescents' Uses of Media for Self-Socialization”, *Journal of Youth and Adolescence* (1995) : 519-533

Bandura, Albert. “Self-efficacy: Toward a Unifying Theory of Behaviour”, *Psychological Review* (1997) : 160-162

Barron, Brigid. “Interest and Self-Sustained Learning as Catalysts of Development: A Learning Ecology Perspective” *Human Development* (2006) : 193-224

Binns, Corey. "What Makes a Lefty: Myths and Mysteries Persist", *Live Science*, (2006)

Bjerstedt, Sven. “Landscapes of musical metaphor and musical learning: the example of jazz education”, *Music Education Research*, (2015) : 499-511

Bjornberg, Alf. “'Teach you to rock'? Popular music in the university music department”, *Popular Music* (1993) : 69-77

Boyden, David Dodge. “The History of Violin Playing from Its Origins to 1761: And Its Relationship to the Violin and Violin Music”, (Clarendon Press, 1990)

Brandfonbrener, A. “Musculoskeletal problems of instrumental musicians”, *Hand Clinics*, (2003) : 231–239

Bryson, Colin. *Understanding and Developing Student Engagement*. (Florence: Taylor and Francis, 2014), 231-232

Carley, Marika. “Libba Cotton’s Guitar”, *Smithsonian Magazine*, 2000

Cayea, Danelle. Manchester, Ralph. “Instrument-specific rates of upper-extremity injuries in music students”, *Medical Problems of Performing Artists* (1998) : 19-25

Cheetham, Joanne. “An After School Rock School Investigated: Why Are They Here?”, *MasterClass in Music Education*, A&C Black (2013) : 151-156

Cooke, Brett, Slusser, George E. , and Marti-Olivella, Jaume. *The Fantastic Other: An Interface of Perspectives.* (Amsterdam: Rodopi, 1998)

Csongor, Julianna. “Mirror, Mirror on the Wall… Teaching Self-Assessment to Students”, *The Mathematics Teacher*, (1992) : 636-637

Darling, Cynthia. "A question of orientation: the left-handed violinist." *Teaching Music* (2011) : 52

Dawson, William. “Upper-extremity problems caused by playing specific instruments”, *Medical Problems of Performing Artists*. (2002) : 135

DiCola, Peter. “Money from Music: Survey Evidence on Musicians’ Revenue and Lessons About Copyright Incentives”, *Arizona Law Review* (2013)

Drake, Richard. Vogl, A. Mitchell, Adam. *Gray’s Anatomy For Students, Third Edition*. (Churchill Livingstone, 2015) : 780-781

Fjellman-Wiklund, Anncristine. Chesky, Kris. “Musculoskeletal and general health problems of acoustic guitar, electric guitar, electric bass, and banjo players”, *Medical Problems of Performing Artists*. (2006) : 169

Grady, Melissa. “Effects of Traditional Pattern, Lateral-Only, and Vertical-Only Conducting Gestures on Acoustic and Perceptual Measures of Choir Sound: An Exploratory Study”, *International Journal of Research in Choral Singing*, (2014) : 39-59.

Grady, Melissa.*The Effects Of Nonverbal Behaviors Exhibited By Multiple Conductors On The Timbre, Intonation, And Perceptions Of Three University Choirs, And Assessed Relationships Between Time Spent In Selected Conductor Behaviors And Analyses Of The Choirs' Performances*, (University of Kansas, 2014)

Green, Lucy. *How Popular Musicians Learn*, (Aldershot: Ashgate Publishing Limited 2001), 55-62

Green, Lucy. ‘The Music Curriculum as Lived Experience: Children’s “Natural” Music-Learning Processes’, *Music Educators Journal*, (2005) : 27-32

Green, Lucy. *Music, Informal learning and the school: A new classroom pedagogy*, (Aldershot: Ashgate Publishing Ltd, 2009), 79-85

Harker, David. *Creating Scientific Controversies: Uncertainty and Bias in Science and Societ*y (Cambridge, Cambridge University Press, 2015) , 200. Thomas Kuhn, *The Structure of Scientific Revolutions* Chicago: The University of Chicago, 1970), 150.

Harrison, Eli. “Challenges Facing Guitar Education”, *Music Educators Journal*, (2010) : 50-55

Hourigan, R. “The Use of the Case Method to Promote Reflective Thinking in Music Teacher Education”, *Applications of Research in Music Education* (2006) : 33-44

Hracs, Brian. Jakob, Doreen. Hauge. Atle. “Standing Out In The Crowd: The Rise Of Exclusivity-Based Strategies To Compete In The Contemporary Marketplace For Music And Fashion”, *Environment and Planning A* (2013) : 1144-1161

Jackman, Philip. “It’s only right for violinists to bow with left,” *The Globe and Mail*, May 11, 2012, http://www.theglobeandmail.com/globe-debate/its-only-right-for-violinists-to-bow-with-left/article4108226/, (accessed June 3, 2014)

Jancke, L. “Hand Skill Asymmetry in Professional Musicians”, *Brain and Cognition* (1997) : 424–432

Johnson, Wendell and Duke, Lucile. "Changes in handedness associated with onset or disappearance of stuttering; sixteen cases". *Journal of Experimental Education*, (1935) : 112-132

Kallio, Alexis. “Drawing a line in water: Constructing the school censorship frame in popular music education.” *International Journal of Music Education* 33 (2015) : 195-209

Kojs, Juraj. "Notating Action-Based Music." *Leonardo Music Journal* (2011) : 65-72

Kopiez, Reinhard. ”No disadvantage for left-handed musicians: The relationship between handedness, perceived constraints and performance-related skills in string players and pianists”, *Psychology of Music* (2012) : 357-384

Kula, Pilvi. “Teaching left-handed primary school pupils in Estonia”, *Journal of Teacher Education for Sustainability*, (2008) : 58-67

Kushner, H. I. “Why are there (almost) no left-handers in China?”, *Endeavour*, (2013) : 71-81

Kratus, John. “Music Education at the Tipping Point”, *Music Educators Journal* (2007) : 42-48

Lee, Han-Sung. “Musicians’ Medicine: Musculoskeletal Problems in String Players.” *Clinics in Orthopedic Surgery* (2013) : 155–160

Lind, V. R. “Designing case studies for use in teacher education”. *Journal of Music Teacher Education*, (2001): 7–13

Lilliestam, Lars. “On Playing by Ear”, *Popular Music* (1996): 195-216.

Loibl, Katharina. “The Impact Of Guidance During Problem-Solving Prior To Instruction On Students’ Inventions And Learning Outcomes”, *Instructional Science*, (2014) : 305-326

Marshall, Bonnie. “Microbial contamination of musical wind instruments”, *International Journal of Environmental Health Research*, (2011) : 275-285

Moore, J. “Always blow your own trumpet! Potential cross-infection hazards through salivary and respiratory secretions in the sharing of brass and woodwind musical instruments during music therapy sessions”, *The Journal of Hospital Infection* (2004) : 245

Morrish, John. “The Classical guitar: a complete history” (Backbeat Books, 2002)

Mortimore, Peter. *Education Under Siege : Why There is a Better Alternative*. (Bristol: Policy Press, 2013) : 10

Orton, Samuel. “Reading, writing, and speech problems in children.” *The American Journal of Psychiatry* (1973) : 749-753

Peña-López, Ishmael. “Heavy switchers in trans–learning: from formal teaching to ubiquitous learning”, *On the Horizon*, (2013) : 127-137

Randel, Don. *The Harvard Biographical Dictionary of Music*, (Belknap Press, 1996)

Roach. Ke. “Musculoskeletal Problems In Musicians Who Play Guitar” *Physical Therapy.* (2001) : 30.

Robertson, Judy. “The educational affordances of blogs for self-directed learning”, *Computers & Education* (2011) : 1628–1644

Robinson, T. “Popular musicians and instrumental teachers: the influence of informal learning on teaching strategies”, *British Journal of Music Education*, (2012) : 359 – 370

Roll, Ido. “On the Benefits of Seeking (and Avoiding) Help in Online Problem-Solving Environments”, *Journal of Learning Sciences*, (2014) : 537-560

Roset-Llobet, Jaume. Rosinés-Cubells, Dolors. Saló-Orfila. Josep. “Identification of risk factors for musicians in Catalonia (Spain).” *Medical Problems of Performing Artists*. (2000) : 167

Ross, Ben. “A question of the left being right - and normal”, *China Daily*, February 22, 2008; http://www.china.org.cn/english/LivinginChina/243637.htm (accessed June 20, 2015)

Schonbrun, M. *The everything music theory book : a complete guide to taking your understanding of music to the next level*. (Avon, Mass: Adams Media, 2007

Singh, Monan. Karpovich, Peter. “Strength of forearm flexors and extensors in men and women”, *Journal of Applied Physiology*, (1968) : 177-180

Smith, Marsha. *Comparison of Arts PROPEL and teacher-directed approaches to teaching music education to preservice teachers*. (Boston: Boston University, School of Education, 2002) : 150-210

Sommer, T.J. “Suppresion of Scientific Research: Bahramdipity and Nulltiple Scintific Dscoveries.” Science and Engineering Ethics (2001) : 77-104

Tarrant, Mark. “Adolescent Peer Groups and Social Identity*”, Social Development*, (2002) : 110-123

Taris, T. W. “Costs and Benefits of Autonomy When Learning a Task: An Experimental Approach”, *The Journal of Social Psychology*, (2011) : 292-313

Teng, E.L, “Handedness in a Chinese population: biological, social, and pathological factors” *Science* (1976) : 1148–1150

Thompson, D. “Speaking Their Language: Guitar Tablature in Middle School Classroom”. *General Music Today* (2011) : 53-57

Towle, A. Cottrell, D. “Self directed learning”, *Arch Dis Child* (1996) : 357-359

Van Tulder, M. Malmivaara, A. Koes, B. "Repetitive strain injury". (2007) : 1815–1822.

Walcrop, Mitchell. “Why we are teaching science wrong, and how to make it right”, *Nature*, (2015)

Wasylyk, Thomas. “Teaching Left-handers the Write Stuff”, *The Reading Teacher*, (1989) : 446-447

Williams, W. “Teaching the Left-Handed Child”, *Peabody Journal of Education*, (2009) : 77-79

Winner, Ellen. *Arts PROPEL: An Introductory Handbook*, (Cambridge, MA, Harvard Project Zero, 1991)

Wood, V. E. Rubinstein, J. H. “Surgical Treatment of the Thumb in the Rubinstein-Taybi Syndrome”, *Journal of Hand Surgery* (1987) :166-172

Xin-tian, Li. “The Distribution of left and right handedness in Chinese people”, *Acta Psychologica Sinica*, (1983) : 27-35

Websites Accessed

Cast Online.
http://www.castonline.ilstu.edu/Thomas/181/Muscles%20of%20the%20Wrist%20and%20fingers%20DT.pdf, (accessed January 1, 2016)

Lefty Central, “Is it true that left-handed people are smarter than right-handed people?” http://leftycentral.tumblr.com/post/40602436568/is-it-true-that-left-handed-people-are-smarter-than, (accessed May 17, 2014)

Talk Classical, “Left Handed violinsts in orchestra?”
http://www.talkclassical.com/11050-left-handed-violinst-orchestra.html, (accessed June 24, 2014)

Wikipedia. “List of musicians who play left-handed”
http://en.wikipedia.org/wiki/List_of_musicians_who_play_left-handed#Violinists , (accessed June 24, 2014)

List Of Interviews

Brinkman, Greta. Interview by author. Skype. 18/10/15

Cobin, Rico. Interview by author. Skype. 1/8/15

Dyer, Mark. Interview by author. Skype. 6/9/14

Dyer, Mark. Interview by author. Email. 24/7/15

Gossett, Pete. Interview by author. Skype. 13/9/14

Gregory, Terry. Interview by author. Email. 25/6/14

Haslip, Jimmy. Interview by author. Email. 1/10/14

Horne, Keith. Interview by author. Skype. 30/8/14

Horne, Keith. Interview by author. Skype. 29/7/15

Joung, Francis. Interview by author. In person. 27/7/15

Kaszuba, Ed. Interview by author. Skype. 22/7/15

Logie, Mike. Interview by author. Email. 9/7/14

Mills, Alvin. Interview by author. Skype. 23/10/15

Reeder, Scott. Interview by author. Skype. 24/8/15

Roberts, Ronn. Interview by author. Skype. 14/9/14

Sky, Polar. Interview by author. Skype. 27/8/14

Schmidt, Jeff. Interview by author. Email. 12/8/14

Schmidt, Jeff. Interview by author. Skype. 25/7/15

Williams, Larry. Interview by author. Skype. 7/8/15