The Efficacy of Feedback in Pianoforte Studies

by

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Declaration

The research has been undertaken in accordance with University Safety Policy and Guidelines on Ethical Practice

This thesis is my own work and I confirm that the content has not been submitted for a degree at another university.

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Abstract

In 1998, the publication of a major piece of research (Black and Wiliam, 1998) triggered an explosion of interest both nationally and internationally in a hitherto neglected topic: formative assessment. My interest in conducting this research stemmed from my involvement as a secondary school music teacher in the development of formative assessment practice within the classroom, but as my primary interest was in teaching the piano, I became curious about formative assessment practice in piano lessons, particularly the provision of feedback, which is a discipline-specific area that had received little attention.

This study examined the efficacy of feedback in one-to-one piano lessons in four case studies, involving students aged 11 to 14 years, in a rural location within the United Kingdom. Data were collected through lesson observations, interviews with teachers and students, together with lesson notes and students' practice diaries. The results of the research indicated that while the teachers within the case studies had not received any training in formative assessment or the provision of feedback to students, feedback was provided in similar ways, thus illustrating features of piano teaching, which had probably developed over centuries. The feedback differed from that provided in school-based classroom situations in important respects, although there were some similarities with other cognate performance-based disciplines. Students' self-efficacy and motivation were influenced by the feedback they received in lessons, and concerning self-regulation, which is an essential factor in pianoforte studies, students received little information about how to actually utilise feedback and feed-forward in their private practice.

The conclusion indicates that within the context of one-to-one piano lessons, while some aspects of feedback practice were effective, others were less efficacious. Thus, teachers could benefit from access to training in the provision of formative feedback and feed-forward, in line with current research into best practice in schools.

1. Introduction

1.1 Background to the Research

My interest in conducting research into the efficacy of feedback in piano lessons stems from my personal experience as a student and a teacher. I began studying the piano in 1963 when I was six years old, and in 1974 I gained a scholarship, which enabled me to study the piano with Dennis Murdoch at the Royal Academy of Music from 1975 to 1981. In 1978, however, I studied for my PGCE at the Institute of Education, University of London, and as part of these studies, I was privileged to observe Yvonne Enoch teaching group piano lessons on a weekly basis at her home in Canterbury, which fostered my interest in teaching the piano. It also proved interesting to observe how students responded to feedback during piano lessons, which effectively fired my interest in assessment practice in pianoforte studies.

As a pianist, I have performed in the United Kingdom, Iceland, Denmark, Åland, Finland, and the USSR, giving solo piano recitals, playing concertos with orchestras, and I have worked as an accompanist, playing in live concerts and on the radio. In addition to my career as a performer, I have experience of teaching the piano, initially coaching Junior Exhibitioner students at the Royal Academy of Music, and from 1981 to 1988 I taught both school-aged students and adults at Tónlistarskóla Flateyrar in Iceland, where I was engaged as the headteacher.

On my return to the United Kingdom in 1988, I took the position of Head of Music in a Secondary School. In relation to this role, in 2004 I was invited to take part in a National Strategy pilot study, with a view to developing 'a range of teaching strategies', including the use of formative assessment and the provision of feedback, to support teaching and learning in music at Key Stage 3 (KS3) (DfES, 2006, p.5). Involvement in this project further raised my level of curiosity about the approaches adopted by instrumental teachers, specifically piano teachers, as this was my key area of interest.

It is important to understand how the quality of feedback and feed-forward in one-to-one teaching and learning contexts, specifically in piano lessons, relates to, or differs from feedback and feed-forward provided in generic classroom contexts, particularly as successful piano tuition has been independent and unregulated for centuries (Daniel, 2008). As feedback and feed-forward within pianoforte studies needs to address a range of specific domains, including cognitive and psychomotor skills, different types and modes of feedback are employed by teachers to address these attributes.

In one-to-one piano lessons, the feedback provided by teachers usually takes the form of approvals, disapprovals, or reinforcements related to academic and social factors (Kostka, 1984; Hendel, 1995; Duke, 1999/2000; Duke and Henninger, 2002; and Zhukov, 2008). Teacher interruptions have a tendency to be followed by disapprovals, which can have negative effects upon students' attitudes, and their subsequent levels of achievement. In consequence, especially as musicians tend to be particularly sensitive people, teachers need to be aware of the possible effects of critical feedback (Frakes, 1984, cited in Hallam, 2006; Kemp, 1996; Atlas et al., 2004). However, it has been acknowledged

that in both group and individual musical instrument lessons, disapprovals tend to be specific, detailed and task-involving, (Duke, 1999/2000), and are often followed with requests to 'try it again' (Duke and Henninger, 2002, p.77), thus providing students with opportunities to respond immediately to specific directives. This can enable students to confirm or reinforce their knowledge and understanding or assist in the development of their motor skills, and their self-efficacy.

This chapter begins with an over-view of the characteristics of teaching and learning to play the piano.

1.2 Learning to Play the Piano

1.2.1 The Context of Teaching and Learning in Pianoforte Studies

The piano is one of the few subjects traditionally taught in a one-to-one tutoring system, usually conducted in private at a teacher's home during the evenings or at weekends (Pace, 1978; Upitis, Varela, and Abrami, 2013). There are also opportunities, however, for students living within the United Kingdom to access musical instrument tuition in schools, usually provided through local authority music services, either in one-to-one situations, or in small groups. As documented by Marial (1929), Schelling et al. (1929), Enoch (1974), and more recently by Daniel (2008) and Fisher (2010), group piano teaching has proved to be an effective mode of teaching.

Students become motivated to study the piano for a range of reasons, principally the pleasure of playing a musical instrument, through to an aspiration to devote their lives to music-making (Hallam, 2002). In a study conducted in America (Duke, et al., 1997), students indicated a range of reasons for com-

mencing piano lessons. In a stratified random sample of 951 students aged 4 to 18 years, 50% indicated that they began piano lessons because of an inherent desire 'to learn to play' the instrument, 43% signified that it was their parents who decided they should take lessons, while 6% indicated that they 'wanted to learn because they had friends who also took piano lessons' (ibid., p.63).

The provision of verbal praise and other modes of encouragement, specifically from family members, can motivate students in their learning (Jarvis et al., 2003; Earl and Katz, 2008; Finkel and Fitzsimons, 2011). This is also particularly important in the early stages of learning to play a musical instrument (Kemp, 1996; O'Neill, et al., 2001; de Bézenac and Swindells, 2009; Gaunt, 2011) as students who do not receive such support are more likely to discontinue their lessons (Frakes, 1984, cited in Hallam, 2006).

As the one-to-one mode of teaching and learning has received only limited attention, very little is known about the interaction between musical instrument teachers and their students, particularly in the KS3 developmental phase and age range, which forms the focus of this study. Similarly, little is known 'about which factors in the interaction' between students and teachers 'affect students' possibilities to learn' (Rostvall and West, 2003b, p.1).

1.2.2 The Range of Skill Domains Inherent within Pianoforte Studies

Playing the piano is 'a complex, multifaceted process' (Dos Santos and Hentschke, 2011, p.273) as it involves the integration of a broad range of cognitive (Sloboda, 1985), meta-cognitive (see section 2.3.3) (Aiello, 2003), and psychomotor skills (Matthay, 1932; Gilbert, 1980; James, 2012). The cognitive skills associated with playing the piano involve decoding and interpreting staff notation, which necessitates an understanding of pitch, tonality, harmony,

rhythm, musical structures (Ritchie and Williamon, 2011), and the directions in scores, which are usually provided in Italian, German or French. The development and mastery of fine and gross motor skills is essential for the control, articulation, and dexterity required in playing the piano, and to implement phrasing, dynamics, timbre, and tone quality (Hallam, 1998a), all of which are critical when interpreting music and communicating musical meaning to an audience.

While the advancement of fine motor skills, specifically through piano practice, has proved to be particularly effective in early childhood (Bengtsson et al., 2005), it can take 'years of intensive instructive guidance and practice' to master (Riley et al., 2005). In order to develop these skills, attributes of the affective domain are important to consider, specifically the development of interests, attitudes, values, and levels of commitment (Krathwohl, Bloom, and Masia, 1964) as students need to become motivated, self-regulated, and innately involved in the learning process. Within generic classroom contexts, there are many skills and abilities that can be acquired by attending lessons and engaging in a limited amount of independent study, but when learning to play the piano, the balance between what can be learnt in lessons and what has to be developed through effective private practice is very different.

Consequently, piano teachers need to be aware of the range of factors that influence progress in piano playing. In order to motivate students and enable them to become self-regulated pianists, teachers need to interact with students, ensuring that the 'nature and context of the task' relates to their personal interests and needs (Dos Santos and Gerling, 2011, p.442), that new teaching mate-

rials are presented in appropriate steps, and that students are taught how to employ feedback and assess their progress in private practice.

Within the next section, traditions inherent within piano teaching are considered, and how teacher experience and training facilitates the provision of effective feedback and feed-forward in lessons.

1.3 Teacher Experience and Training

1.3.1 Teaching Traditions in Pianoforte Studies

Within piano lessons in tertiary education, Daniel (2006, p.205) acknowledged that the 'teacher-dominant mode of transmission', which incorporates 'a relatively limited level of student interaction', similar to the 'master-apprentice style of learning' (Daniel, 2008, p.21), has been 'the principal model of delivery' in piano lessons for many years (ibid.). In circumstances where teachers dominate instrumental lessons, expecting students to imitate their performances (Nielsen, 2006), it has been observed that opportunities for students to 'assume responsibility for their own learning' (Jørgensen, 2000, p.70) and to develop their 'individual artistic voice' (Gaunt, 2008, p.215) may be limited. Conversely, in situations where teachers demand students to take 'full responsibility in learning and musical decision-making', the lack of guidance has proved 'dysfunctional' (Jørgensen, 2000, p.70). In relation to these discrete approaches to teaching and learning, findings from a study focusing upon the development of concert pianists in America indicated that a balance is required, as students need to be nurtured, guided, and encouraged to take such responsibilities, and their confidence in making such decisions relating to the interpretation of music (Sosniak, 1985) needs to be built over time.

A combination of the attributes affiliated with the mentor-friend and master-apprentice models, inherent within the socio-cultural theory of learning, have proved beneficial, where students actively learn by engaging with their teachers in a community of practice (Lave and Wenger, 1991). In pianoforte studies, it is important, therefore, to ascertain how teachers and students interact, specifically when feedback and feed-forward is provided, how it guides students in their learning, fosters their efficacy beliefs and motivation, enabling them to engage effectively in independent musical decision-making. These points are discussed further in the following chapter.

The 'teaching-learning principles that are generally understood and accepted' within musical instrument studies, involve the provision of 'models, defining instructional goals, conveying information effectively' and providing 'discriminative feedback', all of which were observed in lessons conducted by professors of the piano, oboe, and strings at universities in America (Duke and Simmons, 2006, p.16). Similar to teaching classes of students within a school environment, musical instrument lessons can be a 'complex social phenomenon' (Rostvall and West, 2003a, p.215), and in consequence, teachers need to be organised in terms of their planning, evaluation of programmes of study, setting appropriate learning objectives, and the active facilitation of learning through the provision of effective, constructive feedback within a 'supportive learning environment' (Lennon and Reed, 2012, p.298). Within generic contexts, where programmes of study have been differentiated, individualised or personalised through the practice of formative assessment, students have been enabled to progress effectively and ultimately to succeed in their studies (DCSF, 2008). Assessment, therefore, is considered 'to be an integral part of a

model of teaching and learning' (Hattie and Jaeger, 1998, p.111), and a number of large-scale generic literature reviews, which will be considered in the following chapter, have highlighted the 'power of feedback' (Hattie and Timperley, 2007) identifying it as one of the educational interventions which is most effective in accelerating students' progress and development (Kluger and DeNisi, 1996; Black and Wiliam, 1998a).

1.3.2 Teacher Training in Pianoforte Studies

Given the importance of teachers' pedagogical skills within these activities, especially the development of effective strategies for the deployment of feedback, initial teacher training and opportunities for continuing professional development are likely to be critical. In some countries, such as Sweden and Germany, 'pedagogical training is required for instrumental teachers seeking formal employment' (Haddon, 2009, p.57), but in America, and the United Kingdom, as pianoforte studies are non-statutory (Jacobson, 2006), it is not obligatory for piano teachers to have any formal qualifications, either in teaching or performing. In consequence, this may have an effect upon the quality of teaching, as, in the absence of formal training, instrumental teachers will predominantly draw upon their personal experience (Haston and Leon-Guerrero, 2008), and operate within an environment which is 'unregulated and unsupervised' (Kemp, 1996, p.230). Although teaching skills can evolve through experience (Haddon, 2009), in relation to the provision of effective feedback, which is illustrated by Sadler (1998) to be a sophisticated and demanding skill, taking into account 'important and delicate considerations' (Black and Wiliam, 1998a, p.61), initial teacher training and continuing professional development opportunities are likely to benefit both the teacher and the student.

With regard to professional development opportunities within the United Kingdom, there is a number of non-statutory qualifications for instrumental teachers, which could prove beneficial, including diplomas from institutions such as The Royal Academy of Music (2014), examination boards including the Associated Board of the Royal Schools of Music (ABRSM, 2011) or RockSchool (2014), and some universities have offered Post-Graduate Certificate in Education (PGCE) courses in instrumental teaching (Open University, 2013).

Assessment practice, specifically summative assessment as graded examinations, has a long history in pianoforte studies. The strengths and weaknesses inherent within examinations of this nature are considered in the next section, specifically in relation to student motivation. Formative assessment in pianoforte studies is also considered, and how musical instrument teachers utilise this in their lessons.

1.4 Assessment Practice in Pianoforte Studies

With regard to summative assessment in instrumental studies, graded examinations were introduced by the Trinity College of Music in 1877 (Wright, 2013). Examination syllabi remain a dominant framework for the organisation of piano lessons (Daniel, 2008; Hallam, 1998a; Davidson and Scutt, 1999) as they provide meaningful learning objectives, a clear 'structure for learning' (Hallam, 2006, p.159), and opportunities for students to demonstrate the knowledge, skills, and understanding inherent in singing, or performing on a musical instrument (ABRSM, 2015a). As preparing students for graded music examinations can be a principal feature of learning to play a musical instrument, Salaman (1994, p. 212) observed that while some teachers systematical-

ly enter all of their students for all grades, others enter students for selected grades, taking into account their individual needs, having evaluated whether they could 'profit from such action'.

The development of expertise in performing on a musical instrument has been claimed to require 'a powerful mixture of intrinsic and extrinsic motivation' (Ericsson et al., 1993, cited in Renwick and McPherson, 2002, p.174). When graded music examinations are utilised as extrinsic motivators, a potential consequence is that the process can prove limiting as students need to be intrinsically motivated to engage in sustained effort, and to become naturally creative (Sloboda, 1994, cited in Davidson and Scutt, 1999).

Within general educational contexts, it is accepted that the provision of feedback is the principal characteristic of formative assessment, and in order to effectively 'improve and accelerate learning' (Sadler, 1998, p.77) the feedback and feed-forward provided need to be meaningful (Hattie and Timperley, 2007) and thoroughly understood by the students (Kluger and DeNisi, 1996). Black and Wiliam (1998a, p.20), however, claimed that: '… formative assessment is not well understood by teachers and is weak in practice', a view more recently confirmed by Black (2010), Ofsted (2011), and Hattie (2012).

In class music lessons, where students are involved in performing on musical instruments, formative assessment is considered particularly beneficial as it takes into consideration areas for development within the 'affective, psychomotor and cognitive' domains (Sicherl-Kafol, 2005). Although in one-to-one musical instrument studies, students have opportunities 'to receive regular and detailed feedback' which could effectively foster and promote their learning (Nielsen, 2008, p.243), relatively little has been documented about the practice

of formative assessment. Thus, there is a need to ascertain how students perceive the feedback they actually receive, and how well it relates to their actual needs.

A distinctive feature of musical instrument studies concerns students' potential access to multiple sources of feedback, particularly when compared with some academic subjects and disciplines. In addition to feedback from teachers (Hendel, 1995; Duke and Henninger, 2002), different sources of feedback in pianoforte studies include peers and family members (Pike, 2013); self-generated aural and tactile feedback (Wöllner and Williamon, 2007); and written feedback from examiners (Holmes and Davis, 2006). Where resources allow, audio or video recordings of students' performances have also been employed for identifying errors and areas for improvement (Johnston, 1993; Daniel, 2001). Within this study, although teachers were the principle sources of feedback, in addition to self-generated feedback, three of the students had access to recordings for feed-up, comments from family members, feedback from examiners, and two students engaged in recording their own performances for making comparisons over time.

The provision of feedback, and how this relates to students developing a sense of personal agency in their studies, is considered in the next section, specifically concerning their efficacy beliefs, their motivation and self-regulation.

1.5 Developing a Sense of Personal Agency

When young people learn to play the piano, the contact time with their teacher is likely to range from fifteen minutes to one hour per week. In order to make progress, as learning does not take place in lessons alone (Lehmann et al.,

2007; Jørgensen, 2000; Leon-Guerrero, 2008), a distinguishing feature of learning to play the piano is the amount of time students need to practise (Ericsson et al., 1993) or engage in self-coaching, thus rendering the balance between the amount of time spent in lessons, and the amount of time devoted to private study potentially different to that in academic subjects. It is accepted in musical instrument studies that when students reach Grade 8 standard (ABRSM), they will have 'devoted approximately 3,300 hours to deliberate practice' (Sloboda et al., 1996, cited in Williamon and Valentine, 2000, p.357). Consequently, the development of expertise involves an 'enormous investment of time and energy' (Schnare et al., 2011, p.94), persistence and resilience (McPherson and McCormick, 2006), and involves a complex relationship between students' levels of 'ability, prior knowledge, motivation, effort', (Hallam, 1998b, p.118) perceived efficacy, independence and self-regulation (Presland, 2005; Nielsen, 2008; Ritchie and Williamon, 2011; Cohen, 2012). In order to maintain motivation to participate effectively in their lessons, students' feelings of satisfaction are also vital.

Within generic contexts, when teachers demonstrate a high level of respect for students, foster positive and supportive relationships, and 'attend to affective attributes' through the provision of relevant and useful feedback (Hattie, 2003, p.5), students' efficacy-beliefs are likely to be heightened (Bandura, 1997). In such circumstances, students' levels of motivation and self-regulation are likely to have a positive influence upon their decisions to continue their studies. Within pianoforte studies, whilst students who continue their lessons may be intrinsically motivated, it could also be that they benefitted from additional 'support from their teachers' (Costa-Giomi, Flowers, and Sasaki, 2005, p.243).

Although the importance of teacher and parental support has been acknowledged (Creech, 2010) as ‘a pivotal feature in determining the degree of success’ (Gaunt, 2011, p.176), while this has proved to be particularly effective for girls, boys tended to be ‘more influenced by their peers’ (Hallam, 1997b, p.192).

Although research evidence from across continents indicates that most students begin piano lessons willingly (Duke, et al., 1997), and demonstrate high levels of enthusiasm, a disconcerting trend has been detected that far too many students abandon their studies at an early stage in gaining proficiency. During the late 1950s in America ‘a shockingly high rate’ of students was observed to discontinue lessons within the ‘first three years’ of their studies (Kornreich Davis, 1960, p.62). More recently, a longitudinal study, also conducted in America, focusing upon students aged 9 to 11 demonstrated a tendency for them to discontinue lessons before accomplishing musical independence or the level of ‘satisfaction’ to which they initially aspired (Costa-Giomi, Flowers, and Sasaki, 2005, p.235). Furthermore, although relating to guitar and brass instrument lessons, in a study conducted in Sweden with primary aged students, it was observed that ‘many students drop out’ after studying for ‘only a year or two’ (Rostvall and West, 2003b, p.1).

The dropout rates indicated in these studies may signify a general trend in musical instrument studies, as the reasons for discontinuing lessons related to students’ levels of interest in playing the instrument, whether they were coerced to take lessons by their parents, or in some instances it concerned the relationships they experienced with their teachers particularly if they failed to accomplish the goals that had been set (Costa-Giomi, Flowers, and Sasaki, 2005).

Kornreich Davis (1960, p.62) also found that the privacy of one-to-one lessons 'creates an unnatural, anti-social atmosphere', and the 'interchange between student and instructor may easily fall into a dull, repetitious pattern' inducing levels of boredom, particularly if students are not duly challenged (Csikszentmihalyi and Csikszentmihalyi, 1988, cited in Bakker, 2005). Rostvall and West (2003a, p.220) found that the 'strong asymmetric distribution of power' between teachers and students had a negative effect upon 'students' opportunities to learn'. No United Kingdom studies investigating drop-out rates, and students' reasons for discontinuing lessons, have been found.

The practice of self-assessment, which involves students 'making judgements about their own learning, particularly about their achievements and the outcomes' (Boud and Falchikov, 1989, p.529), is perceived to be an infrequent occurrence within many classrooms (Biggs, 1998; Ofsted, 2008) and not actively encouraged or promoted by teachers (Orsmond and Merry, 2011). When learning to play the piano and developing musical independence, however, which is 'one of the primary goals of music education' (Goolsby, 1999a, p.35), self-assessment is essential, as there is a requirement for students to engage in independent study.

Within this context, students need to engage with feed-up, which is intended to ensure that the goals that have been set are clear (Fisher and Frey, 2009). They also need rapid access to feedback about their progress, which can be self-generated, both aurally and tactically, so that they can review and evaluate the effectiveness of the strategies employed, and subsequently, for feed-forward, utilise strategies designed to accommodate their needs and advance their learning (ibid.). While all of these components of the feedback system are essential

to learning in general, they are specifically relevant to autonomous learning in musical instrument studies.

When students actively generate feedback and engage in self-assessment practices, the educational benefits can be numerous (Boud, 1995), as students take 'ownership of their own learning' (Wells, 1998, p.32), evaluate the progress they make (Boud, 1995), and are enabled to set objectives, or feed-forward, for their future learning. In relation to individual practice within musical instrumental studies, however, Hallam (2006, p.111) observed that 'few children appear to be totally self-motivated to practise' between lessons. Although musical instrument teachers encourage individuals to practise, merely 'telling children to practise is not sufficient to foster the motivational resources they will need if they are to make significant progress' (Pitts et al., 2000, p.45). It is important, therefore, through the judicious use of feedback and feed-forward, to ensure that practice between lessons is purposeful, manageable, and enjoyable (Pitts et al., 2000; Hallam et al., 2012), thus fostering the student's 'own self-determination' (Hallam, 1997b, p.192).

Whilst learned helplessness has been studied quite extensively within classroom contexts, how this applies to learning a musical instrument has received limited attention. However, Hallam (2006) observed that students are likely to desist in their studies if they do not establish a positive vision of themselves as a musician in the short, medium or long term. This is important to consider within pianoforte studies, as the feedback from their teacher will assist in shaping students' musical identity in addition to enabling them to overcome difficulties, some of which may be considered by them to be insurmountable. This may also be an additional factor to consider in terms of the dropout rate, where

students who fail to accomplish set goals discontinue their studies (Costa-Giomi, Flowers, and Sasaki, 2005).

1.6 Implications for the Current Study

In order to understand how students develop their levels of knowledge and understanding, the fine and gross motor skills required to perform music, and how they become motivated and develop the levels of resilience and commitment needed in pianoforte studies, it is necessary to investigate the nature of feedback and feed-forward that students receive, and how they respond to that feedback. The effectiveness of these attributes, which relate to specific theories of learning, is discussed within this thesis at relevant times.

The levels of support and the nature of the feedback and feed-forward provided in lessons, in terms of approvals, disapprovals, or reinforcements, may depend upon the teacher's approach, whether a 'master-apprentice' or a 'mentor-friend model' of teaching and learning is adopted (Lehmann et al., 2007, p.187), and how the different types of feedback are interpreted by the student. As such high numbers of students discontinue piano lessons after a short period of time (Costa-Giomi, Flowers, and Sasaki, 2005), it is uncertain whether these students could have benefitted from more carefully considered feedback and thoughtful support from their teachers, including feed-forward designed to enable them to accomplish their goals. To the best of my knowledge, there have been very few in-depth studies focusing on the efficacy of the feedback provided to these students at this critical early stage in their 'learning' and 'assessment careers' (Ecclestone and Pryor, 2003, p.471), when they are particularly likely to abandon their studies.

It is important, therefore, to understand how feedback and feed-forward in piano lessons can develop students' self-efficacy, motivate them in their studies, and whether it enables them to assess themselves, make judgements about the quality of their work, and to become self-regulated learners. A number of factors have been raised about musical instrument tuition that warrant attention, specifically how learning is nurtured, which relates to the quality of interaction between teachers and students, and the provision of feedback and feed-forward.

With regard to professional development, it could prove beneficial for teachers to develop their understanding of assessment practice, identifying attributes of good practice, which may be characteristic of particular subject specialisms, and whether this could be applied appropriately in other curriculum subjects. Similarly, teachers providing one-to-one piano lessons might benefit from examining the feedback practices that have become entrenched within the music culture, and whether they might be enhanced by being better informed by recent developments in knowledge and practice fostered by generic research findings on feedback.

It is important to acknowledge the social, cultural and educational contexts in which this study took place, as these may have had implications for the type of support students received in their home environments, and the facilities that were available to promote their learning. The research took place in a rural location with a mixture of small towns, villages, hamlets and farms, which the local authority claimed to be 'generally affluent'. One of the students who took part in the main study lived in a small market town, while the other three students lived in different villages.

With regard to the students' home backgrounds, these were generally supportive, as evidenced by parents who ensured that the student had access to a piano or a keyboard, and paid for them to have their lessons. Furthermore, two of the case study students came from families where older siblings had instrumental lessons, specifically the piano and the violin, and as these siblings had developed a range of musical skills, knowledge and expertise, this could have provided further support for the case study students, albeit implicitly, within the home environment.

All students attended local authority funded secondary schools, and received their piano lessons either at the school, or at their teacher's home. The student who lived in the market town attended a large secondary school, which was located within that town, having a little under 1,600 students on roll, while the three students who lived in villages attended a moderately sized secondary school, with just over 800 students on roll.

Although some of the students in the study enjoyed playing popular music, the focus of their lessons was on music inherent within the western art music tradition, largely guided by their studies for ABRSM examinations. ABRSM examination syllabi require students to perform 3 pieces of music from discrete historical periods, specifically the Baroque, Classical and Romantic periods, which Wright (2013, p.123) considered to have been influenced, to some extent, 'by the cultural expectations of many middle class families'. In recent years, however, the repertoire choice has become more flexible, and the third choice has included music by modern composers, such as Bartok, Schoenberg and Shostakovich. On occasions students have been able to choose pieces which incorporate elements of popular music, although this is usually restrict-

ed to Jazz or Blues, as illustrated in music by Gershwin. In addition to repertoire pieces, likewise inherent within the western art music tradition, students need to study major and minor scales, broken chords or arpeggios, engage in sight-reading exercises, specifically reading traditional staff notation, and to engage in aural and listening tests.

Within the context of musical instrument lessons, teachers work independently and are not governed by any regulatory authorities. Within the first decade of the twenty-first century, as major developments in the implementation of formative assessment in generic educational settings took place, this raised questions about the impact this had on assessment and feedback practices in musical instrument lessons, and specifically within the context of this study, in one-to-one piano lessons.

In summary, this study sought to investigate the efficacy of types of feedback other than written feedback (oral, aural, tactile, physical gestures) in one-to-one settings rather than in conventional class teaching contexts. The subjects of the study were adolescents aged from 11 to 14 years and all were at an early stage in their pianoforte studies. The study focused on feedback within discipline-specific domains, the way it was presented, the range of sources utilised, students understanding of the feedback, and its effects upon their orientation to learning and their self-regulation in private practice.

The study was timely in that it builds on an earlier flourishing of interest in formative assessment in the first decade of the twenty first century, and my involvement in the National Strategy pilot study concerning the use of formative assessment in KS3 classroom music lessons, by exploring the use of feedback in a setting, and for a purpose that has hitherto received little attention. It is

hoped that the study will contribute to knowledge which may be drawn upon not only by teachers in the musical instrument tuition community, but also within cognate performance-related disciplines, to stimulate reflective practice in their provision of feedback.

This thesis is organised into six chapters. Chapter 2 reviews the literature, focusing on the attributes of formative feedback and feed-forward, both in generic educational contexts, and specifically in musical instrument and pianoforte studies. The effects of providing feedback and feed-forward are also considered in terms of students' efficacy beliefs, their motivation, and self-regulation.

Concerning the overall design for this enquiry, a multiple case study approach was considered most appropriate to explore the provision of feedback and feed-forward in depth, to optimise understanding (Stake, 1994), and to enable 'cross-case analysis' (Schwandt, 2001, cited in Thomas, 2011, p.141) which can be more compelling (Yin, 2009) if similar issues are inherent within the content. This approach is described in detail in Chapter 3.

In Chapter 4, the findings from each case are presented discretely, and subsequently synthesised, analysed and discussed in Chapter 5. Conclusions relating to the efficacy of the feedback observed in this study are discussed in Chapter 6, focusing upon students' understanding of the feedback, whether it was employed for self-assessment when practising, thus contributing to the development of self-regulation, together with their self-efficacy, motivation, and commitment in their studies.

2. Literature Review

2.1 Introduction

The literature relating to formative feedback is vast owing to its multi-faceted nature, having been studied in the context of different curriculum subjects and disciplines, and at different age phases from early years through to adults in further and higher education as well as generically. While the literature reviewed in this chapter focuses upon the provision of feedback in pianoforte and musical instrument studies, literature relating to feedback in generic contexts is also reviewed to provide detail and greater depth about the range of specific attributes.

As the provision of feedback and feed-forward, specifically the way it is provided, can have an influence upon students' self-efficacy, motivation and self-regulation, literature relating to these discrete, though inter-related attributes, is reviewed. These features were considered particularly relevant to this study as progress in pianoforte studies is reliant upon students' beliefs in their capabilities to master the music they study, their motivation to practise, and their levels of self-regulation and autonomy in terms of knowing what to practise and how to practise it effectively.

As pianoforte studies are predominantly conducted in one-to-one teaching contexts, the review focuses on literature relating to feedback from teachers, but as students studying the piano engage in self-assessment within their private

practice, literature relating to self-generated feedback is also reviewed. In addition to these modes of feedback, peer-generated, and electronic feedback have received attention in the extant literature. Although peer-assessment is referred to briefly within this review, as peers were not overtly involved in the provision of feedback within this study, this was not a focus. Similarly, while a number of 'computer assisted assessment' (Sim, et al., 2004, p.215) software packages have been developed to provide electronic feedback, the literature relating to this mode of feedback was not reviewed as these applications were not available within in the teaching and learning context of this study. Furthermore, literature relating to written formative feedback provided by examiners in graded music examinations, which can draw attention to strengths and weaknesses, and areas for improvement (Mills, 1991), was not included in this review, as this mode of feedback was not relevant owing to the timing of examinations within the case studies.

The remaining parts of this introduction are devoted to the consideration of how key terms have been defined and understood by various authorities and how they will be employed in the present study. The search strategy employed to identify texts for review, is also discussed.

2.1.1. Characteristics of Formative Assessment

As a range of discrete definitions of formative assessment have developed since the 1960s, it needs to be acknowledged that the concept 'does not have a tightly defined' or 'widely accepted meaning' (Black and Wiliam, 1998a, p.7). Furthermore, it has proved extremely difficult to explain the difference between formative and summative assessment 'with any sense of precision' (Newton, 2007, p.155), thus, a number of initiatives, such as the Labour Gov-

ernment's framework for Assessing Pupils' Progress was seen by many assessment experts as essentially summative assessment masquerading as formative assessment (Mansell, et al., 2009).

Although Bloom et al. (1971, p.61) observed that the main purpose of formative assessment was 'to determine the degree of mastery of a given learning task and to pinpoint the part of the task not mastered' with a view to enabling both the teacher and the student to focus upon the 'learning necessary for movement towards mastery', the notion of formative assessment has proved to be somewhat vague owing to the inclusion of a range of discrete manifestations. These manifestations include self-assessment and peer-assessment, which have been 'defined not only by inherent characteristics, but also by the use of the assessment' (Dunn and Mulvenon, 2009, p.2). Self-assessment is perceived to be 'a process of formative assessment during which students reflect upon the quality of their work, judge the degree to which it reflects explicitly stated goals or criteria, and revise accordingly' (Andrade, 2010, p.92). It has also been defined as 'the involvement of students in identifying standards and/or criteria to apply to their work and making judgements about the extent to which they have met these criteria and standards' (Boud, 1991, cited in Boud, 1995, p.12). Peer-assessment is defined as an arrangement for students to 'consider and specify the level, value, or quality of a product or performance' of other equal-status students (Topping and Ehly, 1998, cited in Topping, 2010, p.62). Many assessment experts, however, see the assigning of scores, marks, or levels as a distortion of the true spirit of self and peer assessment, as assessment that is genuinely formative focuses on improving learning and not measuring it (Gipps, 1994; Black and Wiliam, 1998a; and

Stobart, 2008). Engagement in peer-assessment, however, can be particularly valuable when it encourages dialogue, as this can help students to 'understand the assessment activities', to 'learn from the assessment', and to 'develop constructive and valuable feedback' (Irons, 2008, p.79). In contrast to the notion of peer-assessment conducted in generic classroom contexts, within pianoforte studies students may receive formative feedback, either directly or implicitly from peers or family members, who observe their work in private piano practice sessions (Hunter and Russ, 1996). As students construct their levels of 'understanding in partnership with, and with guidance from others' (Smith, 2011, p.15), receiving advice from peers, or family members may prove beneficial in terms of embracing different approaches to teaching and learning, or receiving social support (Sosniak, 1990), which are organised through 'becoming a member of the musical culture' (Nielsen, 2006, p.1).

In their initial definition of formative assessment, Black and Wiliam (1998a, p.7-8) considered it to be a process which embraced all of the activities undertaken by teachers and students, 'which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged'. Within this definition, Black and Wiliam (1998a) acknowledged the importance of feedback, and observed that assessment is not only directed at students, but at the quality of teaching in terms of ensuring that appropriate action is taken to support learning. This view has been reinforced by Cauley and McMillan (2010, p.1) who clearly observed 'that both teachers and students can drive instructional changes'.

The notion of 'assessment for learning' was introduced by Black in 1986, and subsequently taken up by James in 1992 (Wiliam, 2011, p.39-40) and Gipps in

1994 (Gipps, 1994, p.25). Assessment for learning incorporated the following strategies (Wiliam, 2006, p.8):

- 'clarifying and understanding learning intentions and criteria for success
- engineering effective classroom discussions, questions and tasks that elicit evidence of learning
- providing feedback that moves learners forward
- activating students as instructional resources for each other, and
- activating students as owners of their own learning'

While some experts regard formative assessment and 'assessment for learning' to be synonymous (Gardner, 2006), others argue that they have different meanings. In the 'Assessment for Learning Seminar' held in Cambridge in 2006, Wiliam made his view clear that there is a distinction between formative assessment and 'assessment for learning', emphasising that assessment for learning only becomes formative assessment when evidence of student learning is actually employed to modify teaching practice with a view to meeting individual students' learning needs (Wiliam, 2006). Despite this observation, Gardner (2006, p.2) considers the term 'assessment for learning' to be preferable to formative assessment, as the concept of formative assessment, having a range of discrete definitions, has been employed 'to describe the summative use of multiple assessments of learning'. While the terms 'formative assessment' and 'assessment for learning' may be employed for similar purposes, 'assessment for learning' is less likely to be affiliated with 'assessment of learning' (Gardner, 2006, p.2).

Although they are not mutually exclusive in practice, two discrete approaches to formative assessment have been identified utilising terms developed by

Hudson in 1966, specifically 'convergent' and 'divergent' assessment (Rowntree, 1977, p.149). Convergent assessment, essentially relates to the behaviourist approach to learning, which encourages conditioned responses to stimuli, thus fostering the 'accumulation of skills and the memorisation of information (facts) in a given domain' (James, 2006, p.54) and aims to establish whether a student has specific knowledge, understanding, or the ability to engage in a particular task. Divergent assessment, on the other hand, is associated with a constructivist approach to learning, where meanings are assembled, and people 'make sense of the world through organizing structures, concepts and principles in schema (mental models)' (James, 2006, p.55). Divergent assessment, therefore, focuses upon what the student actually knows and understands, and what s/he can put into practice (Torrance and Pryor, 1998; Torrance and Pryor, 2001; Pryor and Crossouard, 2008).

Drawing upon previous definitions of formative assessment provided by Black and Wiliam (1998a and 1998b) and the definition of assessment for learning by the Assessment Reform Group (2002a), Black and Wiliam (2009, p.9) redefined the concept of formative assessment within the classroom as the extent to which:

> *'...evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction that are likely to be better, or better founded, than the decisions they would have taken in the absence of the evidence that was elicited'.*

The focus of formative assessment clearly relates to the quality of instructional objectives (Melmer, et al., 2008, cited in Dunn and Mulvenon, 2009), students' understandings of those objectives, and the quality of feedback presented in written form, through dialogue, questioning, or exemplification.

Within piano lessons, Asmus (1999) argued that 'formative assessment' is actively employed as students constantly provide information for their teachers in the act of performing, which indeed becomes a platform for authentic assessment. In relation to the next steps in instruction, and supporting individual students' needs, within the context of one-to-one or small group lessons, there is a requirement for teachers to reflect upon their practice, and utilise a range of different approaches within their repertoire of teaching strategies to foster students' understandings, raise levels of achievement, and to meet individual students' needs.

As concepts of formative assessment vary, within this study the redefinition of formative assessment presented by Black and Wiliam (2009) will be employed. Rather than encompassing all of the activities undertaken by teachers and students as a source of information which can be employed as 'feedback to modify the teaching and learning activities' (Black and Wiliam, 1998a, p.7-8), the changes that were made focus more explicitly on student achievement, which is employed more actively to 'make decisions about the next steps in instruction that are likely to be better, or better founded' (Black and Wiliam, 2009, p.9).

One of the principle attributes of formative assessment is the provision of feedback (Black and Wiliam, 1998a; Wiliam, 2006), which in one-to-one situations such as pianoforte studies, can be ongoing and continuous. In addition to feedback provided by teachers, it was acknowledged above that self-regulated students will engage in the process of self-assessment and feed back to themselves if they observe an error. A range of definitions of feedback have been presented including those by Kulhavy (1977), Ramaprasad (1983), Sadler

(1989), Kluger and DeNisi (1996), Black and Wiliam (1998a), and Shute (2008). Kulhavy (1977) defined feedback as a process of informing students about the accuracy of their responses to the instruction received, specifically whether it was right or wrong. While feedback of this nature is explicit and task involving, it was considered to be too narrow to be of much use (Sadler, 1989). When appraising the accuracy and quality of performances, it was acknowledged that while feedback needs to focus upon specific standards or goals, it should also promote 'ways and means for reducing the discrepancy between what is produced and what is aimed for' (Sadler, 1989, p.142). Ramaprasad (1983, p.4) defined feedback as the provision of 'information about the gap between the actual level and the reference level of a system parameter', which can be employed 'to alter the gap in some way', indicating that an important attribute of feedback relates to its effect 'rather than its informational content' (Sadler, 1989, p.120). This view is supported by Shute (2008, p.153) who classified feedback as 'information communicated to the learner that is intended to modify his or her thinking or behaviour to improve learning'.

Feedback has also been classified as the '…actions taken by (an) external agent(s) to provide information regarding some aspect(s) of one's task performance' (Kluger and DeNisi, 1996, p.255), although Black and Wiliam (1998a) consider this definition to be restrictive in the sense that if feedback comes from an external agent, it excludes self-regulation and self-generated feedback. A less restrictive definition is proposed where feedback consists of 'any information that is provided to the performer' about their performance, which can be evaluated 'either in its own terms, or by comparing it with a reference

standard' (Black and Wiliam, 1998a, p.53). When comparing performances with reference standards, attributes of equality, distance and diagnosis are considered: equality measures the extent to which a performance meets the required standard; distance relates to the gap between the performance and the reference standard, and indeed whether that standard has been surpassed; and diagnosis concerns what needs to be done to meet specific standards (Black and Wiliam, 1998a).

In order for feedback to be effective, Hattie and Timperley (2007, p.86) observed the need to address three major questions:

> *'Where am I going? (What are the goals?);*
>
> *How am I going? (What progress is being made toward the goal?);*
>
> *Where to next? (What activities need to be undertaken to make better progress?).*

These questions correspond to notions of feed-up, feedback, and feed-forward. Feed-up is a process of clarifying goals (Fisher and Frey, 2009); 'feedback is conceptualized as information provided by an agent … regarding aspects of one's performance or understanding' (Hattie and Timperley, 2007, p.81), although in contrast to Kluger and DeNisi (1996), Hattie and Timperley (2007) make it clear that the 'agent' is not necessarily external; and feed-forward suggests that 'students should be given opportunity and incentive to rework' assignments 'with continuous rather than single-shot access to evaluative feedback during the reworking' (Sadler, 1983, p. 74).

In relation to these definitions and attributes of feedback, it is important to distinguish between feedback that is task-involving and ego-involving (Butler,

1988). Task-involving feedback, which concerns the development of requisite knowledge, concepts and skills, can foster a motivational state:

> *'...in which an activity is perceived as inherently satisfying and in which the individual is concerned primarily with assessing and developing individual mastery in relation to task demands or prior performance'* (Nicholls, 1979, cited in Butler, 1987, p.474).

In contrast, ego-involving feedback focuses 'primarily on assessing ability'. This is perceived to be a stable dimension of individual differences, thus liable to reinforce a student's fixed ability mind-set:

> *'...such capacity can only be evaluated against the performance of others, ego involvement should promote a self-worth orientation in which one's main concern is to demonstrate high ability or mask low ability relative to others'* (Butler, 1987, p.474).

Black and Wiliam (1998a) observed that when feedback focuses on students' objective needs, the underlying message is that all students can and will succeed. In relation to this observation, The Assessment Reform Group (2002b, p.6) observed that when feedback from the teacher is task-related, and focuses on 'how to improve or build on what has been done', students' interests and levels of effort will be fostered. Feedback, however, that:

> *'...emphasises relative performance, for example marks or grades which are formally or informally compared with those of others, encourages pupils to concentrate on getting better grades rather than on deeper understanding' (ibid.).*

As described here, this process of cohort-referencing can have negative effects upon students' self-efficacy, motivation and self-regulation, which as previously indicated are especially important attributes within pianoforte studies as the ability to progress relies heavily on the private practice that takes place outside of lessons. Formative feedback within pianoforte studies, therefore, should focus upon task-involving attributes; provide information which can be

employed by teachers and students to clarify success criteria; to advance knowledge, skills, and understanding; to maintain or promote motivation; to stimulate self-assessment and self-regulation within private practice, and to enable students to become owners of their learning.

With regard to teaching and learning, notions of the master-apprentice, and mentor friend models have received attention, which are relevant in terms of the relationship between teachers and students, and how feedback may be presented and received. Within the context of musical instrument studies, the processes of teaching and learning are complex, and the evaluation of a music teacher's work 'is neither obvious nor simple' (Swanwick, 2008, p.9). While the concept of learning from a generic theoretical perspective has been envisaged as a mixture of acquisition and participation (Sfard, 1998), these precepts are also inherent within music education and instrumental studies. Within private instrumental lessons, where teachers have conceived learning to be a specific process of acquisition or participation, their relationships with students have evolved to accommodate these precepts. Consequently, 'two broad models' of teaching have developed, firstly, the 'master-apprentice model' which is 'marked by one-way communication from teacher to student', and secondly the 'mentor-friend model' which 'reflects greater exchange between teacher and student' (Lehmann et al., 2007, p.187).

With regard to the notion of learning as acquisition (Sfard, 1998), within a general context, learning may be perceived as a 'conditioned response to external stimuli' (James, 2006 p.54), which is 'linear and sequential' in nature, recognising that 'complex understandings occur only when elemental prerequisite learnings are mastered' (Gipps, 1994, p.19). However, as individual

learning is idiosyncratic in nature, such a ‘building block’ or hierarchical model of learning may be inappropriate (Gipps, 1994, p.16), especially if it fails to accommodate individual needs.

Where teachers actively promote experimentation, and provide musical ideas or stimuli for students to consider, which is typical of the mentor-friend model of teaching, a ‘greater exchange between teacher and student’ is encouraged, and this allows for ‘teachers to be more responsive to the individual needs of the students’ (Lehmann et al., 2007, p.187). This particular model has demonstrated ‘a clear relationship between effective teaching and learning’ as there is ‘active participation in the process’ (Burwell, 2005, p.204), and as observed in a generic context, as a result of this teacher-student interaction, students can become more ‘receptive to the advice’ and the feed-forward provided (Duncan, 2007, p.278).

With regard to learning as a process of ‘participation’, in a non-music related setting, the provision of feedback ‘for the purpose of furthering learning’ (Gamlem and Smith, 2013, p.151) has proved to be a crucial stimulus for fostering interaction between teachers and their students. In a study carried out in America, where teacher interaction with piano students was appraised by experts in the ‘field of piano pedagogy’ (Siebenaler, 1997, p.10), in successful lessons teachers were observed to participate fully, and students who required assistance were provided with clear strategies for improving their work. It has also been observed that in situations where teachers actively reflect upon the quality of the feedback they provide, students can be supported far more effectively (Creech, 2012; Zhukov, 2012), as the feedback is more likely to meet their individual needs.

While articles relating to the effects of feedback on individuals' self-efficacy, motivation and self-regulation are reviewed in section 2.3, definitions of these terms are presented here. Self-efficacy has been defined as:

> *'...people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives'* (Bandura, 1994).

A distinction between self-efficacy for learning and self-efficacy for performing has also been made: self-efficacy for learning relates to students' beliefs in their ability to acquire the knowledge and skills 'needed to perform a task', while self-efficacy for performing concerns students' beliefs in their ability to perform a task through the implementation of the knowledge and skills previously learnt (Schunk, 1996, cited in Ritchie and Williamon, 2010, p.330).

Weiner (1984, p.35) has acknowledged a range of basic principles 'intimately tied to the self' which are inherent within theories of student motivation. These principles incorporate 'causal ascriptions' relating to the properties of the person; emotional consequences including 'self-confidence and self-worth'; and 'mastery strivings', which can promote 'growth and expansion of the self'. Amongst the tenets subsumed within these principles are attributes such as 'pride and guilt, happiness and unhappiness, hopefulness and un-hopefulness' (ibid.). Intrinsic motivation concerns 'active engagement with tasks that people find interesting and that, in turn, promote growth' (Deci and Ryan, 2000, p.233), which includes performing a piece of music, while extrinsic motivation, relates to behaviour, which 'is controlled by specific external contingencies' (Deci and Ryan, 2000, p.236) such as earning tangible rewards or avoiding a threatened punishment.

Butler and Winne (1995, p.246) acknowledge the multiple and multifaceted roles feedback has in learning, and drawing upon the work of Rumelhart and Norman (1978), they 'position feedback within a model of self-regulation that guides cognitive activities during which knowledge is accreted, tuned, and re-structured'. Also in relation to the process of self-regulation, Nicol and Macfarlane-Dick (2006, p.205) consider good feedback practice to be broadly defined 'as anything that might strengthen the students' capacity to self-regulate their own performance'. Self-regulated learning has been defined as 'a set of systematic efforts to direct thoughts, feelings and actions towards the attainment of one's goal' (Dos Santos and Gerling, 2011, p.432), and a 'self-directive process' rather than 'a mental ability or an academic performance skill' (Zimmerman, 2002, p.65), where students 'systematically direct their thoughts, feelings and actions towards the attainment of their goals' (Schunk and Zimmerman, 1994, and 1998, cited in Schunk, 2000, p.355). Boekaerts et al. (2005, p.150) also defined self-regulation as a 'multi-component, multi-level, iterative self-steering process that target's one's own cognitions, affects and action, as well as features of the environment for modulation in the service of one's goals'. Hattie and Timperley (2007, p.93) also observed that 'self-regulation involves an interplay between commitment, control, and confidence. It addresses the way students monitor, direct, and regulate actions toward the learning goal. It implies autonomy, self-control, self-direction, and self-discipline'. It has also been described as 'the processes by which the self alters its own responses or inner states in a goal directed manner' (Fitzsimons and Finkel, 2011, p.408), thus involving 'purposive processes' where self-corrective adjustments take place to enable students to stay on track (Carver and Scheier, 2011), resisting temptations and persisting, despite perceived

challenges (Bauer and Baumeister, 2011). It is also acknowledged that students need to acquire specific tools, which enable them to 'monitor, direct, and regulate actions' (Hattie and Timperley, 2007, p.93) and to 'take control' of their learning (Jørgensen, 2004, p.86). Students, who acquire these tools and develop a high sense of self-regulatory efficacy, will often have the confidence to master specific tasks effectively (Bandura, 1997).

Within this study issues relating to the notion of learned helplessness (Abramson, Seligman and Teasdale, 1978) were observed, specifically relating to the provision of feedback designed to enable students to overcome the difficulties, which they perceived to be insurmountable. Consequently seminal literature relating to learned helplessness is reviewed in section 2.3 in order to provide a foundation for understanding how feedback is received by students with this condition, and how it is interpreted and understood within the learning process.

2.1.2 Literature Search

In the initial stages of the literature search, following recommendations from my supervisor, and drawing upon my familiarity with the field from past studies in educational assessment, a range of books and articles incorporating generic texts on feedback were initially identified and reviewed, including a small number of documents published by the Government and Examination Boards. This preliminary search assisted in clarifying the focus of the study, and identifying additional resources. Subsequent searches for literature were conducted systematically using a range of electronic databases which were available through university libraries, including Academic Search Complete, the British Education Index, Education Research Complete, and the Education Resources Information Center. During the search process the following terms,

in a range of combinations were employed: assessment, formative assessment, feedback, formative feedback, piano, piano teaching, self-efficacy, motivation and self-regulation.

Specific journals relating to assessment practice and music education were accessed and hand-searched, including 'Assessment in Education: Principles, Policy and Practice', the 'Journal of Research in Music Education', and the 'British Journal of Music Education'. In order to verify the relevance of specific articles within these journals, abstracts were read, and all articles perceived to be relevant were printed in order to facilitate reading. The Mimas Zetoc Alert Service (Zetoc, 2014) was employed to keep up to date with new publications once the initial literature search had been completed.

As this field is vast, on reflection I could have made searches more manageable by focusing on articles, which were more up to date, but my interest was to gain an insight into how perspectives had developed or changed over time. In addition to utilising databases to search for specific articles, an additional approach that I employed involved following up references in texts that I had read. Also, prior to completing the Discussion Chapter, I undertook a further literature search focusing on other performance-related cognate disciplines, specifically dance, drama, visual art, and sports coaching as I believed there might have been some affiliation with the focus of my study, which could have assisted in explicating my findings. As I was not aware of specific journals within these disciplines, I utilised the same databases, and Google Scholar, to search for combinations of specific terms: dance, drama, visual art, sports coaching, physical education, PE, formative assessment, feedback, formative feedback, self-efficacy, motivation and self-regulation.

The types of literature encountered included textbooks relating to piano tuition, books on the psychology of learning, and reports of academic research in peer reviewed journals. The books relating to piano tuition were a mixture of professional guides offering recommendations for best practice to teachers, and research conducted on teaching practice. Books and papers relating to self-efficacy, motivation and self-regulation were ascertained through library searches and by following up references in other texts.

Meta-reviews of formative assessment and the provision of feedback, including publications by Kluger and DeNisi (1996), Black and Wiliam (1998a), Hattie and Timperley (2007) and Shute (2008) were reviewed to gain an overview of the topic. While the review of journal articles relating to formative assessment included theoretical perspectives and empirical studies, many of the music-specific articles tended to report empirical studies, which were mainly small in scale. It is acknowledged that some of the music related articles are dated, and have been employed in the review as more up-to-date articles were not found. In instances where single dated references have been provided, it is recognised that it is not possible to be sure of the currency of the points being addressed.

Within this chapter, articles offering general perspectives relating to feedback across subjects and disciplines have occasionally been integrated with those specifically relating to pianoforte and musical instrument studies, but where the reference is music-specific, this is made clear. On other occasions, the discussion focuses upon the generic literature, followed by an indication of how this relates to musical instrument studies.

The literature review is divided into two main sections, the first section relates to formative feedback, focusing upon the provision of feedback, and the relationship between feedback and students' sense of self. The second section explores in greater depth the literature on the impact of feedback and feed-forward on particular aspects of the self that are critical to learning to play the piano, specifically students' self-efficacy, their motivation and self-regulation. The review culminates with the identification of the research questions, which the present study sought to answer.

2.2 Formative Feedback

2.2.1 Some Characteristics of Effective Feedback

The generic literature suggests that feedback, whether positive or negative, is 'a key element in formative assessment' (Sadler, 1989, p.120) and 'one of the most powerful influences on learning and achievement' (Hattie and Timperley, 2007, p.81). In circumstances where feedback is correctional in nature, it tends to lack information about how students can improve their work, or make progress in their learning (Bourdillon and Storey, 2002; Carless, 2006), while the provision of detail relating to correct or incorrect answers (Bangert-Drowns et al., 1991, cited in Black and Wiliam, 1998a) has proved to be more effective. In relation to this point, the definition of feedback provided by Ramaprasad (1983), which relates to Vygotsky's (1978, p.86) notion of a 'zone of proximal development', highlights the importance of providing '…information about the gap between the actual level and the reference level' (Ramaprasad, 1983, p.4), which students can employ in independent problem solving, or under adult guidance, thus ensuring that the student is aware of what needs to be improved, and how to make those improvements. Consequently, a 'key feature'

of the ‘effective use of feedback is that it must encourage “mindfulness” in the student’s response’ (Black and Wiliam, 1998a, p.51), thus a student should not merely act as a ‘passive recipient’ of the feedback (ibid., p. 21), but should be actively encouraged, or taught how to utilise the feedback in the process of breaching a gap.

When comparing the student’s actual level of performance against the reference level (Ramaprasad, 1983), it is important to ensure that the feedback provided is accurate, as inaccuracies would render it ineffective. This issue is addressed by Sadler (1998, p.80) who acknowledged three specific issues that require attention: firstly, that the assessor must ‘attend to the learner’s production’, which may be an activity, or a written assignment; secondly, the production should be appraised against a ‘background, or reference framework’; and thirdly, the assessor ‘makes an explicit response’, which may include classifying, or grading the production, assigning a numerical score, or providing a written or ‘verbal statement about the quality’ of that production.

With regard to the provision of feedback, and specifically how it is received by students, Kluger and DeNisi (1996, p.277) have observed that there is no overarching theory relating to ‘the effects of feedback interventions on performance’, and without such a theory, the range of different and inconsistent responses to feedback cannot be effectively assimilated. More recently, however, Van Dijk and Kluger (2011) have observed that inconsistent responses to feedback may be addressed by taking into account the task types, and whether the feedback messages convey success or failure. It has also been acknowledged that the effectiveness of feedback may be accounted for by multiple fac-

tors including individual students' academic self-concepts (Baadte and Schnotz, 2014).

While the provision of feedback with task-involving comments (Butler and Nisan, 1986) usually 'improves performance' (Vollmeyer and Rheinberg, 2005, p.599), it needs to be acknowledged that there may be a range of mediating factors. Therefore, the relevance of feedback needs to be carefully considered (Perrenoud, 1998; Spruce, 2002; Jones and Tanner, 2006), ensuring that it is 'fit for purpose' (Philpott, 2007, p.210). The provider of the feedback must also keep in mind 'important and delicate considerations' (Black and Wiliam, 1998a, p.61), taking into account that feedback is often presented 'with little time for reflective analysis before making any commitment' (Black and Wiliam, 2009, p.27), and if it is mismanaged it could have a negative effect upon students' learning (Hattie, 1999).

It has been stressed that there is little point in sending feedback messages to students unless they are intelligible and relate to their specific needs, thus enabling them to 'understand, remember, assimilate knowledge, or develop skills' rather than promoting the mastery of an activity, which may be achieved through 'imitation', though devoid of any understanding (Perrenoud, 1998, p.90). Hence, it is imperative to consider how feedback is organised in terms of the management of teaching, and how it may actively stimulate students' 'cognitive and socio-affective mechanisms' (Perrenoud, 1998, p.85).

It is important to understand that the process of assessment, and the student's interpretation of the feedback received, is embedded within 'social-cultural contexts and caught up in webs of social relationships' (Filer and Pollard, 2000, p.11). In relation to this point, Eva et al. (2012, p.15) have observed the

importance of understanding how students 'interpret, accept, and use feedback', and the need to be aware of 'the factors that influence those interpretations'. A similar observation was made by Shute (2008), specifically in her discussion of norm-referencing, where comparisons are made 'with the performance of other individuals (or groups) taking the same test' (Scriven, 1991, p.246), which could demotivate students and impede their learning, particularly in circumstances where students achieve lower scores in tests than their peers.

In situations where feedback lacks clarity, or fails to 'specify the grounds on which students have met with achievement success or otherwise' (Hattie and Timperley, 2007, p.95), the generic feedback literature indicates that students will be uncertain 'how to respond' (Shute, 2008, p.157). When feedback is unclear it is 'likely to exacerbate negative outcomes, engender uncertain self-images, and lead to poor performance' (Hattie and Timperley, 2007, p.95), thus having an undesirable effect on students' efficacy beliefs, and consequent motivation. As the specificity of feedback is clearly 'correlated with learning' (Kluger and DeNisi, 1996, p.268), it is acknowledged that feedback would be significantly more effective if presented in private and focusing on student 'improvement and mastery' (Ames, 1992, cited in Black and Wiliam, 1998a, p.23). It has also been observed that opportunities for students 'to follow up comments should be planned as part of the overall learning process' (Black et al., 2003, p.49). There is some evidence that the clarity of feedback is an issue in music-specific contexts, as it was observed in a study involving 25 independent piano teachers in America that the feedback provided in private lessons had a tendency to lack clarity (Speer, 1994).

In some circumstances it has been acknowledged that teachers need to improve the quality of their written feedback, as there is a tendency for it to be brief, lacking in specificity, and there is a predisposition for remarks to be repeated (Black et al., 2003). When feedback lacks specificity, and fails to advise students how to improve their work, the teachers' comments are likely to be ignored (ibid.). In addition to these points, relating to the quality of feedback, some students have expressed concern about the legibility of teachers' handwriting, and on occasions feedback statements have failed to make sense (ibid.). While written feedback and feed-forward in generic contexts is predominantly provided on students' written assignments, within the context of musical instrument teaching, written feedback and feed-forward can be helpful as a record of what students need to focus upon in their private practice.

Care needs to be taken with regard to the length and complexity of written feedback. In circumstances where it is perceived to be 'too long or too complicated', students may 'simply not pay attention to it' (Shute, 2008, p.159) but in other cases where teachers have provided 'additional information' about 'incorrect responses', there has been a tendency for students to recall previous errors, thus stimulating reflective practice (Hattie and Timperley, 2007, p.92). In circumstances where 'less complex feedback' is provided, specifically relating to the accuracy of answers, Hattie and Timperley (2007, p.92) observed that it has 'resulted in higher levels of subsequent task performance', a finding supported by Shute (2008, p.161), who acknowledged that 'the least complex feedback … demonstrated greater learner benefits in terms of efficiency and outcome than complex feedback'.

Effects relating to the timing of feedback have been found to be inconsistent: some researchers consider immediate feedback to be beneficial in terms of preventing errors 'being encoded into memory' (Shute, 2008, p.163), while others perceive delayed feedback to reduce 'proactive interference', thus allowing initial errors to be forgotten and correct information 'to be encoded with no interference' (Shute, 2008, p.164). In support of immediate feedback, it has been observed that it enhances 'the acquisition of verbal materials, procedural skills, and some motor skills' (Shute, 2008, p.164), the latter two perspectives being wholly relevant within pianoforte studies, although in her review of articles by Schroth (1992) and Corbett and Anderson (2001), Shute (2008, p.165) acknowledged 'that delayed feedback may be superior for promoting transfer of learning'.

With regard to the quality and timeliness of feedback, oral feedback can be much more effective than written feedback (Ross and Mitchell, 1993; Boulet, et al., 1990, cited in Black and Wiliam, 1998a; Irons, 2008) as it can be more successfully integrated within the processes of teaching and learning (Swaffield, 2008), particularly in situations where it focuses upon the individual needs of the student (Clarke, 2005; Hodgen and Webb, 2008). It has also been observed that 'oral, rather than written, assessment is preferred because it is quick and flexible and permits students to initiate or respond to teachers' immediately (Townshend et al., 2005, cited in Clark, 2012, p.209), which can be particularly beneficial when it relates to the development of motor skills (Shute, 2008). 'In this way it is possible to detect and correct misunderstandings and ambiguities on a timely basis' (Townshend et al., 2005, cited in

Clark, 2012, p.209). The provision of oral feedback can also effectively increase:

> *'the retention of elaborated knowledge on the basis that the fluidity and immediacy of speech is able to confirm meaning through slightly different phrases and explanations that might look repetitive in textual feedback'* (Ice, Swan, Kupczynski, and Swan-Dagen, 2010, cited in Gleaves and Walker, 2013, p.251).

Also, in relation to this point, research conducted into the timing of feedback has recognised that immediate feedback can be particularly advantageous for low-achieving students (Shute, 2008).

In musical instrument lessons, Fautley (2010) recognised the appropriateness of oral feedback due to its immediacy, particularly when provided during performance, a process described by Schön (1987, p.176) as 'analysis-in-action'. When performing music, the provision of feedback and feed-forward through the process of 'analysis-in-action', may take a range of forms in addition to oral commentary including cues, gestures and singing or vocalising, which may be particularly helpful when striving to communicate issues of an expressive or interpretative nature (Bloom, 1976; Elliott, 2006; Zhukov, 2012).

Verbal persuasion, usually presented as evaluative feedback or feed-forward, can effectively raise students' beliefs in their capabilities to succeed, especially in circumstances where they have doubts about their ability when facing difficulties or set-backs (Chen, et al., 2001). The strength of verbal persuasion will naturally be evaluated by the recipient, who will judge the expertise and credibility of the person offering feedback. If the feedback provided is robust, and subsequent actions prove to be successful, the recipient is more likely to respond in terms of developing and reinforcing beliefs in their capabilities (Bandura, 1997). The process of social persuasion can also prove motivating for

students who, in response, will invest higher levels of effort, perseverance and commitment with a view to mastering specific tasks, and their success will further motivate them to develop particular skills, and promote their sense of self-efficacy. Persuading students that they can master specific tasks, however, will prove ineffective if they lack the requisite skills or the conditions required to facilitate effective performance (Bandura, 1977). Bandura (1997) observed, though, that students' efficacy beliefs could be enhanced if feedback and feed-forward relating to the development and understanding of those skills, is provided, perhaps through the process of exemplification.

In terms of learning outcomes, it is important for students to understand what constitutes quality, and as teachers' perceptions of quality are often tacit in nature, there is a need for high quality learning outcomes to be made overtly accessible through the process of feed-up or exemplification. While it is important to present models of good practice in musical instrument studies, there is a danger, as in non-musical contexts, that students will 'slavishly copy the exemplars' (Sadler, 1989, p.128), and within musical instrument studies, the dominant mode of learning could become imitation (Jørgensen, 2000; Dickey, 1992, cited in Juslin et al., 2004). Thus it is recommended that a number of models are presented as feed-up for the attainment of single standards, which may enable students to understand that there are 'different ways in which work of a particular quality' can be presented (Sadler, 1989, p.128).

While assessment of a musical performance is usually judgemental in nature (McPherson and Thompson, 1998), it is important to understand that factors relating to interpretation, and degrees of expressivity, will be individual and open to the personal preferences of listeners and assessors. The concept of ex-

pression in music is perceived to be elusive (Juslin et al., 2004), and despite the provision of guidelines within a musical score, they are open to individual interpretation. With regard to teaching expressive and interpretative skills in musical instrument studies, it has also been observed that the most common strategy employed is through teacher exemplification (Juslin et al., 2004).

With regard to exemplification, in addition to teacher and peer models, individual students will often seek exemplary performances in an audio or video format for purposes of feed-up with a view to gaining information about specific skills or the interpretation of music. When students evaluate their actions and compare their performances to specific task models, the feedback will be generated innately (Chiodo et al., 1998; Kostka, 1997; Deniz, 2012; and Gadsby, 2012).

It has been observed, however, that the provision of feedback through exemplification may not always be intentional, or overt in nature. In her study of how individuals in America learnt to become concert pianists, Sosniak (1985, p.61) found that pianoforte teachers can become 'role models of the highest order' as students naturally observe how their teacher sits at the piano, reads a score, performs music, communicates attitudes to particular musical styles, or other musicians and their performances. Consequently, pianists learn attitudes and habits, and ways of working, 'simply by being in the presence of the master' (ibid.), somewhat akin to the model of apprenticeship (Lehmann et al, 2007), or participation within a community of practice, as discussed by Lave and Wenger (1991).

The process of exemplification, together with 'verbal explanations' is perceived 'without doubt' to be 'the best way of teaching' the piano (Robert,

1964, p.201), a view also acknowledged by Philpot (2007). As a process of 'interactive walk-throughs', teacher exemplification within a generic context, can stimulate a student's levels of attention and interest in a topic (Sharples et al., 2012, p.13). In their study of teacher and student behaviours within individual piano lessons, focusing on a sample of 16 teachers, 8 from the Republic of China and 8 from America, together with their students aged 5.5-14 years, it was found that 'playing along' with students was the most utilised form of exemplifying correct performance details, although teachers have also used singing, and gestures (Benson and Fung, 2005, p.68).

In relation to questioning as a form of feedback, it is important for teachers to consider the quality of discourse with students, in terms of promoting a fuller understanding of learning activities, assessment criteria, and learning outcomes (Black and Wiliam, 1998a). The benefit of collaborative discourse between teachers and students is that it can produce significant gains in learning (Johnson and Johnson, 1990, cited in Black and Wiliam, 1998a). It has been pointed out that merely asking students if they understand a particular concept or issue may not be appropriate as such questions are essentially closed, inviting simple, unelaborated responses: some students will agree that they understand, even when they do not, while others may have misconceptions, and think they understand, when in actual fact, they do not (Jones and Tanner, 2006). Where teachers impose high standards, which are not met by students, possibly through a lack of understanding, the teacher's reactions can raise students' levels of stress and anxiety (Bandura, 1997), particularly in cases where students have a low sense of efficacy to manage academic demands.

Within the provision of feedback, questioning can be employed to encourage students to think and reflect (Brown and Edmondson, 1984), and to stimulate forward thinking, a process inherent within a dialogic approach to teaching (Alexander, 2014). Indeed, a study involving the observation of one-to-one instrumental and vocal lessons at a University College within the UK, found that questioning was an important way 'of eliciting a contribution' from students, whether verbal or practical. Indeed, when feedback is presented to students in the form of questioning, it can promote and sustain 'genuine dialogue in lessons', ultimately leading to increased levels of self-regulation and independence (Burwell, 2005, p.204).

Within a general context, the observation of peer models has also been recognised as a valuable strategy for raising self-efficacy, particularly where those models provide verbal explanations of coping strategies while performing, highlight initial fears and deficiencies, explain how they improve their performances, and how they promote levels of confidence in their personal capabilities (Bandura, 1997; Schunk, 2000). Indeed, students can also engage in the process of peer tutoring, which can be more effective than teachers explaining or exemplifying the same skills, as students will perceive the activity to be more manageable (Schunk, 2000; Black et al., 2003).

In cases where models fail, however, despite high levels of effort and perseverance, the outcome may result in the observer's sense of efficacy being undermined, and this may have a further negative impact upon the level of effort the observer allocates to specific tasks (Bandura, 1994). On occasions when models are observed to fail by using ineffective strategies, however, the perceived efficacy of observers may be raised if they consider alternative strate-

gies within their personal repertoires to be more effective. In circumstances when observers with low self-efficacy observe models fail, however, they may reflect upon their personal failures and attribute them to a lack of ability, and when observing models who encounter difficulties which are beyond their immediate control, it has been acknowledged that students can learn to become helpless (Peterson, et al., 1993).

In relation to developing performing skills on a musical instrument, the power of peer support has been recognised, specifically when focusing upon the development of effective practice strategies, and managing issues related to anxiety when preparing for concert performances (Burkett, 1982; Williamon, 2004). The effectiveness of such support has been observed by Presland (2005) in her study of piano students within a UK Music Conservatoire. Furthermore, it has been observed that young piano students aged 5-6 years, at the Royal Conservatory of the Hague, effectively stimulated each other 'by transferring their enthusiasm', and 'challenging their mates to arrive at a similar performance' (Koopman, 2002, p.279). In support of these points, within the context of group piano teaching, Reist (2002, p.35) has observed that participants are 'involved at all times' within an environment, which encourages respect and co-operation.

To ensure the validity of feedback it needs to be clearly linked to learning intentions; students need to understand the success criteria; timely advice or feed-forward needs to be provided about how any gaps in their learning can be bridged (Ellery, 2008); feedback needs to focus upon the task or process of learning rather than the student, and it needs to reassure students that set challenges are actually achievable (Bourdillon and Storey, 2002; Stobart, 2006;

Hattie and Timperley, 2007; Shute, 2008). It is also acknowledged that the source of feedback 'is less important than its validity' (Sadler, 1998, p.79), indicating that valid feedback may come from a teacher, family members, or peers.

This section has focused on evidence suggesting that students need clear models of the tasks and the standards they need to achieve, and that the provision of task-involving feedback and feed-forward can have a positive effect upon individual students' levels of self-efficacy and their motivation to persevere. The timeliness of feedback and feed-forward have been discussed, specifically regarding its presentation, which includes written and oral feedback, the incorporation of questioning, and demonstration or exemplification, which are often provided by teachers in pianoforte studies.

In the next section, issues relating to different types and modes of feedback and their relationship to students' sense of self are discussed.

2.2.2 The Relationship between Feedback and Students' Sense of Self

Feedback has been categorised into two specific types which span 'a continuum representing evaluative-descriptive approaches' (Tunstall and Gipps, 1996, p.393). Evaluative feedback, which is clearly positive or negative in nature, relates to convergent assessment, focusing upon behaviourist approaches to learning, as it can be rewarding or punishing, approving or disapproving. Although Van den Bergh et al. (2013) have observed that feedback can be critical in a supportive and constructive sense, they acknowledged that evaluative feedback, which is overtly judgmental, can be destructive, and is likely to have a negative effect upon students' emotions, lower their efficacy beliefs, and prove de-motivating. In contrast, descriptive feedback, which is achievement

or improvement focused, is affiliated with divergent assessment as it specifies levels of attainment, focuses upon specific areas for improvement, and recommends actions to enable the accomplishment of those improvements. As descriptive feedback focuses primarily on students' attainments, and draws attention to 'their progress in mastering the required task' (Gipps, 1994, p.39) rather than merely highlighting shortfalls, a range of authors acknowledged it to be particularly valuable in assisting the development and enhancement of efficacy beliefs, levels of motivation, and effort (Boud, 1995; Bandura, 1997; Black and Wiliam, 1998a; Watkins et al., 2000; Bourdillon and Storey, 2002; The Assessment Reform Group, 2002b; and Cauley and McMillan, 2010).

This evaluative-descriptive distinction is important to acknowledge, not only in terms of the messages about the self that it conveys to students, and its potential impact upon their self-efficacy, but also in terms of their motivation, and the nature of the learning of students who display an orientation to these different types of feedback. It has been observed that 'individuals act in ways that promote a positive self-identity in order to gain the approval of others' (Covington, 1984, p.78), a view previously acknowledged by Rosenberg (1979), thus developing a level of self-respect and self-worth. In circumstances where students take personal responsibility for their successes, and associate failures to external causes, this 'dual tendency' has been referred to as a 'self-serving bias' (Miller and Ross, 1975, cited in Covington, 1984, p.78). Such attributions relate to a basic motive for self-acceptance. Although students' judgements concerning their levels of competence to perform tasks effectively are subjective in nature, self-perceptions of ability or competence are considered to be primary attributes of the self-worth motive (Maehr, 1984), and as

levels of competence are professed to be the main elements of success within academic contexts, students will do their utmost to protect their perceived levels of ability (Covington, 1984).

Students who aim to demonstrate superiority (Nicholls, 1984) and 'gain favourable judgments' about their competence (Dweck, 1986, p.1040), which within pianoforte studies may be when students engage in 'performance goals', such as taking part in competitions, while students who actively 'seek to increase their competence' or to understand and 'master something new', are considered to be engaged in 'learning goals' (Dweck, 1986, p.1040). Students who adopt a learning goal orientation, and work towards the mastery of specific skills rather than adopting a performance goal orientation, have been found to demonstrate positive attitudes, high levels of motivation and interest in the subject, engage in learning naturally, and employ a range of effective learning strategies (Harlen and Deakin Crick, 2003; Black and Wiliam, 1998a; Nicholls, 1984).

With regard to protecting students' levels of 'self-worth' and perceived levels of ability, although Nicholls (1978, cited in Butler, 1988, p.3) observed that 'normative evaluation may be less ego-involving in the early grades', it has been noted that assessment using norm-referenced frameworks, can have serious negative and damaging effects upon students' self-esteem (Ames and Ames, 1984; Crooks, 1988; Bourdillon and Storey, 2002). Within a teaching and learning environment which is not actively norm-referenced, when teachers explicitly communicate information relating to students' academic performances, both in terms of successes and failures, they are implicitly communicating students' perceived status in relation to others (Bandura, 1997). In cir-

cumstances where feedback is norm-referenced and evaluative in nature, while posing little risk for students perceived to be high achievers, particularly if they meet or surpass the performance of competitors or models, it can effectively lower the efficacy beliefs and 'undermine the learning and motivation of students who regularly score near the bottom of a class' (Crooks, 1988, p.450), especially if they consider themselves to be in competition with their peers (Harlen and Deakin Crick, 2003). In such situations, there can be 'many losers and few winners' (Ames, 1984, p.184).

In consequence, teachers need to be robust diagnosticians in terms of evaluating a student's strengths and weaknesses, and be able to structure learning activities that meet individual needs. Accordingly, rather than measuring attainment by making comparisons with other students, it should be measured in terms of self-development, 'student-referenced' attainment (Harlen, 2006a p.111) or ipsative comparison, a process where the 'differential achievement of the same individual on the same criteria over time' is assessed (McCormick and James, 1983, p.246). Indeed, ipsative comparison can prove highly motivating for students when they observe the advancements they have made (McCormick and James, 1983; Sutton, 1992; Schunk, 2000; Adams, 2001; Clarke, 2005; Harlen, 2006a). Self-referenced feedback has proved to be more beneficial for students' 'self-efficacy than norm-referenced feedback' (Chan and Lam, 2010, p.37), although it is accepted that self-referenced feedback 'can have an impact on learning only if it leads to changes in students' effort, engagement, or feelings of efficacy in relation to the learning or to the strategies they use when attempting to understand tasks' (Hattie and Timperley, 2007, p.96). It has also been observed that 'self-modeling' (Bandura, 1997,

p.87), reflecting upon successful performances and the progress made, is a diagnostic process informing the individual about their capabilities, which can promote and reinforce efficacy beliefs.

Effective feedback provides students with two types of information: 'verification and elaboration' (Kulhavy and Stock, 1989, cited in Shute, 2008, p.158). While verification indicates whether a student's response to a task is correct, this response could be elaborated in terms of providing information or cues, which guide the student towards the attainment or mastery of similar tasks in the future. If feedback is provided through elaborations at the right level, it can support students in their comprehension of specific concepts, foster their engagement in tasks, and assist in developing 'effective strategies to process the information intended to be learned' (Hattie and Timperley, 2007, p.104). Within the context of online teaching and learning, Espasa and Meneses (2010, p.289) found that feedback providing 'information on how to improve work and how to take learning further', proved to be utilised more frequently than verification.

Praise in feedback is often employed to 'soften the demotivating effect of grades' with older students, and although it can have a positive effect on their emotive states (Lipnevich and Smith, 2009, p.364), this may only be transitory in nature (Skipper and Douglas, 2012). In circumstances where students demonstrate relatively low levels of attainment, the use of praise may have the opposite effect, as it could be interpreted as a verification of low levels of attainment, and specifically if used excessively when focusing on students' motivation, there have been situations when praise has actively inhibited learning (Black and Wiliam, 1998a). In situations where teachers provide positive feed-

back which is undeserved, 'outcome uncertainty' could be raised thus leading to 'increases in self-handicapping strategies' and learned hopelessness (Hattie and Timperley, 2007, p.95). As praise can be interpreted by students in different ways, and it may not be 'uniformly positive' (Ryan and Deci, 1989, p.266), teachers need to be honest in their appraisals, and if the use of praise in feedback is to be meaningful and effective, it needs to be 'genuine and credible' (Bennett, 1982, cited in Gipps, 1994, p.131) focusing specifically on the content of the task or the process of the learning.

In relation to the use of praise in pianoforte studies, young children respond to social evaluative feedback more positively than objective task-involving feedback, which Stipek (1984, p.155) observed, in a generic context, relates to an innate concern for 'pleasing adults'. This view is supported by research into piano class instruction within nursery and kindergarten teacher training programmes in Japan (Iwaguchi, 2012, p.183) which found that 'positive feedback that incorporates praise is related to motivation for practice at the beginning of piano learning'. Also, in instances when older music students have been motivated to seek 'social approval', if it is achieved, the resulting praise can be internalised, and levels of confidence can be enhanced (Hallam, 2006, p.143).

In educational contexts, active involvement in learning tasks is perceived to be most conducive to learning, as ego-involvement encourages students, particularly where ability levels are perceived to be low, to select tasks that may not actually facilitate learning (Nicholls, 1984). Before engaging in learning activities, students need clear models of the tasks and the standards they are expected to achieve (Bandura, 1997; Schunk, 2000), and when they become in-

trinsically absorbed in task-oriented activities, irrespective of their perceived levels of ability, there is a tendency to engage actively in the development of their skills and levels of competence (Maehr, 1984). In circumstances where students actively employ strategies designed to advance their learning, and the feedback received is employed as evidence that they have utilised these strategies effectively, their 'subsequent intellectual attainments' and 'efficacy beliefs' could be 'substantially enhanced' (Bandura, 1997, p. 81). When students are motivated in this way, they may also be willing to 'risk displays of ignorance' as a means of gaining further support, which could effectively supplement the development of their 'skills and knowledge' (Dweck, 1986, p.1042). The response they receive from such displays could also encourage them to actively 'explore, initiate, and pursue tasks that promote intellectual growth' (Dweck, 1986, p.1043).

To ensure that students remain motivated in their pursuits of specific learning goals, it is important to provide feedback or feed-forward which encompasses an expectation 'that these goals can be met' (Shute, 2008, p.161). Goal-oriented feedback assists students in seeing how '(a) ability and skill can be developed through practice, (b) effort is critical to increasing this skill, and (c), mistakes are part of the skill-acquisition process' (Hoska, 1993, cited in Shute, 2008, p.162). In relation to this, in work with students studying piano proficiency skills in America, Hamel (2001, p.11) observed the need for students to be provided with 'a clearly stated list of practice strategies and goals for scales, arpeggios, and repertoire to master each week', utilising suitable language (Hallam, 1998a). This information could be presented orally or in a written format (Fautley, 2010), or through a process of exemplification (Hale and

Green, 2009; Lehmann et al., 2007) which effectively demonstrates the 'steps by which the goal must be reached' (Sutton, 1992, p.89).

The provision of feedback relating to students' mastery of specific tasks, rather than ego-involving feedback, is regarded as most effective when it focuses students' attention on specific errors, which may be considered a natural part of the learning process by engaging them in thinking about the error, the range of possible solutions, and the processes involved (James, 1998; Biggs, 2003; Hattie and Timperley, 2007; Fluckiger et al., 2010). Errors have been classified as slips, or a lack of understanding relating to the 'difference between a desired response and what a student provides' (Bennett, 2011, p.17). A slip may be a 'careless procedural mistake', which within a musical context, may relate to playing an incorrect note inadvertently, while a lack of understanding or a misconception, may result in performing something incorrectly, such as specific notes, rhythms, or failing to implement expression or tempo indications appropriately. The provision of feedback relating to slips or a lack of understanding is particularly important when considering the development of students' skills in self-assessment and self-regulation, specifically in contexts where much of the progress made is reliant upon independent private practice.

A secure understanding of both the assessment criteria by which their work will be judged and related assessment standards has been found to be important for students learning to play musical instruments. For instance, one study in America suggested that it sometimes proved difficult for beginners to know '…whether they are accomplishing what is expected of them' (Goolsby, 1999a, p.32), and a study in Russia involving elementary and secondary school piano students concluded that the lack of clarity in learning objectives proved

'detrimental to the normal development of the student' (Robert, 1964, p.201). At the University of Ulster, Hunter and Russ (1996) documented an increase in levels of dissatisfaction amongst music students in higher education with regard to their assessed performances, and it transpired that one of the difficulties was the students' lack of understanding of the assessment criteria and standards employed by their teachers. So, in order to promote efficient learning, specifically in musical instrument studies, students need to know 'exactly what is to be learned' as this 'is the first stage of mastery' (Seashore, 1967, p.150; Fisher, 2010; Johansson, 2013), and they also need to have a 'clear understanding about what is to be performed' (Robert, 1964, p.201). This may be achieved by sharing the learning 'goals, objectives, and expectations' (Goolsby, 1999a, p.35), together with success/assessment criteria with students on a regular basis. When students confirm their understanding of set tasks in conversation with their teachers, however, the tone of their comments, their facial expressions, or gestures are also indicative of their true levels of 'understanding and engagement' (McMillan, 2010, p.52).

The way musicians 'feel about their own ability and level of performance has a powerful effect on how they project themselves to their audience' (McPherson and Schubert, 2004, p.67). In relation to this point, Hewitt (2004, p.42) observed that feedback plays 'an important role in developing the recipient's sense of identity as a learner and, in the context of music, as a performer'. Feedback relating to performance, whether interpersonal or intrapersonal, is likely to influence students' attitudes and approaches to future performances. In situations, where negative post-performance feedback has been received, this could induce 'negative self-beliefs, intensification of maladaptive perfor-

mance anxiety and lowering of motivation', possibly leading to withdrawal from performing (Papageorgi, et al., 2007, p.100). In an experimental study conducted in America where students were provided with negative feedback statements or specific directives in their studies, while the findings indicated that there was no difference in the final performances, it was observed that within the negative feedback condition, feedback was delivered dispassionately rather than incorporating expressions of impatience, annoyance, or anger, the students had frequent opportunities to respond to the negative feedback, and the teachers naturally provided positive feedback statements as the students progressed (Duke and Henninger, 1998). Consequently, the way feedback and feed-forward is provided to students, and the environment in which they are presented, will have an effect upon their efficacy beliefs, motivation to practise, and engagement in their studies.

In the following section, the provision of feedback and feed-forward, and issues relating to the possible effects are discussed, starting with a focus upon self-efficacy.

2.3 Feedback, Self Efficacy, Motivation and Self-Regulation

2.3.1 Feedback and Self-Efficacy

As Bandura is acknowledged to be an authority on the concept of self-efficacy, his discussion of issues relating to this forms the foundation of this part of the literature review. It is acknowledged that 'self-efficacy occupies a pivotal role' (Bandura, 1997, p.35) as it impacts upon a range of issues, including the practice of selecting or avoiding tasks depending upon their perceived value, students' levels of confidence in their ability to master the task, and within a mu-

sical context, whether the task actually relates to their personal interests (Iwaguchi, 2012). While Breakwell (1986, p.103) observed that efficacy beliefs are not reliant upon students' perceived levels of ability, but upon the degree of 'perceived success', Bandura (1997) recognised that students with a high sense of efficacy have a tendency to be more successful in mastering specific tasks than others with similar levels of ability, but with lower self-efficacy beliefs. While the quality of academic performance relates to a student's personal capability, managed through levels of motivation and self-regulation, efficacy beliefs will regulate the application of knowledge and skills in specific tasks, and assist in the management of levels of perseverance and commitment. In consequence, self-efficacy may prove to be a more reliable predictor of performance quality than ability alone (Bandura, 1997).

Efficacy beliefs, however, are not fixed, and will develop or fluctuate depending upon a range of circumstances (Bandura, 1983), although they are likely to develop positively and more vigorously in specific domains, relating to students' interests. In relation to personal interests, a study involving 250 conservatoire and university music students within the UK demonstrated that self-efficacy beliefs vary within subject specific domains, observing that a student's 'self-efficacy for performing a piano concerto' may differ from their 'self-efficacy for improvising on the piano' (Ritchie and Williamon, 2010, p.329). Within musical instrument studies it has also been observed that in order to make progress, while students need to become motivated and take personal responsibility for their independent practice, this may not be sufficient to master specific skills or tasks as they need to develop beliefs that they 'either have or are capable of developing the requisite skills' (Chaffin and Lemieux,

2004, p.32). Within a generic context, however, it is acknowledged that when students have formed positive efficacy beliefs, they are likely to regulate their aspirations, affective states, behaviour, and effort effectively, and those who develop a strong sense of efficacy are likely to become intrinsically motivated, develop a deep interest in specific activities, take advantage of opportunities, and persevere in circumstances even when success becomes unlikely (Bandura, 1997).

In situations where highly efficacious people fail to meet expectations, and performance feedback is inconsistent with their efficacy beliefs, there is a likelihood that the feedback will be discarded. In such situations, errors may be attributed to extraneous contextual causes (Bandura, 1997), to a lack of the knowledge and skills required to accomplish the task, or to a lack of effort, which could induce a feeling of guilt (Nicholls, 1984). The corrective role of feedback is particularly important in such situations, as it needs to encourage the student to study the item further with a view to correcting those errors, or addressing their misunderstandings (Kulhavy, 1977). Highly efficacious students, however, are generally resistant to the debilitating effects of failure, and tend to recover their sense of efficacy promptly (Covington, 1984) by engaging in remedies designed to address their failures (Diener and Dweck, 1978). In musical instrument studies, however, this is not always the case, as some students with high levels of personal commitment, will become wholly dispirited (Hallam, 2006).

In comparison, students with a weak sense of efficacy are likely to have low aspirations, exhibit low levels of motivation, commitment and effort, 'give up' easily when faced with difficulties, and actively avoid tasks they consider to

pose a threat (Bandura, 1994). When students with low self-efficacy beliefs receive negative feedback, there is a tendency for them to exhibit lower levels of motivation on subsequent tasks, and they are likely to attribute 'the feedback less to effort and more to ability' (Hattie and Timperley, 2007, p.100). With regard to students 'who have serious deficits, instruction in strategies alone does not increase their efficacy or cognitive skill' (Schunk and Rice, 1992, cited in Bandura, 1997, p.218), but it is understood that these beliefs could be raised when 'repeated verification' is provided 'that they can produce results with those strategies' (Bandura, 1997, p.218), which may assist in alleviating the student's self-doubts. When success is experienced through the implementation of discrete strategies, and success continues when such strategies are repeated, positive efficacy beliefs are likely to be fostered (Bandura, 1997). In relation to this point, it is acknowledged that feedback is likely to increase efficacy beliefs more if it 'centres on process rather than on performance' (Panadero et al., 2012, p.812).

In cases where students perceive intelligence to be 'fixed', they are likely to ascribe their efficacy beliefs to attributes that are internal and stable, as this view does not 'offer them viable ways to improve'. When facing failure, students with a 'growth mind-set', however, are likely to 'escalate their efforts and look for new learning strategies' (Dweck, 2007, p.36).

It has been observed that 'both positive and negative feedback can have beneficial effects on learning' (Hattie and Timperley, 2007, p.98). This observation relates to Kluger and DeNisi's (1996) discussion of Thorndike's (1913) law of effect, noting that while positive feedback effectively reinforces appropriate behaviour, 'negative feedback or disconfirmation' can be effective when di-

rected towards the task, as it is unlikely to be interpreted as a reprimand (Hattie and Timperley, 2007, p.98). However, as it has been argued that efficacy beliefs relate to individual students' levels of commitment, when students are committed to a task they 'are more likely to learn as a function of positive feedback', but when they are required to undertake tasks, to which they are not committed, they 'are more likely to learn as a function of negative feedback' (Hattie and Timperley, 2007, p.99).

While it is understood that efficacy beliefs are established through a multifaceted process of personal encouragement and reinforcement, integrating cognitive, motivational, affective, selective and judgemental processes, through which personal ambitions are achieved (Bandura, 1997), the way teachers present feedback and communicate their expectations is likely to have an effect upon the development of a student's efficacy beliefs (Brookhart and Bronowicz, 2003). Feedback, therefore, needs to incorporate information which fosters students' beliefs in their ability to master specific tasks, nurtures self-regulation, and motivates them to 'invest more effort or commitment to the task' (Hattie and Timperley, 2007, p.95).

It has been recommended that teachers actively engage in developing students' efficacy beliefs as a means of raising levels of attainment, particularly with regard to those who are considered to be underachieving (Jinks and Lorsbach, 2003). The provision of feedback from teachers is considered to be 'instrumental in the formation of children's self-efficacy' (Saville et al., 2014, p.146). In relation to this point, it has been observed that music teachers need to enable students, not only to develop their levels of competence, but to ensure that levels of confidence, and issues relating to anxiety and stage fright are managed

appropriately when performing for an audience (McPherson and McCormick, 2006; Lehmann et al., 2007; Papageorgi, Hallam and Welch, 2007; Creech et al., 2008).

Affiliating students' progress to ability is likely to have a positive effect upon their efficacy beliefs, whereas attributing progress to effort alone may prove demoralising, particularly if students perceive a need to expend high levels of effort to account for their perceived lower levels of ability (Bandura, 1997). Despite this observation, however, in some instances the provision of 'effort-attributional feedback' has actively promoted 'achievement expectancies and behaviours' (Schunk, 2000, p.330).

The notion of 'learned helplessness' and its effects upon students' efficacy beliefs, is reviewed in the following section.

2.3.2.1 Learned Helplessness

The term 'learned helplessness' applies to a range of issues, which may be universal, specific, personal, chronic, permanent or transient in nature (Abramson, Seligman and Teasdale, 1978). These issues include deficits in thoughts, feelings, and actions; the lack of control over processes, or the cognitive mediation of how processes lead to these deficits (Peterson et al., 1993).

The theory of learned helplessness consists of three elements: contingency, cognition and behaviour. Contingency concerns the objective relationship between a person's action and the outcomes experienced. 'The most important contingency here is uncontrollability: a random relationship between an individual's actions and outcomes'. Cognition concerns the individual's perceptions of the contingency, how this is explained, and how this perception and the explanation are utilised 'to form an expectation about the future'. The ele-

ment of behaviour relates to the observable consequences of an individual's contingency and cognitions, such as 'giving up' and failing to implement actions that may control the situation, which may influence individuals' future expectations resulting in low self-esteem and sadness (Peterson et al., 1993, p.8).

It is important to acknowledge that while some students judge their capabilities and task demands effectively, others may underestimate those demands, or indeed overestimate their capability, but still remain free from any element of self-doubt (Bandura, 1994). Certain students, however, who initially engage in activities that are challenging and require high levels of effort and persistence, may reflect and perceive them to be 'unattainable', particularly if they experience repeated failure (Rothman et al., 2011), while other students, despite the perceived unattainability of the task, will persist 'in order to forestall the admission of failure' (Bulman and Brickman, 1976, cited in Diener and Dweck, 1978, p.461). In circumstances where learning goals are set too low so that 'their attainment is certain', it is likely that the consequent success will lose its power to stimulate students, and 'promote further effort' (Birney, Burdick, and Teevan, 1969, cited in Shute, 2008, p.161).

When engaging in tasks that students perceive to be 'unattainable', the learned helplessness model suggests that reduced motivation as a 'defensive strategy' is an automatic response, (Peterson et al., 1993, p.128) and in such circumstances within a musical context, it is likely that these students will withdraw or abstain from those tasks (O'Neill, 1997). As a result, some students will interpret the perceived unattainability of tasks as a reduction in their levels of ability, which becomes a 'causal source of distress and hopelessness' (Coving-

ton, 1984, p.95) resulting in diminished efficacy beliefs, and an increase in levels of 'fear, guilt, and anxiety' (Carver and Scheier, 2011, p.7).

In situations where competence is perceived to be the dominating factor, and there is a lack of extrinsic rewards, some students will actively employ strategies designed to avoid failure rather than striving for success, particularly as Breakwell (1983) observed, if they feel threatened. Covington (1984, p.83) recognised that failure can be avoided by employing a number of 'defensive' strategies, including non-participation, assigning the minimum amount of effort, focus on subsidiary aspects of the task, 'chronic inattention', and 'absenteeism'. However, in cases where students fail to participate in set tasks, there may be consequences in terms of reprimands or punishments, so in order to avoid such penalties, some students will actively employ 'false effort' tactics (Covington, 1984, p.83). Some of these issues raised here are pertinent to pianoforte studies, particularly where students experience difficulties in specific domains, such as understanding key structures and mastering scales, developing specific motor skills, or engaging in sight-reading tasks.

In order to support their need of security, students who employ failure-avoidance tactics aim to transfer the possibility of failure, or perceived failure, from internal attributes, including perceptions of their levels of ability, to external or contextual factors, which are beyond their control. It is acknowledged, however, that the 'excessive use of failure avoiding strategies' and directing attention elsewhere may result in a 'progressive deterioration of the individual's will to learn' (Covington, 1984, p.91) resulting in the acceptance of failure, which within music and sport contexts, Martin (2008, p.135) describes as the process of 'self-handicapping'.

2.3.2 Feedback and Motivation

Within an educational context, Schunk (2000, p.300) has defined motivation, as '…a process of instigating and sustaining goal-directed behaviour', although it should be acknowledged that students can be motivated in different ways: through engagement within a specific activity, the attainment of extrinsic rewards, or the development of perceived self-worth and social solidarity (Maehr, 1984). The importance of feedback and how it can effectively be employed to motivate students, particularly in relation to the mastery of performing within pianoforte studies, is discussed in this section.

When engaging in a specific task or activity, students will consider its value, and whether it relates to their personal interests or needs. Students will also evaluate their levels of competence, and whether they have the skills needed to master the task, and furthermore, they will reflect upon the actual cost of engaging in the task, and whether there are any specific rewards (Eccles et al., 1983, cited in Eccles et al., 1993). Motivating students in some circumstances can be challenging for teachers, as evinced by Perrenoud (1991, cited in Black and Wiliam, 1998a), who observed that not all students aspire to learn as much as possible, and are content to get by.

While students' beliefs about success, and their levels of motivation in learning tend to vary (Watkins et al., 2000), the concept of motivation within the context of this research is complex as it encompasses self-efficacy, levels of effort and perseverance, and self-regulation (Harlen and Deakin Crick, 2003). Perseverance, in particular, is considered to be an important factor, as it relates to students' aptitudes towards their studies (Carroll, 1989), and the provision of feedback, which may support perseverance, is considered to be 'a powerful

motivator when delivered in response to goal-driven efforts' (Covington and Omelich, 1984, cited in Shute, 2008, p.162).

Perceptions of future states and students' ambitions will drive 'purposive behaviour', self-regulation and the motivation to succeed. In order to bring a 'projected future', and the attainment of personal goals into the present, 'forethought' is perceived to be inherent within the process (Bandura, 1997, p.122) as it will generate incentives, stimulate motivation, and guide the student's action. Students will evaluate the behaviour they adopt, set appropriate goals and plan appropriate courses of action, having reflected upon positive or possible negative outcomes, with a view to attaining valued results. While efficacy beliefs have a clear influence upon students' levels of motivation and self-regulation in terms of the choices they make, their behaviour, effort, and levels of determination (Bandura, 1997), positive self-efficacy has been considered to be a precursor to success as it effectively motivates students to take the necessary action, and to engage in the level of perseverance needed to succeed (Jinks and Lorsbach, 2003).

A range of distinct motivational orientations within a musical context, which are likely to be mediated cognitively through 'a complex interaction' involving 'the individual and the environment' (Hallam, 2006, p.142) have been identified. These orientations, which are generic, include self-worth, moral responsibility, achievement motivation, emotional states, levels of natural curiosity and creativity, and unrelenting levels of commitment and effort (Ames, 1984; and Bandura, 1997). It is acknowledged, however, that discrete variables interact in the development of motivational orientations which are identified by Maehr (1984) including personal attributions, perceptions of competence, lev-

els of determination, personal causation, the perceived value or importance of a task in relation to future goals, and a personal-aesthetic motive, which in a musical context relates to the 'pleasure and joy of playing certain pieces of music' (Gellrich et al., 1986, cited in Hallam, 2006, p.145).

Motivation to meet personal goals is mediated by the student's personal state, and some students have been observed to generate their own incentives and rewards to ensure that they persist in their efforts, ultimately making self-satisfaction conditional to meeting their personal standards (Bandura, 1997). In relation to these points, motivation has been categorised by Irons (2008) as intrinsic, extrinsic (see Section 2.1.1), competitive with a view to outperforming others, and social, which within a musical context, relates to pleasing 'other people such as family members' (Irons, 2008, p.36).

The one-to-one 'master–apprentice relationship' (Lehmann et al., 2007, p.187) in musical instrument lessons tends to promote the 'passive reception' of knowledge inherent within a behaviourist approach to teaching and learning, which is 'characteristic of the traditional school setting' (Burwell, 2005, p.201). This process, which within generic contexts, has been classified as 'engineering' (Pratt, 1992, cited in Hallam, 2006, p.165), can be problematic owing to the 'nature of the power relationship' (Higgins et al., 2001, p.273) between the teacher and the student, particularly in situations where the teacher dominates (Bautista, et al., 2009). Such 'asymmetrical power relations' may induce negative emotions, 'form a barrier to learning' (Carless, 2006, p.229), and specifically in pianoforte studies have 'a major impact on students' attitudes, experiences, and willingness to proceed' (Daniel, 2008, p.75).

A range of factors have been acknowledged which influence levels of motivation, including environmental issues, the availability of resources, social support, and the quality of teacher feedback (Schunk, 2000). In relation to the provision of feedback, within circumstances where positive attributions for success are provided, efficacy beliefs relating to future learning may be sustained or enhanced. In a small scale study of Year 7 to Year 10 students in New Zealand, students preferred feedback to be provided as 'suggestions', as this process supported students' 'active engagement with ideas' (Cowie, 2005, p.143). In relation to this point, particularly within the context of one-to-one or small group piano lessons (Marial, 1929; Enoch, 1974; Fisher, 2010), while teachers are enabled to closely monitor their students, over-monitoring, or the provision of too much support, may prove restrictive (Duke, 2012), as students often need 'space and time to experiment, make mistakes, practise, and refine their work' (Adams, 2001, p.168).

2.3.2.1 Intrinsic and Extrinsic Motivation

With regard to young children, it has been noted that there is a tendency for them to become intrinsically motivated, and to assign performance outcomes to effort, while older children become extrinsically motivated, and attribute success to perceived levels of ability as well as effort (Stipek, 1984). Within a generic context, this observation is supported in a recent study conducted in Canada with a sample of 1,600 elementary and high school students aged 9–17 years. The 'results revealed a systematic decrease in intrinsic motivation and self-determined extrinsic motivation from age 9 to 12 years' (Gillet et al., 2012, p.77). Consequently, while it is important to observe that there may be a perceptual change between different age groups, which is likely to impact upon behaviour within the learning environment, Stipek (1984, p.153) noted that

the quality and focus of performance feedback is also likely to influence students' 'achievement-related cognitions … and emotions'. Within musical instrument studies, a range of factors, therefore, could have a negative effect upon students' intrinsic motivation within this age range, and it has also been found that students in higher education contexts will also become extrinsically motivated at times, in order to achieve specific targets and to avoid failure.

Music-related studies focus upon students who have mostly chosen to learn to play musical instruments. An American study involving 568 students aged 9 to 12 years found that 79% of the students rated their lessons good to very good, indicating that the teaching and learning was enjoyable and motivating (Rife et al., 2001), although some of the motivators were clearly extrinsic, such as 'I like when my parents say I did a good job' (ibid. p.27). Although the majority of the students in this study were positive about their lessons, during the late 1950s in America, specifically within the context of piano lessons, Kornreich Davis (1960, p.62) acknowledged that while most students began their lessons willingly and demonstrated high levels of enthusiasm, 'a shockingly high rate' of students discontinued their lessons within the 'first three years' of their studies.

In research relating to the motivation orientations of music undergraduates in three American universities, while it was observed that students are likely to become inherently absorbed in particular activities relating to their studies, Schmidt et al. (2006) observed that there may be a combination of discrete factors incorporating 'competitive and ego orientations' (ibid., p.150) where students may be motivated intrinsically to attain specific goals, but may also be motivated to adopt approaches with a view to avoiding failure.

Also within instrumental studies, when students are given an element of control over the choice of their repertoire, and they are able to negotiate this with their teachers, their levels of motivation are likely to be enhanced (Hallam, 2006; Renwick and McPherson, 2002), and indeed, when positive relationships between students and their teachers are established, students' levels of motivation to learn can be raised (Sloboda and Davidson, 1996; Hallam, 2006; Creech and Hallam, 2011; Iwaguchi, 2012). It is recommended, however, that teachers are sensitive to the way students learn, and that any personality clashes are duly managed through the provision of insightful and thoughtful feedback (Schmidt, 1989; Burwell, 2005). In relation to the development of positive relationships with teachers, within a non-music related context, Ecclestone and Pryor (2003) observed that when students and teachers become open to each other's ideas, forming an effective collaboration and a more even distribution of power, students are likely to become more receptive to the feedback they receive.

After completing a challenging task effectively, when utilising ipsative-referenced feedback (see section 2.2.3) to verify the progress students have made, they are likely to continue with those pursuits, and highly efficacious students may even be motivated to set themselves greater challenges, and indeed, their focus on such activities can assist in fostering higher levels of self-regulation (Ames, 1984; Crooks, 1988; Bandura, 1997). In contrast, however, students who doubt their capability to master similar tasks are likely to reduce their levels of engagement and motivation (Bandura, 1997).

Students who are extrinsically motivated, will have an external incentive or a possible reward in mind (Renwick and McPherson, 2002), which may not nec-

essarily foster a specific interest in an activity or the related subject content. Such rewards could include a prize, the award of an examination certificate (Stobart and Gipps, 1997), or as previously discussed, in some instances students may be motivated to avoid the consequences of failure. Incentives are particularly relevant for students learning to play a musical instrument, where prizes are awarded in competitive festivals, and the successful completion of graded music examinations provide students with landmarks in their 'assessment careers', which illuminate specific strands within their 'learning careers' (Ecclestone and Pryor, 2003, p.471). In such circumstances, extrinsic rewards can nurture performance accomplishment, and the knowledge and skills developed through engagement within such activities, can raise personal efficacy beliefs (Bandura, 1997). In circumstances where incentives are discontinued, however, students who are motivated extrinsically may be inclined to reduce their levels of effort, and their active engagement with the learning process.

Some students are 'likely to use intrinsic and extrinsic factors in conjunction with each other' (Karniol and Ross, 1976, p.463) and their intrinsic interests may actually be fostered when an extrinsic reward is offered (Bandura, 1997). When support for the development of competence, autonomy, and relatedness is provided through feedback, the support provided can 'maintain or enhance intrinsic motivation', as it allows students 'to actively transform values and regulations into their own, and thus to be more self-determined' (Deci and Ryan, 2000, p.239). In circumstances where rewards are accompanied by feedback communicating information about students' performance accomplishments, and levels of competence, students could develop their levels of interest, or maintain an intrinsic interest within the activity (Bandura, 1997). It

has been acknowledged, however, that there may be a controlling element inherent within such feedback, and the outcome, in some circumstances, could be detrimental to the development of a natural interest within the activity, prompting some students to engage in activities simply to gain credit or approval (deCharms, 1968, cited in Ryan and Deci, 1989; Deci et al., 1999).

Although it is generally acknowledged that when students experience dissatisfaction with their performance over a period of time, or if they fail to meet specified targets, they are likely to become dispirited and disheartened, and their levels of motivation will be seriously depleted. Mikulincer (1988, p.684) observed, however, that despite the frustration experienced as a result of failures, there are cases where '… small amounts of failure sustain motivation', and actively prompt students to undertake future tasks. Although some students who fail remain aspirational, they may lack conviction about their levels of ability, become complacent, and decide to accept that they are unlikely to attain high levels of knowledge and skill.

Within a context relating to musical performance, planned performances can have 'an extrinsically motivating effect' upon students' practice and preparation (Harnischmacher, 1997, p.72). In a study conducted within the UK, focusing upon students' preparation for ABRSM examinations, it was observed that the process, which incorporated the implementation of strategies to sustain students' interest and to foster their motivation to practice, had a positive effect in terms of promoting their beliefs that 'future examinations would be positive and likely undertakings' (Davidson and Scutt, 1999, p.95).

Students who engage in work that they value and find genuinely interesting 'may spend endless hours practising and studying' in an effort to excel in that

activity (Rosenberg, 1979), which could have a positive effect on raising morale (Rosenthal and Jacobson, 1968). Consequently, the next section relates to the development of self-regulation in pianoforte studies, and how feedback can effectively engage students in their private piano practice.

2.3.3 Feedback and the Development of Self-Regulation

Higgins, et al (2001, p.274) recommend that teachers adopt a strategy of 'feeding forward', with a view to developing students' skills in self-assessment, self-monitoring, and metacognition, thus enabling them to meet learning objectives in private study with independence and a sense of ownership. In relation to this recommendation, my search for relevant literature identified few studies on the provision of feedback and feed-forward designed to actively promote self-regulation, specifically in musical instrument studies, although some research explains how feedback is essential to the development of self-regulation, and pivotal to students' achievement, for example, Butler and Winne (1995).

For all self-regulated activities, feedback, which is generated internally, is perceived to be 'an inherent catalyst' (Butler and Winne, 1995, p.246). While engaged on a specific task, internally generated feedback will focus upon cognitive processes, the outcomes, and whether specific learning goals or standards have been effectively mastered. Consequently, effective self-regulated learning will incorporate the 'capacity to alter the self's responses to achieve a desired state or outcome that otherwise would not arise naturally' (Bauer and Baumeister, 2011, p.65). In relation to developing this capacity within a musical context, self-regulation is perceived to be a cyclical process as 'feedback obtained from prior performance helps a learner to adjust their performance

and future efforts' (McPherson and Zimmerman, 2002, p.327). While acknowledging that self-regulation involves 'conscious processes', it is recognised that it may also incorporate 'automatic processes' (Förster and Jostmann, 2012, p.147) which specifically relate to pianoforte studies in terms of muscular control and the understanding and interpretation of staff notation.

With regard to the development of autonomous self-regulated learning, three discrete, though linked psychological domains have been considered, specifically the affective, cognitive, and conative domains (Bandura, 1977; Jones and Tanner, 2006). The affective domain relates to students' emotional states, the control of which is considered to be a 'core feature of self-regulation' in terms of managing beliefs about themselves and their ability to learn (McRae et al., 2011, p.199); the cognitive domain relates to students' subject knowledge; and the conative domain links affective and cognitive domains with a view to promoting pro-active behaviour.

As it has been observed that students need to be taught how to develop self-regulatory practices (Nielsen, 2001), in addition to the utilisation of feedback to optimize their learning (Hudesman et al., 2013) three discrete elements inherent within self-regulatory practice have been considered: self-monitoring, self-evaluation, and self-reinforcement (Schunk, 1982; Schunk, 2000). Self-monitoring relates to the regulation of behaviour, specific activities, and the strategies employed when engaged within those activities. As students monitor the progress they make in academic pursuits, the feedback they receive about their progress can be highly effective in developing and promoting their efficacy beliefs (Schunk, 2000). Self-evaluation, a term synonymous with self-assessment (Boud, 1995), relates to students' judgments of the progress they

make, and whether there is a need for particular strategies to be developed or reinforced. Within the process of self-reinforcement, students provide themselves with a 'reinforcement contingent' (Schunk, 2000, p.363), which entails the utilisation of a personal system for recording the progress made.

As self-efficacy beliefs are contextual and generally multifaceted, the effective management, and the accomplishment of difficult tasks will involve the efficient organisation of generic skills, including the analysis of task demands, designing courses of action, setting targets, management of the action employed, reflection upon supervisory feedback, and if necessary, creating incentives and rewards to maintain or enhance levels of motivation. Effective self-regulators, whether engaged in 'automatic or effortful' activities (Calkins and Leerkes, 2011, p.355), are able to 'withstand temptations, persist through obstacles, and delay gratification' (Fitzsimons and Finkel, 2011, p.407).

In order for students to 'produce the performances that secure desired outcomes' they need to become self-reflective, activate a high level of personal control over their resources, and evaluate the effectiveness of the strategies employed, thus developing and activating meta-cognitive skills (Bandura, 1997, p.28). Meta-cognitive skills relate to the student's 'knowledge or beliefs about what factors or variables act and interact in what ways to affect the course and outcome of cognitive enterprises' (Flavell, 1979, p.907), the development of which may be achieved through training and teacher exemplification (James, 1998; Brooks, 2002; James et al., 2007). Hofmann et al. (2011) observed that some tasks involve the orchestration of cognitive and motor skills, a process which is naturally inherent within musical instrument studies (Krampe, 1997), and in practice, when particular skills have been mastered and

become part of a general routine, they may no longer need high levels of cognitive control. As students maintain their efficacy beliefs relating to such automated skills, they will act habitually, and will not need to actively think about this during the activity (Bandura, 1997).

Seven principles of good feedback practice have been identified, which could 'empower students as self-regulated learners' (Juwah, et al., 2004, p.2-3). Effective feedback will:

1. Facilitate the development of reflection and self-assessment in learning.
2. Encourage teacher and peer dialogue relating to learning.
3. Help clarify good performance in relation to learning goals, assessment criteria, and expected standards.
4. Provide opportunities to close the gap between current and desired performance levels.
5. Deliver high quality information to students about their learning.
6. Encourage positive motivational beliefs, and
7. Provide information to teachers that can be employed to help shape their teaching.

Feedback which aims to assist in the development of students' self-regulation and the practice of self-assessment is considered to be of great importance and has been duly acknowledged by a range of authors, including Black, (1998), Black and Wiliam (1998a), Biggs (2003), Daniel (2004), Juwah, et al., (2004), and Nicol and Macfarlane-Dick (2006). In order to engage effectively in the processes of self-regulation and self-assessment, however, students need to understand learning objectives, assessment criteria, and performance standards, which within a musical context, may be enhanced by engaging students in dialogue, both with their teachers and with their peers (Adams, 2001; Blom

and Poole, 2004). In order to become independent, and to develop skills in self-regulation, the development of meta-cognitive skills, in addition to developing 'knowledge about cognition in general', will require students to develop their knowledge and understanding of the range of study strategies available, and how they will be able to apply these strategies to advance their learning (Anderson and Krathwohl et al., 2001, p.55).

In a study of 42 pianists, who engaged in performing as piano duos, it was acknowledged that they tended to be conscientious individuals (Blank and Davidson, 2007) who made independent decisions relating to the 'duration, frequency, and intensity' of their practice sessions (Renwick and McPherson, 2002, p.173) and their approaches to learning. While practice is observed to be the 'backbone of musical study, for no real progress can take place without developing strong practice habits' (Greer, 2013, p.25), it has been acknowledged from a study of 8–9 year old recorder students in America that practice 'requires a compendium of related musical and meta-cognitive skills' (Bartolome, 2009, p.38). In support of this view, Jørgensen (2004, p.87) advocates the development and employment of a repertoire of practice strategies, incorporating 'meta-strategies', which enable students to know how 'to control, regulate, and exploit' specific techniques in their practice.

When learning to play the piano, the development of both factual and procedural knowledge is necessary. In the process of acquiring, developing and understanding factual knowledge, there will be occasions when students will need to seek assistance from their teachers, while procedural knowledge, which incorporates the evaluation of specific learning strategies, may be developed independently. It is important, however, to acknowledge that feedback

relating to the development of procedural knowledge may be essential in some cases to ensure that 'successful procedures are learned' and that strategies which lead to repeated failure are duly discarded (Sloboda, 1985, p.216). The integration of factual and procedural knowledge within the development of self-regulatory practice (Sloboda, 1985) stimulates meta-cognitive thinking, which is considered to be 'fundamental to playing an instrument' (Hallam, 1998a, p.129), and in a study involving 45 students from two music studios in New England, it was found that meta-cognitive thinking may effectively increase a student's 'self-efficacy and motivation' (Bathgate et al., 2012, p.404).

A construct of self-regulatory learning, which concerns the extent to which students are 'meta-cognitively, motivationally, and behaviourally active participants in their own learning' is proposed by Zimmerman (1994, cited in Nielsen, 2001, p.156). This construct includes students setting their own specific learning objectives; engaging in strategic planning, which Sutton (1997) acknowledged to involve the process of reflection and making appropriate links to previous learning; self-control; self-monitoring which requires the student to know 'what to listen for' (Sloboda, 1985, p.101); and self-judgement. The themes detailed within this construct were observed in a study reported by Nielsen (1999, and 2001) involving the observation of learning strategies adopted within the practice sessions of two advanced conservatoire organ students in Norway, although it is acknowledged that students need to manage their time effectively, have access to assistance or advice when needed, and they will require training in self-regulatory learning (Nielsen, 2001). This naturally relates to the development of self-regulatory skills in pianoforte studies, which are fused within three discrete stages of the skill development process:

the cognitive stage, in which the student has to understand what is required in terms of meeting success criteria, and consequently undertakes the task 'while consciously providing self-instruction'; in the associative stage, students become more fluent, and errors are detected and corrected through the provision of personal feedback; and the autonomous stage, where skills become automated, and are carried out without conscious effort (Fits and Posner, 1967, cited in Hallam, 2006, p.93).

In relation to these points, three self-regulating phases, which may be perceived as 'self-teaching', have been identified, specifically: forethought, setting appropriate goals, planning for subsequent practice sessions, and preparation for practice; performance or volitional control during practice, which concerns levels of concentration; and observation, evaluation and self-reflection (McPherson and Zimmerman, 2002). It has also been observed that when pianists have performed in public, either in a concert, examination, or in a competition, they may naturally engage in thinking about what they have to focus on 'in order to do better next time' (Sosniak, 1985, p.53).

In addition to the three self-regulating phases identified by McPherson and Zimmerman (2002), three broad stages have been acknowledged through which students develop and progress as independent pianists (Nielsen, 1996, cited in Jørgensen, 2000, p.71). In the first stage, students are placed in a 'peripheral position' in which teachers dominate, and it is expected that the teachers' views are internalised by the students. In the second stage, learning trajectories are observed to change as students 'engage independently and actively in the musical community of practice' (ibid.), relating to the notion of learning through participation in communities of practice, as discussed by Lave and

Wenger (1991; Wenger, 1998; Wenger et al., 2002). In the third stage, students perceive themselves to be musicians as they enter the profession, either as teachers or performers. In a study, which explored the 'micro-structure of learning', leading to 'continuous improvements of performance during solitary practice' (Nielsen, 2001, p.156), it was found that while students demonstrated attributes of self-regulation, they could further benefit from being taught to take into account 'contextual factors that might adversely affect the success of the strategy'; how to monitor their own performances in greater detail; and to ask themselves questions about their progress during practice sessions (Nielsen, 2001, p.160). Attributes of self-regulation, when learning to play a musical instrument, therefore, can be beneficial particularly in terms of developing the ability to 'plan ahead' which implies that the student needs to have a clear understanding of any task-involving feedback or feed-forward provided by the teacher, and an overarching aural model of the music that is being performed with a view to facilitating self-assessment (Hallam, 2001; Chaffin and Lemieux, 2004; Hallam, 2006).

Expert teachers promote both surface and deep approaches to learning (Marton and Säljö, 1976), depending upon the subject content and the context of the studies (Hattie, 2003). Students adopting deep approaches to learning aim to 'understand and construct the meaning of the learned content' (Gijbels and Dochy, 2006, p.400), and while this observation relates to learning in general, when engaged in practising the piano, students tend to focus on developing their understanding of musical attributes and theoretical issues in addition to increasing their technical expertise, whereas those who have a limited 'conception of the nature of the task', tend to adopt a surface approach and engage in

rote learning (Hallam, 1997a, p.90). Within pianoforte studies, students at all levels of expertise could benefit from rote learning, specifically through teacher demonstration when engaging in the 'physical motions required to produce the desired sound' (Jacobson, 2006, p.23), but it has been acknowledged that in circumstances where teaching strategies which focus on rote learning and remembering become the dominant method of teaching, self-regulation will not be promoted and 'meta-cognition is unlikely to be a needed skill' (McMillan, 2010, p.47).

In a study conducted by Wöllner and Williamon (2007) involving 8 pianists aged 19-27 years at the Royal College of Music in London, the value of both self-generated auditory, tactile or kinaesthetic feedback, and feedback provided by teachers, has been duly acknowledged when it is utilised by the student during piano practice or performance. It has been observed that when students receive musical training, they can become particularly sensitive to 'auditory feedback' relating to pitch when it is 'co-ordinated with actions' (Pfordresher, 2012, p.171) and 'relationships between patterns of movement' upon the keyboard (ibid. p.177). This is an important observation as auditory and kinaesthetic feedback can provide information that 'enables pianists to control individual aspects of their performance plans', specifically in terms of accuracy, expression and the interpretation of the music (Wöllner and Williamon, 2007, p.40).

Within musical instrument studies, where 'there are explicit goals' for students to work towards, there is a likelihood that they will engage in deliberate practice (Lehmann et al., 2007), a process described as a range of activities which have been 'specially designed to improve the current level of performance'

(Ericsson et al., 1993, p.368), and in a case study involving the pianist Gabriela Imreh, it was acknowledged that prolonged deliberate practice is 'essential for the development of high levels of skill' (Chaffin and Imreh, 2001, p.39). In a study involving 41 beginner clarinet students from 16 elementary schools in America, successful practice proved not to be merely a process of repetition (Stambaugh, 2011) but a process that focused upon suitable, challenging, attainable objectives, and ultimately, the development of a range of effective strategies.

The view that thoughts are transformed into action through a process of monitoring and 'conception-matching' (Bandura, 1997, p.26) clearly applies to piano practice, as skilled performances are usually developed over time through a process of matching performance levels to aural or mental models of what needs to be attained (Hallam, 1998a; Lehmann, 1997; Oare, 2011; Duke, 2012; Hallam et al., 2012), although novices may not be aware of some of the errors they make (Hallam, 2006). Skilled performances are usually attained through a process of 'repeated corrective adjustments' (Bandura, 1997, p.26), which require a high level of 'self-regulatory efficacy' (ibid. p.64) and perseverance, until the desired performance is attained (Hallam, 1997b; Ericsson, 1997).

In his study of the responsibility of student learning in higher instrumental education, Jørgensen (2000) observed that 40% of students, over a period of three successive years, indicated that their former teachers had little or no input in guiding them how to practise, a view also observed by Lehmann et al. (2007), while from the teachers' perspective, in a study conducted by Barry and McArthur (1994, cited in Jørgensen, 2000), 84% of instrumental teachers indicated that they always, or almost always, provided students with advice

about how to practise. This point is consistent with generic literature on feedback which highlights marked discrepancies between students' and teachers' perceptions of the nature and helpfulness of the feedback provided (Gibbs and Simpson, 2005).

Following an experiment, in which students' self-evaluations correlated poorly with teacher and peer assessments, it has been considered that the traditional master-apprentice relationship in musical instrument tuition contributes to the lack of ability in students to self-assess their work effectively (Bergee and Cecconi-Roberts, 2002). This is due to the one-way communication system from teacher to student, inherent within the master-apprentice relationship, rather than the 'mentor-friend' model, which fosters greater exchange between teachers and students, where teachers provide ideas, and encourage students to experiment (Lehmann et al, 2007, p.187).

Davidson et al. (1998) indicated that in musical instrument studies, successful students had teachers who were regarded as warm and friendly, although gender and age differences had some effects. While girls 'tend to engage more readily in intimate, confiding relationships than boys', boys 'may be more geared for an achievement-oriented teaching programme' (ibid. p.143). Also, it was observed that children in their teens tended to behave differently towards adults, so in addition to teachers fostering personal, friendly relationships with students, it was acknowledged that children aged 13-16 years became increasingly motivated in their studies when teachers demonstrated 'good performance and professional skills' (ibid. p.155). In a study investigating the verbal behaviours of independent piano teachers with students, some aged 11 years, Speer (1994, p.14) observed that 'less-experienced teachers were more specific

with approvals than their more-experienced colleagues', who were more disapproving. When Siebenaler (1997, p.6) researched teacher-student interactions in piano lessons, involving students aged 7 to 13 years, it was found that 'active teachers provided more modeling and gave more feed-back', and in consequence, students 'tended to perform more successfully.' These points suggest that some experienced teachers may become less tolerant of errors, and less supportive or mindful of the needs of their students.

As students are rarely encouraged to engage in self-assessment practices, they may not have had opportunities to develop those skills. Although not in a specific musical context, a study conducted by Stefani (1994, cited in Black and Wiliam, 1998a) indicated that students who actively engaged in self and peer-assessment, tend to be encouraged to think and learn more, and Black and Wiliam (1998a) view self-assessment as essential for effective learning. In a musical context, this view is supported by Burrack (2002, p.27) who observed that 'self and group-assessments can serve as vehicles for enhancing musical understanding, aesthetic sensitivity, and critical-listening skills'. The importance of developing skills in self-assessment in musical instrument studies, is duly acknowledged, as this is crucial to the development of deep learning and self-regulation, although it may be a difficult skill for students to develop, specifically across age phases, but it has been considered to be particularly important in tertiary education (Oare, 2011), where students are encouraged to reflect 'dispassionately on their practice and performance' (Daniel, 2001, p.217).

It is acknowledged, however, that self-assessment does not develop in isolation (Robert, 1964; Boud, 1995), and peer assessment has been observed to be a bridging skill in the development of competence in self-assessment (Burrack,

2002; Black, et al., 2003). Specifically within a musical context, self-assessment may be promoted by engaging students in listening to recordings of their own work, focusing on pitch, rhythm, tone quality, technique, and musicianship. This process could be particularly useful in lessons, where the teacher provides feedback on aspects of a performance while the student listens to their own work. Indeed, Geiseking and Leimer (1932/1972, p.5) have emphasised the need for pianists to hear themselves play, with a view to eliminating errors, 'in-exactitudes and unevennesses'. Teaching students to engage in self-assessment, may encourage them to take more responsibility for their learning; promote ownership and autonomy in learning; and assist in developing thinking and meta-cognitive skills (Philpott, 2007; Earl and Katz, 2008), which may foster motivation and levels of persistence in their learning (Schunk, 1996, cited in Black and Wiliam, 1998a).

It is also important for students to employ meta-strategies, enabling them to check the effectiveness of specific approaches in their practice, and indeed identify strategies that could be employed if something goes wrong during a performance. As expertise develops, while it is acknowledged that students will 'practise on more days and increase the amount of practice undertaken on those days' (Hallam et al., 2012, p.670), as previously acknowledged, there appears to be little evidence to support the view that 'strategic approaches to practice' are actually 'systematically taught and learned' in lessons (Burwell and Shipton, 2013, p.329-330), a view also acknowledged by McPherson and Renwick (2001), and by Leon-Guerrero (2008) in her study of middle school students in America.

2.4 Conclusion

It is clear from the content of this review that the provision of feedback by teachers within mainstream classroom-related contexts, and the effects of that feedback on academic progress and performance have been extensively researched. The field, however, is vast and multi-faceted, having focused on different age phases, different curriculum subjects, and discrete modes of feedback, which, in addition to feedback provided by teachers, include self or peer-generated feedback, and electronic feedback. Nevertheless, of the 197 generic articles, and 174 music related articles reviewed, only 35 related specifically to pianoforte studies, the majority of which were conducted in America, and many of those conducted in Europe related specifically to students in tertiary educational contexts.

Within the review, it was observed that learning objectives and assessment criteria need to be clarified, which can be managed effectively through exemplification, a process of feed-up. In relation to this point, it is also important to ensure that the feedback and feed-forward provided are clear, and preferably task-involving, especially if they are correctional in nature, so that students understand what needs to be improved, and that they are able to take appropriate action. The focus of the feedback in terms of it being ego or task-involving, evaluative or descriptive was considered. While the literature indicates that task-involving feedback can prove motivating and improve students' efficacy beliefs, ego-involving or evaluative feedback may prove counterproductive, especially if it incorporates norm-referencing, and the inappropriate use of praise, which could effectively de-motivate students, cause distress, and lower their efficacy beliefs.

The appropriateness of different modes of feedback and feed-forward was considered, specifically written feedback, verbal feedback, and feedback provided through the process of exemplification. While generic literature predominantly relates to the provision of written feedback on students' work, literature relating to the provision of oral feedback reflected upon its value in terms of promoting dialogue with students, and its timeliness, although the effectiveness of different time frames for providing feedback varies in relation to the curriculum subject. The provision of immediate feedback is considered more appropriate in pianoforte studies, and other cognate disciplines.

Attributes of feedback and feed-forward were discussed in terms of their relationships with students' efficacy-beliefs, their levels of motivation, and indeed the value of focusing upon intrinsic and extrinsic rewards, and how feedback and feed-forward were employed to foster students' self-regulation.

There are a number of issues within the literature reviewed, however, that have been neglected, or poorly represented. Much of the extant literature tends to address feedback and feed-forward in classroom situations rather than in one-to-one teaching and learning situations, which of course is the predominant mode of teaching and learning the piano; the focus is on written feedback rather than oral feedback, or feedback presented through exemplification; there is only a limited amount of literature which explores feedback in the context of pianoforte studies, and there is little acknowledgement of feedback, which guides students how to practise or to foster self-regulation. Although the early study by Kornreich Davis (1960) identified disappointingly high drop-out rates at an early stage in learning to play the piano, since then, to the best of my knowledge, there have been no in-depth studies focusing on the efficacy of

feedback provided to students at this early, critical stage in their 'learning' and 'assessment careers' (Ecclestone and Pryor, 2003).

This study seeks to address these issues as it focuses primarily upon the efficacy of oral rather than written feedback; it has been undertaken in a UK context rather than the USA; and it focuses on students in KS3 between the ages of 11 and 14, all of whom were at an early stage in their 'learning' and 'assessment careers' (Ecclestone and Pryor, 2003) as pianists, having been studying the piano for 2 to 5 years, rather than being adults in tertiary education. The study also observed the use of feedback in an intimate one-to-one teaching and learning context, which has received little attention.

The specific research questions are presented in the following section.

2.5 Research Questions

1. How efficacious is the feedback provided by teachers in piano lessons within four specific case studies involving children aged 11 - 14?

    a. How is feedback provided by the teachers during lessons received, interpreted and understood by their students?

    b. How well do the students' understandings of the feedback they receive in lessons match their teachers' meanings and intentions?

    c. What explains any discrepancies between teachers' intentions and students' interpretations and responses?

2. Of the different sources of feedback and feed-forward available to students within the case studies (from teachers, parents, other people, themselves, aural or video models), which do they utilise during the private practice that takes place between lessons?

a. To what extent do students within the case studies consciously utilise feedback when practising?

b. For what purposes do these students use different forms of feedback and feed-forward?

3. Within the case studies, how are different forms of feedback and feed-forward perceived to affect students' levels of motivation, commitment, and self-efficacy in pianoforte studies?

a. How are instances of ego-involving and task-involving feedback and feed-forward perceived and evaluated by the students in the case studies?

b. Within the case studies is feedback and feed-forward perceived to have an effect upon the development of students' skills in self-assessment and self-regulation?

c. How do students within the case studies make judgments about their levels of attainment and needs?

4. Within the case studies, how could the efficacy of students' use of feedback and feed-forward be improved?

3 Methodology

3.1 Introduction

As research paradigms and affiliated methodologies are 'mainly determined by the research question' (Freimuth, 2009, p.8), this chapter opens with an evaluation of philosophical and theoretical perspectives, specific paradigmatic positions, and associated methodological approaches that are relevant to the research questions specified at the end of Chapter 2 (see section 2.5). These concepts are reflected upon in section 3.2 with a view to establishing the most appropriate, valid, reliable and ethical research design for this study, which concerns the efficacy of feedback and feed-forward in pianoforte studies. In section 3.3, the development of the research design, including the sampling strategy, is considered, taking into account specific issues highlighted within the pilot study. As qualitative data were generated within this study, the processes of coding, the generation of quantitative data, and the subsequent synthesis and analysis of these data are explained in section 3.4.

Within this chapter, the discussion of theoretical and methodological perspectives is integrated with an account of how these issues related to the study.

3.2 Philosophical and Theoretical Perspectives

Over time, a range of discrete research paradigms have evolved, which accommodate individual researchers' rudimentary beliefs and perceptions about

the world (Guba and Lincoln, 1994). Research paradigms are best perceived as models or patterns relating to specific philosophical positions which incorporate the characteristics, attributes, and structures inherent within society (Kuhn, 1962). The nature of the issues warranting investigation, therefore, may be aligned to a specific paradigmatic position, and guide researchers, not only in terms of the most appropriate methodological approach, 'but in ontologically and epistemologically fundamental ways' (Guba and Lincoln, 1994, p.105). When planning research into the efficacy of feedback and feed-forward in pianoforte studies, positivism, interpretivism, constructionism, and pragmatism, an increasingly accepted approach to research incorporating mixed methods, were considered.

Research, which is designed to discover universal laws or truths, analogous to studies within the natural sciences, is perceived to be embedded within the positivist paradigm (Cohen, et al., 2011). In order to discover such laws, positivist inquiry utilizes research methods designed to generate 'objective and value-free' data (Feilzer, 2010, p.6). It has been observed, however, that such research methods have a tendency to neglect or obscure personal meanings, experiences and understandings (Anderson and Burns, 1989), which are naturally inherent within social situations, such as classrooms (Salomon, 1991). Consequently, owing to the immense complexity of educational contexts, and 'the elusive and intangible quality of phenomena' inherent within society (Cohen, et al., 2011, p.7), the application of a positivist approach for research into the efficacy of feedback and feed-forward in pianoforte studies appeared to be less apposite.

Within the interpretivist paradigm, 'while sharing the rigour of the natural sciences', researchers acknowledge the subjectivity of human experience, and aim to 'describe and explain human behaviour' by placing an emphasis upon the individual (Cohen, et al., 2011, p.5). The view that there is no single objective reality, therefore, is promoted, accommodating the view that people differ from inert natural phenomena. Interpretivist inquiry utilizes a wide range of research methods, generating qualitative data which can lead to a deep understanding of human behaviour, and construct theories emerging from specific contexts, and discrete social situations, which are ''grounded' in data generated by the research act, rather than preceding the research, and being employed as a guiding framework' (Cohen, et al., 2011, p.18). It needs to be acknowledged, however, that some interpretivists question the representativeness, and consequent legitimacy of qualitative data, and indeed whether the research methods employed can actually produce trustworthy findings (Altheide and Johnson, 1994).

As individuals engage in interpreting activities, behaviours, and the symbols inherent within social interaction, our understanding of society is continually being constructed. Constructionism is an approach where people actively 'engage with the world they are interpreting' (Crotty, 2009, p.43) and as meanings are constructed, they are inter-subjective, informed, and alterable, but not absolute. Issues pertaining to the development of understanding, are linked to George Herbert Mead's notion of symbolic interactionism (Crotty, 2009), which also relates to the perception that realities are 'multiple, intangible mental constructions' that are 'socially and experientially based' (Guba and Lincoln, 1994, p.110).

Within the domain of social research, a wide range of natural and contextual factors interact. These factors need to be taken into account when developing research questions, considering appropriate paradigmatic positions, methodological approaches, sampling strategies, the research methods to be employed, and the design of the research instruments. Furthermore, the timeframe for conducting research, and analysing and interpreting the data also needs to be taken into account. In consideration of these factors, it is accepted that there is no formal model for conducting social research (Leitch et al., 2010), and indeed, the lack of consensus on this issue resulted in what has been construed as a paradigm war (Gage, 2007; Hammersley, 2008). Debates relating to the most appropriate ways of conducting research within educational contexts are evaluated within the next section.

3.2.1 The Paradigm Wars in Educational Research

Interest in alternative paradigms was generally 'stimulated by a growing dissatisfaction with the patent overemphasis on quantitative methods' (Guba and Lincoln, 1994, p.105), which over time may have restricted the effectiveness of research within educational contexts. In relation to research focusing upon the development of teaching practice within the twentieth century, 'the search for scientifically grounded ways to understand and improve teaching had led nowhere' (Gage, 2007, p.152) as there was a tendency to search for causal links, which failed to take into account the eccentricities inherent within human behaviour and relationships. Issues regarding human temperament and values, cannot be accounted for effectively using research instruments designed to study the natural world, because such instruments tend not to focus on the 'naturally occurring, ordinary events in natural settings' which provide

a ‘strong handle on what “real life” is like’ (Miles, et al., 2014, p.11). It was important to reflect upon these points, as adopting a scientifically grounded way to understand the effectiveness of feedback and feed-forward in pianoforte studies, was inappropriate, as the individual dispositions and temperaments of both students and teachers, and specifically students’ interpretations of the feedback and feed-forward provided by their teachers, was a natural and inherent feature of the phenomenon under investigation.

Opposing views about the value of research approaches, however, continued throughout the twentieth century, although some researchers observed the value of combining quantitative and qualitative data within discrete positivist, interpretivist or constructionist research paradigms. This has been referred to as the ‘compatibility thesis’, which supported the view that ‘there are important senses in which quantitative and qualitative methods are inseparable’ (Howe, 1988, p.10). It has also been observed that paradigm differences do not need to result in conflict, specifically in educational research, as objective-quantitative methods do not preclude the ‘description and analysis’ inherent within ‘interpretive-qualitative methods’ (Gage, 2007, p.158).

Academic subjects have been categorised according to their level of affiliation, or applicability to single or multiple paradigms within a taxonomy of academic disciplines (Biglan, 1973). Although some individuals perceived paradigms to be ‘rigid and “fixed” worldviews’, which could not be combined (Creswell and Tashakkori, 2007, p.306), in the early 1970s it was observed that a multiplicity of paradigms, incorporating research methodologies which generated both quantitative and qualitative data, could be appropriate for research in educational contexts (Biglan, 1973). In relation to this point, and the observation

made by Howe (1988), the polarization of quantitative and qualitative data has been acknowledged to be problematic, as all phenomena being researched have both quantitative and qualitative dimensions, and the perception that quantitative research is objective, while qualitative research is subjective in nature, is 'neither accurate nor useful' (Ercikan and Roth, 2006, p.22).

A potential limitation of the use of quantitative data has been observed, specifically if it is de-contextualized, where measurements detach 'information from its original ecological *real-world* context' (Castro et al., 2010, p.343). While the generation of qualitative data has been observed to record human behaviour effectively, it may also have limitations concerning the use of small or unrepresentative samples, and the 'reliable integration of information across observations or cases', which can limit the capacity for drawing definitive conclusions and generalizing research findings (Castro et al., 2010, p.343). With regard to issues pertaining to generalizability, however, it needs to be acknowledged that this is not necessarily an exclusive feature of research utilising quantitative data, but whether inferences can relate, or be transferred to other contexts beyond the actual research. In response to the conflicts between paradigmatic positions, a pragmatic approach incorporating both quantitative and qualitative data, which was founded by Charles Sanders Peirce (1839–1914), has become increasingly accepted (Bacon, 2012). However, an interpretivist approach was considered appropriate for this study owing to the emphasis on individuals' experiences of providing and receiving feedback in one-to-one piano lessons. A multiple case study was undertaken involving four students aged between 11 and 14 years, together with their piano teachers. Qualitative data were collected using the following methods:

- Unfocused observations and audio-visual recordings of students' weekly piano lessons
- Post-lesson, one-to-one, semi-structured interviews with the teachers
- Pre- and post-lesson, one-to-one, semi-structured interviews with the students
- Teachers' lesson notes were collected, and students were encouraged to keep practice diaries.

This was a longitudinal study which took place over the course of an academic year. Each student was followed for a month on two separate occasions, resulting in a total of 8 lesson observations plus 8 pre- and post-lesson interviews per student, and 8 post-lesson interviews with their teachers. Finally, lessons were observed and the teachers and students were interviewed again on a single occasion at the end of the academic year.

Although this is essentially a qualitative study, some frequency counts have been included in the presentation of findings. For a more detailed account of the research procedure, see sections 3.3.2, 3.3.4, and 3.3.5.

In the following section, the ethics of conducting research within educational settings are discussed, specifically relating to the research conducted into the efficacy of feedback and feed-forward in pianoforte studies, which involved the prolonged engagement of a number of students and teachers.

3.2.2 Ethical Considerations

When conducting enquiries within educational contexts, there is an expectation that researchers will treat participants fairly, sensitively, and with dignity. Through the process of voluntary informed consent, researchers need to pro-

vide an overview of the proposed research project, which includes an outline of potential risks, indicating whether participants may be vulnerable, or likely to experience discomfort from taking part within the enquiry. It is also important that participants' rights are clearly explained, including their entitlement to privacy, confidentiality and anonymity, unless they are willing to waive those rights (British Educational Research Association, 2011). Also in cases where they make a decision not to participate, or if they initially agree to take part and subsequently discontinue their involvement, it needs to be explained that there will be no penalty (Harcourt and Conroy, 2011; Seidman, 2013).

Special conditions for children also need to be considered, although it has been acknowledged that 'children who are capable of forming their own views should be granted the right to express' themselves freely 'commensurate with their age and maturity', and in such circumstances children should be facilitated 'to give fully informed consent' (British Educational Research Association, 2011, p.6).

Within this study, participants were not put under any duress to take part, and through the practice of voluntary informed consent, the research in which they were to be engaged, why their participation was considered appropriate, and their rights were fully explained (British Educational Research Association, 2011). It was also made clear how the research findings would be employed, and to whom those findings would be reported.

As three of the students and teachers involved in this enquiry were known to me, it is acknowledged that this may have prompted them to take part, especially the students, who had class-music lessons with me at school, indicating

that there may have been a power influence, or a desire for them to please me, thus raising questions about their status as genuine volunteers. Likewise, from the teachers' perspectives, those known to me may have agreed to take part with a view to accommodating my needs, bearing in mind that we are all members of a local teaching community. However, some of the teachers who were invited to take part in this enquiry declined and one of the students, who was also known to me, indicated that s/he would prefer not to take part.

Initial group meetings were held with the participants in each discrete case study, specifically the students and piano teachers who had volunteered to take part, together with the students' parents. In these meetings the content of the research was explained, indicating that lessons would be video recorded cyclically over a period of ten months, and that the participants would be interviewed on a regular basis, both before and after lessons.

Prior to making a decision whether to take part in the research, all participants were asked to reflect upon the level of commitment outlined in the research proposal, and it was emphasised that the students should discuss the proposal with their parents before making a decision. After gaining parental consent, and agreement with their teachers, four students, two boys and two girls of lower secondary school age, agreed to take part in the main study; one of the boys who took part in the pilot study did not continue (Tim, see Table 3.2).

Following these meetings, the formal procedure to gain ethical approval from the University of Warwick was implemented (see appendix 1), and when the research proposal was approved, the process of acquiring voluntary informed consent from the teachers, the students and their parents, was instigated (see appendix 2). As one of the teachers involved in the research was employed by

a local authority music service, and lessons were conducted within a school, consent was also gained from the head of the music service and the headteacher. During this process it was made clear that all contextual information, including the location of interviews and lesson observations, which were to be audio and video-recorded, would be kept private and confidential (Tenney and MacCubbin, 2008; Robson, 2011), and specifically in the final report, it was confirmed that all participants would have pseudonyms, and that the locations would be anonymised. Consequently, all of the data generated, including audio and video files, transcriptions, teachers' notes, and student diaries, were kept secure.

Issues pertaining to the validity and reliability of research, and specifically how these issues related to the research conducted within this project, are discussed in the following sections.

3.2.3 Validity

The concept of validity is rooted within positivist or experimental traditions, and has been defined as a means of determining whether 'research truly measures that which it was intended to measure or how truthful the research results are' (Joppe, 2000, cited in Golafshani, 2003, p.599). Consequently, it is necessary to ascertain whether any 'errors' that occur during the research process (McCormick and James, 1983) have any bearing upon the findings.

As there are many discrete elements inherent within a research enquiry, specifically within an educational context, it is necessary to understand that validity concerns a wide range of discrete and interconnected issues, and in consequence an array of discrete forms of validity have been acknowledged, including face validity, content validity, criterion-related validity, construct validity,

internal validity, and external validity. While face validity is perceived to be an observation of the extent to which a measurement 'measures what it purports to measure', content validity relates to 'inclusiveness' and whether the 'data produced cover all of the relevant subject matter' (McCormick and James, 1983, p.188-189). In relation to content validity, ecological concerns have also been emphasised, indicating that research findings should accurately reflect what is observed within authentic settings (Brewer and Crano, 2000). While construct validity concerns measurement procedures, ensuring that the measurement reflects the construct in which the researcher is interested, and that it does not measure something else, criterion-related validity relates to the level of agreement between a measurement, such as a student's test score, and 'some other criterion', such as a teacher's estimation of that test score (McCormick and James, 1983, p.189). Internal validity relates 'to the soundness of an explanation' and the 'appropriateness of the research design and measuring instruments for producing this explanation', while external validity 'is concerned with the generalizability of findings' (McCormick and James, 1983, p.189). Furthermore, descriptive validity has been identified, which relates to the accuracy and authenticity of the researcher's description of the research enquiry (Hitchcock and Hughes, 1995).

Insofar as the notion of validity has predominantly focused upon research designed to generate quantitative data, in situations where qualitative data have been generated to describe or explain the views or subjectivities of individuals, it has been argued that the concept of validity is not applicable, although it has been recognised that there is a need for some 'kind of qualifying check or measure' (Golafshani, 2003, p.602). During the 1980s, four alternatives to va-

lidity were proposed in qualitative research: credibility, dependability, confirmability and transferability (Lincoln and Guba, 1985, cited in Whittemore et al., 2001). Despite the implementation of these proposed alternatives, together with additional concepts, including trustworthiness, legitimation, and authenticity (Dellinger and Leech, 2007), although validity does not totally escape this element of subjectivity, their employment for validation purposes was considered contentious in that they could be interpreted by different researchers in different ways (ibid.). In relation to this precept, the metaphor of crystallisation was proposed, where crystals '...combine symmetry and substance with an infinite variety of shapes, substances, transmutations, multidimensionalities, and angles of approach' (Richardson, 1994, p.522) indicating that there can be no single or triangulated truth, thus further negating traditionally accepted concepts of validity.

While internal validity concerns the generation of quantitative data, which is utilised to provide comprehensive explanations, the notion of 'credibility' was considered to be an appropriate alternative (Lincoln and Guba, 1985, cited in Whittemore et al., 2001), where a 'match between an evaluator's representation and the "constructed realities" of respondents or stakeholders' (Guba and Lincoln, 1989, cited in Coe, 2012, p.44) is appraised and confirmed through prolonged engagement within the research site; persistent observation with a view to adding depth; peer debriefing, which involves discussing the research with other researchers not involved in the enquiry; and respondent validation, where research subjects confirm and verify the content and interpretation of specific data, thus ensuring all stakeholders have the same understanding (Krippendorff, 2013).

The notion of 'credibility' related to the present study, as prolonged and persistent observations were conducted from 15th September 2011, to 22nd November 2012 (see Table 3.4). At the end of post-lesson interviews, all teachers and students were involved in respondent validation when a summary of the content of lessons and interview responses was presented, so that the accuracy of the content and my interpretation could be verified. With regard to peer debriefing, however, the research was only discussed with my supervisor as I had limited access to other researchers owing to the demands of my full-time job.

With regard to the support of objective claims in qualitative research, it has been acknowledged that the process of confirmability may be employed, where researchers 'demonstrate that findings emerge from the data and not their own predispositions' (Shenton, 2004, p.63). In order to protect against 'unacknowledged researcher biases', the process of confirmability requires the 'general methods and procedures' employed to be described in detail, to ensure that the 'conclusions are explicitly linked with condensed/displayed data'; that researchers indicate 'personal assumptions'; and that 'rival conclusions have been considered' (Miles, et al., 2014, p.311-312).

Within this enquiry, the potential for researcher bias is acknowledged, especially as research into human judgment suggests that bias is almost always unwitting (Laming, 2003). In an attempt to protect against researcher bias, and to establish dependability and confirmability, the research methods and procedures employed are described in detail in section 3.3; a conscious attempt was made to identify and reflect upon any assumptions made, a process acknowledged to be one step towards counteracting any influence on the research findings (Kvale, 1994); any assumptions identified were discussed with partici-

pants during interviews to clarify and verify understanding and meanings; and close, repeated checks were made against the research questions to maintain the focus of the study.

External validity concerns the extent to which the relationship 'observed between independent and dependent variables can be generalized from the settings, persons and contexts studied to those that are part of the scope of application intended by the researcher' (Hedges, 2012, p.29). Within qualitative research, however, the notion of generalizability relates to the degree of transferability and fittingness of research findings to other settings or different contexts (Lincoln and Guba, 2000). However, the notion of transferability 'still assumes that findings from one setting are only generalizable to another setting if both settings are very similar' (Donmoyer, 2000, p.55). In reference to the work of Guba and Lincoln (1985), Coe (2012, p.48) observed that 'it may be possible for research conducted in one context to be applicable to another', but this is not through a generalised claim, rather through a working hypothesis, which is usually evaluated by the reader rather than the researcher. The researcher needs to provide information in terms of a 'thick description', a term introduced by Ryle in 1949 (Ponterotto, 2006), which enables the reader 'to judge whether the two contexts are sufficiently congruent' (Coe, 2012, p.48-49). While the findings and conclusions for the research conducted in this enquiry are not generalizable, they may have elements that relate to the role of feedback in teaching and learning in similar contexts. Specifically in case study research, it has been observed that the emphasis is on 'particularization' rather than 'generalization' (Stake, 1995, p.8), although in discussion of multiple case studies, it is acknowledged that case study reports will 'provide peo-

ple with the vicarious experience useful for transferring assertions from those cases to others' (Stake, 2006, p.88).

A unified validation framework has been proposed in order to promote thinking about validity within research utilising qualitative and quantitative data (Dellinger and Leech, 2007). This framework incorporates a 'foundational element', which acknowledges researchers' levels of understanding of the construct or phenomenon being studied, and how quantitative and qualitative data 'are successfully (a) combined or (b) blended into a usable package' (Onwuegbuzie and Johnson, 2006, p.57) rather than polarizing them, a process which 'is not meaningful or productive' in education research (Ercikan and Roth, 2006, p.14).

The unified validation framework also incorporates an 'inferential consistency audit', which concerns the extent to which 'inferences in a study are consistent given what is known from prior understandings, past research, and theory' (Dellinger and Leech, 2007, p.324). The utilization of historical evidence is also acknowledged to increase a study's validity through 'inferences, measures, or findings', which are incorporated within literature, 'decision making or policy development' (ibid. p.325). Finally, within this framework, akin to consequential validity, 'the consequential element of construct validation' is determined by 'judging the social acceptability of consequences that occur as a result of using a study's findings, measures, or inferences' (ibid.).

3.2.4 Triangulation

Although multiple research methods had been employed in the 1950s for purposes of validation, using the 'multitrait-multi-method matrix' (Campbell and Fiske, 1959, p.81), Webb, Campbell, Schwartz, and Sechrest (1966) were the

first to employ the term triangulation (Johnson et al., 2007). Triangulation is considered to be a process of verification and validation, where data gathered from at least three independent measures are employed to confirm findings (Miles et al., 2014). Six discrete forms of triangulation have been identified: time triangulation; space triangulation; combined levels of triangulation; theoretical triangulation; investigator triangulation; and methodological triangulation (Denzin, 1970, cited in Cohen, et al., 2011).

Time triangulation considers factors of change and process, by utilising cross-sectional and longitudinal studies; space triangulation attempts to resolve the parochialism of studies conducted in the same country or sub-culture; theoretical triangulation draws upon 'multiple perspectives to interpret the results of a study' (Onwuegbuzie and Leech, 2007, p.240), although this process has been considered problematic in the past (Mathison, 1988); investigator triangulation uses more than one investigator to ensure rigour and to alleviate bias; methodological triangulation is a process employing different methods, or the same methods at different times, in order to check responses on the same subject or topic of study; and combined levels of triangulation adopt more than one level of analysis.

Specifically within enquiries utilising quantitative and qualitative data, the process of triangulation can be employed to 'map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint, and in so doing, by making use of both quantitative and qualitative data' (Cohen, et al., 2011, p.195). The principal mode of triangulation utilised within this research was methodological triangulation, using a range of research methods and research instruments to establish whether dif-

ferent stakeholder perspectives and responses were agreed (Guion, 2002), including lesson observations, teacher and student interviews, lesson notes and students' practice diaries.

3.2.5 Threats to Validity

The potential for bias in the activities of a qualitative researcher, in terms of defining problems, sampling, designing data collection instruments, analysis, and 'drawing inferences from non-representative processes' (Miles, et al., 2014, p.295) have been highlighted in section 3.2.3. Furthermore, it is recognised that the researcher may influence participants within an enquiry, and indeed participants could have an influence upon the researcher, accepting an 'agreed-on or taken-for-granted version of local events' (ibid. p.296).

This is an issue that warranted consideration within this study owing to the fact that some of the students had class Music lessons with me as their teacher. However, as the research related to the students' piano lessons, lesson observations, and specifically interviews with their piano teachers, focused my attention upon the research content. It was also necessary to consider whether power relations had an effect upon the quality of the data generated (Bhatti, 2012), so it was necessary in the initial discussions with the students, their parents and teachers, to encourage them to accept my role as a researcher, and not as an authority figure (see section 3.2.2).

It was also essential to reflect upon issues relating to the Hawthorne Effect (Dickson and Roethlisberger, 1966), where participants' levels of commitment and enthusiasm have been observed to be inadvertently enhanced in situations where they perceived themselves to be in receipt of special attention. As the majority of students and teachers involved in this enquiry were known to me

(see Tables 3.2 and 3.3), it is possible that they may have been subject to positive conditioning, and by agreeing to participate in the research, they may have anticipated that they would gain approval. If this proved to be the case, the behaviour of the participants may have changed (Rosenthal and Jacobson, 1968), and as they were aware that the study would focus upon feedback in their piano lessons, the teachers may have paid special attention to the feedback they provided, and students may have altered the way it was received and how they responded.

It is difficult to address attributes relating to the Hawthorne Effect when involving individuals in research projects, particularly if they feel they are the focus of attention. Nevertheless, in the initial discussion with students, their parents, and teachers, it was made clear that they should not make any adjustments to the normal protocol adopted in lessons, although this may not have had any effect, as the participants would initially have been interested to know what I would do in their lessons, and they may have wanted to impress me. However, as dialogue between teachers and their students within lessons appeared natural, articulate and immediate, it was not apparent that their normal routine had changed in any way. Also, as the research was conducted over a prolonged period of time, if the Hawthorne Effect was operating, it is likely to have faded as the participants became increasingly used to my presence in their lessons. This issue will be revisited in the Discussion and Conclusion Chapters.

In research that aims to identify causal relations, or 'the soundness of an explanation' (McCormick and James, 1983, p.189), a range of threats to internal validity have been identified. While these threats relate to experimental or qua-

si-experimental designs (Campbell and Stanley, 1963), some of the issues relate to the research conducted within this study. These threats concern the robustness of research instruments and their implementation; the need to ensure causes precede effects; observation effects which 'changes the phenomenon being observed'; maturation effects, where respondents become older and wiser over time, particularly as this research was conducted over a period of fourteen months; selection, where groups are not randomly assigned; and mortality, where individuals participating within a research enquiry fail to persist throughout the study (Hedges, 2012, p.29), although this particular issue did not occur in this research.

As this enquiry utilised a range of discrete, though related research methods, it was important to acknowledge potential weaknesses, specifically relating to the issue of reactivity, which could have had a negative effect upon the quality of data collected. Issues concerning 'procedural reactivity' and 'personal reactivity' (Hammersley, 2007a, p.121), which specifically relate to the lesson observations and interviews conducted within this enquiry, needed consideration, especially as they were video and audio recorded. Procedural reactivity accounts for the behaviour of participants when they are conditioned by their awareness of being observed, particularly if video cameras are employed (Luff and Heath, 2012). Personal reactivity, however, accounts for behaviour, which is conditioned by the characteristics of the observer. In relation to this point, 'prestige bias' (Thomas, 2009, p.174) warranted consideration as most of the participants were known to me (see Tables 3.2 and 3.3), and they were aware of my background as a concert pianist, and my status as a teacher with a leadership role. In the initial discussions about the research project with students,

teachers and parents, it was emphasised that their normal practice should not change, and by adopting an open and friendly approach, these issues were accommodated. As most of the students already knew me well as a teacher, together with their exposure to me in the role of a researcher over a considerable period of time, this may have assisted in making my presence more readily accepted. This is supported by my own observation that all of the participants behaved naturally with the exception of one teacher whose behaviour changed to some extent in response to the focus of the research, as discussed in section 3.3.3. The use of a single observer across the entire study also had the potential to strengthen the consistency of the observations. This situation could have been different if lessons had been observed on different occasions by unfamiliar observers. A potential disadvantage of having one observer, however, relates to the susceptibility of researcher bias, when working in isolation. The steps taken to mitigate this are explained in section 3.2.3.

3.2.6 Reliability

From a positivist perspective, McCormick and James (1983, p.188) observed reliability to be 'concerned with consistency in the production of results', and the degree to which the original research could be replicated using a similar methodology, either by another researcher, or the same researcher on a different occasion. Within interpretivist studies, however, concerns relating to the replication of research have been raised owing to the 'complexity of the phenomena being studied' (Lewis and Ritchie, 2003, p.270), and the understanding that qualitative studies are likely to contain many 'individual descriptive and conceptual components' (Schofield, 2007, p.183). In relation to these difficulties, Lincoln and Guba (1985, cited in Golafshani, 2003) observed that va-

lidity in qualitative research may be sufficient, hence it may be perceived that the notions of reliability and validity within such contexts are integrated (Golafshani, 2003).

Three specific types of reliability have been identified within positivist research, 'stability, equivalence and internal consistency' (Carmines and Zeller, 1979, cited in Cohen, et al., 2011, p.200), which relate to 'factors affecting the researcher or participants, and the instruments for data collection' (Cohen, et al., 2011, p.200). Issues relating to 'consistency over time (or stability)' concern the extent to which a research instrument 'given to the same people, under the same circumstances, but at a different time' would generate the same data (Punch, 2005, p.95). In relation to the notion of equivalence, in qualitative studies this concerns 'the extent to which assessments, judgements, ratings and so on, internal to the research conduct, are agreed or replicated between researchers' (Lewis and Ritchie, 2003, p.271), or by using alternative data gathering instruments designed to measure the same phenomenon. This process also includes 'inter-coder agreement', where a number of individuals independently code a specific transcript, and their coding is subsequently employed for comparison and verification purposes (Creswell and Plano Clark, 2011, p.212).

Within this study, my supervisor was asked to code a sample of video transcripts of piano lessons 'blind' (see Appendix 4) in order to ascertain the level of agreement between us when applying the codes independently. When presenting the research findings, on rare occasions my supervisor raised questions about coding, for instance on one occasion when an example was coded as error-flagging feedback presented along with a correct response, a question was

raised about whether it should have been interpreted as ‘feed-forward on how to proceed’. As this was an example of the teacher’s immediate response to an error, and no specific direction was presented about how to proceed or improve the work, the error-flagging with a correct response code was maintained. As the coding was generally agreed, despite questions of this nature, no changes were required.

In relation to reliability, the value of reporting the ‘processes within the study’ in detail has been observed, specifically ‘the research design and its implementation’, the data gathering process, and providing an evaluation of the effectiveness of the enquiry (Shenton, 2004, p.71). This relates specifically to case study research, as Yin (2009, p.45) highlighted the importance of providing clear detail, which would enable another researcher ‘to repeat an earlier case study’. Thus, these matters are discussed in the following section.

3.3 Research Design

Having considered the appropriateness of a qualitative approach for this research, the methodology, sampling strategy and research methods employed are reviewed in sections 3.3.1, 3.3.4 and 3.3.5. Having reflected upon the research conducted in the pilot study, weaknesses, and consequent modifications relating to the implementation of the research methods are discussed in section 3.3.3.

When considering an appropriate methodological approach for conducting enquiries, it has been observed that researchers need to evaluate design frames, ensuring that the data generated will answer their research questions and contribute to knowledge (Krippendorff, 2013). Within this enquiry, a multiple

case study design was employed, involving four teachers and four students within authentic settings, who were engaged in the research over a prolonged period of time. A qualitative approach was employed, utilising data generated from lesson observations, interviews, teacher notes and student diaries, thus enabling findings to be confirmed through methodological triangulation. The reasons why this design was considered most appropriate for this study are considered below.

3.3.1 The Case Study

In research within educational settings, case study designs have been utilised to optimise levels of understanding (Stake, 1994) by focusing upon individual people, such as a child or a teacher, a specific community or group of people, for example a class within a school (Robson, 1993), or the effects of an innovative programme (Stake, 1995). A case is perceived to be a bounded system (Smith, 1978, cited in Stake, 1994) which is a specific, complex, 'functioning thing' that is 'non-interventive' in nature (Stake, 1995, p.2 and p.12). In relation to these points, Bassey (2002, p.109) defines a case study as an empirical enquiry which 'is conducted within a localised boundary of space and time' and examines 'interesting aspects of an educational activity, or programme, or institution, or system' within an authentic setting.

Case study research has three different functions, which are identified by Bassey (1999, p.62), firstly for 'theory-seeking and theory-testing', which has been described as an instrumental case study, designed to provide insights into a specific issue, or to assist with the refinement of a theory (Stake, 1994). It has also been acknowledged that this category of case studies seek to explain the 'presumed causal links in real-life interventions that are too complex' for

'survey or experimental' designs (Yin, 2009, p.19). The second category of case studies is story-telling and picture-drawing (Bassey, 1999), which has been categorised as a descriptive case study, which aims to 'describe an intervention and the real-life context in which it occurred' (Yin, 2009, p.20). This has also been classified as an 'intrinsic' case study, which is conducted simply because the case itself is of interest (Stake, 1994). The third category of case studies is the 'evaluative' case study, which sets out 'to explore some educational programme, system, project or event in order to focus on its worthwhileness' (Bassey, 1999, p.63). It has also been observed that case studies may be conducted to 'enlighten those situations in which the intervention being evaluated has no clear, single set of outcomes' (Yin, 2009, p.20). In addition to these purposes, Stake (1994, p.237) has also acknowledged the value of 'collective' or multiple case studies, which incorporate a number of discrete cases, exploring a specific phenomenon, the behaviour, or characteristics of a particular population, or a general condition.

A number of strengths and weaknesses of case study research have been identified. The strengths tend to be located within the generation of descriptive data, which may assist in addressing problems of meaning. Also, as case studies employ a range of research methods, rather than a single approach, a deeper, more detailed, or complete description of the object of research may be possible (Johnson, 1994). While case studies have been criticised for their perceived 'lack of scientific rigour' (Johnson, 1994, p.22), it needs to be acknowledged that there is no set code of practice for conducting case studies as their breadth and compass depend entirely upon the object of investigation and its relative context. Indeed it has been observed that the 'case study is not easily summa-

rised as a single coherent form of research', but an approach which stresses 'the social construction of meaning' within specific contexts or situations (Stark and Torrance, 2005, p.33). Johnson (1994, p.23) warns, however, that there is a potential danger that case studies focus upon unique situations, or phenomena, which may prove to be of 'esoteric interest', and consequently fail to encompass the virtue of 'relatability'.

As case studies are defined by an interest in a particular phenomenon and 'not a methodological choice' (Stake, 1994, p.236), a range of research methods designed to investigate the 'holistic and meaningful characteristics of real-life events' are employed (Yin, 2009, p.4). Although the sources of evidence generated within a case study design can be quantitative, qualitative, or a mixture of both, the employment of mixed methods within traditional designs, such as case studies, is still acknowledged to be an 'emerging trend' (Creswell, 2009, p.98).

Although observations, interviews, and documents are acknowledged to be the most commonly employed research methods within case studies (Stark and Torrance, 2005), surveys, questionnaires, and physical artefacts have also been accepted as legitimate research methods and sources of data (Luck, Jackson and Usher, 2006). The in-depth study of individual cases, or a small number of discrete, though related cases, provides a means of optimising levels of understanding, although it is acknowledged that it may not be possible to generalize beyond those cases.

Multiple case study designs are considered to be more advantageous than single case study designs, as the evidence generated through 'cross-case analysis' (Schwandt, 2001, cited in Thomas, 2011, p.141) can be more robust, and more

compelling (Yin, 2009). In multiple case study designs, the ideal number of cases has been acknowledged to range from four to ten, as two or three cases may fail to demonstrate 'interactivity between programmes and their situations', while more than ten cases may be too great to foster understanding due to the 'uniqueness of interactivity' (Stake, 2006, p.22).

3.3.2 Research Procedure

Having ascertained the advantages of a multiple case study design, and attained ethical approval for the research from the University of Warwick (see Appendix 1), the sample of teachers and students for the pilot study were contacted in January 2011. Following a full description of the research, explaining what would be required, teachers, students, and the students' parents were issued with a letter, incorporating a consent form, which was duly signed by the participants and returned by the end of January, 2011. The pilot study was conducted from 7th February to 14th March, 2011 involving two teachers and two students (see Table 3.2). Four lessons were observed and video recorded in each case study, teachers were interviewed after lessons, and students were interviewed prior to, and following the lesson observations (see Section 3.2.1 and Table 3.1 for an overview of the study).

Following a review of the pilot study (see section 3.3.3), additional teachers, students and parents were contacted with a view to gaining a sample for the main study. Following consent from teachers, students and parents, the main study involved four teachers and four students, and took place from 15th September 2011, to 22nd November 2012 (see Table 3.4).

RESEARCH TIMETABLE

Research Procedure	**Dates**
Ethical approval attained	26th January 2011
Pilot Study	7th February to 14th March 2011
Main Study	15th September 2011 to 22nd November 2012

Table 3.1

In the next section, the pilot study is discussed, and how the actual research methods employed were developed. Subsequently, matters relating to the sampling strategy are considered.

3.3.3 The Pilot Study: Implications for the Main Study

In order to gain a deep understanding of the efficacy of feedback and feed-forward in pianoforte studies, it was necessary to employ research methods which would assist in identifying different types of feedback and feed-forward, whether they were ego-involving or task-involving (Butler, 1988) (see section 2.1.1), and whether students' levels of self-efficacy, motivation, and self-regulation were influenced by the feedback they received. Therefore, within the case study design, piano lessons were observed and video recorded. This process was deemed to be more effective than taking field notes during the observations, due to potential difficulties involved in documenting all of the relevant data (Mulhall, 2002). Video recordings also enabled lessons to be revisited, so that the content could be verified and clarified. In addition, sections of the video recordings were also employed in student interviews for purposes of stimulated recall (Haw and Hadfield, 2011).

Semi-structured interviews were conducted with students, both before and after their weekly lessons, to discuss how the feedback and feed-forward they received from their teachers, and any other sources, were employed during

their practice sessions. The teachers were also interviewed after lessons to ascertain their views about the feedback and feed-forward they provided, and how the students responded (see Table 3.2 for an outline of the study). In addition, the students were encouraged to keep diaries, to document the content and focus of their piano practice, thus illustrating whether the feedback and feed-forward received in lessons had been employed.

FRAMEWORK FOR THE PILOT STUDY

Context	Pilot Case Study 1	Pilot Case Study 2
Participants	Boy Aged 12-13 (Steven)	Boy Aged 13-14 (Tim)
Students Known to the Researcher	Yes	Yes
Students Taught by the Researcher in School	Yes	Yes
Location of Lessons	School: LEA Music Service	Teacher's House
Teacher	Female (Mrs Freeman)	Female (Miss Marston)
Qualifications	B.Ed., Associate of the Guildhall School of Music (AGSM)	B.A. (Hons.) Music Performance
Teacher known to Researcher	Yes	Yes
Type of Lesson	Individual one-to-one	Individual one-to-one
Length of Lesson	15 to 20 Minutes	30 Minutes
Timing	**Data Gathered**	**Data Gathered**
Four Successive Weeks	• Four Student Pre-Lesson Interviews • Four Lesson Observations • Four Student Post-Lesson Interviews • Four Teacher Post-Lesson Interviews • Four Student Diaries	• Four Student Pre-Lesson Interviews • Four Lesson Observations • Four Student Post-Lesson Interviews • Four Teacher Post-Lesson Interviews

Table 3.2

Following decisions relating to the design frame, the choice of research methods and the construction of the initial research instruments, it was necessary to conduct a pilot study, firstly as a means of verifying the appropriateness of the research design, and secondly to identify any potential weaknesses in the research instruments. With regard to organising the pilot study, it has been recommended that it should be conducted 'in a situation as close as possible to that of the actual research', preferably involving participants who can 'play an

active role in suggesting improvements to research instruments' (Glesne, 2006, cited in Ashley, 2012, p.37). These points were duly observed, and the teachers and students involved in the pilot study were actively encouraged to share their views about the content and structure of the research instruments, and to provide feedback relating to the logistics of the inquiry and the general organisation of the research (Yin, 2009).

The pilot study was conducted between February and March, 2011, for a period of four weeks, involving two boys, one aged 12-13 and the other, 13-14 years. Initially it was hoped to include a girl in the pilot study to provide a gender balance, but it proved difficult to recruit a girl at this time: one girl was asked to take part, but on reflection, she declined. The two teachers involved were both female; one was employed by a local authority music service, and lessons took place during the school day, and the other was a private piano teacher, and the lessons were conducted at her house during the evening. This provided two contrasting scenarios (see Table 3.2), which are representative of instrumental lessons within this geographical location.

When designing the pilot study, the initial plan was to record piano lessons using a digital video camera, to interview teachers after the lessons had taken place, and to interview the students both before and after their lessons, using semi-structured interview schedules. While these research methods proved effective during the pilot study, it became apparent that a number of issues needed to be addressed, including the timing of interviews before and after the lessons, and the location of those interviews.

On occasions in the pilot study, post lesson interviews with teachers were missed as subsequent students arrived for their lessons, and in the case of the

teacher who worked for the local authority music service, she had to leave school straight after the lessons to ensure that she arrived at her next school on time. This meant that interviews with teachers had to be conducted later by telephone, and as they were required to recall the content of the lesson, at times this proved to be problematic. Consequently, in the main study, it was necessary to ensure that teachers' post-lesson interviews took place face-to-face at an appropriate time, so that the lesson content and the feedback or feed-forward presented to students had not been forgotten. In consequence all of the teachers involved in the main study planned their timetables to allow for interviews to be conducted immediately after their lessons.

With regard to student interviews, however, following the pilot study, for matters of time and convenience, it was agreed in the main study that the students who had private lessons and attended the school where I teach, would have their pre-lesson and post-lesson interviews in the school at 8.15am on the mornings before and after their piano lessons. This allowed up to 25 minutes for these interviews to take place before morning registration. In the case of the boy who did not attend this school (case study 1), his interviews took place in private at the teacher's house immediately prior to his lesson, and immediately after the lesson.

During the pilot study, students were asked to keep diaries, documenting what they actually did during their practice sessions, and it was intended that the content of these diaries would be referred to in their interviews, for purposes of stimulated recall (Haw and Hadfield, 2011). One of the students in the pilot study, however, did not keep a diary (see Pilot Case Study 2 in Table 3.2), and indeed, this proved to be an issue for the main study.

In addition to asking students to keep diaries, in the pilot study it became apparent that one of the teachers made notes during lessons, which recorded feedback and feed-forward for the student to reflect upon in his practice sessions. Consequently, teachers and students were asked to provide copies of these notes in the main study, although it needs to be acknowledged that one of the teachers did not make notes during lessons.

Another issue became apparent while observing lessons during the pilot study, which involved access to scores of the music the students were studying. When teachers engaged the students in discussion relating to errors they had made on specific lines, or bars, within particular pieces of music, especially where feed-forward was being provided about how to make improvements, it proved difficult to make sense of the discussions as I did not have access to the score. Consequently, in the main study, scores were made available for purposes of observation, and they were also used in interviews to focus discussion and to promote recall.

Issues pertaining to reactivity (Hammersley, 2007a) became apparent in the pilot study: while the intention was not to engage teachers in professional development, at the end of the pilot study one of the teachers indicated that she had learnt a great deal about teaching from the content of the interview questions, indicating that 'the focus on feedback has led to me asking all of my pupils "What are you practising for next week?"'. This indicated that the actual research process had had an impact upon the topic that it was intended to investigate. Consequently, it needed to be acknowledged that while the focus of the research could have this effect upon the participants, albeit inadvertently, there was little that could be done to alleviate the situation, other than being less ex-

plicit about the focus of the research, although providing a more general account of the purpose and focus of the research may be questioned on ethical grounds. It was important, therefore, at the start of the main study to re-emphasise that the participants should attempt, as far as possible, not to make any changes to their normal routines.

It has been observed that participants' apprehensions could be alleviated through the process of pre-project observations, so that they are fully aware of what will be required, but as this teacher was engaged in the pilot study and the main study, this matter needed to be acknowledged. The other teachers involved in the main study indicated that they were confident that the focus of the research would not have any influence.

Following the pilot study, while the position of the video camera was not always ideally placed in some teaching rooms owing to the location of the piano, the protocol for conducting observations was established. In addition to the timing of interviews, the main issue that needed to be addressed related to questions on the interview schedules. With regard to interviews with students before lessons, a large number of the questions on the schedule were closed in nature, thus generating positive or negative responses only, for example 'In your practice, did you refer to your teacher's requests or advice?'. So in order to develop these questions, where positive responses were made, it was necessary to ask students to provide examples, and if the responses were negative, for them to explain their response. Also, it became apparent that some of the questions proved challenging for the students as they had to think about their responses. This issue was addressed by using a semi-structured interview schedule, as it enabled me to explain the questions, and clarify issues that may

have been unclear. Also, from the teachers' perspective, while the questions on their schedule were generally clear, one of the teachers indicated that not all of the questions were relevant each week. In consequence, in the main study, the teachers were asked to indicate if questions lacked relevance.

3.3.4 Sampling Strategy

In their discussion of sampling strategies, Burton et al. (2014, pp.95) explained that probability sampling, which includes random sampling, is usually employed to 'produce generalizable outcomes in the form of statistical inferences', while non-probability sampling, including purposive sampling, volunteer sampling and snowball sampling, is 'usually employed in small scale studies such as practitioner research'. However, with regard to research employing case study designs, the relevance of adopting a sampling strategy has been questioned, as the purpose of a case study is to examine a particular issue 'without any expectation that it represents a wider population' (Thomas, 2011, p.62). It has been observed, however, in case study research that 'it may be useful to try to select cases which are typical or representative of other cases, but a sample of one or a sample of just a few is unlikely to be a strong representation of others', and in consequence the prime focus should be 'to maximize what we can learn' (Stake, 1995, p.4) and how our understanding can be developed.

The sampling strategy employed in this study was one of 'typicality' rather than 'convenience' (Schofield, 2007, p.189), being specifically purposeful in nature (Creswell and Plano Clark, 2011, p.173) as the participants selected needed to have 'experienced the central phenomenon or key concept being explored'. Although the cases selected were 'typical' (see Table 3.3), it was im-

portant to consider issues pertaining to convenience in terms of ‘access, and geographic proximity’ (Yin, 2009, p.93).

Context	Case Study 1	Case Study 2	Case Study 3	Case Study 4
Student gender and age	Boy Aged 11-12 (Daniel)	Boy Aged 13-14 (Steven)	Girl Aged 12-13 (Gemma)	Girl Aged 11-12 (Elaine)
Length of time studying the piano	5 years	4 years	5 years	2 years
Students known to the researcher	No	Yes	Yes	Yes
Students taught by the researcher in school	No	Yes	Yes	Yes
Location of lessons	Teacher's House	School: LEA Music Service	Teacher's House	Teacher's House
Teacher gender	Female (Mrs Mercer)	Female (Mrs Freeman)	Female (Miss Marston)	Female (Mrs Johnson)
Teacher Qualifications	Certificate in Education (Primary School Teach-ing)	B.Ed., Associate of the Guildhall School of Music (AGSM)	B.A. (Hons) in Music Performance	Associate of the Royal College of Music (ARCM)
Teacher known to the researcher	Yes	Yes	Yes	No
Type of lessons	Individual one-to-one	Individual one-to-one	Individual one-to-one	Individual one-to-one
Length of lessons	30 Minutes	20 Minutes	30 Minutes	30 Minutes
Data collected weekly within two groups of four successive weeks, and one final week (nine weeks in total for each case study)	• Student Pre-Lesson Interviews • Lesson Observations • Teacher Post-Lesson Interviews • Student Post-Lesson Interviews • Student Diary and Lesson Notes	• Student Pre-Lesson Interviews • Lesson Observations • Teacher Post-Lesson Interviews • Student Post-Lesson Interviews • Student Diary	• Student Pre-Lesson Interviews • Lesson Observations • Teacher Interviews Post-Lesson • Student Post-Lesson Interviews • Student Diary and Lesson Notes	• Student Pre-Lesson Interviews • Lesson Observations • Teacher Interviews Post-Lesson • Student Post-Lesson Interviews • Student Diary and Lesson Notes

Table 3.3

Access to the cases proved to be an important factor when planning this enquiry owing to my role as a full-time teacher, and associated time constraints. It was necessary, therefore, to ensure that the students received lessons within a manageable travelling distance, ranging from 10 to 15 miles from the school and my home.

The participants in the main study had agreed to being involved for a whole academic year from September 2011 to July 2012, although their actual involvement was for a period of nine weeks within the year, with lesson observations and interviews being organised cyclically, consisting of two groups of four weekly observations, each followed by a break, and a final observation towards the end of the year (see Table 3.4) so that changes or developments could be observed over time.

SCHEDULE FOR THE OBSERVATION OF LESSONS AND INTERVIEWS

Case Study	Dates of the School Weeks 2011-2012 Lessons Observed and Interviews Conducted			
1	15th Sept	30th Sept	6th Oct	3rd Nov
2	10th Oct	17th Oct	31st Oct	7th Nov
3	23rd Nov	1st Dec	7th Dec	14th Dec
4	9th Jan	23rd Jan	30th Jan	6th Feb
1	9th Feb	23rd Feb	8th March	15th March
2	20th Feb	27th Feb	5th March	12th March
3	25th April	2nd May	10th May	16th May
4	17th May	28th May	11th June	18th June
1	12th July			
2		26th March		
3			22nd Nov	
4				2nd July

Table 3.4

Although the school year consisted of 39 weeks, a degree of flexibility needed to be adopted when planning the lesson observations to account for school holidays, Activity Weeks, and examinations. The time lapse between the 8th and 9th lesson observations varied considerably from case to case owing to a range

of factors. In case study 2, Steven's final observation was early so we could reflect upon his Grade 4 examination and the related feedback received from his teacher before the Easter Holiday. My health problem, hospitalisation, and subsequent hospital appointments disrupted Daniel's (case study 1) final observation initially scheduled for the beginning of June, and clashes with school related activities occurred in June and July, hence this was further delayed. In Gemma's case (case study 3), the teacher had to spend time in hospital in June and July, so the final lesson observation took place during the autumn term in the following academic year.

In order to gain a deep understanding of student responses to feedback and feed-forward in pianoforte studies, it was considered beneficial to focus on students of different genders, and so a balance was sought, involving two boys and two girls. Male teachers would have been included in the sample, but none were available within the geographical location. The teachers who agreed to take part in the enquiry had a range of qualifications and teaching backgrounds, which promoted reflection upon the range of approaches to teaching and the provision of feedback. The age range of the students reflected my interest in the secondary school age group, but the actual differences in age, ranging from 11 to 14 years, was incidental. It needs to be acknowledged that two of the teachers who took part in the pilot study, together with one of the students, were also involved in the main study (see Tables 3.2 and 3.3).

3.3.5 Research Methods Employed

3.3.5.1 Lesson Observations

Observations have been defined as 'the act of noting a phenomenon, often with instruments, and recording it for scientific or other purposes' (Morris,

1973, cited in Adler and Adler, 1994, p.378). Whilst an observation may be perceived as a record of an activity from a visual perspective, it has been emphasised that other senses are important for gathering observational data (Adler and Adler, 1994), and specifically in relation to this study, aural data was of vital importance, firstly in terms of the immediacy of oral feedback and feed-forward, secondly in terms of acknowledging feed-up, and thirdly, ascertaining any changes in the students' performances in response to feed-up, feedback or feed-forward. It has been surmised, therefore, that observations will gather 'impressions of the surrounding world through all relevant human faculties' (ibid. p.378).

In relation to the importance of accessing visual information, in his discussion of symbolic interactionism, Blumer (1969) observed that individuals attribute meanings, firstly to physical objects, secondly to issues encountered through processes of social structure and social interaction, and subsequently, through the interpretation of such encounters. In relation to these points, it has been observed that people respond to each other 'by psychologically interpreting each other's actions' (Hitch, 1983, p.119), and that 'a variety of body positions, movements and gestures, directions of gaze' together with the handling of material objects, 'all constitute powerful resources that members can use to give meaning and intelligibility to the situation' (Fele, 2012, p.281-282). Individuals, therefore, need to ascertain the meaning of such non-verbal actions, and in light of their interpretation, make decisions about their responses.

A range of different forms of observation have developed, including structured observation, unstructured observation, shadow studies, participant observation (Jones and Somekh, 2005) and non-participant observation. Structured obser-

vation, as detailed by Bales (1950), is employed to generate quantitative data, which are produced by recording the frequency of occurrences of pre-specified phenomena at specific points in time. In contrast, qualitative researchers tend to engage in relatively unstructured observations, employing field notes, audio, or video recordings to document the events, or incidents observed (Hammersley, 2007a). In participant observation, observers 'gain unique insights into the behaviour and activities of those they observe', as they can become 'absorbed into the culture of the group', although this can be a disadvantage if the observer becomes 'distracted from their research purpose' (Jones and Somekh, 2005, p.140). Non-participant observers, or naturalistic observers, will 'observe participants in the natural settings' to gain an insight into their behaviour (Cohen et al., 2011, p.465). In shadow studies, the observer will track a participant, with or without prior agreement, 'either to study the person shadowed, or to share that person's experiences' (Jones and Somekh, 2005, p.140), although if prior agreement has not been made, this would be unethical.

While it has been observed that data gathered from some research methods, such as questionnaires and interviews, are notorious for discrepancies between what actually happens, and what people say has happened (Robson, 1993), the value of video data is that it provides a detailed, permanent, real-time record of behaviour that enables 'researchers to detect patterns and to code a variety of characteristics reliably' (Jacobs, Kawanaka and Stigler, 1999, p.723). Within this multiple case study design, video recordings of piano lessons provided records of interaction between teachers, students and the piano 'in a very detailed way' (Knoblauch and Schnettler, 2012, p.337), and as the video recordings were transcribed, a structured observation procedure was promoted, spe-

cifically during the data coding process using NVivo 10, which generated quantitative data. The process of coding is explained in Section 3.4.3.

3.3.5.2 Interviews

As a specific research method, Cannell and Kahn (1968, cited in Cohen, et al., 2011) define the interview as a conversation between two or more people, which is designed to generate information relating to specified research objectives. It has also been acknowledged that interviews can be employed to assist in developing explanations, particularly in situations where research findings are unexpected (Cohen, et al., 2011). While a wide range of discrete interview types have been identified (ibid.), within this particular enquiry semi-structured interviews were employed, as they enabled a degree of freedom, while focusing upon specific issues relating to the research objectives (Fontana and Frey, 1994). The process of interviewing both teachers and students within this enquiry, utilising a semi-structured interview schedule, enabled individuals' views about the feedback and feed-forward provided in lessons to be established, and to ascertain any effects the feedback and feed-forward may have had from teachers' and students' perspectives. Interviews also facilitated understanding of how feedback and feed-forward was employed by students' in their private piano practice, which was not observed.

The location for interviews warranted consideration, as there could be potential problems conducting interviews in schools or at the respondents' homes. It has been observed that interviews conducted in schools should be avoided, particularly if the interviewer is placed behind a desk, promoting a power relationship, while interviews conducted in respondents' homes may elicit false information, as respondents may feel over-confident, or even assume control

(Wragg, 1978). Consequently, it is recommended that interviewers make judgements about the location most suited to the nature of the interview, observing that a relaxed environment, in which the interviewee feels comfortable, may prove beneficial. Despite Wragg's recommendations, logistical considerations dictated that most of the interviews were conducted either at the teacher's house, or at a school location, and on one occasion at a student's home. In Case Study 1 (see Table 3.3), the student interviews were conducted in private at the teacher's house, while students in the other case studies were interviewed at their school for purposes of convenience. However, these interviews were conducted in a private teaching room, normally used by local authority music service teachers, which meant that the interviews would not be disturbed.

3.3.5.2a Question Types and Response Modes

In research interviews, a range of discrete question types have been identified, including direct or indirect questions, specific or non-specific questions, and questions designed to generate factual information, or opinions (Tuckman, 1972, cited in Cohen, et al., 2011). Indirect questions are likely to promote 'frank and open responses' albeit circuitously leading to the information the interviewer requires (ibid. p.417).

When using specific and direct questions, power relations, and social positions, such as those between teachers and students, need to be acknowledged as they may have an effect upon the openness and truthfulness of respondents' answers, particularly if they are fearful, or suspicious of any 'hidden agendas' (Barbour and Schostak, 2005, p.41). While indirect and non-specific questions may assist in putting interviewees at ease, there is a potential for such ques-

tions to encourage irrelevant responses, which could waste interview time and provide little or no useful data.

The range of discrete response modes in interviews include unstructured responses, which allow respondents to provide information they consider relevant; structured responses and tabular responses which require respondents to provide specific information; scaled and ranked responses, which are similar to Likert Scales; checklist responses require respondents to choose from a range of alternatives; and categorical, or fixed alternative responses allow respondents to select from two or more answers (Tuckman, 1972, cited in Cohen, et al., 2011, p.419).

A number of potential weaknesses inherent within interviews have been identified (Cicourel, 1964, cited in Cohen, et al., 2011), which are important to address in order to ensure the validity of responses. These weaknesses include issues relating to trust, and the social distance between the interviewer and the respondent; in some circumstances respondents may fail to understand the meaning inherent within specific questions; and respondents may employ avoidance tactics if questions become personal or too searching. Although the semi-structured interview schedules employed within this enquiry provided frames of reference for responses, they also allowed for issues, which may have been unclear to the respondents, to be clarified and explained. Also, as an open ended response structure was employed, 'a minimum of restraint' was put upon the actual responses provided (Kerlinger, 1970, cited in Cohen, et al., 2011, p.416) (see Appendix 3).

Participants were informed that while lessons or interviews were being recorded, they could request that the recording process be curtailed if they felt in any

way uncomfortable, and specifically during interviews they could indicate if there were specific questions that they preferred not to answer. All interviews were recorded using a Roland R-09 Digital Audio Recorder, a small unobtrusive device, which allowed audio files to be downloaded to a computer, which facilitated transcription.

During interviews with students, as in the pilot study, sections of the video recordings of their piano lessons were viewed as a means of stimulating recall (Haw and Hadfield, 2011), as the use of video recordings of lessons in interviews assisted in ensuring that there were no misunderstandings or misinterpretations of the interview questions (Spencer, 2011).

3.3.5.3 Student Diaries

Within the main study students were asked to keep a diary, documenting issues relating to the feedback and feed-forward they received in their piano lessons, either verbal feedback, or notes written by their teachers, and how this was employed in their private practice. They were also encouraged to reflect upon the progress they made, or any difficulties they encountered in their practice sessions. It was also pointed out that they could use mind maps in their diaries (Wheeldon, 2010), which could prove helpful in terms of making specific links between issues inherent within their studies, for example between staff notation, interpretation, and individual feelings about their work.

In order to engage students in the process of keeping diaries, they had the options of presenting diaries as written documents, audio files, or video files. Students were required to specify the time and date of the entries they made in their diaries, and to document issues, which related to their studies, including contextual information, such as the time and location of their practice sessions,

and the focus and content of their practice. They were also encouraged to record their feelings, interpretations, reflections, ideas and explanations in their diaries as soon as possible after their practice, as Altrichter et al. (1993) observed that recollection may unwittingly be modified if there is a delay.

As indicated in the pilot study (see section 3.3.3), this research method was least successful in terms of generating data, as not all students did as requested. Daniel and Gemma (case studies 1 and 3) were motivated to keep detailed written diaries, and when Steven (case study 2) understood that he could present an audio diary in preference to a written diary, he became motivated and engaged in this endeavour. Elaine (case study 4), however, merely documented the amount of time she spent practising, and this was inconsistent.

The perceived strengths and weaknesses of the data generated, and the processes of coding and analysing these data are evaluated and discussed in the following sections.

3.4 Data Analysis

The potential difficulties researchers can experience when managing, organising and analysing large volumes of qualitative data (Johnson, Dunlap and Benoit, 2010), related specifically to this enquiry, as the data generated included video recordings (36 lessons), audio recordings (36 post-lesson interviews with teachers, and 69 pre- and post-lesson interviews with students), all of which were transcribed. In addition, student diaries and teachers' notes were accessed (see Table 3.5).

DATA GENERATED

	Case Study 1	Case Study 2	Case Study 3	Case Study 4	Total
Number of Lesson Observations	9	9	9	9	36
Number of Teacher Interviews	9	9	9	9	36
Number of Student Pre-Lesson Interviews	8	8	9	8	33
Number of Student Post-Lesson Interviews	9	9	9	9	36
Number of Student Diaries Received	43	24	9	9	85
Number of Teacher Lesson Notes Received	12	0	6	17	35

Table 3.5

Where students had not presented practice diaries as word-processed documents, or audio recordings for transcription, photocopies were made of their hand-written diaries, together with the notes made in lessons by teachers, which were scanned so that they could be word-processed to facilitate analysis. Some students presented diaries for specific days, while other students, specifically in case studies 3 and 4, presented their notes on a weekly basis. With regard to lesson notes, in case studies 1 and 4, notes were also provided for some of the lessons that occurred outside the schedule of observations (see Tables 3.4 and 3.5).

Concerning the management of the data, the main issue related to the amount of time involved in transcribing the video recordings of lessons, while focusing on the way feedback was presented and acted upon, detail included verbal communication, body language, facial expressions and gestures. It has been pointed out that while transcriptions of video recordings are believed to provide enhanced detail and accuracy when compared to field-notes, it cannot be assumed that they provide a 'full or objective record of "what happened"'

(Hammersley, 2010, p.555), so when transcribing videos, the focus should be on 'producing relevant and accurate descriptive material' (ibid. p.565) which can assist in answering research questions.

When the transcriptions were completed, they were saved as standard word-processed files and stored in specific case study folders within an NVivo 10 database, which enabled the files to be effectively retrieved when engaging upon the process of coding, which is explained in section 3.4.3.

3.4.1 Data Analysis Procedure

Within the design frame for this research, while no specific research methods were employed to generate quantitative data, as the qualitative data were coded using NVivo 10, counts were generated for the number of times specific codes were applied (see Appendix 4). Although this is essentially a qualitative study, frequency counts generated through the coding procedure were incorporated within the analysis and the presentation of the findings, specifically to observe the regularity of different types of feedback utilised in individual piano lessons, and to ascertain similarities and differences between the case studies. While frequency analysis is broadly aligned to a scientific approach in research, a potential weakness associated with this procedure has been identified, as 'calling frequencies a measure of attention does not make them an index of attention', meaning that the number of times a code is employed, does not necessarily indicate its level of importance (Krippendorff, 2013, p.65). This point is important to reflect upon within this enquiry, as the frequency counts of particular themes and types of feedback and feed-forward observed in lessons may not necessarily be indicative of their perceived level of importance.

3.4.2 Content Analysis

The intention in this study was to gain a deep understanding of key stakeholders' perceptions of the effects of different types of feedback and feed-forward in piano lessons by observing students and teachers in their natural environment. Consequently, a multiple case study design was employed, which generated a range of documents, specifically transcriptions of lesson observations and interviews, the content of which was coded, analysed and subsequently evaluated.

Krippendorff (2013, p.24) defines content analysis as 'a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use'. He indicates that in this definition, the use of the word 'texts' 'is not intended to restrict content analysis to written material' (ibid. p.25). Concerning reliability in content analysis, the importance of ensuring that we 'do our best to explicate what we are doing and describe how we derive our judgements, so others – especially our critics - can replicate our results' is acknowledged (Krippendorff, 2013, p.5).

While Berelson (1952, cited in Krippendorff, 2013, p.50) acknowledged a range of uses for content analysis, within this enquiry, two of these were of particular importance: 'to reveal the focus of attention' regarding the use of feedback and feed-forward, and 'to describe attitudinal and behavioural responses to communications', which relate to students' reactions, in terms of their self-efficacy and motivation.

With regard to the range of research methods where content analysis is employed, Krippendorff (2013, p.33) indicates that interview data are frequently subjected to this approach, as researchers will analyse the content of 'tran-

scripts of these conversations'. This clearly relates to the research methods employed within this enquiry, including interviews with teachers and students, and the observations of piano lessons, which involved one-to-one social interactions. While diaries and lesson notes were also employed as sources of data, they were utilised for illustrative and supportive purposes rather than being coded and quantitized.

3.4.3 Coding the Data

Within the process of coding, while some researchers adopt codes which have been determined prior to the coding procedure, most researchers 'take the position that the codes emerge from the data via a process of reading and thinking about the text material' (Lichtman, 2013, p.248). Specifically in content analysis, 'a theory or prior research is used to guide the analysis in the initial coding' (Lichtman, 2013, p.259), a view supported by Miles, et al., (2014, p.81) who acknowledged that 'one method of creating codes is developing a provisional "start list"', hence deductive coding, while inductive codes are likely to 'emerge progressively during the data collection'. In this enquiry, a coding framework was initially employed for guidance purposes, thus promoting a deductive approach, while a range of other discrete codes emerged while studying the transcripts and finding that the pre-determined codes did not accommodate all of the data, thus promoting an inductive approach.

Although feedback and feed-forward have been found to affect students' self-perception, self-esteem, self-efficacy, motivation, and self-regulation (Harlen, 2006b), it has proved difficult to measure these attributes effectively owing to their subjective nature (Blumer, 1969). Nevertheless, various scales and inventories have been developed for this purpose, several of which were initially

employed to develop a provisional 'start list' to guide the coding and categorising of data within this study, although these scales and inventories were not actually employed to measure these issues. The General Perceived Self-Efficacy Scale, designed by Schwarzer and Jerusalem (1995), together with the new General Self-Efficacy Scale, developed by Chen, Gully and Eden (2001) were used as a guide for coding elements relating to the subjects' perceived efficacy beliefs. Although the Intrinsic Motivation Inventory (University of Rochester, 2011) was designed to measure subjective experiences relating to activities in laboratory experiments, the statements employed within this inventory were utilised for guidance when categorising and coding students' perceived levels of motivation, relating to the feedback and feed-forward received within their studies.

Within individual students' piano practice, the ability to self-regulate is important, especially when utilising the feedback and feed-forward received from their teachers. In order to analyse students' abilities to focus on the issues identified for improvement within their practice sessions, a number of scales relating to self-regulation were employed to develop codes and analyse the data generated. The scales employed included the 'Self-Regulation Scale' developed by Schwarzer, Diehl and Schmitz (1999), together with the Scales for Goal Orientation of Practice, and External Action Distraction constructed by Kuhl and Beckman (1994, cited in Harnischmacher, 1997). Finally, the 'formative feedback guidelines' presented by Shute (2008, p.177-181) as part of her literature review were employed for the purpose of categorising and coding different types of feedback and feed-forward.

As ‘naturalistic qualitative inquiry is concerned with description and explanation of phenomena as they occur in routine, ordinary natural environments’ (Hitchcock and Hughes, 1995, p.296), the approach to data analysis was inductive in nature, where ‘patterns, themes, consistencies and exceptions to the rule’ were formally identified. In relation to this issue, Taylor-Powell and Renner (2003) acknowledge the need for discipline, and the adoption of a systematic approach to coding, analysing and interpreting qualitative data.

When coding the data, which Saldaña (2009, p.4) points out is not a ‘precise science’, rather an ‘interpretive act’, Seidel (1998) has observed a distinction between objectivist and heuristic codes. Objectivist codes provide a ‘condensed representation of the facts described in the data’ (Seidel and Kelle, 1995, cited in Seidel, 1998, p.14), while heuristic codes assist in collecting issues observed within the data so they can be subjected to further analysis. Heuristic codes assist in reorganising data and establishing different views or interpretations (Seidel, 1998). However, it has been acknowledged that in qualitative data analysis it is traditional to ‘treat code words as heuristic tools rather than objective representations of facts’ (Seidel, 1998, p.13), and when coding data using ‘a heuristic approach, code words are primarily flags or signposts that point to things in the data’ (ibid., p.14).

In this enquiry, through the adoption of a ‘constant comparative method’, as outlined by Thomas (2009, p.198), which involved reading, and re-reading the transcripts in order to ensure that codes were applied with consistency, objectivist codes were employed where the transcripts provided ‘unambiguous’ instances of specific issues such as the feedback provided to flag an error, for example playing an incorrect note, or feedback indicating the location of a

mistake, using the musical score to illustrate the error. Heuristic codes were applied to raise attention to issues within the transcripts that required further exploration, and the use of memos within NVivo 10 were employed to promote 'continued reflection' (Saldaña, 2009, p.37).

The availability of the original video and audio data enabled 'repeated scrutiny' of both talk, and in the case of the video data, non-verbal communication 'at extraordinary levels of detail' (Luff and Heath, 2012, p.256). It has also been observed that when coding video data, or a transcription of a video recording, in some instances coding may be enhanced by viewing the videos in slow motion, a process which also promotes consistency and the verification and confirmation of the codes applied (Mondada, 2012) (see Appendix 4 for an example of video coding). In relation to this point, on occasions, for purposes of clarification or verification, while coding transcripts, the actual video recordings of lessons, and audio recordings of interviews, were revisited.

With regard to the coding procedure, Krippendorff (2013, p.42) has observed that 'deductive and inductive inferences are not central to content analysis' and some inferences may be abductive in nature, such as observing whether respondents in interviews are telling lies from their 'non-verbal (facial) behaviour'. This proved pertinent in this enquiry, as some students would indicate in interviews that they had put a lot of time or effort into their piano practice while, on occasions, progress observed in lesson observations did not always support their comments.

It has been observed that the process of generating codes using CAQDAS can be exhaustive in nature, so it is important to ensure that this process is kept manageable (Gibson, 2010). The frequency counts represented the number of

times specific codes were applied in each case study. In relation to this point, Saldaña (2009, p.62) acknowledged the legitimacy of 'simultaneous coding', or the application of 'two or more different codes within a single qualitative datum', particularly as Glesne (2006, cited in Saldaña, 2009, p.62) observed that 'social interaction does not occur in neat, isolated units'. Within this enquiry, there were occasions when codes were applied simultaneously to a specific datum, although this occurred rarely.

While CAQDAS packages, such as NVivo 10, do not analyse data, they facilitate the process of coding (Liamputtong, 2009) which is actually embedded within the data analysis procedure (Miles, et al., 2014). Within the case study folders in NVivo 10, transcripts were organized into sub-folders relating to each week of the study, totalling nine sub-folders for each case study. The documents were coded, initially guided by the range of scales and inventories discussed above, but other codes relating to the research questions were developed through a process of refinement and revision, or relating to specific issues involved in studying the piano, such as 'feedback about how to practise'. Other codes were subsequently amalgamated, such as 'highlighting errors without providing the correct response' and 'incorrect, teacher acknowledges incorrect response with no additional information'.

3.5 Conclusion

Within this chapter, the paradigmatic position, design frame, research methods, research instruments, and the data coding and analysis procedures for this enquiry have been explained and discussed, together with issues relating to the ethics of conducting research, both with young students and adults.

A qualitative approach, with additional frequency counts was utilised within this research (Greene, 2008; Denscombe, 2008; Leech et al., 2010; and Tashakkori, 2009), focusing upon four case studies, which was considered an appropriate number of cases within a multiple case study design (Stake, 2006). The actual research methods and research instruments employed within the case studies were designed to gain a deep understanding of perceptions of the efficacy of feed-up, feedback and feed-forward in this particular context by observing piano lessons consistently over a prolonged period of time. The validity of these methods has been considered, together with issues pertaining to the reliability of the data generated. The findings for each discrete case study are presented in the following chapter, and subsequently compared as part of the Discussion Chapter.

4. Research Findings

4.1 Introduction

The four case studies presented in this chapter provide illustrations of the efficacy of feed-up, feedback and feed-forward (see section 2.2.1) in pianoforte studies, and how this related to individual students' efficacy beliefs, their motivation to practise, and their self-regulation.

All students within the case studies received individual lessons, which took place in small towns or villages within a rural location. One student had lessons at a secondary school, provided by a local authority music service while the other students had private lessons at their teacher's house (see Table 3.4).

All students involved in the research were working towards ABRSM graded pianoforte examinations, ranging from Grade 1 to Grade 4. These examinations required students to play three solo pieces from different historical periods, a range of scales, broken-chords or arpeggios, to sight-read music, and to respond to aural tests (ABRSM, 2010). While actively engaged in studying set examination pieces, all case study students were advised to study additional repertoire pieces, which related to their personal interests.

The case studies are presented discretely (see Table 3.4) incorporating contextual information relating to the teachers and students who took part in the research. The findings in each case study are presented utilising a structure relat-

ing to the research questions, starting with how feedback and feed-forward was provided in lessons, whether students utilised other sources of feedback and feed-forward, and subsequently the extent to which different types of feedback and feed-forward were perceived to affect students' efficacy beliefs, motivation, and self-regulation.

As all of the lessons were video recorded, and subsequently transcribed, the content was coded using NVIVO 10, focusing upon discrete types of feedback and feed-forward, including error-flagging, verification, informative tutoring and hints, all of which are explained in Appendix 4. The coding procedure effectively quantitized qualitative data in terms of the number of instances each type of feedback or feed-forward was identified (see section 3.4.5), a procedure which facilitated comparison between the case studies in Chapter 5.

4.2 Case Study 1

4.2.1 Introduction to Mrs Mercer: Daniel's Teacher

Although Mrs Mercer began playing the piano at her grandmother's house when she was very young, owing to her mother's negative experience with piano teachers, who adopted disciplinary measures if she made mistakes, Mrs Mercer did not begin formal piano lessons until she was in secondary school. At the end of her secondary education, Mrs Mercer had attained Grade 5 Piano (ABRSM), and in her subsequent studies at Bretton Hall College of Education to become a primary school teacher, she took music as her main study. There was a requirement within these studies, however, for her to achieve Grade 8 (ABRSM) on her principal study instrument, so she engaged in further piano lessons at college, and ultimately attained this grade.

Although Mrs Mercer did not engage in further studies after attaining Grade 8, when she completed her teacher training course in 1971, in addition to primary school teaching, she began teaching the piano (see Table 3.3). When she left her job as a primary school teacher, she joined a local authority music service, taking responsibility for teaching class-music in primary schools, and group keyboard lessons. Although the students enjoyed their keyboard lessons, Mrs Mercer did not feel comfortable teaching group lessons, so she left the music service and engaged in private teaching at home. At the commencement of this study, Mrs Mercer had 16 private students, and she had been teaching the piano for over 40 years. She indicated that despite her experience of teaching, she had received no formal training in formative assessment and feedback.

4.2.2 Introduction to Daniel: Pianoforte Student

At the commencement of this study, Daniel was 11 years old and had just started secondary school. In his initial interview, while he indicated that he had initially been inspired by his older brother who had attained Grade 8, he thoroughly enjoyed playing the piano, and relished learning something new. Prior to beginning lessons with Mrs Mercer, with whom he had studied for four years, Daniel had lessons with another teacher for a period of one year, but owing to that teacher's ill health, those lessons were discontinued. He indicated that he normally enjoyed his lessons, and found Mrs Mercer to be a supportive and friendly teacher.

Although he did not have a desire to engage in music as a career, Daniel's aim was to achieve the highest possible grade in his studies. In order to attain this goal, however, he recognised the need to practise every day, and although he felt very nervous about sitting examinations, he acknowledged the attainment

of interim graded examinations to be a valuable target. During the study, Mrs Mercer indicated that Daniel's level of creativity and skills in interpreting music were particular weaknesses, while his desire to do well and his level of perseverance were particular strengths. Indeed, Daniel acknowledged some of his weaknesses, confirming Mrs Mercer's view that he found expression difficult.

In addition to preparing for examinations, Daniel enjoyed playing music in a Jazz style, and he studied repertoire from a range of sources including the 'Upgrade' book for grades 4-5 (Wedgewood, 1997b). Daniel had taken Grades 1, 2 and 3 (ABRSM), passing Grades 1 and 2 with Merit and Grade 3 at 'Pass' level. He had chosen his Grade 4 pieces (ABRSM, 2010c) during the first lesson of the autumn term with a view to taking the examination in March/April 2012. Mrs Mercer indicated that it was her policy to play the official recordings of the ABRSM examination pieces, and allow students to choose the pieces they enjoyed listening to. At the beginning of the study, Mrs Mercer indicated that as Daniel had been working very hard on his Grade 4 pieces, she felt that he could attain a higher mark for this examination.

Daniel's case study provided an illustration of a student who was intrinsically motivated and held the belief that he could master examination pieces, scales and arpeggios effectively. Although he utilised advice from his teacher in lessons and practice sessions, he demonstrated less confidence in mastering aural tests, and he found improvisation and sight-reading particularly challenging.

As Mrs Mercer was aware that Daniel received praise (ego-involving feedback) from his mother, she indicated that her feedback and feed-forward were directed to the task, acknowledging the progress made, and identifying strate-

gies that could be employed to facilitate learning. It needs to be acknowledged, however, that while Mrs Mercer made this claim, '…few people are aware that the theories they espouse are not the theories they use' (Argyris, 1976, p.639), so her use of task-involving feedback is duly analysed and evaluated. A range of different types of feedback and feed-forward were observed in Daniel's lessons, and the following section focuses on the way errors were identified and addressed.

4.2.3 The Provision of Feedback Highlighting Errors in Daniel's Lessons

Chart 4.1 indicates the number of times 'error-flagging' categories (see Appendix 4) were observed during lessons.

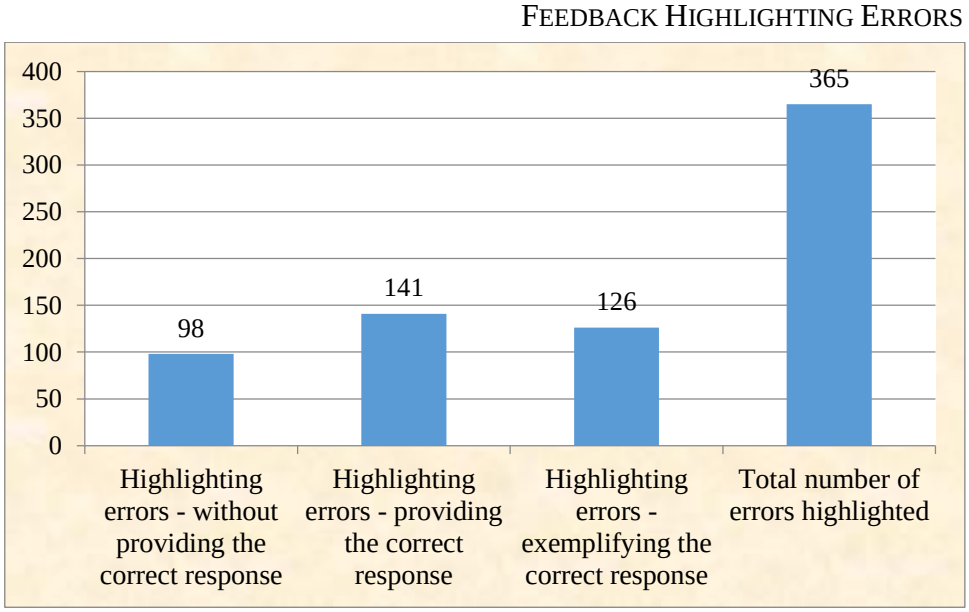


Chart 4.1

During the lesson observations a total of 365 errors were highlighted by Mrs Mercer, just over a quarter (27%) of which were communicated to Daniel without providing the correct response, thus prompting him to reflect, identify the errors, and consider how they could be resolved. In contrast, nearly three-quarters (73%) of the errors highlighted were accompanied with correct re-

sponses, presented verbally or through exemplification, although no further explanation was provided.

While the efficacy of feedback interventions relating to 'physical tasks' has a tendency to be lower than that relating to 'other tasks' (Kluger and DeNisi, 1996, p.273), as errors were signposted while Daniel played the piano, this proved beneficial as he had opportunities to respond while he was mindful of the error, and the immediacy of the feedback assisted in preventing the error from being encoded into his memory (Shute, 2008). The provision of rapid feedback, tailored to the student's needs, is typical in piano lessons, as they are predominantly conducted in one-to-one settings.

In the initial interview with Mrs Mercer, although she indicated that the feedback provided in Daniel's lessons was task-involving, she acknowledged that it was critical and evaluative:

> *Mrs Mercer: My feedback is fairly critical. I don't go into ecstasies about how good his playing is, as I find that a waste of time.*

Within general academic contexts, feedback which lacks specificity, highlighting errors without providing the correct response, may be interpreted by students as a criticism, or leave them unsure how to proceed (Shute, 2008), but within Daniel's lessons, this procedure promoted positive reflection. For instance, during lesson observation 1, Daniel made an error whilst playing 'Chez le forgeron', one of the set Grade 4 examination pieces, and as Mrs Mercer provided no additional information after highlighting the error, Daniel was prompted to think, reflect, and take appropriate action:

> *Action: Daniel plays the first three quavers of bar 6 accurately, then plays F and A with his right-hand instead of F and Bb.*

Mrs Mercer: Whoops.

Daniel: Oh!

Action: Daniel pauses and thinks, then changes the notes to F and Bb and completes bar 6.

When he corrected this error, however, there was no overt indication from Mrs Mercer about the accuracy of his response, and while it has been observed that this can promote a feeling of uncertainty (Shute, 2008), from his experience of working with Mrs Mercer he appeared to understand that her failure to intervene again verified the accuracy of his response.

In 39% of the error-flagging interventions observed in Daniel's lessons, Mrs Mercer highlighted errors by providing correct responses verbally (see Chart 4.1). The issues corrected using this type of feedback included incorrect notes, rhythms, and concerns relating to dynamic control and interpretation. For example, when Daniel played incorrect notes in 'Chez le forgeron', feedback was immediate and corrective, and Daniel responded straightaway:

Action: In bar 8 Daniel plays D and B-natural with his right-hand.

Mrs Mercer: Bb!

Action: Daniel changes it to D and Bb.

(Lesson observation 2)

Despite Kluger and DeNisi's (1996) observation that the effect of feedback interventions on physical tasks is lower than that provided on cognitive tasks, this procedure proved effective in Daniel's lessons. In her interview, Mrs Mercer indicated that there were occasions when Daniel had learnt something incorrectly, but as he was motivated and wanted to succeed, corrections were positively received:

> *Mrs Mercer: …Daniel is usually up for a challenge…he wants to get it right.*
>
> (Teacher interview 1)

Subsequently, Daniel confirmed this in his interview:

> *Daniel: I am quite keen to practise because I just want to make things better.*
>
> (Post-lesson student interview 5)

Daniel's aspiration to 'make things better' was illustrated when playing bar 18 in 'Chez le forgeron', which is identical to bar 8, and in consequence, he had assumed that bar 19 would be the same as bar 9, but this was not the case, and it appeared that he had not read the score, thus learning this section incorrectly:

> *Action: In bar 19 Daniel plays F and D in the right-hand part* [repeating bar 9], *but it should have been G and D.*
>
> *Mrs Mercer: …but you've got a fifth there now, haven't you? Fifth, not a sixth…*
>
> *Action: Daniel continues to play F and D.*
>
> *Mrs Mercer: Put your thumb up a bit…that's a G.*
>
> *Action: Daniel plays G and D.*
>
> (Lesson observation 2) (NB. Text presented in square brackets within quotations has been added to clarify meanings).

While Daniel responded by playing the correct notes, his initial hesitance may have related to his assumption that bar 19 was the same as bar 9, but his lack of engagement in Mrs Mercer's discussion of intervals implied that he may not have understood the terms 'fifth' and 'sixth', an issue that could have been addressed through questioning for the purpose of elicitation, and subsequent ex-

planation if required. In his practice diary for the days following this lesson (1st–6th October) Daniel indicated that he had spent time practising fingering patterns, thus ensuring that his thumb was placed in the correct position when playing bar 19 in this piece. While this illustrates intrinsic motivation and positive self-efficacy, his understanding of intervals appeared to remain unresolved, which raises a question about the efficacy of the feedback which, in this particular instance, focused exclusively upon correction.

With regard to dynamic control, expression, and the interpretation of music, Mrs Mercer highlighted errors verbally while Daniel played the piano or through physical gestures. For example, in Beethoven's 'Minuet in G', the dynamic indication in bar 16 is to play quietly (*piano*), and as Daniel played this too loudly, Mrs Mercer highlighted the error:

> *Action: Daniel plays bar 16 too loudly.*
>
> *Mrs Mercer: Shhh!*
>
> (Lesson observation 6)

Daniel responded to this feedback immediately by reducing his dynamic level. Physical gestures were employed to supplement and enhance the meaning of verbal corrections, for example when Daniel performed music in the wrong register:

> *Action: As Daniel plays bar 17 in 'Carnival in Rio', Mrs Mercer gesticulates with her hand…*
>
> *Mrs Mercer: …an octave higher…*
>
> *Daniel: Yes.*
>
> (Lesson observation 1)

As Daniel immediately changed his position and played the section an octave higher, he demonstrated his understanding of the gesture and the supportive verbal comment.

When Mrs Mercer flagged errors, 34% of these interventions incorporated correct responses through exemplification (see Chart 4.1). This involved singing melodies or vocalising rhythms, usually pointing at the score so that Daniel could observe the correct responses, and on occasions when physical attributes such as fingering needed to be addressed, she would illustrate this by playing the piano. When playing 'Blues' by Hengeveld, for example, Daniel experienced difficulty with rhythm owing to a range of tied notes, triplets, and dotted rests. While Mrs Mercer assisted Daniel by vocalising the rhythms, yet again, as no explanation was provided, it was expected that he would copy this model, thus promoting a didactic approach to teaching and learning (Sfard, 1998) rather than providing feedback designed to promote and verify his understanding:

> *Action: As Daniel plays 'Blues' the rhythm is inaccurate in bar 5.*
>
> *Mrs Mercer: No, de-duh-de* [semi-quaver, dotted quaver, semi-quaver].
>
> *Daniel: Oh yes.*
>
> *Action: Daniel plays bar 5 again inaccurately…*
>
> *Mrs Mercer: Think this…Uh-de-duh-de* [dotted quaver rest, semi-quaver, dotted quaver, semi-quaver]
>
> *Daniel: Oh yes.*

(Lesson observation 6)

After further oral exemplification, Daniel played the rhythm correctly, but there is no evidence that he actually understood the rhythm notation. Mrs Mercer acknowledged this point in the interview following this lesson:

Mrs Mercer: …he didn't quite get the rhythm.

Interviewer: No.

When Daniel studied the first four bars of Beethoven's 'Minuet in G', as the right-hand part is written in double thirds, and there is a requirement that it should be played legato, the fingering proved challenging, and he made some errors, both in terms of fingering and the rhythm. These errors were highlighted by Mrs Mercer, who provided feedback through exemplification, though focusing specifically on fingering:

Action: Mrs Mercer points at the score.

Mrs Mercer: Right…from here.

Action: Mrs Mercer demonstrates by playing the piano.

Mrs Mercer: …and then you go like that.

Action: Mrs Mercer demonstrates swapping fingers 1 and 5 to 2 and 4 while holding the notes down.

(Lesson observation 1)

In the following lesson, while Daniel demonstrated he had made progress with the fingering in this piece, it was clear that he still experienced difficulties with the rhythm, which may have been related, owing to the complexity of the fingering. As he was committed to developing his performance skills, the provision of error-flagging feedback through exemplification proved effective, as Daniel mastered these tasks, which were relatively straightforward, in his pri-

vate practice. However, with regard to Beethoven's 'Minuet in G', where learning required more complex cognitive and motor-skill demands, feedback presented as verbal corrections, or through exemplification, may have been insufficient to close the gap between his current level of performance and the reference level (Ramaprasad, 1983). In this instance, a more dialogic approach to feedback (Alexander, 2014), together with the provision of specific practice strategies, may have proved beneficial.

Although there were instances when Daniel's understanding of specific issues, such as the rhythm in 'Blues', were not always checked and verified, within the examples of error-flagging feedback interventions, where Mrs Mercer highlighted errors by providing correct responses verbally or through exemplification, the immediacy of the feedback or feed-forward encouraged Daniel to respond and implement correct responses appropriately (Kulhavy, 1977), although, as indicated in Beethoven's 'Minuet in G', errors were not always corrected straightaway as fine motor skills can only be developed over time.

While correcting every error, specifically in written work, can prove unhelpful as it is likely to encourage passivity or over-reliance upon the teacher (Black and Wiliam, 1998a) and students may become 'embarrassed and lose confidence' (Hendrickson, 1980, p.217), within the context of Daniel's piano lessons, he accepted all of the corrections, and remained focused on his work; this may have been due to the feedback being task-involving, and that he was intrinsically motivated.

In Daniel's lessons, error-flagging interventions with correct responses provided verbally or through exemplification raised Daniel's awareness, prompted him to make corrections straightaway, and to remember them in his private

practice and subsequent lessons. While highlighting errors with no correct response was observed less frequently (see Chart 4.1), this process prompted him to think about what had been performed incorrectly, and stimulated reflective practice and self-assessment.

While it is not entirely clear how corrective feedback of this nature facilitated the development of transferrable skills in the long term, it is noteworthy that on a number of occasions in the short term Daniel employed specific feedback interventions to resolve similar errors in subsequent lessons. Within the next section, feedback as a process of verification is discussed.

4.2.4 Feedback for the Purpose of Verification

As the accuracy of Daniel's work was verified by Mrs Mercer on 426 occasions (see Chart 4.2), this proved to be the most frequently utilised form of feedback in Daniel's lessons, which ensured that the overall tone of the feedback was positive, encouraging, and assisted in the reinforcement of his motivation and self-efficacy.

CONFIRMING DANIEL'S UNDERSTANDING AND/OR SKILL

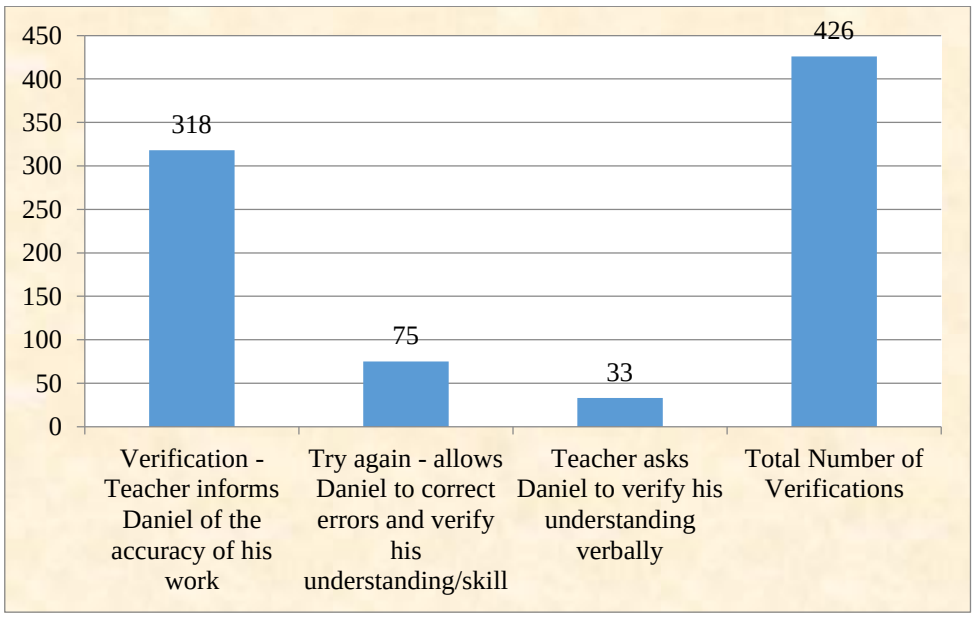


Chart 4.2

While Mrs Mercer frequently verified the accuracy of Daniel's performance as he played the piano (75%) employing brief comments such as 'that's right', 'that's it', 'good', or 'yes', on a lower number of occasions (18%), particularly if he had made an error or experienced a specific difficulty, she asked him to 'try again' (Shute, 2008, p.160), thus providing him with the opportunity to repeat a particular section of a piece and confirm his understanding and/or skill.

When studying 'Chez le forgeron', for instance, Mrs Mercer asked questions to stimulate Daniel's thinking, as he needed time (Rowe, 1972) to work out the notes in the right-hand part. Subsequently, as he played this section, Mrs Mercer verified the accuracy of the notes:

> *Action: Daniel takes time to work out the notes – he clicks his tongue while thinking* [second dotted crotchet in bar 23 - Bb and G].
>
> *Mrs Mercer: What's the note at the top?*
>
> *Action: Daniel plays Bb and G.*
>
> *Mrs Mercer: That's right.*
>
> (Lesson observation 3)

On another occasion, while studying 'Blues', Mrs Mercer asked Daniel to play bar 8 again to verify his understanding and the skill required to play double thirds in the left-hand part. As he played this bar again, Daniel also observed an error which he corrected himself, thus confirming his understanding:

> *Mrs Mercer: Do that bar again.*
>
> *Action: Daniel starts bar 8, but on the second quaver plays G and B instead of G and Bb* [left-hand].
>
> *Daniel: No.*

Action: He tries again, and plays the correct notes.

Mrs Mercer: That's it.

(Lesson observation 8)

As indicated in Chart 4.2, Mrs Mercer asked Daniel to confirm his understanding verbally on only a small number of occasions (7%), for instance, when playing 'Chez le forgeron', Daniel was asked to confirm his understanding of the interval in bar 10:

Action: Daniel plays the right-hand part from bar 7–10. As he approaches the final chord [Perfect fifth F and C]…

Mrs Mercer: Now that's a fifth…

Action: Daniel plays F and C.

Mrs Mercer: That's it, that's it, you've got it!

Daniel: Um…

Mrs Mercer: Got it?

Daniel: Yes…

(Lesson observation 3)

While Daniel was provided with an opportunity to confirm his understanding verbally, his initial response indicated that he seemed a little uncertain, and although he had performed the notes F and C accurately, his final response was taken as confirmation that he had understood the concept of a fifth, which may not have been the case. His understanding of this interval could have been verified more effectively by engaging him in dialogue, exemplifying perfect fifths, and subsequently asking him to demonstrate his understanding. This

would be important as this is a recurrence of a feedback issue raised in section 4.2.3, which occurred in the previous week.

Although Mrs Mercer's verification of the accuracy of Daniel's responses appeared to motivate him, there were occasions when he was unsure about specific issues, and actively asked Mrs Mercer to verify that he had performed them correctly. On over four-fifths (83%) of these occasions he asked questions relating to the subject content, whilst less than a fifth (17%) involved requests to verify the accuracy of his playing (see Chart 4.3).

CLARIFYING UNDERSTANDING

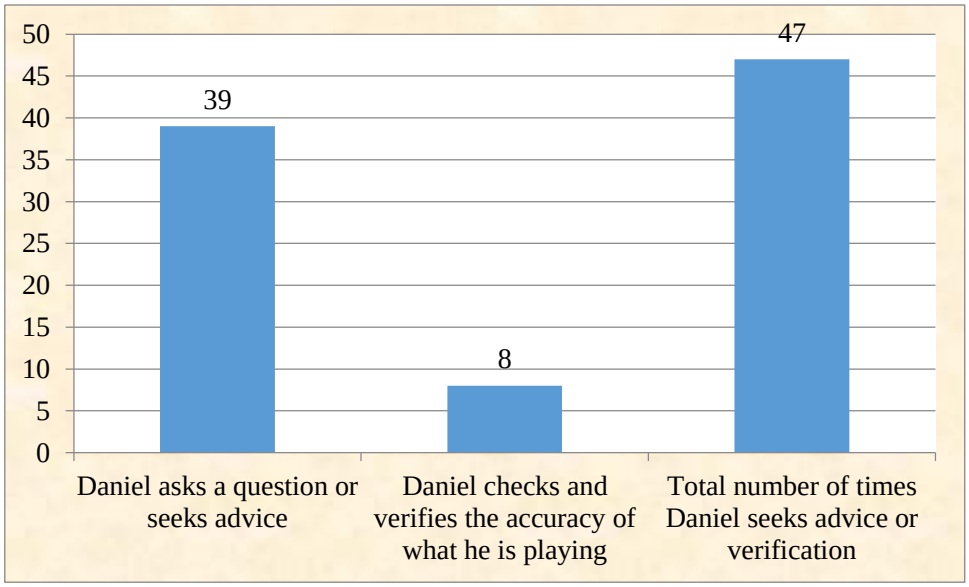


Chart 4.3

On occasions Daniel asked Mrs Mercer to clarify organisational issues, such as the number of octaves to play scales:

> *Action: Daniel starts playing a chromatic scale starting on F# with his right-hand.*
>
> *Daniel: Was that three octaves?*
>
> *Mrs Mercer: No you only do two.*
>
> (Lesson observation 1)

Organisational matters of this nature were dealt with effectively and immediately. On another occasion, when studying 'Jay Walk' (Wedgewood, 1997b), as some of the notes in the right-hand part are written on leger lines below the stave, Daniel needed verification that he had performed them accurately:

> *Daniel: Was that right?*
>
> *Mrs Mercer: That was right, yes.*
>
> (Lesson observation 9)

In the next section, issues relating to the provision of feed-forward in Daniel's lessons are discussed.

4.2.5 The Provision of Feed-Forward in Daniel's Lessons

In her initial interview, Mrs Mercer indicated that when Daniel experienced difficulties or made specific errors, she explained what he needed to do to make corrections or improvements, thus describing a process of feed-forward:

> *Mrs Mercer: I tend to focus on the things that have gone wrong…he wants to know 'What's wrong with that? I want to make it better'.*

Chart 4.4 indicates that a total of 314 feed-forward interventions were observed in Daniel's lessons. Nearly two-thirds (63%) of these consisted of informative tutoring interventions, while just over one-third (37%) were presented as hints (see Appendix 4).

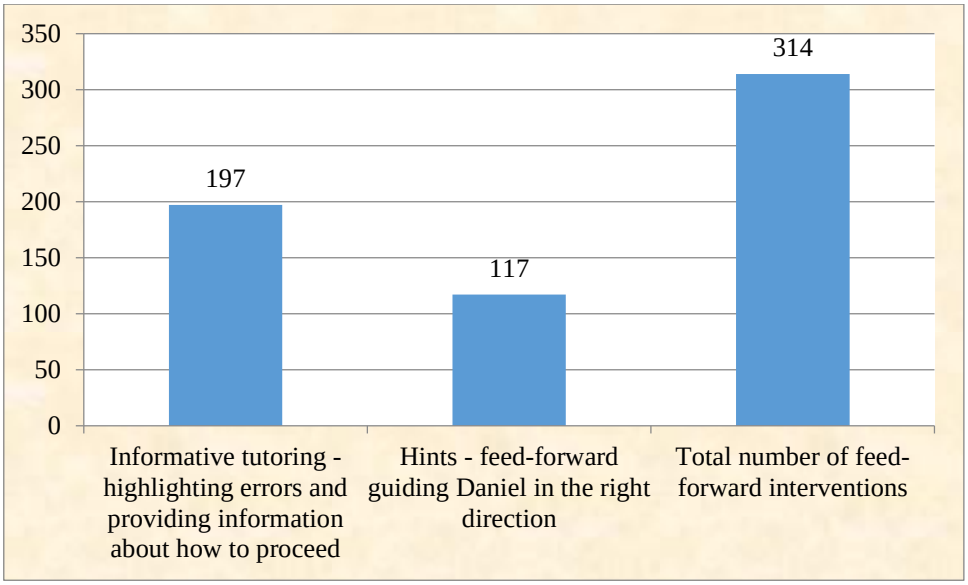


Chart 4.4

When developing students' cognitive skills, such as understanding concepts embedded within technical and specialist musical language, the practice of informative tutoring as a process of feed-forward has proved particularly beneficial if it incorporates a dialogic approach. Alexander (2014) explains that dialogic teaching engages students in 'discussion and argumentation', promoting feedback which encourages forward thinking, probing and challenging issues rather than unquestioningly accepting them. Within Daniel's lessons, however, informative tutoring was predominantly employed by Mrs Mercer to address attributes of his piano technique. An example of this relates to fingering, which if mastered, would assist Daniel in enhancing accuracy and fluency in terms of the notes played, rhythm, and the expressive content. When Daniel was studying 'Chez le forgeron', he encountered difficulties with the fingering in bars 21 and 22. Bar 22 incorporates double-thirds, which are played by the right-hand only, and clarity is lacking as the actual fingering is not printed in the score. Mrs Mercer tried out the fingering before offering advice, which

again suggests a didactic approach to feed-forward, as Daniel was not encouraged to engage in metacognitive thinking to resolve the problem himself.

Action: Mrs Mercer tries the fingering out quickly before offering advice.

Mrs Mercer: OK, I don't think you need to go back under with your thumb.

Action: Mrs Mercer points at the score [bar 21].

(Lesson observation 3)

When Mrs Mercer provided hints that Daniel could employ to develop the accuracy of his performance, the focus of these hints included reminders about correct notes, rhythms, and physical attributes including the gross-motor skills required for co-ordinating pedalling, and the fine motor-skills required for managing dynamics and expression. For instance, following a previous error in 'Carnival in Rio', as Daniel approached this section, Mrs Mercer provided a hint to remind him about note accuracy:

Mrs Mercer: Watch the notes carefully.

Action: Daniel plays bars 33–34 very slowly, but accurately.

(Lesson observation 3)

In the previous lesson, while studying 'Carnival in Rio', it became apparent that Daniel had not come across the term '8va', which specified that the right-hand part in bars 17 to 25 should be played an octave higher than written. Although the introduction of a new concept is classified as a process of teaching (see Appendix 4), Mrs Mercer provided hints and asked questions as feed-forward to stimulate Daniel's thinking and to develop his understanding:

Action: Mrs Mercer points at the 8va indication.

Daniel: Is that the pedal?

Mrs Mercer: This one is…

Action: Mrs Mercer points at the pedal indication in the score.

Mrs Mercer: That one isn't.

Action: Mrs Mercer points at 8va.

Mrs Mercer: What does this say?

Daniel: 8va.

Mrs Mercer: What do you think it means? Something to do with 8s in music…

Action: …pause while Daniel thinks.

Mrs Mercer: Like an octopus.

Daniel: Octave?

Mrs Mercer: Yes. It means an octave. So what…

Daniel: Higher than…higher!

Mrs Mercer: Yes, it means it is an octave higher than written.

Action: Daniel plays the right-hand part an octave higher.

(Lesson observation 2)

It has been found that questioning can encourage guessing, particularly if students have not understood the focus of a question (Torrance and Pryor, 1998), or lack the prior knowledge necessary to attempt an answer, and if by chance they find the correct response, teachers may not utilise procedures to verify their understanding (Gioka, 2007; Hill and McNamara, 2011). Employing the term 'octopus' as a hint, despite its affiliation with the number 8, is not music related, and may be an example of the teacher encouraging guessing, although in this instance, Daniel clearly understood the term 'octave'.

In comparison to error-flagging and verification feedback, feed-forward interventions were observed less frequently in Daniel's lessons. While hints were used as a process of feed-forward on 117 occasions, informative tutoring was employed almost twice as often, as 197 instances were observed. This case study appears to illustrate the kind of virtuous circle which is likely to develop when an intrinsically motivated student makes good progress as a result of diligent practice, demonstrates this progress in subsequent lessons, and then experiences positive reinforcement of his self-efficacy and motivation through his teacher's task-involving feedback which, in turn, is likely to sustain or enhance his motivation and self-efficacy in future private practice. In the following section, discrepancies between Mrs Mercer's intentions and Daniel's interpretations and responses to feedback are discussed.

4.2.6 Identifying Discrepancies

While Daniel demonstrated that he almost always understood the feedback and feed-forward provided by Mrs Mercer, on rare occasions there were discrepancies between Mrs Mercer's intentions and Daniel's interpretations and responses to the feedback, possibly due to a lack of understanding of the concepts being discussed, or the actual terms employed. When playing the right-hand part of bar 20 in Beethoven's 'Minuet in G', instead of playing the notes D, C-sharp, D, E, D, C-natural, he played D, C-sharp, D, E, C-natural, B:

Mrs Mercer: No, you are jumping.

Action: Daniel continues playing bar 20 with his right-hand.

Mrs Mercer: You are jumping, you see, look.

Action: Daniel plays D, C#, D, E, C, B again.

Mrs Mercer: No, read the music, look.

Action: Daniel plays D, C#, D, E, C, B again, more loudly.

Mrs Mercer: No.

(Lesson observation 8)

In response, Daniel became frustrated, indicating that he was either unaware of his error, or that he failed to understand the content of the feedback, perhaps Mrs Mercer's use of the term 'jumping'. Eventually he was encouraged to slow down, think about what he was playing, and he was actively guided to play the correct notes through directive cues, which ultimately enabled him to master the error:

Action: Daniel plays D, C#, D, E, then pauses.

Mrs Mercer: D.

Action: Daniel plays D.

Daniel: That D?

Action: Daniel points at the D, a major 9th above Middle C.

Mrs Mercer: That's it.

Action: Daniel follows the D with a C#.

Mrs Mercer: Watch that C there.

Action: Daniel plays it again accurately D, C#, D, E, D, C-Natural.

Mrs Mercer: Got it!

Daniel also misunderstood some of the technical terms Mrs Mercer used, for example the difference between 'rhythm' and 'pulse' when engaging in aural tests:

Action: Mrs Mercer plays a melody.

Mrs Mercer: Clap the rhythm.

Daniel: The rhythm? OK.

Action: Daniel claps the pulse.

Mrs Mercer: Sorry, I think you were getting mixed up with clapping the pulse, weren't you?

(Lesson observation 8)

Daniel responded in this way as he had been required to clap the pulse in his Grade 3 examination (ABRSM, 2015b), but after alerting him to this error, he clapped the rhythm accurately, and specified the correct time signature.

Although it was unusual for Daniel to misunderstand feedback or specific concepts, when this became apparent, it was important to address these issues so he could apply them in his private practice. The following section considers the sources of feedback Daniel had access to in his practice sessions, and how he was motivated to practise.

4.2.7 Different Sources of Feedback and Feed-forward Utilised During Private Practice and Daniel's Motivation to Practise

Each week Mrs Mercer provided a list of issues that Daniel needed to practise at home. While she explained these issues during his lessons, she also wrote notes in his journal as a reminder:

Minuet in G – hands together to second line – next line separately. Focus on phrasing in bar 7.

Chez le forgeron - hands separately from the top of page 13, and focus on the chords in bars 7 and 8.

Carnival in Rio - check ending and ringed quaver rests.

Scale of Eb – practise this 'hands together'.

(Lesson notes week 1)

In the following lesson Daniel had practised 'Minuet in G' as specified in the notes, and he had made progress on 'Chez le forgeron', finding the correct chords in bars 7 and 8. He also made progress with 'Carnival in Rio', but the scale of Bb Major became the focus in the lesson rather than Eb Major, so it was unclear whether he had practised Eb Major, possibly illustrating a point raised by Ofsted (1998) about feedback in conventional classroom settings that even when students respond to teachers' feedback, teachers do not always follow up the tasks students have been asked to work on. During the interviews conducted with Daniel, however, he indicated that Mrs Mercer made it clear what he needed to practise:

Daniel: She set me to do this page hands together…

Action: Daniel points at 'Tequila Sunrise'.

Daniel: …and 'Jay Walk' hands together up to there.

Action: …points at bar 14…

(Pre-lesson student interview 9)

Mrs Mercer was positive that Daniel understood instructions for his practice, and felt sure that he would do his best to put them into action:

Interviewer: So you feel fairly confident he will practise what you have asked him to?

Mrs Mercer: Oh, yes, I think so.

Interviewer: How do you know?

Mrs Mercer: Because he always seems so anxious to do it right.

(Teacher interview 6)

Within Daniel's interviews, it was clear on most occasions that he consciously employed task-involving feedback (Butler, 1988) and feed-forward in his private practice:

Interviewer: In your practice, did you use the advice Mrs Mercer gave you?

Daniel: Yes, I did.

Interviewer: Can you give me an example?

Daniel: Well she said to do one bit in one of the pieces 'slower, and do one hand first and then do it together'.

Interviewer: …and in which particular piece was that?

Daniel: 'Chez le forgeron'.

(Pre-lesson student interview 6)

On a small number of occasions (6), however, it was apparent that Daniel had not employed Mrs Mercer's feedback effectively:

Mrs Mercer: Well, he obviously didn't do his chromatic scale…

Interviewer: No.

Mrs Mercer: …But he had forgotten to do that for some reason. That is unusual for him. I am not worried. Eventually it will come.

(Teacher interview 1)

In the following lesson, however, although he may have been extrinsically motivated, Daniel indicated that he had practised the chromatic scale, focusing on Mrs Mercer's feedback, playing it hands together:

Action: Mrs Mercer looks at the previous lesson's notes.

Mrs Mercer: Um, Chromatic Scale, F#, together, two octaves.

Daniel: I practised this every single day!

(Lesson Observation 2)

While there is evidence in lesson observations that Mrs Mercer provided congratulatory feedback, it was overtly task-involving rather than ego-involving:

Action: Daniel plays 'Carnival in Rio' [right-hand] *from bars 9 to 16.*

Mrs Mercer: That's very good. You got all of the fingering right. Brilliant!

(Lesson observation 2)

After the second lesson observation, Daniel indicated how pleased he was with some of Mrs Mercer's task-involving comments, which may have fostered intrinsic motivation:

Interviewer: What went particularly well?

Daniel: Well, I like that, when I did the 'Carnival', I did the right-hand, and the bit that she didn't tell me to do…and I did it really well, she said, so that was quite good.

(Post-lesson student interview 2)

In his practice diary, Daniel recorded the amount of time spent practising, which varied from 15 to 60 minutes per day, thus demonstrating his motivation to practise:

What things did you focus upon in your practice?	Time spent Practising
Scales	10
Arpeggios	5
Sight Reading	10
Repertoire – Focus on Expression	15
Total	40 Minutes

(Practice Diary 13th March)

Daniel's motivation was confirmed in his interviews, where he indicated that he practised the piano before school in the morning, thus engaging in a regular routine:

Interviewer: Have you been motivated to practise?

Daniel: Yes, I always feel quite motivated.

Interviewer: So you just go straight to the piano when you get up, do you?

Daniel: Um, pretty much, yes.

(Pre-lesson student interview 6)

While it became apparent that Daniel enjoyed playing pieces of music in particular styles, when asked if he felt motivated to practise, he indicated that his motivation related specifically to his enjoyment of playing the piano:

Interviewer: Why is it that you feel motivated to practise?

Daniel: Because playing the piano is quite fun.

(Pre-lesson student interview 6)

In addition to the feedback and feed-forward provided by Mrs Mercer in his lessons, Daniel indicated that he received feedback from his mother during his practice sessions (pre-lesson student interview 9), and while he was practising his Grade 4 pieces, he used the official ABRSM recordings for purposes of feed-up (Hattie and Timperley, 2007), thus ensuring that the goal or 'reference level' (Ramaprasad, 1983, p.6) was clear in his mind. Listening to official recordings for purposes of feed-up actively illustrates Daniel's self-regulatory practice, which is further discussed in section 4.2.9. This process naturally fostered self-assessment, as the auditory feedback generated while practising the examination pieces was actively utilised for comparison with the model performances.

Within this section, the sources of feedback and feed-forward Daniel employed in his private practice have been discussed, which included his teacher,

his mother, self-generated feedback as he practised, and he employed official ABRSM recordings for feed-up, but he did not have access to feedback from other people, including his peers. His motivation to practise was also discussed, and while he appeared to be intrinsically motivated, there were occasions when he forgot to practise specific tasks, which may have fostered an element of extrinsic motivation in subsequent practice-sessions. In the following section, Daniel's use of feedback and feed-forward is considered, and how this related to his efficacy-beliefs.

4.2.8 Daniel's Efficacy Beliefs

Although it was apparent that Daniel lacked confidence in sight-reading and improvisation, in his lessons he made it clear that he had the confidence to meet his teacher's expectations, and that he could overcome specific challenges relating to set pieces, scales and arpeggios. In his interviews he consistently demonstrated positive efficacy-beliefs, although he acknowledged that he needed to work hard:

> *Interviewer: Are you confident that you will achieve the task set by your teacher?*
>
> *Daniel: Well, I think I will do it. If I practise a lot, then I am sure I will do it. Yes, quite confident.*
>
> (Post-lesson student interview 1)

Daniel's efficacy-beliefs were reinforced by his experience of mastering set tasks in his practice, and the positive feedback he frequently received from Mrs Mercer, who acknowledged his commitment and the progress he made. For instance, with regard to the arpeggios required for his Grade 4 examination, he demonstrated confidence that he had mastered Ab and Db majors, and this was duly acknowledged by Mrs Mercer:

Mrs Mercer: …arpeggios I've got written down here…we've got Ab and Db…how did you get on with those?

Action: Daniel suddenly pays attention and rolls his sleeves up.

Daniel: Yes, I got on pretty well with it, really.

Action: Daniel plays the Ab Major Arpeggio hands together two octaves.

Mrs Mercer: Yes, very good.

(Lesson observation 7)

Daniel's behaviour here signifies enthusiasm, and a relish for being able to demonstrate his mastery of these arpeggios. Despite mastering arpeggios, scales, and set pieces, from a developmental perspective Mrs Mercer observed specific challenges Daniel faced in his studies, including fingering, and physical restrictions related to his age and size:

Action: When playing 'Chez le forgeron' Daniel has difficulty playing the semi-quavers in the left-hand part of bar 23.

Mrs Mercer: It's because you have to put your thumb under, that's why.

Daniel: Yes that's…

Mrs Mercer: Is that what you have been doing?

Daniel: …trying to, yes.

Mrs Mercer: Um, tricky, tricky

(Lesson observation 5)

In relation to the feedback he received in this lesson, Daniel indicated in his interview that he felt he could have mastered the fingering more effectively:

Daniel: I could do the left-hand semi-quavers better.

Interviewer: In 'Chez le forgeron'?

Daniel: Yes.

(Post-lesson student interview 5)

Although Daniel was disappointed with his fingering, his positive efficacy-beliefs appeared to be intact. With regard to pedalling in 'Chez le forgeron' he experienced a physical challenge relating to his size:

Daniel: I can't put my heel down.

Mrs Mercer: You can't?

Action: Daniel experiments.

Daniel: I can do it, I can do it!

Mrs Mercer: Yes…I mean you will have to wait until you have grown a little bit more.

(Lesson observation 5)

As height was a temporary obstacle that had previously restricted Daniel's ability to master pedalling, his response illustrated his joy at finding he could do something he believed he was unable to accomplish. Despite physical restrictions of this nature, it was observed in lessons that Daniel worked hard, that he was intrinsically motivated, and he believed he could overcome specific difficulties. Mrs Mercer confirmed this in her interview:

Mrs Mercer: When he experiences a difficulty, it seems to encourage him.

(Teacher interview 1)

It has been observed, however, that self-efficacy can vary even within subject specific domains (Ritchie and Williamon, 2010), and as previously acknowledged, there were occasions when Daniel found tasks to be of limited interest or particularly challenging, such as improvisation and sight-reading. When

these tasks were set in lessons, he demonstrated a lack of confidence, exhibiting feelings of helplessness and frustration, signifying that his self-efficacy was not always positive or stable. In the belief that he could not improvise, he indicated on one occasion that he should give up, but Mrs Mercer refused to accept this negative attitude and insisted that he could achieve the task:

Action: Daniel is doing a practice improvisation activity.

Daniel: Ah! Leave it…

Action: Daniel raises his arms.

Daniel: I can't do this…

Mrs Mercer: Yes you can.

(Lesson observation 1)

Although Daniel often found the content of scales, arpeggios, and repertoire pieces to be challenging, he managed them effectively because he was intrinsically motivated, and having experienced success over time, as a result of hard work and high levels of persistence, his efficacy-beliefs were very positive. In contrast, when engaging in improvisation tasks, he displayed serious levels of self-doubt, and indicated a desire to give up, as he perceived these tasks to be unmanageable. Rothman et al., (2011) acknowledged that when students engage in challenging tasks, which require high levels of effort and persistence, if they experience repeated failure they may consider the tasks to be 'unattainable'.

As Daniel enjoyed playing the piano, and was well-motivated, particularly when studying repertoire pieces, his negative response to improvisation tasks illustrates the view that self-efficacy is not a generic or stable attribute, but can

vary and fluctuate within specific learning domains. When he struggled, however, Daniel received supportive feedback from Mrs Mercer, encouraging him to persist, although she recognised that he may need to expend more time and effort (Bandura, 1997) to master these tasks than other people.

In the following section, issues relating to feedback and feed-forward, and how these develop self-assessment and self-regulation are discussed.

4.2.9 Daniel's Self-regulation

Daniel's skills in self-assessment are likely to have developed as a result of actively engaging with self-generated feedback while performing, specifically auditory and tactile feedback, analysing musical scores, and actively comparing his performances with mental models, which were provided by Mrs Mercer through exemplification in lessons, or generated by listening to the ABRSM recordings of examination pieces. Furthermore, Mrs Mercer's error-flagging feedback without the provision of a correct response promoted Daniel's skills in self-assessment as it prompted thinking (Rowe, 1972) and reflective practice. When Mrs Mercer flagged errors in this way, Daniel had to ascertain what had been performed incorrectly, and how the error could be resolved. For example, when playing 'Minuet in G', Daniel realised that he made an error, which was duly corrected without a prompt from Mrs Mercer:

> *Action: Daniel plays the E and C* [right-hand] *in bar 2 with the D* [left-hand] *from the start of bar 3, but realises the error:*
>
> *Daniel: Oh, wait…*
>
> *Action: He corrects the error.*
>
> *Mrs Morris: OK, good.*
>
> (Lesson Observation 1)

It was also apparent that he assessed the accuracy of his work by actively listening while he performed:

> *Interviewer: When you are practising how do you actually know that you are making an improvement?*
>
> *Daniel: Well, it is more by listening…*
>
> *Interviewer: Listening to your-self?*
>
> *Daniel: Yes, because, sometimes…normally at the start it's like not very good, and I know if I have achieved something…because like…I do it better than I did at the start.*
>
> (Pre-lesson student interview 2)

Mrs Mercer also confirmed that Daniel was becoming independent in his studies, even though she made no overt attempt to encourage him to engage in self-assessment, or to decide the priorities for his practice. He demonstrated skills in self-regulation when sorting the fingering for the section of 'Carnival in Rio' starting at bar 9:

> *Action: Daniel plays the left-hand chord and sorts the fingering by himself.*
>
> *Mrs Mercer: Oh, that's quite good fingering isn't it?*
>
> (Lesson observation 1)

As Daniel took responsibility, and ownership of his learning, it was observed that he progressively made decisions about the feed-forward implications of the feedback he received:

> *Interviewer: Have you noticed any changes or developments in how he uses the feedback you give him?*
>
> *Mrs Mercer: In the way he uses it?*
>
> *Interviewer: Yes.*

Mrs Mercer: Um I think he seems a little more independent now, in saying more often 'I will do this…'

(Teacher interview 6)

When experiencing specific challenges, Daniel demonstrated enthusiasm for mastering skills, and finding his own solutions. For example, in the final lesson observation, while managing the double thirds in the right-hand part of 'Tequila Sunrise', Daniel appeared to emulate Mrs Mercer's action when she tried out fingering patterns before offering advice (see section 4.2.5):

Action: Daniel plays the third, A and C (fingers 2 and 5), followed by another third, F# and A (fingers 1 on F# and 3 on A), [second half of Bar 13].

Mrs Mercer: Now what's an easier way of doing that?

Daniel: Wait, that is…

Action: Daniel experiments with the fingering.

Mrs Mercer: That's alright, so you are going 5 and 3…

Action: Mrs Mercer waits for Daniel to play the relevant notes.

Daniel: Yes.

Mrs Mercer: Shall we write this down because otherwise you will do it differently?

(Lesson observation 9)

This indicates that Daniel took responsibility for his learning, and that his self-efficacy, intrinsic motivation, and self-regulation were assured as in this instance he anticipated positive outcomes consistent with 'expectancy-value theory' (Bandura, 1997, p.125), having observed Mrs Mercer's practice on a previous occasion.

During this section, it has been observed that Daniel demonstrated increasing independence in his studies, actively engaging in the practice of self-assessment, and taking responsibility for his learning.

4.2.10 The Overall Efficacy of Feedback in Case Study 1

With regard to Daniel's views on the efficacy of the feedback he received, in all nine post-lesson interviews he acknowledged that his teacher's feedback, and the comments she made, were fair, and proved helpful. He found Mrs Mercer's feedback to be clear and focused, thus enabling him to concentrate on specific issues, both in his lessons and his private practice. When it became evident to Mrs Mercer that he had utilised her feedback either in his practice or during lessons, she acknowledged this and congratulated him, a rare occurrence in secondary school classrooms (Ofsted, 1998). This practice is likely to have assisted in developing Daniel's efficacy beliefs.

While Daniel indicated that Mrs Mercer's feedback was clear and helpful, it became apparent during lesson observations that he had overlooked the content of a small number of feedback interventions in his practice, although Mrs Mercer indicated that this was unusual. It was also acknowledged, albeit on rare occasions, that Daniel had misinterpreted Mrs Mercer's feedback, although in these instances the feedback related to subject content that he had misunderstood, such as his confusion of the terms 'rhythm' and 'pulse', which had not been adequately explained during the lesson. A more dialogic approach may have proved beneficial on such occasions, ensuring Daniel developed a secure understanding of these key concepts. When Mrs Mercer wanted clarification that Daniel had understood what he needed to do, she asked him to demonstrate his understanding by playing the relevant section of a piece, or to con-

firm his understanding verbally, although a verbal indication that he had understood did not provide an opportunity for Mrs Mercer to observe his understanding in practice.

While Argyris (1976) indicated that the theories teachers espouse are not necessarily the theories that they employ in practice, Mrs Mercer's initial indication that the feedback she provided was evaluative, critical, and descriptive, focusing specifically on tasks that required improvement, was confirmed during lesson observations. Despite her lack of formal training, Mrs Mercer's feedback was task-involving rather than ego-involving, and while critical at times, which Daniel responded to negatively, although this may have been due its lack of clarity (see section 4.2.6), on most occasions it was evaluative and descriptive in terms of providing feed-forward through informative tutoring.

There tended to be an emphasis on developing technical competence in Daniel's lessons, rather than the underlying conceptual understanding that supports skill development, and her approach to teaching and providing feedback was rooted in the master-apprenticeship tradition. Thus, some of the key ideas in formative assessment, such as teachers exercising 'power with' rather than 'over' students (Kreisberg, 1992, cited in Ecclestone and Pryor, 2003, p.482), thereby actively promoting students' increasing responsibility for their learning and self-assessment, do not feature strongly as part of her practice. Whilst she does not resist these developments she does not actively promote them.

4.3 Case Study 2

4.3.1 Introduction to Mrs Freeman: Steven's Teacher

Mrs Freeman began studying the piano when she was 7 years old. After leaving school she studied at Trent Park College of Education, gaining a Certificate in Education, but as her interest in the piano continued, she studied for an Associate of the Guildhall School of Music (A.G.S.M.) diploma in pianoforte teaching at the same time. After completing these qualifications, she studied at Middlesex Polytechnic for an additional year to upgrade her Certificate in Education to a Bachelor of Education degree, thus gaining qualified status as a primary school teacher (see Table 3.3).

As part of her job at a primary school, she took responsibility for teaching music and organising a school orchestra, an activity that fostered her interest in instrumental teaching. In 1985, she began teaching the piano privately at her home, and as her interest in piano teaching developed, she had an opportunity to move from classroom teaching, to working as a peripatetic piano teacher for a local authority music service. She has taught for the music service full time since 1999, initially teaching class music in primary schools for 2 days and keyboard/piano lessons for 3 days each week. In recent years, she has engaged in whole class instrumental teaching, but at the time of this research she primarily taught group piano/keyboard lessons in primary schools, with group sizes ranging from 3 to 6 students, and she taught individual piano lessons mainly in secondary schools. Mrs Freeman had not received any formal training in formative assessment or the provision of formative feedback.

4.3.2 Introduction to Steven: Pianoforte Student

When Steven returned to England, having lived abroad for a number of years, he took the opportunity to study the piano with Mrs Freeman at his local secondary school, taking individual lessons which averaged 15 to 20 minutes in length. As he had previously studied the piano, Mrs Freeman considered it appropriate for him to work towards Grade 2 (ABRSM).

At the time of the research, Steven was 14 years old, and he had studied with Mrs Freeman for a little over two years. Mrs Freeman acknowledged that his confidence had grown throughout the years, and while his specific strength was listening, sight reading was a particular weakness as he experienced difficulty reading staff notation at speed.

Steven achieved a merit (121) for his Grade 2 examination in December 2010, and he decided not to take Grade 3 but to work towards Grade 4, taking this examination in March 2012. For his Grade 4 examination he also achieved a merit (127) with encouraging summative feedback from the examiner indicating that he 'had much to offer the musical world'. At the commencement of the research, in addition to preparing for his Grade 4 examination, Steven also played a range of challenging pieces, firstly because he enjoyed listening to these pieces, and secondly because he enjoyed a challenge. These pieces included 'Allegro Barbaro' (Bartok, 1939) and Rondo 'Alla Turca' from the Sonata in A Major K.331 (Mozart, 1778).

Steven's case study is an illustration of an intrinsically motivated student who enjoyed playing the piano and performing for an audience, but, as he experienced difficulty reading staff notation, he actively avoided engaging in sight-reading activities.

4.3.3 The Provision of Feedback Highlighting Errors in Steven's Lessons

In the initial interview with Mrs Freeman, she outlined her method of teaching, emphasising a kinaesthetic and auditory approach, ensuring notes are played correctly, and subsequently focusing upon dynamics and interpretation. She also indicated that prior to studying a new piece, for purposes of feed-up (Hattie and Timperley, 2007) she would either perform the piece for the student, or recommend official recordings of examination pieces, published by the board. With regard to the provision of feedback and feed-forward in lessons, she indicated that she actively engaged students in discussion about specific issues and how they could be improved, thus promoting task-involving dialogue, which is often considered fundamental to successful teaching and learning (Nicol, 2010). Her actual approach to feedback is duly analysed and evaluated throughout this case study.

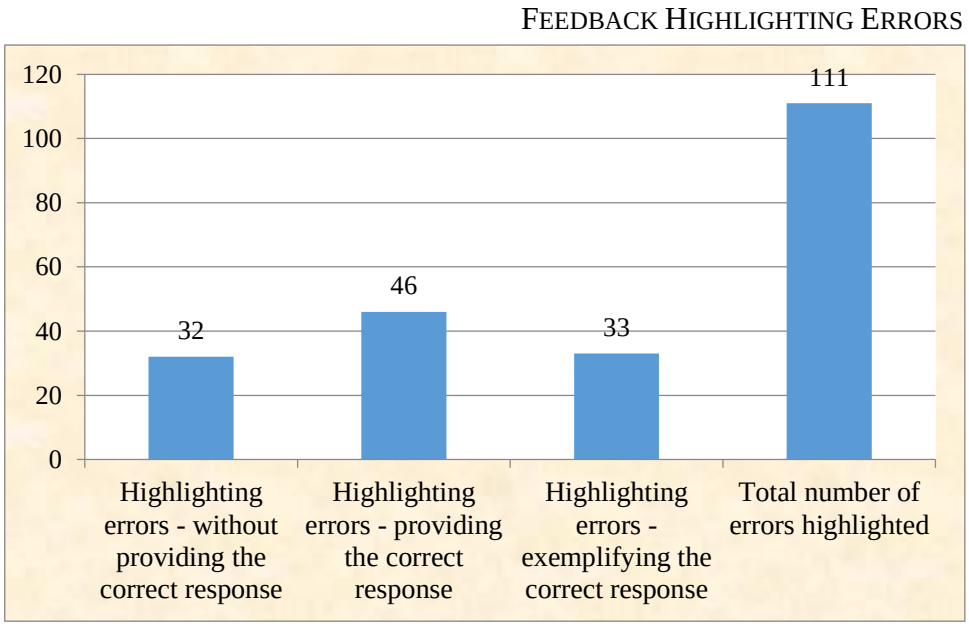


Chart 4.5

Error-flagging was the most common type of feedback observed in Steven's lessons, and Chart 4.5 indicates that nearly a third (29%) of the 111 errors

highlighted by Mrs Freeman were flagged without a correct response, thus encouraging Steven to reflect, and to consider how the errors could be resolved. Just over two-thirds (71%) of the errors highlighted were accompanied with correct responses, which were presented verbally or through exemplification, although no additional information was provided about how these errors could be resolved.

In Steven's lessons, when Mrs Freeman highlighted an error without providing a correct response, Steven would stop playing, reflect upon the error, and actively engage in finding a solution, thus demonstrating positive self-efficacy. For instance, when preparing 'Carnival in Rio' for his Grade 4 examination, Steven made an error relating to the register of the final chord. When Mrs Freeman highlighted the error, she provided no specific information, which prompted Steven to think and then take action (Shute, 2008):

> *Action: Steven plays the final chord an octave too high* [right-hand].
>
> *Mrs Freeman: No!*
>
> *Action: Steven stops playing, examines the score, realises the error, and changes the register of the chord.*
>
> *Mrs Freeman: Yes.*
>
> (Lesson observation 7)

On another occasion, when playing the Eb Major scale, Steven made an error relating to the left-hand fingering. Mrs Freeman flagged this error by asking a question, thus prompting him to consider what he had performed incorrectly, and why it was incorrect:

> *Action: Steven plays Eb Major, hands together. In the second octave ascending he puts his 3rd finger* [left-hand] *on Ab instead of his 4th finger.*

Mrs Freeman: Then it goes wrong because you have…?

Action: Steven pauses, reflects, corrects the fingering, and continues.

Mrs Freeman: OK?

Steven: OK.

(Lesson observation 4)

When Mrs Freeman highlighted errors in this way, Steven actively analysed what he had performed incorrectly, and when the error was resolved, Mrs Freeman either verified the accuracy of his response verbally, or made no comment, which Steven interpreted as an acknowledgement that his correction was appropriate.

On 41% of occasions, Mrs Freeman communicated errors to Steven by providing correct responses verbally. These errors included inappropriate fingering, the misinterpretation of staff notation in terms of playing incorrect notes or inaccurate rhythms, together with issues relating to dynamic control and phrasing. In relation to fingering, while Steven was working on the scales for his Grade 4 examination, Mrs Freeman observed errors, which she highlighted immediately by providing the correct response:

Action: Steven plays C# minor harmonic. During the first octave he gets into a muddle with the fingering and misses his thumb on A [right-hand].

Mrs Freeman: Thumb, thumb, thumb!

(Lesson Observation 1)

In the interview following this lesson, Mrs Freeman indicated that Steven still needed to work on his fingering:

Mrs Freeman: …he has improved his scales but he is going to concentrate more on fingering…because some of them he gets muddled up.

(Teacher Interview 1)

Steven also acknowledged in his interview that he should have done more practice on the scales:

Interviewer: Is there anything that you feel that you could have done better?

Steven: I could have probably gone over the scales a bit more.

(Post-lesson Student Interview 1)

When performing Mozart's Rondo 'Alla Turca', Steven played some incorrect notes in the left-hand part of bar 36. Mrs Freeman communicated the error to Steven immediately by highlighting the notes he should have played:

Action: Steven plays A# and C# [left-hand Bar 36].

Mrs Freeman: G# and C#.

Action: Steven keeps playing A# and C#. Mrs Freeman points at the notes he should be playing in the score.

Mrs Freeman: G#, C#.

Steven: Oh, sorry.

Action: Steven plays the correct notes.

(Lesson observation 1)

When focusing on dynamic control, expression, and the interpretation of music, Mrs Freeman highlighted errors while Steven was playing the piano. In 'Carnival in Rio', for example, Steven had not followed the instruction in the score to play softly:

Action: Steven plays bar 17 loudly [although it is marked pianissimo and una corde].

Mrs Freeman: Shhh!

Action: Steven stops and examines the score. He picks it up from bar 17, playing more softly.

(Lesson observation 6)

This intervention proved effective as Steven paused, reflected upon Mrs Freeman's feedback, observed the dynamic mark in the score, and resolved the error.

In Steven's lessons, on a little under a third (29%) of occasions, Mrs Freeman highlighted errors by exemplifying the correct response. For example, when playing the Ab. Major arpeggio, Steven did not employ the official fingering for the left-hand, which is clearly documented in the scale book. Mrs Freeman flagged this error by exemplifying the correct response:

Action: Steven plays the Ab. Major arpeggio [left-hand] *using the C. Major fingering.*

Mrs Freeman: …you are doing 5, 3, 2, 1…

Mrs Freeman examines the scale book.

Mrs Freeman: Yes, they want 3, 1, or 2, 1 at the start.

Action: Steven plays the arpeggio again using the C. Major fingering, but Mrs Freeman interrupts and exemplifies the fingering provided in the scale book. Steven observes this action, and subsequently plays the arpeggio again using the correct fingering.

(Lesson observation 7)

In his diary, Steven acknowledged that he found the arpeggio fingering challenging:

I am still struggling with the fingering on the arpeggios. I always start with the wrong finger, and I find that I have no fingers left, so I have to start again.

(Student audio-diary 2nd March)

When Mrs Freeman exemplified the fingering, this appeared to assist Steven in rectifying his error. On rare occasions, Steven made errors that were not identified in his lessons, for example, when playing Mozart's Rondo 'Alla Turca', he missed the grace notes in the left-hand part, and this error was not flagged:

> *Action: Steven plays 'Alla Turca' from bar 24, but misses the arpeggio grace notes in the left-hand part, just playing 'A', a 10th below Middle C, followed by three 'A's a third below Middle C.*
>
> *Mrs Freeman:* [As Steven is playing] *Right, it just needs some practice.*
>
> *Steven: Yes.*
>
> (Lesson observation 1)

On this occasion, as Rondo 'Alla Turca' was not an examination piece, Mrs Freeman may not have perceived it as a priority, which could explain her lack of detailed feedback.

By encouraging Steven to copy her performances when exemplifying correct responses, while indicating the gap between his actual performance and the 'reference level' (Ramaprasad, 1983, p.6), a didactic approach to teaching was promoted (Sfard, 1998), which is affiliated with a master-apprentice relationship (Jørgensen, 2000). On other occasions, feedback presented as questions promoted 'mindfulness' (Black and Wiliam, 1998a, p.51), which encouraged reflective practice, and engaged him in metacognitive thinking. Overall, Steven's responses to error-flagging feedback indicated that he had understood the errors he had made.

In the following section, the provision of feedback for verification in Steven's lessons is discussed.

4.3.4 Feedback for the Purpose of Verification

Chart 4.6 illustrates the number of instances (107) feedback was employed in Steven's lessons for verification. While a little under four-fifths (79%) of these interventions related to the accuracy of Steven's work, on other occasions (13%) Mrs Freeman asked him to 'try again' (Shute, 2008, p.160) or to repeat specific sections of pieces, so that she could confirm the accuracy of his performance and/or verify his understanding. The accuracy of his work was acknowledged with statements such as 'that's right', 'yes', or 'OK'.

CONFIRMING STEVEN'S UNDERSTANDING AND/OR SKILL

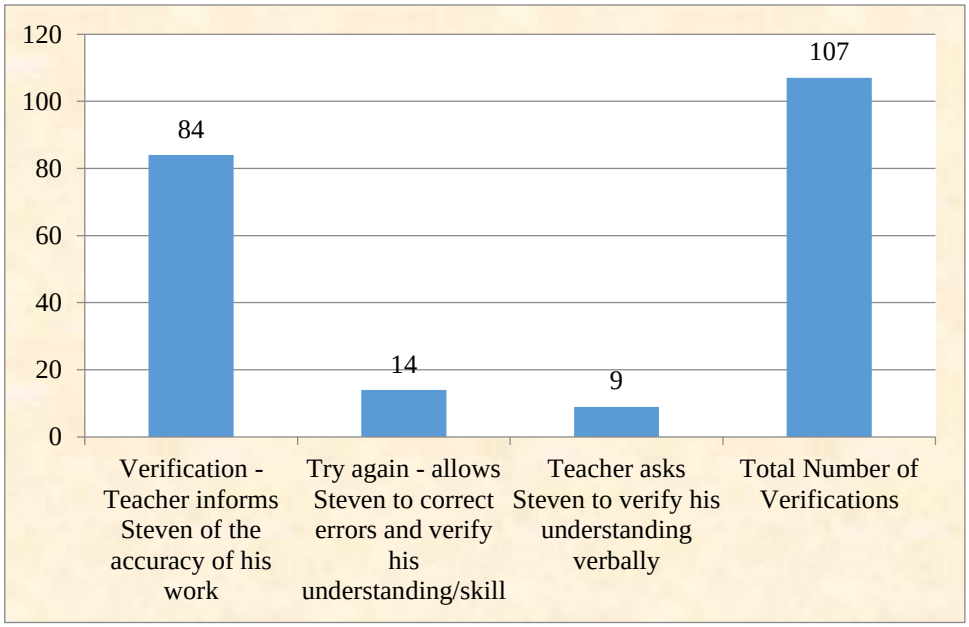


Chart 4.6

When preparing scales for his Grade 4 examination, Mrs Freeman verified the accuracy of his work:

Action: Steven plays the E. Major scale.

Mrs Freeman: That's right.

(Lesson observation 4)

On a number of occasions (26), having reflected upon self-generated aural feedback, Steven realised that he had made an error, and immediately engaged in analysing the problem. On these occasions, Mrs Freeman understood what Steven was doing, so she did not intervene, and provided wait time (Rowe, 1972), encouraging him to think, and when he resolved the error, she duly verified the accuracy of his work. For instance, when playing 'Carnival in Rio', Steven made an error playing the opening left-hand chord in bar 9:

> *Action: Steven plays E, A, B, C instead of D, G, A, C* [LH chord]. *He reflects upon the error, and after a couple of tries finds the correct notes.*
>
> *Mrs Freeman: Thank you.*
>
> (Lesson Observation 7)

As Mrs Freeman did not intervene after Steven's first failed attempt, allowed him to try again, and subsequently thanked him for solving the problem for himself, this clearly relates to the spirit of formative assessment, where mistakes are viewed as a valuable part of the learning process rather than something to be eliminated. As Mrs Freeman demonstrated confidence in Steven's ability to solve his own problems this is likely to have reinforced his self-efficacy and motivation.

On another occasion, when studying the scales for his Grade 4 examination, Steven was asked to play Db Major:

> *Action: Steven plays the scale, but hesitates when descending.*
>
> *Mrs Freeman: It's when you come down. Do that again.*
>
> *Action: Steven plays the scale again, accurately.*
>
> (Lesson Observation 1)

As Steven experienced difficulty remembering fingering patterns, Mrs Freeman asked him to play the scale again so that she could verify that he had employed the correct fingering.

On a small number of occasions (8%) Mrs Freeman asked Steven to verify his understanding verbally (see Chart 4.6), and even though Steven's responses were correct, as she did not ask him to perform the music, or 'try again', she could not be entirely certain that he had fully understood. However, while more time spent on teaching fingering patterns could have helped, as Steven had demonstrated that he could perform scales accurately with the correct fingering, it raises a question about the amount of time he spent practising scales, particularly as Mrs Freeman set minor scales as a priority for the following week.

Mrs Freeman provided feedback in Steven's lessons to confirm the accuracy of his work on a substantial number of occasions (84). There was also a small number of 'try again' interventions (14), which enabled her to confirm that he had mastered or understood specific issues, and on a small number of occasions, Steven was asked to verify his understanding verbally.

Chart 4.7 indicates a number of occasions (94) when Steven was unsure about specific issues, and on over two thirds (68%) of these occasions he actively sought advice from Mrs Freeman about subject content, while on the remaining occasions (32%), he asked Mrs Freeman to check the accuracy of his performance.

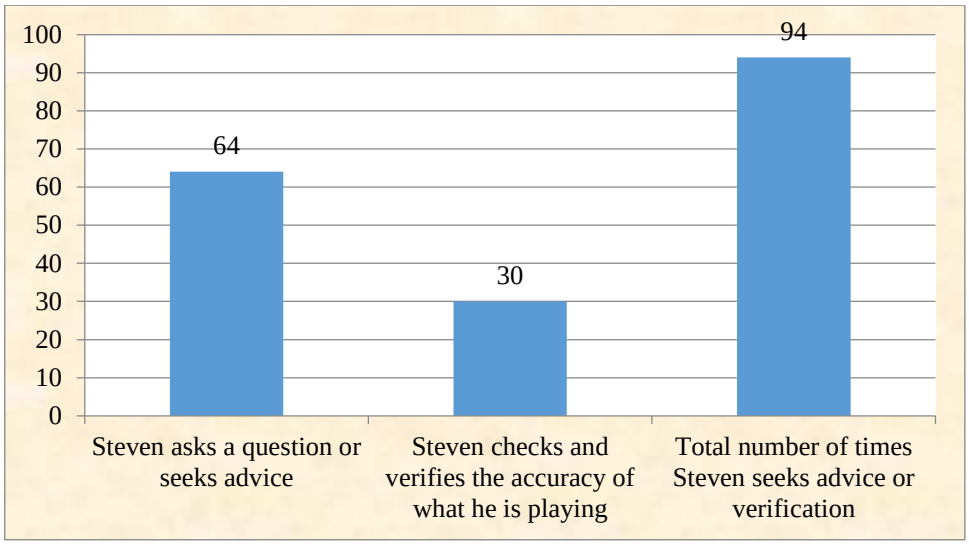


Chart 4.7

Although Black (1998) observed that many students are reluctant to ask teachers questions in conventional classroom settings, when Steven was unsure about a specific issue, or wanted verification that he had interpreted something correctly, he proved resourceful by asking his teacher questions. Steven sought advice about organisational issues, such as the number of octaves that scales should be played in his examination:

> *Action: While playing the chromatic scale starting on Bb, Steven pauses and asks:*
>
> *Steven: Three octaves?*
>
> *Mrs Freeman: Two.*
>
> (Lesson observation 1)

On other occasions, Steven sought verification of the accuracy of his work; for example while playing 'Chez le forgeron':

> *Action: In bar 24, Steven plays E and G in the right-hand part* [minor third apart] *rather than G and Eb* [minor sixth apart]
>
> *Steven: Is it that?*

Mrs Freeman: No, because G is at the bottom.

(Lesson observation 2)

This illustrates Steven's need to seek advice, as he had misunderstood how the notes illustrated in staff notation should be put into practice. By asking Mrs Freeman to confirm the accuracy of his playing, although her disconfirmation included an indication of what he had performed incorrectly, Steven may have benefited from a fuller explanation.

Steven actively engaged in verifying his understanding of discrete issues, some of them organisational matters, while others related to the subject content. In the following section the provision of feed-forward in Steven's lessons is discussed.

4.3.5 The Provision of Feed-Forward in Steven's Lessons

Chart 4.8 indicates that 86 instances of feed-forward were observed in Steven's lessons.

FEED-FORWARD: GUIDING STEVEN HOW TO PROCEED

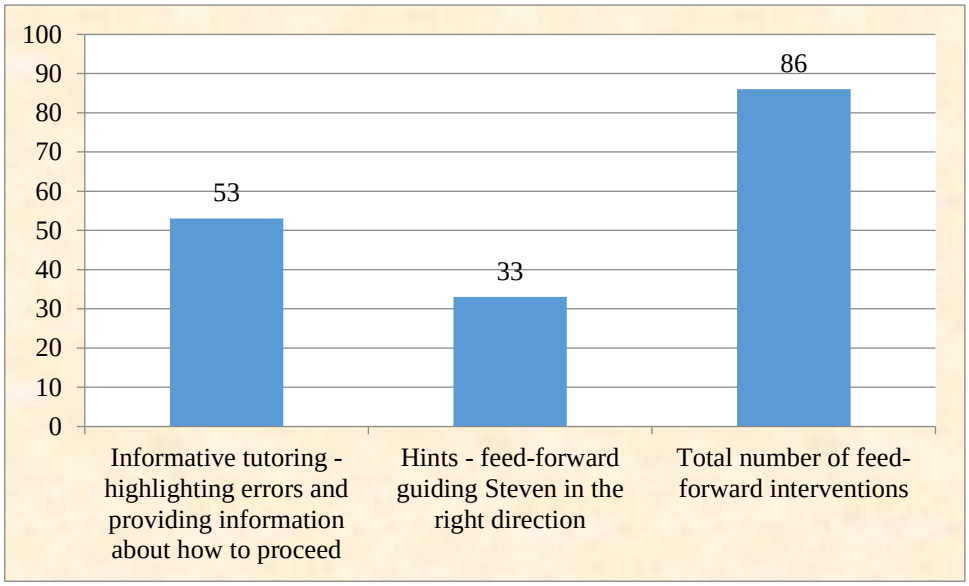


Chart 4.8

Nearly two-thirds (62%) of these interventions involved informative tutoring, providing Steven with information he could employ to develop his understanding and performance, and a little over one-third (38%) involved hints, or reminders about how to proceed.

Within Steven's lessons, informative tutoring was employed to address a range of discrete issues including technical skills, definitions of musical terms, and the structure of musical concepts. When learning to play the Db Major scale, for example, Steven experienced difficulty with the fingering, and when Mrs Freeman flagged the error, she provided feed-forward which encouraged Steven to adopt a dialogic approach (Alexander, 2014) to confirm his understanding:

> *Action: When playing the scale of Db Major, Steven makes a fingering error when descending:*
>
> *Mrs Freeman: OK, it is to do with where you put your 3rd…or 4th finger over* [referring to right-hand fingering descending]. *When there are three black notes together, you need to put the 4th finger over…*
>
> *Steven: Is it?*
>
> *Action: Steven tries the fingering.*
>
> *Mrs Freeman: Yes.*
>
> *Steven: Does it start on the 2nd then?*
>
> *Action: Steven holds up his 2nd finger right-hand.*
>
> *Mrs Freeman: Yes.*
>
> (Lesson observation 1)

While this dialogic approach to feed-forward proved helpful, instances of feed-forward that were brief, and did not involve discussion, also proved ef-

fective in Steven's case. For example, when playing 'Allegro in F' (ABRSM, 2010c), Mrs Freeman indicated that Steven had not followed the instruction to play loudly:

Action: Mrs Freeman points at Bar 12.

Mrs Freeman: The only thing is you didn't do that loud there.

Steven: Yes.

(Lesson observation 8)

Steven took his Grade 4 examination two weeks after this lesson, and in his final interview, although he acknowledged that he experienced a problem at the start of 'Allegro in F', he indicated that he had reflected upon the feed-forward received from Mrs Freeman regarding the dynamics, which he believed he managed effectively in the examination:

Steven: I had a false start in the 'Allegro in F'…it was due to nerves. I just took a break, you know, took a deep breath, tried to calm down, and after that it was fine. I played it the whole way through, and did the dynamics!

(Post-lesson Student Interview 9)

Mrs Freeman provided hints as reminders about specific issues while Steven was playing. For example, when studying 'Chez le forgeron', Steven had experienced difficulty playing the left-hand part evenly from bars 23 to 24, owing to the complexity of the fingering. As this issue had been discussed in previous lessons, when playing this piece in lesson 4, Mrs Freeman provided a hint to remind him:

Action: As Steven approaches bar 21…

Mrs Freeman: Even! [Referring to the semiquavers in bar 23]

Action: Steven stops on the note Eb in the left-hand part of bar 23. He repeats the Eb, then plays the bar again twice.

Mrs Freeman: Yes.

(Lesson observation 4)

While the number of informative tutoring interventions and the provision of hints was lower than error-flagging and verification feedback in Steven's case, feed-forward interventions of this nature proved effective in fostering his understanding, and the accuracy of his performance. In the next section, inconsistencies between Mrs Freeman's intentions and Steven's responses to feedback are discussed.

4.3.6 Identifying Discrepancies

Steven sought advice from Mrs Freeman on a number of occasions (see Chart 4.7) when he was unsure about specific issues relating to subject content, or when he required verification that he had performed something correctly (see section 4.3.4). On a relatively small number of occasions (10), however, there were discrepancies between Mrs Freeman's intentions and Steven's interpretations of the feedback, although these may have been due to his lack of understanding of specific concepts, or the musical terms employed. On rare occasions (4) when errors were flagged while performing, he was unsure what he had performed incorrectly, and he was uncertain how to correct or master those errors.

When Mrs Freeman discussed the aural tests Steven would encounter in his Grade 4 examination, taking the character of the examiner, she asked prototypical questions:

Mrs Freeman: Tell me what dynamics means.

Steven: Legato, Staccato…

Action: Mrs Freeman shakes her head.

Mrs Freeman: No…that's articulation.

As Steven had misinterpreted the term dynamics, affiliating it with articulation, he took Mrs Freeman's feedback as a hint, or a direction to focus upon musical terms that he was familiar with, which may have been affiliated with dynamics. Although this response could have been a guess, which Mrs Freeman did not check, the terms he used were correct, and duly counted:

Steven: Oh…forte.

Action: Mrs Freeman counts with her fingers.

Steven: …piano.

Mrs Freeman: Yes, forte and piano, anything else?

Steven: Crescendo…

(Lesson observation 5)

Although Steven had initially confused attributes of articulation with dynamics, following her correction, Mrs Freeman accepted his second response as evidence of understanding. It may have proved beneficial for Steven, however, if this discrepancy had been discussed, with a view to verifying his understanding.

When preparing chromatic scales, it was clear that Steven had not understood the requirement to begin scales starting on any 'black key':

Mrs Freeman: Start on Eb.

Action: Steven thinks through the fingering.

Mrs Freeman: …because it says 'any black notes' doesn't it?

Action: Steven reads the examination requirements on the inside cover of his exam book.

Steven: Any…?

Mrs Freeman: Any black key.

Steven: …because…Oh!

Mrs Freeman: …starts on any black key…

Steven: I thought it meant any key.

Mrs Freeman: No, any black key…Grade 5's any key.

(Lesson observation 4)

Steven's response may be an indication that he had misinterpreted 'any black key' as 'any key', perhaps because he had not read the instructions thoroughly. As illustrated, however, his understanding was developed through dialogue with Mrs Freeman.

In his interviews, there were 4 occasions when Steven indicated that he was unsure how to practise specific tasks. For example, although he had spent time studying arpeggios in lessons, and Mrs Freeman had provided feedback relating to his fingering, after lesson observation 7 he was still unsure how to practise them:

Interviewer: Do you know how you will practise the arpeggios?

Steven: I don't at the moment, no.

(Post-lesson student interview 7)

As Steven passed his examination with Merit, the performance of his arpeggios was likely to have been acceptable, although it needs to be acknowledged

that there was no explicit requirement for him to employ the fingering illustrated in the ABRSM scale book.

The following section considers the sources of feedback Steven accessed during his studies, and his motivation to practise.

4.3.7 Different Sources of Feedback and Feed-forward Utilised During Private Practice and Steven's Motivation to Practise

Within this study, different sources of feedback and feed-forward were employed by Steven. In addition to feedback from his teacher, he accessed official ABRSM recordings of examination pieces for feed-up (Hattie and Timperley, 2007), and on occasions, he recorded his own performances to engage in self-assessment. Although Mrs Freeman wrote a list of tasks for him to practise in his journal each week, there were no specific directions, as they were discussed in his lessons. In her interviews, Mrs Freeman was clear what she expected Steven to practise:

> *Interviewer: Do you think Steven is clear about what he needs to focus on during the week ahead?*
>
> *Mrs Freeman: Yes, he is going to concentrate on fingering in the scales, because some of them he gets muddled up, and we started a new piece, Rondo 'Alla Turca', and a certain section he wasn't reading carefully enough, so he's going back to focus on that.*
>
> (Teacher interview 1)

When asked if it was clear what he needed to practise during the week ahead, Steven indicated that the instructions he received were clear, and they focused upon his particular needs:

> *Interviewer: Do you understand what your teacher wants you to focus upon during the week ahead?*

Steven: Yes, sight-reading, and also the Turkish March

(Post-lesson student interview 1)

Although Steven referred to Rondo 'Alla Turca', he did not mention the scales. Also, it may have been implicit that he should focus on sight-reading, as Mrs Freeman did not mention this in her interview. During lesson observations, and interviews with Steven and Mrs Freeman, however, it was acknowledged that Steven employed task-involving feedback (Butler, 1988) in his practice. Mrs Freeman also acknowledged that Steven engaged in self-assessment, and that he was a motivated student:

Interviewer: You know the feedback you give him in lessons?

Mrs Freeman: Yes.

Interviewer: Does he always use it and apply it in his practice?

Mrs Freeman: I think so, but he is quite intuitive as well, he knows what he has done wrong, and he knows what needs tackling. So I think he is very well motivated.

(Teacher interview 1)

In his after lesson interviews, Steven always indicated that he was pleased with Mrs Freeman's feedback:

Interviewer: Were you pleased with Mrs Freeman's feedback about your work?

Steven: Yes. She said the d. minor contrary motion was quite good.

(Post-lesson student interview 8)

While Mrs Freeman's feedback was congratulatory at times, it was explicitly task-involving. This is illustrated when Steven had made progress on 'Allegro in F':

Action: Mrs Freeman points at Bar 14 in 'Allegro in F'.

Steven: I went quiet there because…

Action: Steven points at the 'piano' indication in the score.

Mrs Freeman: Yes, and you went still quieter, that was very good adaptation, yes, very good.

(Lesson observation 8)

This type of feedback may have fostered Steven's motivation to practise, as in six post-lesson interviews he indicated that Mrs Freeman's feedback had inspired him to do more practice:

Interviewer: Has the feedback made you more, or less keen to practise next week, or will you do about the same?

Steven: More, more!

(Post-lesson student interview 7)

Although Steven did not document how much time he spent practising, he provided detail of what he had practised in his diary, thus illustrating his motivation to focus upon the tasks set by Mrs Freeman:

Steven: I have done the A Major and F Major scales, quite fast…this helped me with a certain part in 'Alla Turca', because there is one part where the right-hand does a lot of quick movements using the A. Major scale, so that definitely helps.

(Student audio-diary 21st October)

Steven: I have done a bit of sight-reading and I have been working on the Major contrary motion scales. The pieces are pretty good at the moment, I've…completed the 'Forge' [Chez le forgeron]*, and I've finished the A1 as well* [Allegro in F]. *It is just getting dynamics in now really.*

(Student audio-diary 20th December)

In his diary, Steven implicitly evaluated the effectiveness of his practice, and his observation about how specific tasks inter-related demonstrated levels of self-regulation and metacognitive-thinking. Furthermore, Steven's indication that he achieved the work set by his teacher was confirmed in interviews with Mrs Freeman on 7 out of 9 occasions:

> *Interviewer: Were you please with Steven's progress today?*
>
> *Mrs Freeman: Yes, he had achieved his targets. He had practised his third piece, and he had done some work on the scales.*
>
> (Teacher interview 7)

On 2 occasions, however, Mrs Freeman was unsure about Steven's progress owing to the organisation of the lessons, as 2 lessons were dedicated to aural tests and sight-reading:

> *Interviewer: Were you please with Steven's progress today?*
>
> *Mrs Freeman: ...very difficult to say because I decided this week I ought to go over the aural tests again.*
>
> (Teacher interview 6)

As Steven's lessons were relatively short, Mrs Freeman sometimes felt a need to prioritise to ensure that all of the examination content had been covered. However, on these occasions examination pieces, scales and arpeggios did not receive attention, which meant that previously identified errors, and the corrections Steven was required to implement in his practice were not observed or verified. This is consistent with a criticism by an Ofsted overview report (1998) that when secondary school students responded to feedback, it was not always acknowledged by their class teachers. Despite this observation, how-

ever, it was clear that Mrs Freeman was aware of Steven's difficulties, and that she was anxious he should do well in the examination.

In addition to receiving feedback and feed-forward in his lessons, for purposes of feed-up (Hattie and Timperley, 2007) Mrs Freeman recommended that Steven listened to the ABRSM recordings of the Grade 4 examination pieces, thus ensuring that the 'reference level' (Ramaprasad, 1983, p.6) was clear:

> *Mrs Freeman: Eleven days to your exam. Have you listened to the CD?*
>
> *Steven: Yes.*
>
> *Mrs Freeman: …and how does it compare?*
>
> *Steven: …it could be better.*
>
> (Lesson observation 7)

Steven also accessed specimen aural tests on YouTube:

> *Steven: On YouTube there are videos where people play short passages, which you can pause and sing it back for practice.*
>
> (Student audio-diary 2nd March)

He also engaged in self-assessment by recording his work and listening to the performances:

> *Steven: …I recorded myself a couple of days ago…I recorded all the pieces and listened back to them…and they sounded pretty good.*
>
> (Student audio-diary 13th February)

This illustrated self-regulatory practice, and his engagement in self-assessment, as he actively compared his own performances with the ABRSM recordings.

He also received advice from his class music teacher about how to practise. Steven reflected upon this advice and tailored it to his own needs, thus demonstrating metacognitive thinking:

> *Mrs Freeman: I think it was clever of him to work out how the vocal warm-up he had done in class with Mr Mathews could be adapted and used as a finger warm-up for his scales.*
>
> (Teacher interview 4)

It is clear that Steven utilised feedback in his practice, and that he was motivated by specific tasks, although he focused less on some pieces, leaving them very late, bearing in mind the imminence of his exam. In the following section, Steven's efficacy-beliefs are discussed, in relation to the feedback and feed-forward received.

4.3.8 Steven's Efficacy Beliefs

While Steven's efficacy beliefs were generally strong when focusing upon repertoire pieces, he experienced particular difficulties in specific domains (Ritchie and Williamon, 2010), which he felt unmanageable and unattainable. With regard to the repertoire Steven was studying, in all of his post-lesson interviews he expressed confidence that he would complete the tasks set and meet his teacher's expectations:

> *Interviewer: Do you feel confident that you will achieve the tasks your teacher has set?*
>
> *Steven: In the week ahead, yes.*
>
> (Post-lesson student interview 1)

In 8 out of 9 of his pre-lesson interviews, Steven confirmed that he had met his teacher's expectations in his private practice:

Interviewer: Do you feel that you have met the targets set by Mrs Freeman?

Steven: Yes.

Interviewer: Could you give me an example?

Steven: Well, in Rondo 'Alla Turca', just working out what these notes are. I didn't know them before. These ones…

Action: Steven illustrates the notes in the score.

Interviewer: Oh, the left-hand part from bars 35 to 56? [Steven referred to the leger lines, and as this section modulates to F# minor, the accidentals.]

Steven: Yes.

(Pre-lesson student interview 3)

On the occasion when he felt that he may not have met his teacher's expectations, this was due to his involvement in the preparation for Remembrance Sunday. Steven's experience of meeting his teacher's expectations is likely to have reinforced his efficacy-beliefs, which may also have been further strengthened by the progress he made on challenging repertoire pieces, such as Bartok's 'Allegro Barbaro' and Mozart's Rondo 'Alla Turca'. As he had set these pieces as targets for himself, this also illustrated high levels of intrinsic motivation and self-regulation.

With regard to preparing the repertoire pieces for his Grade 4 examination, Steven demonstrated enthusiasm, for instance, having experienced difficulty playing a chord in bar 24 of 'Chez le forgeron', he observed the progress he had made:

Interviewer: Could you give me an example of something you are pleased with?

Steven: Yes, getting that chord right.

(Pre-lesson student interview 3)

There were rare occasions, however, when Steven could have focused his practice more effectively. When discussing 'Chez le forgeron', which is written in the key of Bb Major, Steven realised that he had forgotten to act upon Mrs Freeman's feed-forward in terms of checking the Bb Major scale and considering how it related to this piece:

Mrs Freeman: Right, do you think your scale practice has helped you at all with this section?

Action: Steven thinks.

Steven: Um, I don't think I have done the scale which…

Action: Steven points at the score…

Steven: …this isn't actually on the list of scales [Bb Major is one of the Grade 4 scales]

Mrs Freeman: Alright, so which scale would that be?

Action: Steven looks at the score and the piano.

Steven: Um, F, no…I'm not sure, I can't…

Mrs Freeman: There's a big clue there.

Action: Mrs Freeman points at the score.

Steven: Bb Major!

Action: Steven grins, and then turns to the piano, embarrassed.

(Lesson observation 4)

On a previous occasion Steven had recognised the value of studying the A Major scale, which helped when learning Rondo 'Alla Turca' (see section

4.3.7), but on this occasion his lesson was prior to Remembrance Sunday, when Steven was distracted by other commitments.

It has been noted that Steven encountered difficulties, specifically with sight-reading, and mastering the fingering in scales and arpeggios:

> *Interviewer: During the week did you experience any particular difficulties or challenges?*
>
> *Steven: I think the fingering on the scales…I struggle with that, and yes, sight-reading.*
>
> (Pre-lesson student interview 1)

With regard to preparing scales and arpeggios for his examination, Steven became frustrated at times with the fingering. While Mrs Freeman was generally supportive in her feedback, on this occasion, she was less considerate:

> *Mrs Freeman: Bb Major Arpeggio.*
>
> *Action: Steven starts the right-hand with his thumb on Bb.*
>
> *Mrs Freeman: No! You put your thumb on Bb!*
>
> *Steven: <Sighs!>*
>
> *Action: Steven starts again, putting his thumb on Bb.*
>
> *Mrs Freeman: No!*
>
> (Lesson observation 5)

Critical feedback of this nature may be perceived as unsupportive, and as no explanation was provided about Steven's error, it could have had a negative effect upon his efficacy beliefs. Steven appreciated, however, that he needed to work more effectively on the arpeggio fingering:

> *Interviewer: Was there anything that did not go well?*

Steven: I couldn't get the arpeggio fingers correct.

Interviewer: OK.

Steven: And so, yes, that is what I am practising for this week.

(Post-lesson student interview 5)

Despite his intention to work on arpeggio fingering after this lesson, this particular problem continued, as illustrated in subsequent lessons, and in his interview after lesson 7, when asked if he was clear how he should practise arpeggios, he indicated that he was not sure (see section 4.3.6). This raises the question whether it may have been helpful if Mrs Freeman had adopted a more diagnostic approach to her feedback, perhaps engaging Steven in arpeggio related activities, so that his misunderstanding of the fingering could be observed, and resolved.

While Mrs Freeman acknowledged that Steven worked hard and persevered in his practice, even when he found tasks difficult, in her interviews she indicated that he experienced a specific challenge in relation to sight-reading:

Mrs Freeman: I don't think he is positive about his sight-reading.

Interviewer: No.

Mrs Freeman: I still think he feels that he can't do it.

(Teacher interview 2)

Steven confirmed Mrs Freeman's perception of his feelings about sight-reading, illustrating a degree of learned helplessness (Abramson, et al., 1978):

Steven: I have looked a bit more at sight-reading…still…I just find it really difficult, and I don't seem to be making any progress…<sighs>…I just can't do it.

(Student audio-diary 23rd January)

Subsequently, Steven indicated that he had given up trying to improve his sight-reading:

> *Steven: Yes, sight-reading, I gave up on that, well not gave up…I just sort of accepted my fate.*
>
> (Student audio-diary 15th March)

In her feedback, Mrs Freeman remained supportive and encouraging, aiming to develop Steven's efficacy-beliefs in sight-reading, indicating that he should not give-up:

> *Mrs Freeman: …although he says 'Well I will get nought', if we can get just a few marks for it…*
>
> (Teacher interview 7)

So in his lessons, she provided feed-forward in terms of strategies that could be employed in sight-reading tasks:

> *Mrs Freeman: …when he said 'I can't read the Bass Clef', I tried to give him tips, encouraging him to look for patterns, such as fifths, octaves and thirds.*
>
> (Teacher interview 7)

While Steven indicated that he could have managed his sight-reading and the fingering in scales and arpeggios better, he was generally positive about his work and the progress that he had made, for example, when studying legato pedalling:

> *Interviewer: Overall, are you satisfied with the progress you made since your last lesson?*
>
> *Steven: Yes.*
>
> *Interviewer: What went particularly well?*

Steven: I was practising using the pedal, which I couldn't really do a couple of weeks ago, but I'm getting better now.

(Post-lesson student interview 3)

Within specific domains, such as sight-reading, the feedback and feed-forward Steven received was generally supportive, as Mrs Freeman understood that Steven's repeated failure in this endeavour resulted in his perception that it was 'unattainable' (Rothman et al., 2011). The feedback and feed-forward relating to scale and arpeggio fingering lacked specificity, and available research evidence suggests that this may explain why it was ineffectual (Black et al., 2003) and less efficacious. Although Steven experienced challenges, and the feedback and feed-forward received was not always conducive to resolving these difficulties, with regard to performing repertoire pieces, his efficacy-beliefs were generally positive. In the following section, issues relating to feedback and feed-forward, and how this develops self-regulation and self-assessment are considered.

4.3.9 Steven's Self-regulation

The development of Steven's self-regulation and his skills in self-assessment were fostered by Mrs Freeman in lessons by providing thinking time (Rowe, 1972) after flagging errors, and encouraging reflective practice. Steven also actively engaged with self-generated aural and tactile feedback in his private practice, and as he recorded himself performing on occasions, he actively compared his playing with the official ABRSM recordings of the examination pieces, thereby utilising feed-up.

In interviews, Mrs Freeman commented on Steven's independence on 5 occasions, acknowledging that he set priorities for his private practice, made deci-

sions about his repertoire, and actively engaged in self-assessment. During the lessons observed, there were 26 occasions when Steven corrected errors independently:

> *Mrs Freeman: Play the Ab Major scale, please.*
>
> *Action: Ascending Steven played an E-natural rather than Eb, which made him pause and reflect. After a few moments, he corrected the error and continued playing.*
>
> (Lesson observation 8)

On this occasion, it was apparent that the aural or tactile feedback Steven received indicated that he had made an error. In response, he paused to ascertain what he had performed incorrectly, and to consider what he needed to do to rectify the error. In support of this perception, in post-lesson student interviews, Steven indicated on 7 occasions that there were issues he felt he needed to focus upon in addition to the feedback he received from Mrs Freeman:

> *Interviewer: Is there anything else you feel you need to focus upon in your practice in addition to your teacher's advice?*
>
> *Steven: Yes, knowing the notes in different scales, because I am not sure.*
>
> (Post-lesson student interview 1)

Steven had to learn 9 different scales for his Grade 4 examination, all of which had key signatures of between 2 and 5 sharps or flats. Other than reference to the ABRSM Grade 4 scale book, it is not clear why Mrs Freeman did not explain the key structures in Steven's lessons, a practice which could have proved beneficial.

Although Mrs Freeman observed that Steven was independent in his studies, on occasions there were specific issues that he had not focused upon in his practice, for example when learning the Bb Major scale, and considering how

this could help his study of 'Chez le forgeron'. Furthermore, he had left his study of 'Carnival in Rio' very late, considering that this issue was flagged in lesson 8 (12th March), and his examination was less than two weeks away (24th March); this may indicate that Steven was not rigorous in terms of planning ahead.

This section suggests that Steven was independent in his studies, taking responsibility for his learning, and actively engaged in self-assessment, particularly when he recorded his performances for purposes of comparison and reflective practice. However, sight-reading was a specific weakness which he was inclined to accept.

4.3.10 The Overall Efficacy of Feedback in Case Study 2

In 8 out of the 9 post-lesson interviews, Steven indicated that he found Mrs Freeman's feedback and feed-forward clear, thus enabling him to concentrate on particular issues, both in his lessons and in his practice. Although a more diagnostic approach to feedback could have been put into place to build Steven's confidence and understanding of scale fingering, in his lessons the feedback and feed-forward received incorporated tactics that could be employed when engaging in sight-reading activities, but in order to build his confidence in sight-reading, this warranted further reflection and the provision of more manageable targets.

The interviews and lesson observations confirmed that the feedback provided by Mrs Freeman was mostly task-involving (Butler, 1988) and was utilised by Steven in his practice, although occasionally, in particular the week leading up to Remembrance Sunday, he lacked the organisation skills to put all of it into practice. When Mrs Freeman wanted clarification that Steven had understood

her feedback or feed-forward, she asked him to confirm his understanding, albeit on a relatively small number of occasions, either verbally or by asking him to play the relevant section of a piece again, although opportunities were missed for assessing and enhancing Steven's understanding.

In her initial interview, Mrs Freeman expressed the view that her feedback and feed-forward was task-involving, and that she engaged students in dialogue. This was subsequently confirmed by lesson observations (see sections 4.3.3, 4.3.4 and 4.3.6). Nevertheless, some of her feedback was didactic in intent, requiring a correct response rather than a thoughtful, self-regulated response (Hodgen and Webb, 2008).

4.4 Case Study 3

4.4.1 Introduction to Miss Marston: Gemma's Teacher

Having attained Grade 5 ABRSM, Miss Marston began teaching the piano when she was 14 years old, but indicated that she only taught beginners up to Grade 3. At the time of the study, she had been teaching the piano for seven years, and felt confident teaching up to Grade 5 level. She was in her final year studying for a degree in Music Performance, focusing upon the flute as her principal study instrument, and her ambition was to engage in further study to qualify as a music teacher in secondary education, either through a school or a university-led teacher training programme.

At the commencement of the study, although she had taught approximately 20 piano students, and currently had 9 students, she had not received any formal teacher training, or any training in the use of formative assessment and feedback.

4.4.2 Introduction to Gemma: Pianoforte Student

Gemma's interest in playing the piano was initiated when her grandmother moved to a smaller house, and Gemma's parents agreed to accommodate her grandmother's piano. As Gemma became increasingly interested in playing the instrument, her parents arranged for her to have piano lessons locally with Miss Marston.

At the commencement of the research, Gemma was 12 years old, and she had studied with Miss Marston for a period of five years. Miss Marston indicated that Gemma's strengths related to her general motivation and willingness to learn, together with her interest in playing music in different styles. While Gemma had a clear understanding of rhythmic structure, it was acknowledged that she experienced difficulties reading staff notation, and implementing phrasing, expression and dynamic control. Although she experienced difficulties of this nature, Gemma indicated that she enjoyed her lessons as she was able to interact with her teacher effectively, both when discussing problems, and when she needed to clarify her understanding.

Gemma enjoyed playing jazz, rag-time and blues, which she was due to perform in a concert organised by Miss Marston. In addition to preparing for this concert, having passed Grades 1 and 2, she was also working towards her Grade 3 (ABRSM) examination.

4.4.3 The Provision of Feedback Highlighting Errors in Gemma's Lessons

In Miss Marston's initial interview she indicated that the feedback she provided in lessons was explicitly task-involving, but as previously acknowledged, claims of this nature require verification (Argyris, 1976). Within the lessons observed, although Miss Marston provided congratulatory feedback when

Gemma performed accurately, and specifically when her progress was evident, it was clear that the feedback and feed-forward was task-involving rather than ego-involving.

FEEDBACK HIGHLIGHTING ERRORS

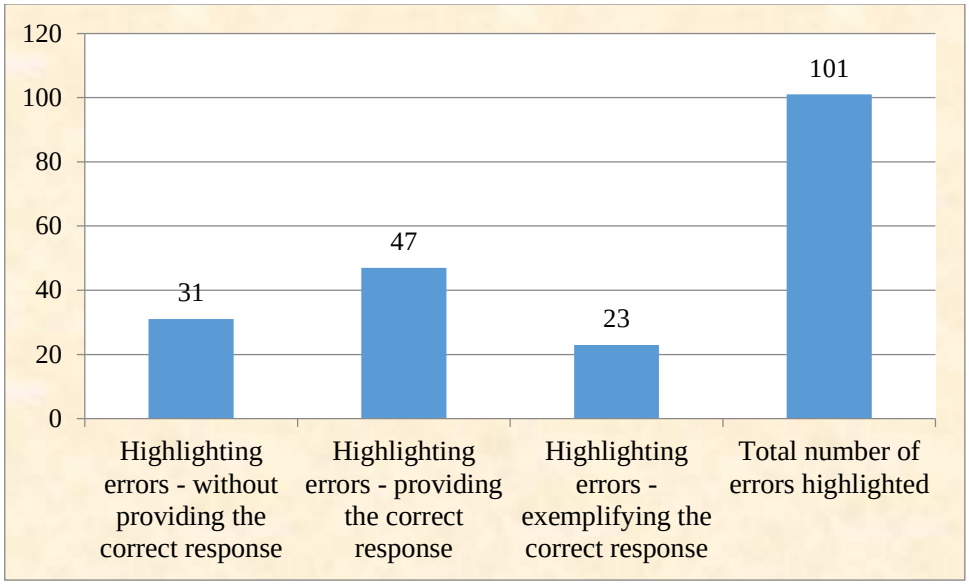


Chart 4.9

Although error-flagging feedback was a salient feature of Gemma's case study, the number of error-flagging interventions was only marginally higher than the number of feed-forward interventions (see Charts 4.9 and 4.12). An overview of the discrete types of 'error-flagging' interventions, which were observed in Gemma's lessons, is presented in Chart 4.9.

On most occasions, Miss Marston communicated errors by providing the correct response verbally (47%), thereby adopting an informational (Hodgen and Webb, 2008) and task-involving approach to her feedback. In addition, errors were communicated with a correct response through exemplification (23%), while on almost a third of occasions error-flagging feedback did not incorporate the provision of the correct response (30%). The errors observed in Gem-

ma's lessons were highlighted immediately, and related to a range of issues including incorrect notes, errors in reading staff notation, and fingering.

In Gemma's lessons, when an error was highlighted without the provision of a correct response, she would pause, reflect upon the error, and actively engage herself in finding a solution. For example, when studying the scales for her Grade 3 examination, Gemma played an incorrect note, which was immediately flagged by Miss Marston:

> *Miss Marston: OK, B. Major.*
>
> *Action: Gemma begins the scale with her left-hand, but plays an F natural.*
>
> *Miss Marston: Oops!*
>
> *Action: Gemma reflects upon the error and begins again, playing the scale correctly.*
>
> *Miss Marston: That's good.*
>
> (Lesson observation 1)

Miss Marston provided thinking time (Rowe, 1972) after she had highlighted this error, thus actively encouraging Gemma to consider how to proceed. While it has been acknowledged that error-flagging of this nature within a general context could leave students unsure how to proceed (Shute, 2008), in Gemma's case, a positive impact was evident as she located and corrected the error herself. This approach also proved effective when Gemma was studying Bach's 'Prelude in C' (ABRSM, 2010b):

> *Action: In bar 11* [right-hand] *Gemma plays A, C, E, C instead of A, C, F#, C.*
>
> *Miss Marston: No, no, think about what this is…*
>
> *Action: …Gemma thinks, and then plays A, C, F…*

Miss Marston: No, it is going to be…?

Gemma: Oh, it is F#.

(Lesson observation 2)

Highlighting the error in this way encouraged Gemma to analyse what she had performed incorrectly, and while she initially changed the E to an F-natural, the timing of Miss Marston's subsequent intervention, which was posed as a question, may have assisted Gemma in focusing more clearly on the note she had played incorrectly. In the interview following this lesson, Gemma indicated that she was pleased with the feedback she had received from Miss Marston, and that she found such interventions helpful:

Interviewer: Were you pleased with Miss Marston's comments about your work?

Gemma: Yes.

Interviewer: Could you explain why?

Gemma: Yes, they helped me with my Grade 3 piece.

(Post-lesson student interview 2)

When Gemma played an incorrect note in 'Seventh Street Blues' (Mier, 1993), Miss Marston highlighted the error by stating the correct note:

Action: Gemma plays the second chord in bar 20 as G, B, D, G instead of G, B, D#, G.

Miss Marston: D#.

Action: Gemma plays the correct note.

Miss Marston: That's it.

Action: Gemma corrects the chord, and continues playing.

(Lesson observation 2)

Gemma's correction of the chord was duly verified by Miss Marston. On another occasion, while playing 'Stroll On' by Haughton (ABRSM, 2010b), Gemma experienced difficulty with the rhythm in bars 23 to 25. Miss Marston highlighted these inaccuracies by exemplifying the correct response:

Action: Miss Marston interrupts Gemma, points at the score, and plays from bar 23, stating the rests while playing.

Miss Marston: …rest…rest…Yes?

Gemma: OK.

(Lesson observation 6)

As this error was flagged by exemplifying the correct response, while demonstrating the 'reference level' (Ramaprasad, 1983, p.6), a didactic approach to rectifying the error meant that the rhythm was not actually explained.

When errors were flagged without the provision of a correct response, no additional information or explanations were provided, although in the example presented above, Miss Marston posed a question which engaged Gemma in thinking about what she had performed incorrectly. While this proved to be an effective strategy, Miss Marston also highlighted errors by providing the correct response verbally, and although Gemma responded immediately, it was unclear whether these interventions prompted reflective practice, which could have enabled her to transfer the corrections to similar situations in the future. When flagging errors by exemplifying a correct response, while Miss Marston actively annotated her demonstrations verbally, this type of feedback could have encouraged a passive approach to learning.

Although it is not clear how error-flagging feedback assisted in the development of Gemma's transferrable skills, she made copious notes in her practice diary, explaining what she had focused upon in her private practice, which may have assisted in the development of her skills in self-assessment and reflective practice. In the following section, feedback as a process of verification is discussed.

4.4.4 Feedback for the Purpose of Verification

Chart 4.10 illustrates that the most frequently observed type of feedback in Gemma's lessons was for the purpose of verification. A little under two-thirds (59%) of these interventions consisted of feedback relating to the accuracy of Gemma's work, utilising comments such as 'good', 'well done', or 'that's much better'. Miss Marston also elicited Gemma's understanding either by asking her to 'try again' on a little over a quarter (27%) of occasions, or by asking her to verify her understanding verbally, on a small number of occasions (14%).

CONFIRMING GEMMA'S UNDERSTANDING AND/OR SKILL

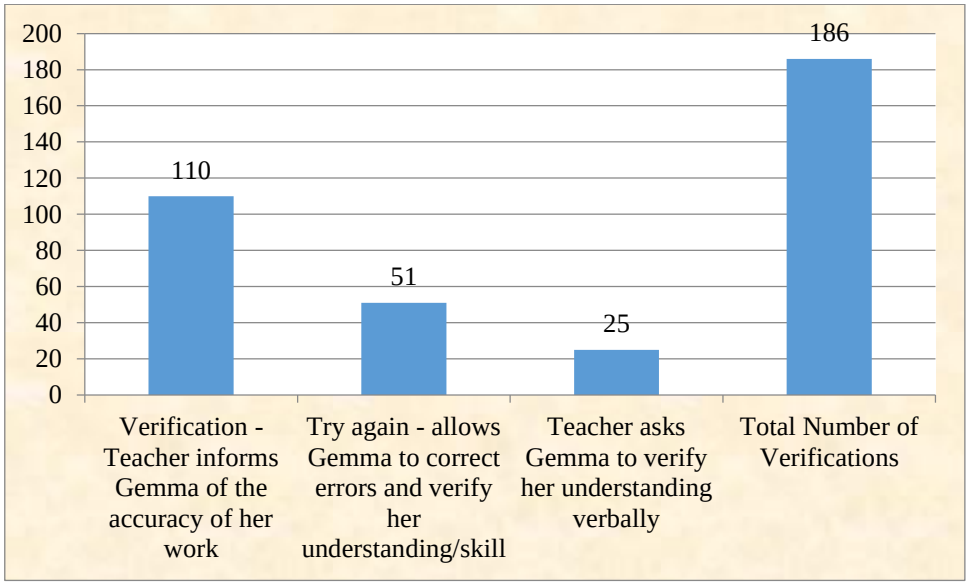


Chart 4.10

While studying the scales for her Grade 3 examination, Miss Marston verified the accuracy of Gemma's performances, and when she performed fluently, she was congratulated on her accomplishment using task-involving feedback:

Action: Gemma plays the E. Major scale two octaves, hands together.

Miss Marston: Good. That was perfect fingering, well done!

(Lesson observation 1)

When Gemma encountered particular difficulties in her studies, she reflected upon the feedback and feed-forward provided in lessons and focused her practice accordingly. Miss Marston implicitly acknowledged her use of the feedback and feed-forward in her private practice by verifying the accuracy of her playing, and acknowledging the progress she had made. For example, having experienced difficulties with the phrasing in 'Seventh Street Blues', it was clear that Gemma had applied the feed-forward she received in her practice, and consequently made progress:

Action: Gemma plays bar 16, making it clear that the Db is the start of a new phrase.

Miss Marston: Yes, that's much better.

(Lesson observation 6)

There were occasions (51) when Miss Marston asked Gemma to 'try again', or repeat sections of pieces, so that her understanding, or the accuracy of her performance, could be verified. For example, while studying scales in lesson 1, Miss Marston asked Gemma to repeat specific sections to verify the accuracy of her fingering:

Action: Gemma plays the scale of B. minor harmonic.

Miss Marston: Just try the left-hand once more.

Action: Gemma plays the left-hand accurately.

Miss Marston: Much better.

(Lesson observation 1)

On another occasion, while preparing 'Hero' (Iglesias, et al., 2001) for a concert, Gemma missed some F#s in bars 22, 24 and 26:

Miss Marston: Try again for me from…um…go from the chorus [bar 21].

Action: Miss Marston points at the score.

Miss Marston: Make sure you put the F#s in…the left-hand part.

Gemma: Oh, right.

(Lesson observation 4)

As Gemma played the chorus again, Miss Marston was able to verify her understanding of the feed-forward as the F#s were performed accurately. Although the focus of this 'try again' intervention was made explicit, thus ensuring that Gemma focused upon F#s, there were occasions in 'try again' interventions when Miss Marston did not indicate specific errors or perceived misunderstandings, so that the accuracy of her performance and her understanding could be verified. In this example, Miss Marston asked Gemma to play a scale again, to check the accuracy of her fingering:

Action: Gemma plays the G. minor harmonic scale hands together. The descent was hesitant with regard to the fingering, but she played the correct notes.

Miss Marston: OK, try that once more.

Action: Gemma plays the scale again more fluently and with accurate fingering.

Miss Marston: OK, that was better.

(Lesson observation 3)

Chart 4.10 also indicates that Miss Marston asked Gemma to verify her understanding of specific issues verbally, but as she was not asked to 'try again', with a view to demonstrating her understanding, Miss Marston could not be certain that Gemma had fully understood. Although Gemma indicated in her initial interview that she felt comfortable discussing issues that she did not understand with Miss Marston, there were occasions when it was unclear whether she had fully understood specific concepts, as illustrated in section 4.4.6. An example of this relates to Miss Marston's use of the term 'modulation', the understanding of which was not actively verified, which indicates that merely asking Gemma to verify her understanding verbally may not have been appropriate:

Action: As Gemma starts playing 'Prelude in C', Miss Marston points at bars 9, 10 and 11.

Miss Marston: You are modulating each bar into a different key.

Gemma: OK.

Miss Marston: Yes?

Action: Gemma nods in agreement.

(Lesson observation 7)

Gemma's response may be an indication that she had understood the notion of 'modulation', but as she was not engaged in discussion about this, or asked to demonstrate her understanding, it is not certain that this concept was understood.

When Gemma took the initiative to clarify her understanding of subject content, or the feedback and instructions she received, she asked Miss Marston specific questions, or, when she felt unsure about the accuracy of her work, she asked Miss Marston to verify whether she had performed correctly (see Chart 4.11).

CLARIFYING UNDERSTANDING

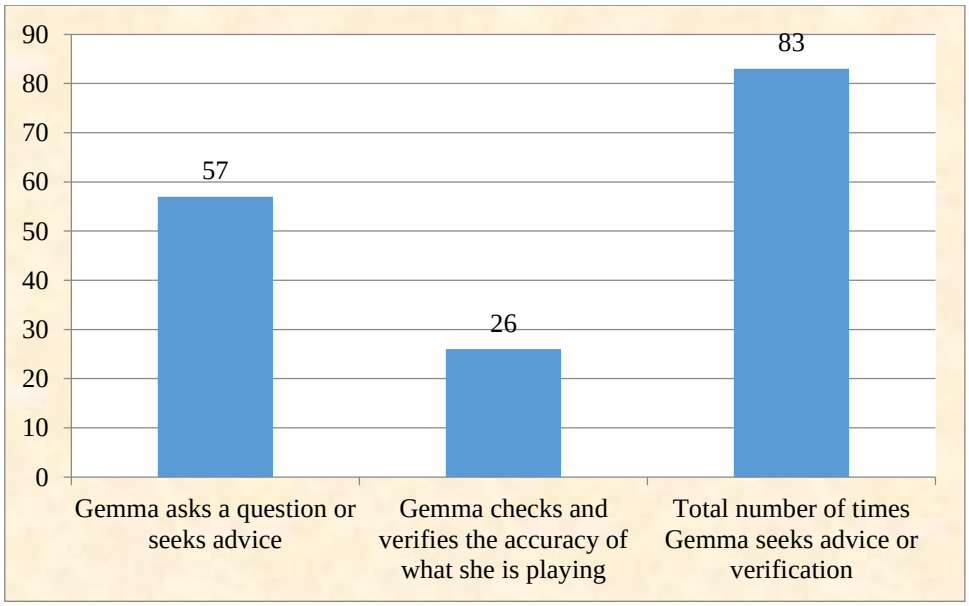


Chart 4.11

When playing 'Stroll On', Gemma needed to confirm her understanding of a theoretical issue relating to the F# in bar 2, which is tied:

Gemma: Do you play that twice? Or, because it is joined…does that mean you hold it?

Miss Marston: Yes, what's the word for it when they are added together? It begins with a 'T'.

Action: Gemma thinks.

Gemma: Tied.

Miss Marston: Tied notes. Well done. It means that you add them together.

(Lesson observation 4)

The question Miss Marston asked, and the hint she provided, encouraged Gemma to recall the term 'tied notes' without guessing. Consequently, Miss Marston was able to verify that Gemma understood this concept. On other occasions, Gemma needed to clarify her understanding of technical issues, such as the fingering when playing scales:

> *Action: Gemma plays B. Major* [left-hand], *but when descending pauses on the final C#.*
>
> *Gemma: Shall I play it with this finger* [referring to the final B]*?*
>
> *Action: Gemma indicates her 4th finger.*
>
> *Miss Marston: Yes, you just don't use your little finger, that's all. That's good.*
>
> (Lesson observation 1)

When seeking clarification that she had performed something accurately, Gemma asked questions, or made a statement about her uncertainty, indicating that she engaged in self-assessment, without being prompted to do so, and that she was self-regulated. When initially learning to play the G. minor harmonic scale, Gemma was unsure whether she had played the notes correctly, and made a statement to highlight her uncertainty:

> *Action: Gemma starts playing the scale, but stops on D.*
>
> *Gemma: I do not know if this is right.*
>
> *Action: Gemma plays the scale from the beginning.*
>
> *Miss Marston: …that was good. Try it again.*
>
> *Action: Gemma plays the scale again, accurately.*
>
> *Miss Marston: OK.*
>
> (Lesson observation 1)

On this occasion Miss Marston asked Gemma to 'try again' to confirm that it was not a chance occurrence, and subsequently verified the accuracy of her performance. On other occasions Gemma asked Miss Marston to demonstrate how something should be played, seeking feed-up relating to fingering:

> *Action: Gemma is playing 'Prelude in C' and stops to ask Miss Marston to demonstrate how something is played.*
>
> *Gemma: …can you play that?*
>
> *Action: Gemma points at the score. Miss Marston plays the right-hand part of the first four bars. Gemma observes Miss Marston's fingering.*
>
> *Gemma: Yes.*
>
> *Miss Marston: Yes?*
>
> *Action: Gemma plays the first bar using 1, 2, 4 and then the 5 on the Bb.*
>
> (Lesson observation 2)

As Miss Marston's complied with Gemma's request to demonstrate the fingering, this may have fostered copying without understanding. A mindful approach (Black and Wiliam, 1998a) could have been initiated, if Gemma had been encouraged to work out the fingering herself.

Within this section, it has been acknowledged that Gemma actively engaged in verifying her understanding of a range of issues, some of them relating to theory, while others concerned piano technique, such as fingering. In the following section the provision of feed-forward in Gemma's lessons is discussed.

4.4.5 The Provision of Feed-Forward in Gemma's Lessons

During the lessons observed, 75% of the feed-forward interventions were provided through elaborative 'informative tutoring' (Shute, 2008, p.160), making it the principal type of feed-forward employed by Miss Marston, while 25% of

these interventions were explicit 'hints' (ibid.) or reminders of previous errors and their corrections (see Chart 4.12).

FEED-FORWARD: GUIDING GEMMA HOW TO PROCEED

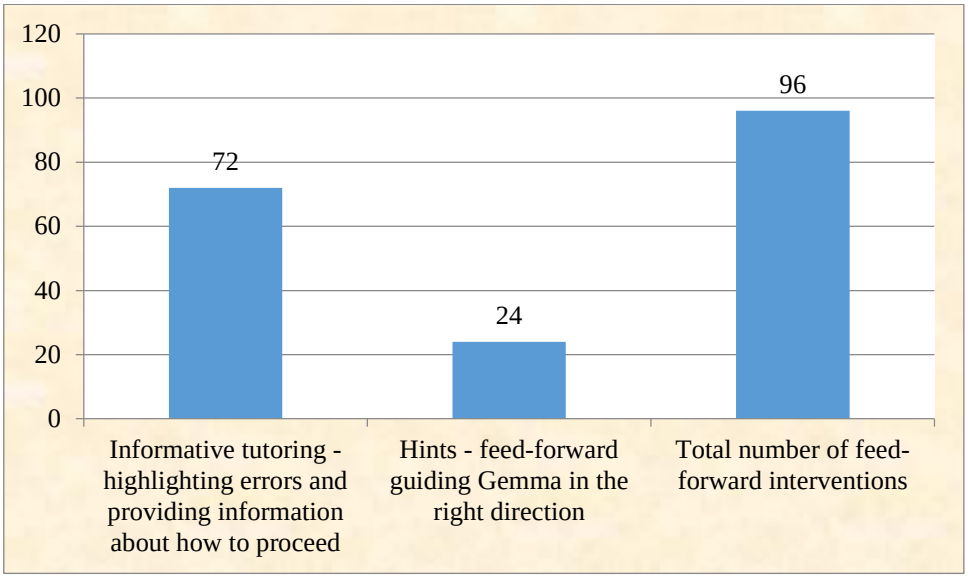


Chart 4.12

Miss Marston employed informative tutoring in Gemma's lessons to address technical problems, such as fingering, and some issues relating to musical expression, specifically tempo and phrasing. When she focused upon these matters, her feed-forward involved a dialogic approach (Alexander, 2014) which actively supported Gemma in fostering her understanding. For example, when Gemma played 'Seventh Street Blues', Miss Marston highlighted phrasing as an issue, and explained how she should proceed. When Gemma put the feed-forward into action, Miss Marston acknowledged her progress and confirmed the accuracy of her response:

Action: Gemma plays the melody in bars 19–20.

Miss Marston: …try all the way through the phrase.

Gemma: Oh, OK, yes.

Miss Marston: Just really to make it almost like a finishing point, it is the end of a phrase.

Gemma: Yes, OK.

Action: Gemma plays the chord at the end of bar 20 then continues…

Miss Marston: Even longer. Don't be scared of holding that chord. Almost try and make it a point where the audience is feeling a bit uncomfortable, like 'is she finished, is she not, is she going to carry on?'

Action: Gemma plays the chord at the end of bar 20 and holds it.

Miss Marston: Good.

(Lesson observation 5)

Also concerning interpretive skills, while playing 'Seventh Street Blues', Miss Marston provided feed-forward relating to the tempo indication:

Miss Marston: …there, you have got 'poco rit.'

Action: Miss Marston points at bar 4.

Miss Marston: Slow down a little bit more towards the end of that bar.

Gemma: OK.

Action: Miss Marston gesticulates with her hands to communicate her meaning.

(Lesson observation 6)

Although Gemma put the feed-forward received into action, it is not clear whether her understanding developed to the extent that she could transfer the content of these interventions to similar situations. However, when Miss Marston focused upon piano technique, as the content was generic, it may have been more transferable. For example when Gemma was studying scales Miss Marston provided advice about curved fingers:

Miss Marston: OK, careful not to keep your fingers flat.

Action: Miss Marston demonstrates this in the air.

Miss Marston: Keep them nice and…

Action: Gemma demonstrates that she understands.

Miss Marston: That's it…nice and arched.

Action: Miss Marston makes notes in Gemma's journal.

(Lesson observation 3)

Although Gemma implemented feed-forward effectively, on this occasion, the informative tutoring could have proved more beneficial if Miss Mercer had explained the need to curve fingers, in terms of enhancing the level of control and tone quality (Matthay, 1932; Beauchamp, 2003).

Timely hints were provided in Gemma's lessons to guide her while she played the piano. These hints were presented to remind Gemma of errors previously observed, including notes and issues relating to fingering, so that she did not make the same errors again. For example, when playing 'Prelude in C', Miss Marston reminded Gemma of a note she had previously played incorrectly:

Action: As Gemma plays the top A in bar 11 [right hand] *Miss Marston reminds her that the following F is still F#, although it does not have a sharp sign.*

Miss Marston: F# sharp again <whispered>.

Action: Gemma plays the F# and continues.

(Lesson observation 2)

On another occasion, when studying the A. minor harmonic scale in contrary motion, Miss Marston provided hints relating to fingering:

Action: Gemma plays the scale ascending [left hand]. *As she approaches F, Miss Marston reminds her…*

Miss Marston: …3rd.

Action: Gemma remembers to put her 3rd finger on F and continues.

(Lesson observation 8)

Within this section, there is evidence to support Miss Marston's assertion that the feedback and feed-forward she provided in lessons was task-involving, focusing specifically upon the content of Gemma's performances, rather than ego-involving. Although the number of feed-forward interventions was lower than verification and error-flagging feedback, these interventions proved effective in terms of providing elaborative information about how to proceed, or to prompt the recall of previous errors, so that corrections could be reinforced and utilised effectively in her private practice. Although Miss Marston focused upon tempo and phrasing in 'Seventh Street Blues', little attention was paid to dynamic control in Gemma's lessons, which Juslin et al. (2004) observed to be elusive in instrumental teaching owing to its subjective nature. In the next section, inconsistencies between Miss Mercer's intentions and Gemma's responses to feedback and feed-forward are discussed.

4.4.6 Identifying Discrepancies

While it was established in lesson observations and interviews that Gemma usually understood the feedback and feed-forward provided, there were occasions when she was unsure, or lacked the knowledge and understanding of specific concepts, which resulted in discrepancies between Miss Marston's intentions and Gemma's actions. Gemma's lack of understanding was observed relatively frequently (37 occasions), for example, when playing 'Seventh

Street Blues', Miss Marston had assumed that Gemma understood the concept of swung quavers:

> *Miss Marston: Make sure you don't swing the quavers. Most of the time you weren't, but there were the odd times, um…it tended to be this part.*
>
> *Action: Miss Marston circles bar 11 on the score.*
>
> *Miss Marston: Just make sure you don't swing them.*
>
> *Action: Miss Marston looks at Gemma.*
>
> *Gemma: OK.*
>
> *Action: Gemma starts playing from the beginning of the piece, still swinging the quavers. Miss Marston stops Gemma at the end of bar 16 to discuss this further.*
>
> (Lesson Observation 6)

Although Gemma accepted Miss Marston's feed-forward about not swinging quavers, on this occasion it was clear that she had not understood the difference between straight quavers and swung quavers, and this matter had to be addressed.

On a small number of occasions (4), when Gemma had been set tasks to complete in her private practice, it became apparent that she was unsure how to practise them. In subsequent lessons, when Miss Marston became aware of these issues, she provided feed-forward, which prompted dialogue with Gemma, and assisted her in her endeavours. For example, having been introduced to chromatic scales in lesson 3, in the following lesson Gemma indicated that she had not made any progress as she was unsure how to practise them. When Miss Marston became aware of this situation, she clarified the fingering in the lesson, and in the subsequent interview with Gemma, she indicated that Miss Marston's feed-forward had assisted:

Gemma: I always do my scales, but I wasn't pleased with my Chromatics because I didn't know how to do them. I was getting confused with the fingering.

Interviewer: Are you happy with them now?

Gemma: Yes.

(Post-lesson student interview 4)

Although Gemma had indicated that she felt comfortable discussing difficulties with Miss Marston, there were occasions when she was unsure how to practise specific tasks. On these occasions, it may be that she felt she had initially understood Miss Marston's feed-forward, but when putting it into practice at home, she realised that she was unclear about specific attributes.

The following section illustrates the sources of feedback and feed-forward Gemma accessed during her studies, and how she was motivated to practise.

4.4.7 Different Sources of Feedback and Feed-forward Utilised During Private Practice and Gemma's Motivation to Practise

The study produced evidence that in addition to the feedback provided by her teacher in lessons, Miss Marston directed Gemma to utilise feedback from other sources. During lessons Miss Marston explained to Gemma what she needed to practise at home, and she also documented these issues in Gemma's lesson notes as a reminder. Although some of the points were detailed and illustrated using staff notation, some comments were less specific:

Scales – C. minor hands together.

Arpeggios – A. minor and G. minor hands together.

Seventh Street Blues - work on keeping it really smooth.

Prelude in C - we will start with this next time.

(Lesson notes week 1)

Miss Marston indicated that she was confident Gemma understood the feedback and feed-forward provided in lessons, and that she was clear about the focus of her practice:

Interviewer: Do you think Gemma has understood what she needs to focus upon in her practice?

Miss Marston: Yes, it is explained clearly, and clarified verbally in the lesson, then written in her note-book. We use a note-book system where I write down exactly what she needs to do over the coming week, and she often writes notes back to me showing what she has or hasn't understood, or if there is something she hasn't been able to achieve.

(Teacher interview 1)

Gemma verified Miss Marston's judgment about the clarity of what she needed to practice:

Interviewer: Do you understand what your teacher wants you to focus upon in the week ahead?

Gemma: Yes, because it's all in my book...

(Post-lesson student interview 2)

Despite these claims, there was evidence in sections 4.4.4 and 4.4.6 that Gemma had misunderstood issues relatively frequently. When asked if she understood why she had been asked to focus on specific tasks, Gemma was usually capable of offering explanations:

Interviewer: Why do you think you have been asked to focus on line 3 of Prelude in C?

Gemma: Because I am not very confident with line 3 yet, so I just need to get that up to the same speed as everything else.

(Post-lesson student interview 3)

Despite Gemma's commitment to other activities, and the limited amount of time she had to practise, in all of her interviews, Miss Marston expressed the view that Gemma was motivated:

> *Interviewer: Do you consider Gemma to have been motivated this week?*
>
> *Miss Marston: Yes, she did say that she had lots of homework, but if anything this seems to have made her use the time more effectively.*
>
> (Teacher interview 3)

While this view illustrates intrinsic motivation and self-regulation, it needs to be acknowledged that when preparing for the concert, as she would be performing for an audience, this may have been an extrinsic motivator:

> *Interviewer: Do you consider Gemma to have been motivated this week?*
>
> *Miss Marston: Yes.*
>
> *Interviewer: What makes you think that?*
>
> *Miss Marston: The upcoming concert is the first time Gemma has performed for an audience, and therefore, her motivation is high to have her pieces as perfected as possible.*
>
> (Teacher interview 5)

In her practice diary Gemma did not document the amount of time she spent practising, but she provided a list of the music she had focused upon, thus illustrating her motivation to practise, and as Miss Marston indicated, she emphasized issues that had proved to be a concern:

Scales	Right-hand	Left-hand	Together
A. Major	✓	✓	✓
A. Minor Harmonic	?	?	?

(Student diary 16th April)

As the A. minor scale proved to be a problem, it is interesting that Gemma did not draw upon the scale book to ascertain the note names and the fingering pattern, which would have further illustrated her self-regulation.

With regard to accessing resources that could assist in her studies, in addition to the feedback and feed-forward received in lessons, Gemma listened to official recordings of her examination pieces at home, specifically for purposes of feed-up (Hattie and Timperley, 2007):

> *Interviewer: When you listened to the ABRSM recordings of the Grade 3 pieces, was that useful?*
>
> *Gemma: Yes.*
>
> *Interviewer: In what way?*
>
> *Gemma: Because I can hear what they are meant to be like.*
>
> (Pre-lesson student interview 6)

Similarly, for feed-up, Miss Marston accessed online recordings during Gemma's lessons (ABRSM, 2014):

> *Miss Marston: Shall we have a quick listen to 'Sad Song' on YouTube?*
>
> *Action: Miss Marston plays 'Sad Song' on her cell phone.*
>
> *Miss Marston: OK?*
>
> *Gemma: They didn't play the repeat.*
>
> *Miss Marston: No you don't in exams.*
>
> (Lesson observation 8)

Playing this recording in Gemma's lesson raised awareness of the 'reference level' (Ramaprasad, 1983, p.6) of 'Sad Song', and from an organisational perspective, it drew attention to the protocol for playing repeats in examinations.

While Miss Marston and Gemma accessed official recordings of examination pieces for the purpose of feed-up, Miss Marston also encouraged Gemma to seek feedback from her peers, particularly as one of Gemma's friends had studied 'Sad Song':

> *Miss Marston: You said your friend has done 'Sad Song', so you maybe know it a little bit, and she can help you with bits as well.*
>
> (Lesson observation 8)

Gemma also indicated that she recorded herself playing, and listened to the recordings for purposes of self-assessment, thus identifying improvements she had made, or issues that required further attention:

> *Gemma: I recorded Hero. I listened to see how it compares to now.*
>
> *Interviewer: OK and how did you feel about that?*
>
> *Gemma: I am much better at it now because it was quite rushed last time.*
>
> (Pre-lesson student interview 5)

This section provides evidence that Gemma was generally intrinsically motivated, although there may have been elements of extrinsic motivation when preparing for the concert. In addition to feedback from her teacher, Gemma employed self-generated feedback in her practice, and for purposes of feed-up, she accessed official recordings of the pieces that she was studying. It is also important to acknowledge that her teacher recommended peer support, initially to offer advice about a specific piece of music, and to discuss particular attributes of that piece. In the following section, the content of feedback and feed-forward is considered, and how this relates to Gemma's efficacy-beliefs.

4.4.8 Evidence which is Suggestive of Gemma's Efficacy and Self-regulatory Behaviour

In post-lesson interviews, Gemma demonstrated confidence that she would meet her teacher's expectations by focusing on the set tasks in her practice, and in 8 of the 9 pre-lesson interviews, she indicated that the tasks set by Miss Marston had been completed:

> *Interviewer: Do you think you've done everything your teacher asked you to do?*
>
> *Gemma: Yes.*
>
> (Pre-lesson student interview 1)

Gemma's perception that she had completed all of the set tasks was confirmed consistently in the interviews with Miss Marston, for example:

> *Interviewer: Was there anything that you expected Gemma to concentrate on during the week that she has not done?*
>
> *Miss Marston: No, Gemma is working and achieving well.*
>
> (Teacher interview 3)

These responses were also confirmed in lesson observations, and by the level of detail Gemma wrote in her practice diary:

> *Action: Miss Marston looks through Gemma's notes.*
>
> *Miss Marston: You have obviously done quite a lot here.*
>
> (Lesson observation 3)

During the interviews with Miss Marston, she was consistently positive about Gemma's progress, and confirmed that she met her expectations:

Miss Marston: On the whole I am always pleased with Gemma's practice and work ethic. She has demonstrated that she can effectively rehearse and improve pieces.

(Teacher interview 5)

While these observations, and responses to interview questions illustrate Gemma's commitment they are not directly illustrative of her efficacy-beliefs. On occasions when Gemma had clearly made progress, Miss Marston's feedback was congratulatory in nature, and on such occasions when her effort was acknowledged and she received such rewards, this was likely to have strengthened her self-efficacy. For example, when Gemma improved her performance of the opening of 'Prelude in C', Miss Marston acknowledged this using task-involving feedback:

Miss Marston: …that was brilliant all the way until we got to here.

Action: Miss Marston points at the score.

Miss Marston: So that…1, 2, 3 bars…and the chord were great.

(Lesson observation 2)

In the interview following this lesson, Gemma was very positive about the feedback received:

Interviewer: Are you pleased with how the lesson went?

Gemma: Yes, very.

Interviewer: Why?

Gemma: Because she gave me positive feedback - I was happy about that because I thought I had done quite a lot of practice.

(Post-lesson student interview 2)

Similarly when Gemma was preparing 'Hero' for the concert, Miss Marston acknowledged her use of dynamics, using task-involving feedback:

Action: Gemma plays 'Hero'.

Miss Marston: The dynamics in this are brilliant…really good.

Action: Miss Marston writes notes in Gemma's diary.

Miss Marston: It just sounds really, really good.

(Lesson observation 6)

Although there were 8 occasions when Gemma indicated that she was uncertain whether she could manage particular tasks effectively, this generally related to the amount of time she had available for practice, which relates to an external factor rather than her self-efficacy.

The progress Gemma made in her private practice was observed during lessons, and she was also observed to engage in self-assessment, correcting errors independently on 32 occasions, which were duly verified by Miss Marston, thus illustrating her independence and self-regulation. For example when playing scales:

Action: Gemma plays the first octave of C. minor harmonic, but plays Bb instead of B natural. She realises something is not right and stops.

Gemma: Um…

Action: Gemma plays the scale again slowly and pauses on the Ab. She then plays Bb and returns to the Ab. She claps!

Gemma: Raised 7th! I know it now!

Action: Gemma plays the scale again, accurately.

(Lesson observation 2)

Gemma identified the error having reflected upon self-generated aural and tactile feedback, and after consideration, she remembered that she needed to play B-natural, demonstrating satisfaction from being able to solve a problem herself.

While studying 'Prelude in C', Gemma indicated a range of practice strategies she employed relating to the task-involving feed-forward she received in her lesson:

> *Interviewer: When putting the hands together, how did you practise that?*
>
> *Gemma: Well, I did the left-hand and the right-hand separately, then I just did each bar slowly together.*
>
> (Pre-lesson student interview 2)

The employment of such strategies in her practice is indicative of her focus and independence, which was acknowledged by Miss Marston:

> *Miss Marston: Gemma keeps her own diary, which enables me to gain an insight into her personal practice.*
>
> (Teacher interview 5)

Within this section, Gemma demonstrated positive efficacy-beliefs, which were nurtured by feedback on her progress. She also engaged in self-assessment, which was evident in her lessons, and there was evidence of her self-regulation, by employing specific strategies in her private practice.

4.4.10 The Overall Efficacy of Feedback in Case Study 3

Gemma found the feedback and feed-forward provided by Miss Marston to be task-involving (Butler, 1988) and mostly clear, and as the feed-forward was documented in her lesson notes, it ensured that Gemma was able to focus upon specific issues in her practice. Miss Marston congratulated Gemma when it

was clear that she had utilised feedback and feed-forward in her private practice, again, a procedure which Ofsted (1998) found rarely took place in secondary school classrooms.

Gemma's motivation and efficacy-beliefs were fostered when the feedback acknowledged her progress, and her mastery of specific tasks. In all nine post-lesson interviews Gemma indicated that Miss Marston's feedback had proved helpful and that her comments were fair. Miss Marston clarified Gemma's understanding by asking her to play relevant sections of pieces again, or to confirm her understanding verbally, although when asked to verify her understanding verbally, it was not always absolutely clear that Gemma had fully understood specific concepts. This could have been resolved, to some extent, if Miss Marston had been more overtly diagnostic, engaging Gemma in dialogue, and asking her to demonstrate her understanding of specific concepts when she played the piano.

While Miss Marston acknowledged that Gemma completed the work she had been set, there was a small number of occasions (3) when she felt that Gemma could have been a little more focused, although she acknowledged the difficulty Gemma experienced managing her time:

> *Miss Marston: I would have been impressed if Gemma had managed to learn a little more of her 'A' piece for the exam…but this is an issue with time.*
>
> (Teacher interview 1)

All of the tasks set by Miss Marston were completed, although in her interviews Gemma indicated that there were occasions when she had other commitments, which resulted in her being unable to spend as much time practising as she had intended.

4.5 Case Study 4

4.5.1 Introduction to Mrs Johnson: Elaine's Teacher

Mrs Johnson began studying the piano when she was 6 years old, and although she decided to study for a joint degree in Music and English at university, she also studied for an ARCM diploma in piano teaching. As a university student, she also engaged in a range of extramural activities, including the role of accompanist for the University Choir.

When she completed her studies, she taught class music at an inner-city secondary school, and was subsequently promoted to the role of head of music at an independent girls' school. While employed full-time as a class music teacher, she also taught the piano part-time at a local university, and continued her work as an accompanist. Owing to family commitments, however, she discontinued her role as head of music, and developed her practice as a piano teacher, teaching privately at home, and part-time at a local independent preparatory school. At the commencement of the research, she had not received training in the use of formative assessment and feedback.

4.5.2 Introduction to Elaine: Pianoforte Student

At the commencement of the research, Elaine was 11 years old, and similar to Daniel, had just started secondary school. Elaine indicated that her interest in playing the piano developed when she had visited her grandmother, whose piano had stimulated her desire to study the instrument. Consequently, her parents arranged for her to have piano lessons with Mrs Johnson, who lived nearby.

Elaine had studied with Mrs Johnson for a period of two years, and her repertoire included music from the 'Upgrade' book for grades 0-1 (Wedgewood, 1997a), and she had begun studying the set pieces for her Grade 1 examination (ABRSM, 2010a).

While Elaine's ambition was to pass the Grade 1 examination, she recognised that in order to accomplish this task she would need to persevere, and be focused in her practice routine. She felt that her teacher would be supportive in this endeavour, as she had been particularly helpful in the past.

This case study provides an illustration of a student who indicated that she was motivated in her studies, although her engagement in other activities, such as drama, took priority over her practice on occasions, thus indicating a lack of organisation, self-discipline or commitment. While she utilised her teacher's feedback in lessons, it was not consistently applied in her private practice.

4.5.3 The Provision of Feedback Highlighting Errors in Elaine's Lessons

In the initial interview with Mrs Johnson, she explained that she tries to be positive and supportive in the feedback she provides, but does not offer praise if it was unwarranted. When students work hard and make progress, she acknowledges this, a practice Elaine responds to particularly well.

Chart 4.13 indicates the number of times 'error-flagging' interventions were observed during lessons, 39% of which were communicated without the provision of a correct response, thus prompting reflective practice. In contrast, a little over 60% of the errors observed were highlighted with correct responses, presented either verbally (31%) or through exemplification (30%).

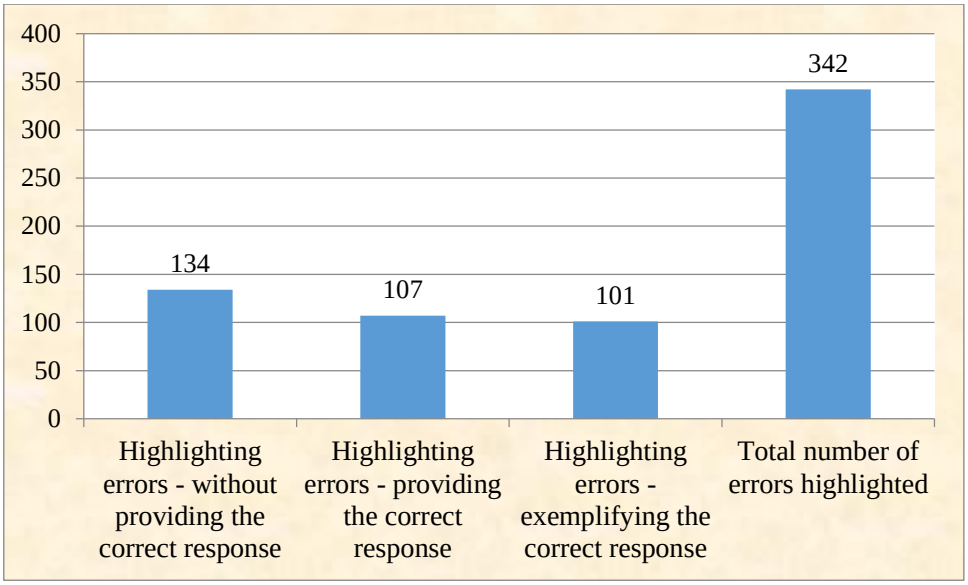


Chart 4.13

When Mrs Johnson highlighted errors without providing a correct response, Elaine was prompted to reflect and think about the error:

> *Action: Elaine plays Apple Pie Waltz by Wedgewood (1997a). In bar 20 she plays F and Bb instead of F and Ab* [right-hand].
>
> *Mrs Johnson: Careful.*
>
> *Action: Elaine reflects, and then plays F and Ab.*
>
> *Mrs Johnson: That's it.*
>
> (Lesson observation 1)

When Mrs Johnson highlighted this error, Elaine realised the mistake, and when she corrected it Mrs Johnson acknowledged her response. However, on another occasion when playing 'Apple Pie Waltz', a number of errors were similarly highlighted without the provision of a correct response, but Elaine's responses received no verification, even though Mrs Johnson was aware that she responded well when the corrections she made were actively acknowledged. Although this was not consistent with the more typical tone of her

feedback (see Section 4.5.4), the lack of verification made the feedback climate in this particular lesson somewhat cold and negative:

> *Action: In bar 21 Elaine plays A, F and E instead of A, G and F* [right-hand].
>
> *Mrs Johnson: No, that doesn't…*
>
> *Action: Elaine plays the bar again immediately, this time correctly, and continues playing. Mrs Johnson subsequently points at the score indicating another incorrect note in bar 22.*
>
> *Mrs Johnson: What's this one?*
>
> *Action: Elaine looks at the note, corrects it, and continues. Mrs Johnson adds no further comment.*
>
> (Lesson observation 2)

In situations where errors were highlighted in this way and there was no indication that Elaine's response was correct, Elaine appeared to accept that the error had been corrected appropriately.

On most occasions when errors were highlighted and correct responses were provided verbally, Elaine implemented the corrections immediately. For example, when playing 'A Story from Long Ago' by Mier (ABRSM, 2010a), Elaine played some incorrect notes:

> *Action: Elaine plays from bar 4, and Mrs Johnson counts: at the start of bar 6, Elaine plays E instead of D* [right-hand].
>
> *Mrs Johnson: That's D.*
>
> *Action: Elaine plays D.*
>
> *Mrs Johnson: Then you have to put a 5 onto G.*
>
> *Action: Elaine plays A.*
>
> *Mrs Johnson: No, that's A.*

Action: Elaine plays G with her 5th finger.

(Lesson observation 9)

While Elaine responded immediately to these corrections, on another occasion, when she played an incorrect note in the left-hand part of Beethoven's 'Ode to Joy' (Hall, 1994), she did not respond to Mrs Johnson's feedback straightaway:

Action: Elaine plays bar 15 [left-hand] *E, E, followed by F.*

Mrs Johnson: G.

Action: Elaine plays E, E, and F…

Mrs Johnson: No it is not the next note.

Action: Elaine plays the correct notes.

(Lesson observation 3)

In this instance, Elaine may not have responded because she was unaware that she was playing an incorrect note, but after some reflection, she managed to correct the error.

When errors concerning timing, rhythm and dynamic control were highlighted, correct responses were exemplified by Mrs Johnson, either by singing or playing the piano. For example, when Elaine played quavers irregularly in 'Gavotta', Mrs Johnson highlighted the error and exemplified the correct response:

Action: Mrs Johnson stops Elaine at the end of Bar 13 and points at the score.

Mrs Johnson: No, you are doing them irregularly aren't you? They are…

Action: Mrs Johnson claps and sings emphasising straight quavers.

(Lesson observation 7)

As Elaine corrected this error, the intervention proved effective, although it may have induced imitation rather than ensuring that Elaine understood why her initial performance was incorrect. On another occasion, when Elaine was playing the G Major scale, she played an incorrect note, and the teacher's response left her unsure how to proceed, although this was subsequently resolved by Mrs Johnson exemplifying the response:

Action: Elaine plays G, A, Bb.

Mrs Johnson: No.

Elaine: Huh? What?

Action: Following Elaine's response, Mrs Johnson played the scale to illustrate the correct notes.

(Lesson observation 3)

Subsequently, Elaine played the correct notes, but again, she may have simply copied Mrs Johnson's exemplification, and it may have proved beneficial if it had been explained why Bb was incorrect, perhaps comparing major and minor scales. Questioning could also have stimulated 'mindfulness' encouraging Elaine to actively think about the error and possible solutions, rather than passively imitating Mrs Johnson. Likewise, it could have given Mrs Johnson a useful insight into Elaine's level of understanding.

In relation to interpretation and expression, Mrs Johnson exemplified correct responses, and on 9 occasions, as a form of feed-up, she provided a commentary as she played. When playing 'Gavotta', Elaine over-emphasised the slurred notes on the 3rd and 4th beats of bars 9 and 10, playing the second note of the slur staccato. Mrs Johnson indicated that this was inappropriate:

Action: As Elaine played bars 9 and 10...

Mrs Johnson: No…you…

Action: Mrs Johnson exemplifies the slur by repeating the notes A to C.

Mrs Johnson: Just very slight…it doesn't need to be a big sort of hiccup.

(Lesson observation 6)

When Mrs Johnson highlighted errors by providing corrections or indications about how the music should be performed, although Elaine responded effectively, it was unclear whether the feedback had been understood well enough to be applied in subsequent learning tasks, as there was no evidence of this in her lessons. When errors were flagged without the provision of a correct response and no explanation of the error was provided, although this prompted thinking about what she had performed incorrectly, there were occasions when Elaine was unsure how to proceed and Mrs Johnson needed to exemplify the response to demonstrate her meaning. In the following section, the provision of feedback for verification is discussed.

4.5.4 Feedback for the Purpose of Verification

In her lessons, Mrs Johnson provided feedback verifying the accuracy of Elaine's performances very frequently, with 367 instances observed (see Chart 4.14). This was the most frequently observed feedback type in Elaine's lessons.

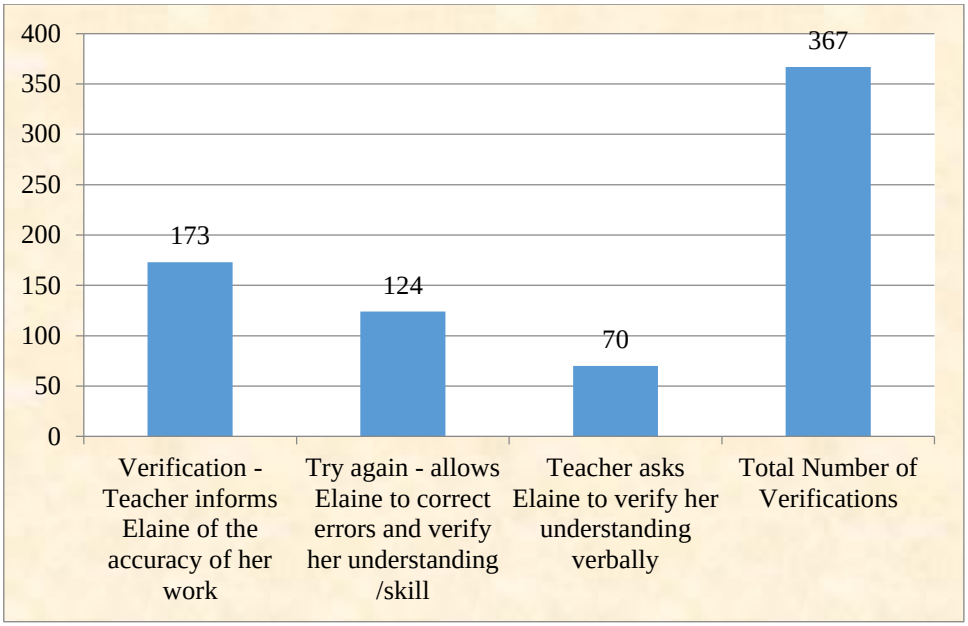


Chart 4.14

While 34% of the verification interventions involved Mrs Johnson asking Elaine to 'try again', with a view to confirming her understanding, 47% of these interventions consisted of feedback verifying the accuracy of notes, fingering, dynamics, timing and rhythm. These issues were confirmed by Mrs Johnson with comments such as 'tons better', 'really good', 'well done', 'that's right', or 'good', which illustrate Mrs Johnson's awareness that Elaine responded favourably to congratulatory feedback, and may also have been an illustration that she was attempting to encourage or motivate her. Furthermore, 19% of these interventions entailed Mrs Johnson asking Elaine to confirm her understanding verbally.

With regard to the accuracy of notes and fingering in broken chords, which Elaine was preparing for her Grade 1 examination, Mrs Johnson verified the accuracy of her playing:

> *Action: Elaine plays the Broken-Chord on C* [right-hand] *with the correct fingering.*

Mrs Johnson: That's good.

(Lesson observation 8)

Also, while playing 'Apple Pie Waltz', the accuracy of Elaine's fingering was acknowledged and verified:

Action: Elaine plays bar 18 again with the correct fingering.

Mrs Johnson: Good.

(Lesson observation 1)

When errors were flagged in Elaine's lessons, Mrs Johnson frequently asked her to play something again so that her understanding of the error and the feedback she received could be verified. For example, while playing 'Apple Pie Waltz', Mrs Johnson interrupted Elaine to highlight an error relating to her fingering and hand position:

Action: As Elaine begins playing bar 13, Mrs Johnson makes a comment and Elaine stops playing.

Mrs Johnson: Now again, you have done it again, somehow you have shifted…

Action: Mrs Johnson points at the score.

Mrs Johnson: …just try from there…

Action: Elaine plays it again using the correct hand position and fingering.

(Lesson observation 1)

This point was illustrated on another occasion, when playing Beethoven's 'Ode to Joy' (Hall, 1994). Mrs Johnson asked Elaine to play the opening again as she had played a C Major chord in bar 4 instead of a G Major chord:

Mrs Johnson: Go back from the beginning and see if you can get that chord right.

Action: Elaine starts playing from the beginning and plays the first four bars accurately.

(Lesson observation 4)

With due support, Elaine demonstrated that she had understood these corrections, but in order to embed them in her memory, she would need to practise them at home. In her interview, Mrs Johnson was surprised that Elaine had not played the opening of 'Ode to Joy' accurately:

Mrs Johnson: I sometimes think with Elaine it is a lack of focus…I can't be sitting there every time saying 'Oh you've got the wrong chord again' and circle it. She does it but it doesn't sort of stick…very disappointing, because last week the first half was really quite good.

(Teacher interview 4)

Elaine was disappointed with her performance in this lesson, but indicated that as she had been away during the February half-term holiday, she had not been able to practise:

Interviewer: So when did you go away?

Elaine: On Friday night.

Interviewer: …and you got back…?

Elaine: Sunday evening.

Interviewer: …so that means that didn't do any practice on Friday, Saturday, or Sunday.

Elaine: No.

(Post-lesson student interview 4)

On a considerable number of occasions, Mrs Johnson asked Elaine to confirm her understanding verbally by asking questions, for example, when studying 'Apple Pie Waltz', she asked Elaine to verify her understanding of the dotted crotchet, quaver rhythm:

Mrs Johnson: …how are we going to count this?

Action: Mrs Johnson points at the right-hand part in bar 18.

Elaine: One, two <u>and</u> three.

Mrs Johnson: Well done!

(Lesson observation 1)

Elaine's response clearly demonstrated that she understood how to count this rhythm, and when asking her to verify her understanding verbally, on most occasions Mrs Johnson required evidence of this nature, so that she could be certain that Elaine had understood, rather than just accepting a claim that she had understood.

During the lessons observed, when Elaine was unsure about specific issues, or wanted clarification that she had understood Mrs Johnson's feedback or feedforward, she asked questions, which initiated dialogue with Mrs Johnson. In addition, on a small number of occasions, Elaine asked Mrs Johnson to confirm the accuracy of her performance (see Chart 4.15).

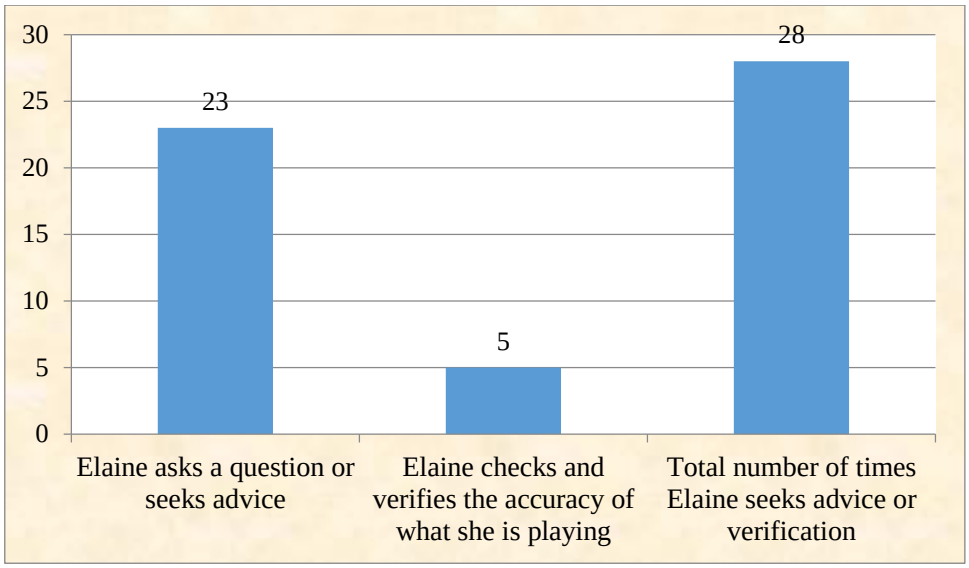


Chart 4.15

From an organisational perspective, when preparing Broken Chords for her examination, Elaine needed to clarify the location of starting notes:

Mrs Johnson: D. minor left-hand.

Action: Mrs Johnson points at the Broken Chord in the Scale Book.

Elaine: D…it starts there, doesn't it?

Action: Elaine indicates the D below Middle C on the Piano.

Mrs Johnson: Um hum.

(Lesson observation 9)

While this was a relatively straightforward issue, which was verified by Mrs Johnson, on two occasions Elaine required advice about how to proceed, but she did not precisely explain the difficulty she had encountered, leaving the teacher to analyse the problem:

Mrs Johnson: Play 'Gavotta' from the beginning.

Action: Elaine points at bars 9 to 12.

Elaine: I need…I can't…

Mrs Johnson: You need some help with that?

Elaine: I just need some help…

Action: Mrs Johnson points at bar 9.

Mrs Johnson: Well do the right-hand there and see what the trouble is…

(Lesson observation 7)

When Elaine performed this section, she played incorrect notes and rhythms, which Mrs Johnson addressed, firstly by engaging Elaine in analysing the note names, and secondly, by clapping the rhythm with Elaine. As this section of 'Gavotta' had previously been addressed in lesson 6, it seemed likely that Elaine had not spent time practising, although in the post lesson interview she indicated that she was pleased that the difficulty had been resolved:

Interviewer: Are you pleased with how the lesson went?

Elaine: I think it went well because of the third line in 'Gavotta'…and it came together really quickly.

(Post-lesson student interview 7)

On another occasion, when studying the scales for her examination, Elaine asked Mrs Johnson to confirm that she had played the C. major scale accurately:

Elaine: So…going down…it's…

Action: Elaine plays the scale, one octave descending with her left-hand stating the fingering as she plays.

Elaine: 1, 2, 3, 1, 2, 3, 4…

Mrs Johnson: …that's it!

(Lesson observation 3)

Although Elaine indicated in her interview that she needed to work on this scale, particularly in terms of mastering the fingering, Mrs Johnson felt that she had managed it well:

Mrs Johnson: I thought she picked the scale up quite quickly.

(Teacher interview 3)

In this section, the verification of Elaine's responses to specific tasks has been discussed, indicating that the feedback provided was task-involving, relating to organisational matters and subject content. In the following section the provision of feed-forward in Elaine's lessons is discussed.

4.5.5 The Provision of Feed-Forward in Elaine's Lessons

While Mrs Johnson utilised 'informative tutoring' (Shute, 2008, p.160) in Elaine's lessons as a process of feed-forward, highlighting errors and providing strategies for overcoming specific difficulties, she also provided hints, or reminders, to guide Elaine's playing. Just under half (44%) of the feed-forward interventions involved informative tutoring, and a little over a half (56%) involved hints about how to proceed (see Chart 4.16).

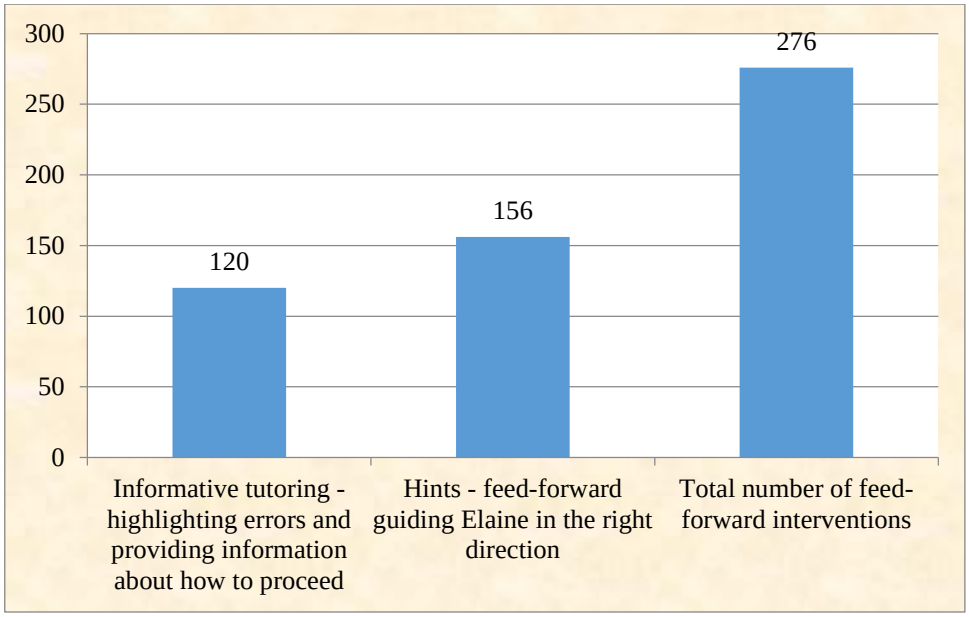


Chart 4.16

When learning to play a piece of music, managing the fingering is important, as Parncutt, et al., (1997) indicated that this can affect fluency, and the physical control required to master dynamics and expression. At times, fingering proved to be an issue for Elaine, and Mrs Johnson emphasised this in her verbal feed-forward, particularly if she anticipated it as an error which could impede progress. For example, when playing 'Apple Pie Waltz' this issue needed to be addressed:

Action: Mrs Johnson points at the score indicating the left-hand part in bar 5.

Mrs Johnson: …and there you have 5 on G, haven't you?

Elaine: Oh, so you have got to stretch…Oh!

Mrs Johnson: So you have got to stretch out a bit, and then you go back down there because you play F in bar 6, and then you go to 4 on the G in bar 7.

Elaine: Yes.

(Lesson observation 1)

Elaine responded to informative tutoring appropriately, engaging Mrs Johnson in dialogue to verify her understanding. As they considered the fingering in bar 20, Mrs Johnson reflected upon her initial advice and changed the fingering with a view to meeting Elaine's needs:

> *Action: Mrs Johnson reaches for a rubber and erases her suggested fingering.*
>
> *Mrs Johnson: So, I…think I would just make a break there…*
>
> *Action: Points at the pause in bar 20.*
>
> *Mrs Johnson: …make a break for it…*
>
> *Action: Mrs Johnson plays the chord in bar 20.*
>
> *Mrs Johnson: …two, three…and come back with the 5th finger* [bar 21 right-hand]…
>
> *Elaine: Right.*
>
> (Lesson observation 1)

This intervention illustrates a didactic approach to feed-forward as Elaine was not encouraged to find her own solution. Informative tutoring also focused upon specific instructions, such as the dynamics within the musical score of 'Apple Pie Waltz':

> *Mrs Johnson: It is moderately soft, and then it goes…*
>
> *Elaine: Yes.*
>
> *Mrs Johnson: …soft.*
>
> *Elaine: …moderately soft, soft.*
>
> *Mrs Johnson: …and then there is a little crescendo in bar 16…moderately loud there…*
>
> *Action: Mrs Johnson indicates the dynamic mark in bar 17.*

Mrs Johnson: That is the loudest bit coming up to the pause in bar 20.

Elaine: Yes.

(Lesson observation 1)

Although Elaine was asked to play 'Apple Pie Waltz' again to verify her understanding, it was clear that the feed-forward received would need to be applied during private practice, as these skills take time to develop.

Mrs Johnson provided hints in Elaine's lessons, to remind her about issues previously highlighted, including fingering, dynamics, timing, and rhythm. For example, when playing scales, hints were employed to remind Elaine about the fingering:

Action: Elaine plays the F Major scale descending with her right-hand, and as she approaches the Bb.

Mrs Johnson: Four [referring to the 4th finger].

Action: Elaine completes the scale accurately.

(Lesson observation 8)

When playing 'Sun City', Elaine received a reminder relating to dynamics:

Action: As Elaine plays Bar 5…

Mrs Johnson: Softly.

Action: Elaine reduces her volume and continues playing.

(Lesson observation 6)

In the interview following this lesson, Mrs Johnson acknowledged that Elaine's attention to detail in this piece needed reinforcing:

Mrs Johnson: …she is not very good on detail yet.

(Teacher interview 6)

These examples of hints, illustrate Elaine's responses, which were immediate and effective, but again, such hints are evidence of a didactic approach to teaching rather than verifying her understanding of these concepts, and their transfer to similar situations in other pieces.

During the lesson observations Elaine implemented Mrs Johnson's hints, as a process of feed-forward, but instances of informative tutoring, particularly when relating to motor skill development, required Elaine to focus on these issues in her practice at home. In the next section, Elaine's understanding of the subject content and the feedback received are discussed.

4.5.6 Identifying Discrepancies

Discrepancies between Elaine's understanding of specific issues and Mrs Johnson's intentions were observed on 24 occasions. When such discrepancies were observed, on 20 occasions Mrs Johnson provided more elaborative feedback, and although this proved to be more 'directive than facilitative' (Shute, 2008, p.157) it assisted Elaine in resolving errors, particularly in situations when she was unaware that she had made an error. When playing the left-hand solo in bars 8 and 9 of 'Sun City', Elaine failed to employ the fingering indicated on the score, which was designed to facilitate legato playing:

> *Action: In bar 8, Elaine moves her hand position.*
>
> *Mrs Johnson: No, don't move…* [Elaine put her 5th finger on G instead of her thumb].
>
> *Action: Elaine repeats G with her 5th finger while Mrs Johnson is talking.*
>
> *Mrs Johnson: …your thumb stays on G…you stay in that position, so your thumb is there* [thumb on G].

Action: Mrs Johnson writes in Elaine's book.

Mrs Johnson: OK?

Elaine: OK.

(Lesson observation 5)

Although Elaine indicated that she had understood the feed-forward relating to the fingering, Mrs Johnson did not make clear why her thumb needed to stay on G. On another occasion when discussing Elaine's performance of 'Ode to Joy', Mrs Johnson indicated that she was not always convinced that Elaine had understood her feed-forward, which suggests that she could have been more facilitative in her feed-forward and less directive:

Interviewer: Do you think she understood the chord correction in bar 4 of 'Ode to Joy'? Because you were quite firm about what she has got to do for next lesson.

Mrs Johnson: Well I hope so, because you see, she says she does…I mean I thought she had understood it last week…but she doesn't always go home and practise it.

(Teacher interview 4)

While this observation raised questions about Elaine's motivation and self-regulation, specifically whether she utilised feed-forward in her private practice, Mrs Johnson had readily accepted verbal assent as confirmation that Elaine had understood these issues, even though she had not provided an explanation. Elaine could have been better motivated to practise if she had understood why the changes illustrated were necessary.

This issue was further illustrated when studying 'A Story from Long Ago' and she became dismayed:

Interviewer: Do you know why you got stuck on 'A Story from Long ago'?

Elaine: No, not really, I don't feel confident about it that much.

Interviewer: OK.

Elaine: No, I am just not sure.

(Pre-lesson student interview 9)

In the interview with Mrs Johnson following this lesson, 'A Story from Long Ago' was discussed and Elaine's concerns were mentioned, but as she had not practised the piece thoroughly, this may have contributed to her lack of confidence:

Interviewer: She seemed a bit anxious and said to me this morning 'I'm a bit worried about 'A Story from Long Ago''. When I asked her why she was worried, she indicated that she had not done as much practice.

Mrs Johnson: She realises you only get out what you put in.

(Teacher Interview 9)

Although Mrs Johnson addressed misunderstandings on some occasions in lessons, a focus on directive feed-forward meant that Elaine's understanding was not always checked or facilitated. When it was apparent that Elaine had not fully understood, it may have proved difficult for her to practise effectively, resulting in reprimands for a lack of commitment or practice in subsequent lessons.

The following section illustrates the sources of feedback Elaine had access to in her practice sessions, and how she was motivated to practice.

4.5.7 Different Sources of Feedback and Feed-forward Utilised During Private Practice and Elaine's Motivation to Practise

During lessons, Mrs Johnson highlighted the issues Elaine needed to focus upon in her private practice:

Interviewer: Could you summarise the things Mrs Johnson asked you to practise?

Elaine: Um, the second part of the 'Gavotta', and speeding up 'Sun City'.

Interviewer: Yes.

Elaine: The A minor harmonic scale.

Interviewer: …anything else?

Elaine: Oh, yes, broken chords.

(Post-lesson student interview 6)

As it was observed that Mrs Johnson had failed to provide clear explanations in her feed-forward during lessons, in the notes she provided to guide Elaine in her practice, it was evident that they lacked specificity and detail of the issues that required particular focus in her practice:

Sort out end of 'Ode to Joy'.

'Apple Pie Waltz' – perfect

C. Major Scale.

(Practice Diary 6th February)

As Black et al. (2003) indicated that when feedback or feed-forward lacks specificity about how students can improve their work, students will be unsure how to proceed, and are likely to ignore the teachers' comments. In relation to this observation, when Elaine was studying 'Apple Pie Waltz', although Mrs Johnson acknowledged that Elaine had made progress, this only occurred after she had taken time to discuss the issues that required improvement again in the subsequent lesson:

Interviewer: Were you pleased with Elaine's progress today?

Action: Mrs Johnson knocks the table once.

Mrs Johnson: Yes and no. I mean Yes, I was. It was interesting with 'Apple Pie Waltz' though, it improved a lot once I had gone through it with her again. I'm not sure how effective her practice is.

Interviewer: No

Mrs Johnson: …but I mean to sit and do 5 minutes…

(Teacher interview 2)

Mrs Johnson's knock suggested frustration that while she felt Elaine had made progress it was only as a result of her supervision in the lesson rather than Elaine's focus in her private practice, particularly as Elaine indicated that she had only practised for 5 to 10 minutes a day.

In addition to feedback from her teacher, Elaine received feedback from her mother:

Interviewer: Did you receive advice from anyone else?

Elaine: Um, no, just my mum, saying I need to practise, and telling me that I need to take bits out.

(Post-lesson student interview 3)

Elaine's indication that her mother offered similar advice to Mrs Johnson supports the view that Elaine did not always act upon the advice provided by her teacher about the need to practise and how to practise. When Elaine's grandmother visited, she also provided additional help and support:

Elaine: My Grandma is quite musical. When she came, she helped me with 'Gavotta' and 'Sun City'…and a few of those other pieces.

(Pre-lesson student interview 6)

During interviews, it became apparent that Elaine did not have facilities to listen to exemplary recordings of the pieces she was studying, but as a process of feed-up (Hattie and Timperley, 2007) she indicated that her teacher played the pieces she was going to study:

> *Interviewer: Did you listen to a recording of the pieces you are practising?*
>
> *Elaine: No…when we start a piece, Mrs Johnson plays it for me, so I know what it sounds like.*
>
> (Pre-lesson student interview 2)

While Elaine was positive about this, the effectiveness of this approach relied upon her ability to hold Mrs Johnson's performance, as reference level, in her long term memory. If she had been able to access recordings, she could have referred to them on a regular basis.

It was also acknowledged that she was unable to record herself for purposes of self-assessment, as she did not have access to recording equipment.

Elaine indicated she was confident that she had completed the work set by her teacher in 6 of her 9 pre-lesson interviews:

> *Interviewer: Do you think you've done everything your teacher asked you to do?*
>
> *Elaine: Yes.*
>
> *Interviewer: Just remind me what that was.*
>
> *Elaine: Um, the second part of 'Apple Pie' hands together…*
>
> *Interviewer: Yes.*
>
> *Elaine: …and 'Ode to Joy', first part.*
>
> (Pre-lesson student interview 3)

Following these lessons, Mrs Johnson acknowledged that Elaine had completed some of the set tasks well:

Interviewer: Were you pleased with Elaine's progress today?

Mrs Johnson: Yes, I thought she had done quite well…'Ode to Joy'.

(Teacher interview 3)

In the remaining 3 pre-lesson interviews, Elaine signified that she had not practised specific pieces owing to other commitments, but this also raised a question about her commitment to practise the piano:

Elaine: Err, before Christmas, she asked me to concentrate on a few of the carols, but I didn't really…

Interviewer: No.

Elaine: …because…there were family events…

Interviewer: Yes.

Elaine: …I tried…

Interviewer: Yes.

Elaine: …but I should have concentrated more.

(Post-lesson student interview 1)

When Elaine had not practised, she was usually open with her teacher, and explained the circumstances. Mrs Johnson suspected that the motive for her honesty was to avoid embarrassment if her poor performance inadvertently exposed a lack of practice:

Mrs Johnson: In last week's lesson I thought she did it quite well.

Interviewer: Yes.

Mrs Johnson: …but that is why I thought we dare not hear 'Apple Pie Waltz' because if she hasn't played it since then, it would be all over the place again.

Interviewer: …she told me that she had only practised it once.

Mrs Johnson: Well at least she is honest.

Interviewer: Yes.

Mrs Johnson: Which is good, but I think that is because she wouldn't want to say 'Yes, I have done it', and then I say, 'Right play it'…

(Teacher interview 4)

Mrs Johnson's feedback was task-involving, and when Elaine had completed a task well, she would be duly congratulated. When playing 'Minnie Mouse Hits Town' (Wedgewood, 1997a), Mrs Johnson was delighted at the progress she had made:

Action: When Elaine finished the piece.

Mrs Johnson: That's tons better…really good, well done, because that's quite hard…

Elaine: Yes.

(Lesson observation 1)

Provision of this type of feedback may have fostered Elaine's motivation as she indicated in the interview following this lesson that she was really pleased with her teacher's comments. Elaine's practice diary, however, indicated that the amount of time she spent practising throughout the research period was limited, ranging from 5 to 10 minutes per day, thus raising a question about her motivation:

Practice during the week	Time spent practising
Monday (lesson day)	0
Tuesday	10 minutes

Practice during the week	Time spent practising
Wednesday	10 minutes
Thursday	5 minutes (sorry)
Friday	10 minutes
Saturday	10 minutes
Sunday	10 minutes

(Practice Diary 23rd January)

A discussion ensued about practice time in the lesson when this practice diary was presented, and Mrs Johnson encouraged Elaine to practise a little more:

> *Mrs Johnson: …now if you practised both of these pieces* ['Apple Pie Waltz' and 'Ode to Joy'] *for ten minutes, at least, every day, that would be perfect.*
>
> *Elaine: Twenty minutes a day?*
>
> *Mrs Johnson: No, if you can get it up to ten to fifteen rather than five…*
>
> (Lesson observation 2)

In the following lesson it appeared that Elaine had been more motivated to practise, as she had made progress with 'Ode to Joy' between lessons 2 and 3, and she was pleased with Mrs Johnson's positive feedback:

> *Interviewer: Has the lesson made you more, or less keen to practise next week, or will you do about the same?*
>
> *Elaine: More!*
>
> (Post-lesson student interview 3)

The sources of feedback and feed-forward Elaine accessed in her studies and issues relating to her motivation have been discussed in this section. When Elaine demonstrated progress, Mrs Johnson's congratulatory feedback motivated her, although her motivation to practise appeared to be inconsistent, possibly owing to other commitments. In the following section, issues relating to Elaine's efficacy-beliefs and self-regulation are considered.

4.5.8 Elaine's Efficacy Beliefs and Self-regulation

In her interviews, Elaine demonstrated positive efficacy-beliefs, expressing confidence that she would achieve the set tasks and meet her teacher's expectations, although it has been demonstrated that this was not always achieved in practice. On two occasions during lessons, Mrs Johnson was particularly supportive in fostering Elaine's efficacy-beliefs:

> *Action: 'Ode to Joy' hands separately.*
>
> *Mrs Johnson: Do you think you can put that together for next week? I think you can, easily.*
>
> *Elaine: Yes.*
>
> (Lesson observation 3)

In the following lesson, however, Elaine had not made any progress playing this piece hands together, although it was acknowledged that she had been away at the weekend, and was unable to practise on Saturday and Sunday:

> *Mrs Johnson: Whether it is a lack of focus or concentration or something, I don't know.*
>
> *Interviewer: So she doesn't seem to have made much progress.*
>
> *Mrs Johnson: No, very disappointing.*
>
> (Teacher interview 4)

As Elaine was aware that she would be away during this weekend, the question arises why she had not informed Mrs Johnson when the task was set. Despite set-backs of this nature, Elaine remained positive about achieving tasks:

> *Interviewer: Do you feel positive that you will achieve the tasks your teacher has set?*
>
> *Elaine: Yes, definitely!*

(Post-lesson student interview 9)

Mrs Johnson observed the challenges Elaine faced in her studies, specifically reading and interpreting staff notation when engaging in sight-reading exercises. Mrs Johnson expressed surprise at the difficulty Elaine experienced:

Mrs Johnson: I was quite surprised how hard she found sight-reading, because she sight-read Gavotta, but of course I don't know whether she was familiar with it.

Interviewer: Yes.

Mrs Johnson: I mean the Gavotta starts on…Middle C, she should be familiar with those notes, but in the sight-reading exercise she wasn't reading the intervals correctly.

(Teacher interview 8)

Despite this difficulty, and Elaine's perception that she could have performed repertoire pieces and scales better on 4 occasions, in her interviews she was consistently positive she could meet expectations. Despite this, Mrs Johnson indicated in 3 of her interviews that Elaine had not met her expectations, and she felt that Elaine ought to have practised more.

In the lessons observed, Elaine became frustrated on 3 occasions which could have been due to lack of practice. When playing 'Ode to Joy', Elaine made an error and became irritated, but Mrs Johnson was calm and supportive, asking her to try again:

Action: In bar 13 Elaine does not repeat the E in the melody and moves directly to F. She realises the error and becomes frustrated, clenching her fists... Mrs Johnson marks Elaine's score with her pencil to remind her to repeat the E, and she sings the phrase, counting the beats while pointing at the notes in the score.

Mrs Johnson: It's four - one, two, three, four. Try it again from there.

Elaine: OK.

(Lesson observation 4)

In 6 after lesson interviews, Elaine demonstrated a positive attitude and indicated that she was satisfied with the progress she had made. While working towards her examination, Elaine was particularly pleased with her progress on 'Gavotta':

Interviewer: Overall, are you satisfied with the progress you made since your last lesson?

Elaine: Definitely, Mrs Johnson said that the 'Gavotta' had come on lots.

Interviewer: Has the lesson made you more, or less keen to practise next week, or will you do about the same?

Elaine: More, definitely!

Interviewer: Could you explain why this is?

Elaine: Um, I am not sure, I just want to practise.

(Post-lesson student interview 8)

Elaine's response here is indicative of the fact that she had practised the piece, and as Mrs Johnson had duly acknowledged this in her lesson, this may have reinforced her motivation to practise more. On one specific occasion, however, the process of communicating errors could have proved demotivating as Mrs Johnson's comments were negative in terms of the accusing way they were presented, and her tone of voice:

Action: In Apple Pie Waltz Elaine plays an A instead of a G on the third beat of bar 16.

Mrs Johnson: I have to stop there, because I gave that for you to practise, didn't I?

Action: Mrs Johnson points at the end of bar 16.

(Lesson observation 1)

Mrs Johnson was annoyed that Elaine had not utilised feed-forward in her private practice. Although Elaine indicated in the post lesson interview that she could have concentrated more, and spent more time practising, the previous lesson was before the Christmas holiday, and owing to a lack of focused practice, Elaine may have forgotten this error. In order to motivate Elaine, however, it may have been more appropriate to provide supportive feedback, reminding her about this error, and asking her if there had been a specific problem or difficulty.

Mrs Johnson occasionally provided feedback in lessons which was norm-referenced and potentially ego-involving (Butler, 1988), a practice which can prove detrimental to the recipient (McCormick and James, 1983; Ames, 1984; Crooks, 1988; Gipps, 1994; Kluger and DeNisi, 1996; Black and Wiliam, 1998a). In 3 of the lessons observed, Elaine was compared with other students, specifically younger boys, for example, when discussing pedalling in 'A Story from Long Ago', a comparison was made to a boy who had mastered the pedalling in this piece:

> *Mrs Johnson: Pedal. Now, I made some poor boy at school <laughs> learn this with the pedalling, and you know trying to co-ordinate a foot and two hands at age 8 was quite a challenge, and then, anyway, he got it, but again it says down here…*
>
> *Action: Mrs Johnson points to the notes at the bottom of the page in the exam book.*
>
> *Mrs Johnson: …in this piece "the pedalling is optional for exam purposes"…so you don't have to do it…but if we have time, it will certainly be a very good skill to learn…*
>
> *Elaine: Yes.*
>
> (Lesson observation 8)

While Mrs Johnson was not overtly comparing Elaine's ability or attainment, the implication was made that while an 8 year old boy had mastered the pedalling, if Elaine found it challenging, it was not a requirement for the examination. Elaine became rather quiet, suggesting that the reference to a younger boy's skills could have had an adverse effect.

The development of Elaine's skills in self-assessment and self-regulation became apparent during lessons when she corrected errors herself on 54 occasions. For example, when playing 'Apple Pie Waltz', Elaine realised that she had played incorrect notes, which she corrected:

> *Action: In bar 8 Elaine initially played B* [left-hand] *with A* [right-hand], *but she realised this was wrong and changed it to B* [left-hand] *and G* [right-hand].
>
> (Lesson observation 1)

Although Elaine corrected errors of this nature herself, on a large number of occasions (25) Mrs Johnson did not actively acknowledge these corrections.

Within her interviews, Mrs Johnson indicated on two occasions that she felt Elaine was becoming increasingly independent:

> *Mrs Johnson: Her work on the exam piece was very good.*
>
> *Interviewer: Yes.*
>
> *Mrs Johnson: She is coming on I think, so you know, that's to be commended.*
>
> *Interviewer: Yes.*
>
> *Mrs Johnson: Doing it literally on her own.*
>
> (Teacher interview 5)

Although Elaine's efficacy-beliefs were observed to be generally positive, it needs to be acknowledged that her uncritical self-evaluations may be explained by a level of indifference to learning how to play the piano. Her self-regulation when engaging in self-assessment during lessons was effective, but with regard to her private practice, this was inconsistent.

4.5.9 The Overall Efficacy of Feedback in Case Study 4

Different types of feedback and feed-forward have been identified in Elaine's piano lessons including error-flagging where correct, or no responses were provided, feedback for verification, instances of informative tutoring, together with hints or reminders as processes of feed-forward, and errors acknowledged by Elaine through the process of self-assessment.

During lessons, Elaine responded to Mrs Johnson's feedback positively in terms of focusing on her work in lessons. In situations when Mrs Johnson needed clarification that Elaine had understood specific issues, she would pose questions to elicit her understanding verbally, or ask her to play the relevant section of a piece again to ensure that she understood how to proceed. However, there were a number of occasions when Mrs Johnson had accepted Elaine's verbal confirmation that she had understood particular issues, when this may not have been the case. Consequently, Mrs Johnson could have been more diagnostic and facilitative, providing clear explanations and checking that Elaine had really understood.

When it was clear that Elaine had utilised feedback and feed-forward in her private practice effectively, and made improvements, Mrs Johnson acknowledged this and congratulated her on the progress she had made. There were 3 occasions, however, when Elaine had failed to meet Mrs Johnson's expecta-

tions, possibly owing to her engagement in other activities, which limited the amount of practice she could do. However, with regard to motivating Elaine to practise, she might have engaged in her practice more effectively if she was clear what was expected, and if she knew exactly how to practise. Furthermore, the lessons notes Mrs Johnson provided, could have been more detailed, and explained how Elaine could resolve errors, or make progress in her private practice.

4.6 Conclusion

The findings indicated that the predominant types of feedback observed within the four case studies were feedback for verification and error-flagging. The feedback and feed-forward provided by the teachers was timely and task-involving, and it was noticeable that all four teachers provided feedback and feed-forward in broadly similar ways, which would appear to be a characteristic, inherent within the culture of one-to-one musical instrument teaching. While delayed feedback has been observed to reduce 'proactive interference', allowing errors to be forgotten and correct information 'to be encoded with no interference' (Shute, 2008, p.163-164), within this context the timing of error-flagging feedback proved efficacious in terms of enabling students to correct errors immediately, and possibly preventing them from becoming 'encoded into memory' (ibid.).

The majority of errors that were flagged were slips 'that is, a careless procedural mistake' (Bennett, 2011, p.17), such as inaccurate notes or rhythms, or failure to implement dynamic markings. These errors were addressed as the students performed, to ensure that they were aware of the error, and that it was

a slip and not a misconception or misunderstanding, which would need more elaborative feedback, or focused teaching.

While the students within the four case studies responded to error-flagging feedback immediately when it incorporated correct responses, when no correct response was provided, it prompted students to analyse the errors they had made, and to consider possible solutions (James, 1998; Biggs, 2003; Hattie and Timperley, 2007; Fluckiger, et al., 2010), thus fostering skills in reflective practice and self-assessment (Juwah, et al., 2004). This is essential within pianoforte studies, as students need to learn how to self-assess and reflect upon their progress, enabling them to become independent and self-regulated in their studies, as it has been recognised that skills in playing the piano cannot be developed in lessons alone.

Similar to error-flagging feedback, feedback as a process of verification occurred immediately, confirming the accuracy of performances. All of the teachers within the case studies also asked students to 'try again' so their understanding, either of specific concepts, or the feedback they received, could be confirmed. While the majority of 'try again' interventions effectively verified students' understanding, on a small number of occasions, discrepancies between teachers' intentions and students' understanding of specific tasks, or the feedback they received, were identified, and these issues needed to be addressed through more elaborative feed-forward.

When students within the case studies experienced difficulties, their teachers provided supportive 'descriptive' feedback, focusing attention on how to master specific tasks (Gipps, 1994), which assisted in sustaining or reinforcing their efficacy-beliefs (Bandura, 1997). In circumstances where students expe-

rienced difficulties, which resulted in helplessness, while feedback they received proved supportive, feed-forward could have been more efficacious if it had provided more effective strategies they could utilise in their private practice, with a view of overcoming these difficulties in manageable steps.

Feed-forward interventions occurred within the case studies through the provision of hints about how to proceed, and more elaborative informative tutoring. While hints were employed as reminders of previous errors, which assisted students in developing the accuracy of their performances, informative tutoring interventions incorporated brief explanations, which could foster students' understanding, and assist in the development of their skills in detecting and self-correcting errors. A number of issues were observed, however, where feedback and feed-forward was less efficacious, including error-flagging through exemplification, when students copied their teachers' responses, without actually demonstrating their understanding. In such circumstances, teachers could have been more diagnostic, identifying misunderstandings through questioning and making requests for students to demonstrate understanding by engaging them in similar, related exercises. A weakness that was also observed was that students were seldom provided with feed-forward about how to practise, which is important in terms of facilitating self-regulation. Teachers could have demonstrated strategies for practise, and asked students to demonstrate how they practise particular tasks.

In chapter 5, the findings from the four case studies are synthesised and discussed, utilising the literature reviewed in chapter 2 with a view to ascertaining the extent to which the feed-up, feedback and feed-forward provided in piano lessons was observed to be 'fit for purpose' (Philpott, 2007, p.210).

5. Discussion of the Research Findings

5.1 Introduction

None of the teachers involved in this study had received any formal training in formative assessment or the provision of feedback to equip them for this aspect of their work. Owing to the idiosyncratic nature of teaching, and the lack of any formal training, it seemed unlikely that feedback to students would have been presented in similar ways, but the strategies employed proved to be surprisingly similar. The research findings demonstrated a range of feedback types, and the way they were communicated, received and utilised in the context of pianoforte studies. These types of feedback included error-flagging, verification, and try again interventions, indicating whether responses were incorrect or correct, and the provision of hints and informative tutoring interventions for purposes of feed-forward, all with varying amounts of detail. These types of feedback and feed-forward were presented verbally or through exemplification, and the tone of voice or physical gestures assisted in communicating specific meanings. In addition to feedback and feed-forward, feed-up (Fisher and Frey, 2009) was observed during lessons when teachers either performed music, or accessed online recordings, which assisted in clarifying learning goals.

Brooks and Fancourt (2012, p.125) observed that 'variations in assessment practices are affected by disciplinary differences', for example mathematics

and science teachers generally prefer ‘end of unit tests’, while English teachers favour continuous assessment. The context of learning to play a musical instrument differs from traditional teaching and learning environments in schools, as piano lessons are usually provided through private one-to-one or small group lessons. There is, however, some affiliation between piano lessons and other school subjects which involve cognate performance-based disciplines, including dance, drama, and physical education. In these subjects, teachers monitor the accuracy or appropriateness of students’ work (Hale and Green, 2009) in action (Schön, 1987), although in one-to-one situations, instrumental teachers are more able to focus on the work of individual students, and there is no influence or pressure from peers, which may be evident in school environments. As it became apparent later in my studies that there may be an affiliation between piano lessons and dance, drama, and physical education owing to associated performance and motor-skill developments, I conducted a further literature search, as indicated in section 2.1.2, focusing upon the provision of feedback within these cognate performance-based disciplines. The hope was that this subject-specific feedback literature would both inform and enrich the discussion provided in this chapter.

The findings from the four case studies are synthesised, compared and discussed in relation to extant literature within this chapter, with a view to ascertaining the efficacy of feedback and feed-forward in pianoforte studies. More than one theory is drawn upon within this discussion to illustrate specific approaches to teaching, and to ascertain how efficacious the feedback and feed-forward proved to be in terms of the quality of learning. These theories assisted in ascertaining whether feedback and feed-forward promoted a surface or a

deep approach to learning (Marton and Säljö, 1976), whether they supported higher order and metacognitive thinking skills (Anderson et al., 2001), and whether they promoted or supressed students' self-efficacy, motivation, and self-regulation (Bandura, 1997). These theories include behaviourism, which is affiliated with aspects of verification, specifically error-flagging and correct-response feedback, as the teacher's role is to 'train people to respond to instruction correctly and rapidly' (James, 2006, p.54); social constructivism where students are actively involved in the process of developing their knowledge and understanding (Black and Wiliam, 2006) under teacher guidance; and sociocultural theory, as the students are learning to play the piano within a specific community, and learning is perceived to be a 'mediated activity in which cultural artefacts have a crucial role' (James, 2006, p.57). Sociocultural theory also relates to teaching practice, as the approaches employed in one-to-one lessons have developed over time from teachers' involvement within specific communities. These theories, however, may overlap, and 'therefore it is difficult to claim exclusivity for each category' (James, 2006, p.52).

Within this chapter, section 5.2 provides an overview of the different types of feedback and feed-forward employed in pianoforte studies, followed by a debate about what constitutes good practice in error correction (section 5.3). Sections 5.4 and 5.5 focus upon the role of verification in feedback practice, both from the teachers' and students' perspectives, and section 5.6 considers the role of feed-forward in pianoforte studies. The timing of feedback and feed-forward is discussed in section 5.7, and in section 5.8 the possible effects of different types of feedback and feed-forward on students' efficacy beliefs,

their levels of motivation to persevere and make progress, and how they facilitate engagement in independent study and self-regulated practice, are considered. The strategies employed by teachers within the case studies for providing feedback and feed-forward, which are accepted within the culture of musical instrument tuition, are considered in section 5.9, together with any perceived weaknesses that could be addressed through teacher training or professional development.

5.2 An Overview of the Feedback Provided in this Study

Over time, a range of different types of feedback have been identified, and research has found specific modes of feedback, together with the different strategies employed for communicating feedback, to have different effects upon student learning. Kulhavy and Stock (1989, cited in Shute, 2008, p.158) observed that effective feedback provided students with two types of information: 'verification and elaboration'. These different types of feedback vary in terms of their length and detail. While verification feedback informs students about the accuracy of their work, elaborative feedback incorporates detail about their responses, explaining why their work is correct or incorrect, and if required, provides guidance and feed-forward about how to resolve errors or how to make improvements (Shute, 2008). In circumstances where feedback is detailed and elaborative, Narciss and Huff (2002) argued that teachers should aim to present it in stepwise and manageable components.

One of the most prominent features to emerge from the findings was the predominance of error-flagging and verification feedback. Of the feedback interventions observed in lessons across the entire study, 39% verified students' correct responses, 33% flagged errors, while the remaining 28% took the form

of feed-forward, presented as hints or more elaborative informative tutoring (see Chart 5.1). All of these different types of feedback were brief, with the exception of informative tutoring, which was more elaborative, and try again interventions took more time as students were required to perform music.

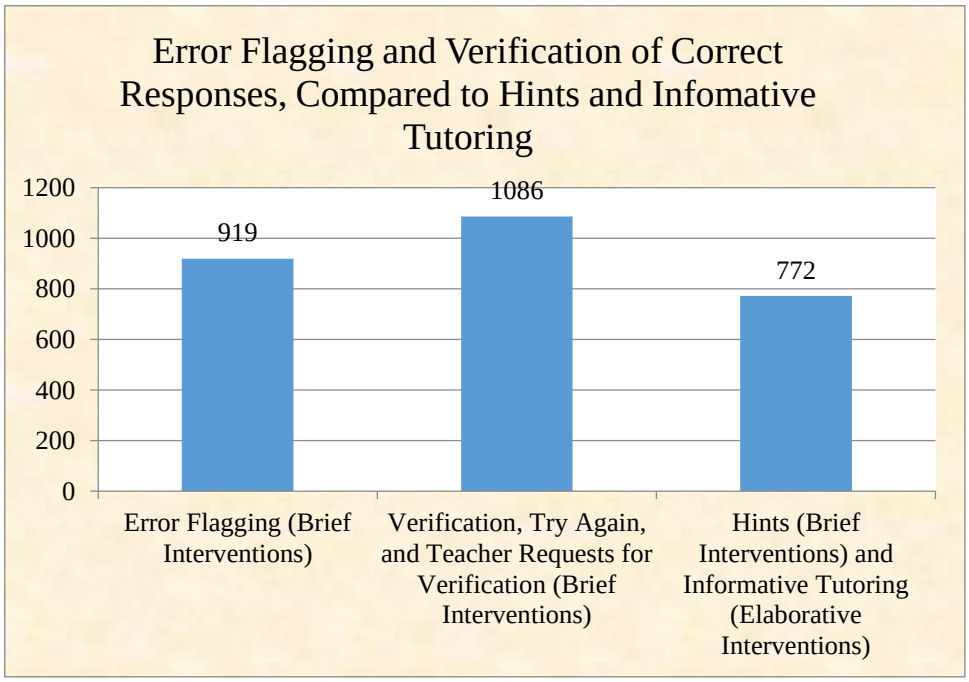


Chart 5.1

Three discrete categories of error-flagging feedback, together with verification of correct response feedback, which included 'try again' interventions and teachers' requests for students to verify their understanding verbally, were observed within all four case studies. Error-flagging interventions (46%) were observed a little less often than verification of correct response interventions (54%).

Errors were flagged most frequently by the provision of correct responses, either verbally or through exemplification (68%), while the remaining error-flagging interventions (32%) highlighted errors without a correct response (see Chart 5.2), which encouraged students to engage in self-assessment, reflecting

and analysing what had been performed incorrectly, and how they should proceed.

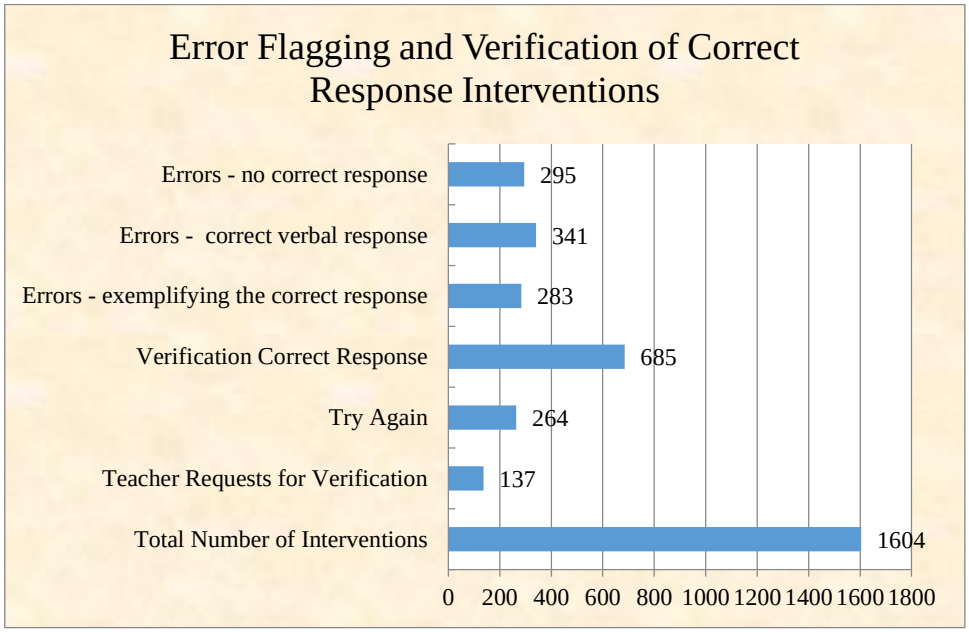


Chart 5.2

A more detailed case-by-case comparison, however, revealed that the proportion of error-flagging feedback interventions received by students varied considerably (see Chart 5.3).

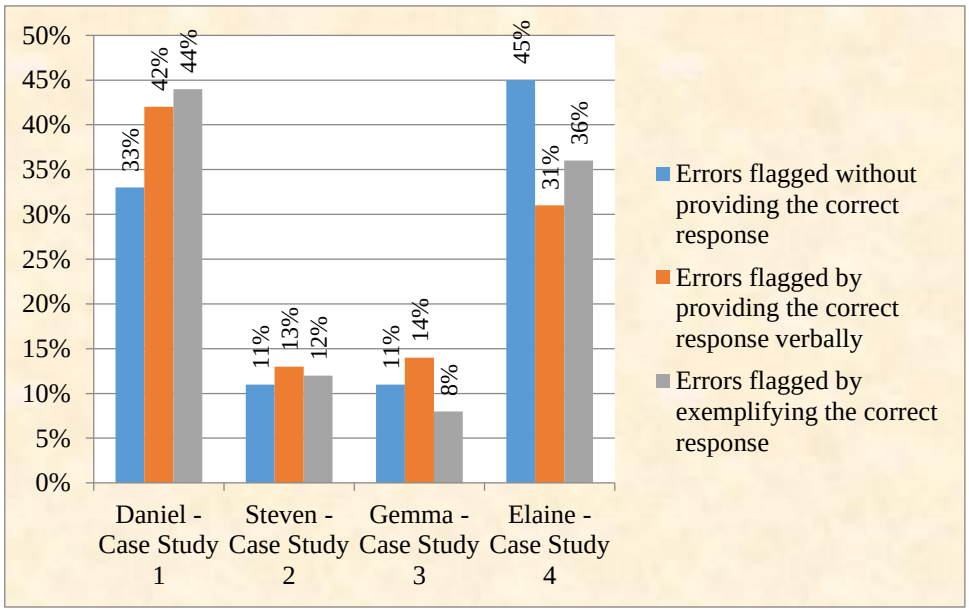


Chart 5.3

Chart 5.4 also illustrates that the number of correct/incorrect verifications received by each student varied in a similar way.

VERIFICATION ACROSS THE CASE STUDIES

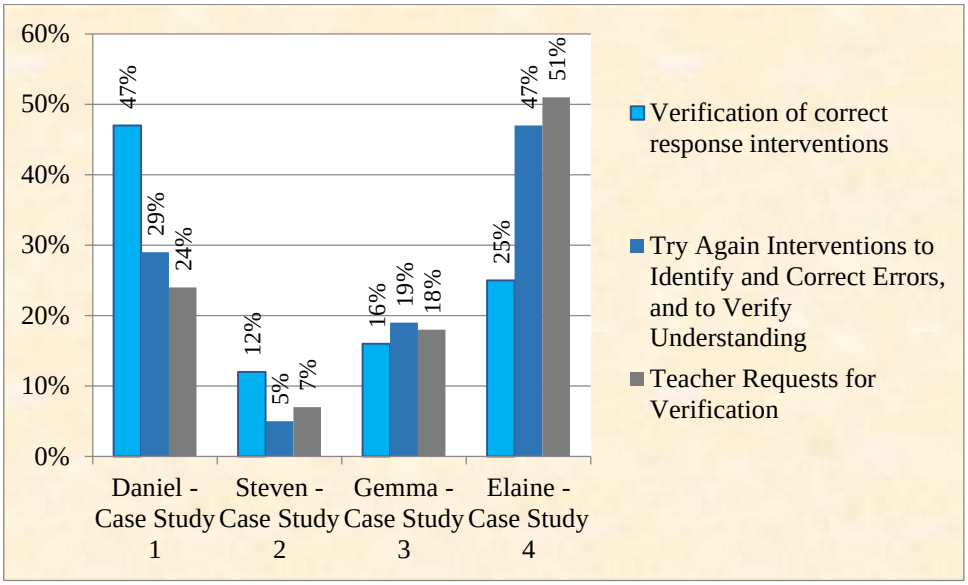


Chart 5.4

Within the research findings, it is noticeable that Steven and Gemma received far fewer error-flagging, verification of correct response and try again interventions than Daniel and Elaine (see Charts 5.3 and 5.4). Although these different types of feedback appear to be inherent within the feedback culture of this community, the reasons Steven and Gemma received fewer interventions could be due to a range of factors, including, in the case of Steven, the length of lessons, but it may also relate to the teachers' individual approaches to providing feedback. While Daniel and Elaine's teachers proved to be more vocal and responsive, adopting a more interventionist approach than Steven and Gemma's teachers, this could have been due to their higher levels of experience and confidence, but it may also have been due to the students' levels of competence and varying needs.

A large proportion of the feedback received by students in this study took the form of error-flagging (see Chart 5.1), a process supported by Kulhavy (1977, p.221) who indicated that feedback presented after an error had been observed was 'probably far more important than providing confirmation', as the verification of correct responses required no change. As the object of providing feedback is 'not only to eliminate the wrong answer', but to 'substitute correct information in its place' (ibid.) it is important that students are not only encouraged to eliminate errors, but to demonstrate their understanding by making corrections.

Error correction, however, is a contentious issue characterised by debate and conflicting research evidence. This is discussed in the following section.

5.3 What Constitutes Good Practice in Error Correction?

Narciss and Huff (2002) expressed the view that corrective feedback should not be provided before students have had opportunities to correct errors independently. Within all four case studies, students were recipients of error-flagging feedback interventions without the provision of a correct response. This meant that they needed to analyse what had been performed incorrectly, for instance whether it was a wrong note or an incorrect rhythm, and resolve the error by themselves under the guidance of their teacher, thus enabling them to close the gap in their learning. This relates to Vygotsky's (1978, p.86) theory, that effective learning takes place in an individual's 'zone of proximal development' (ZPD). The ZPD is 'the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers' (ibid.). This process is

affiliated with the notion of 'scaffolding' (Wood, et al. 1976, p.90), which within the context of one-to-one piano lessons, related to the guidance students received from their teachers when solving problems or correcting errors, thus enabling them to concentrate on elements which may have proved challenging, or initially beyond their levels of competence.

When teachers are diagnostic in their approach to assessment, if they flag errors without providing a correct response, wait time (Rowe, 1972) should be provided to engage students in the process of learning, encouraging them to analyse what they performed incorrectly. If subsequent feedback is tailored to guide students in resolving the error by themselves their knowledge and understanding is likely to be developed appropriately. Depending upon the content of the errors students make, teachers implicitly encourage students to reflect upon factual, conceptual or procedural attributes of their learning. Within pianoforte studies, factual knowledge concerns the structure of the keyboard, note names, note values, time signatures, musical symbols, and dynamic and expressive indications. Conceptual knowledge concerns the relationship between these discrete domains, while procedural knowledge involves knowing how to implement factual and conceptual knowledge, and to actually put them into practice. Within this study, examples of students putting factual and conceptual knowledge into practice, included Daniel when he played 'Chez le forgeron' (see section 4.2.3), and Gemma, when she played the B. Major scale, demonstrating her understanding (see section 4.4.3). This process stimulated thinking, self-assessment, independent problem solving, and self-regulation. The process of flagging errors without the provision of a correct response illustrates a process affiliated with social constructivism, rather than

behaviourism, as students actively engaged in the process of learning rather than becoming passive recipients of correct response information.

While Narciss and Huff (2002) indicated that students should have opportunities to correct errors independently, Kulhavy (1977, p.229) also emphasised the importance of the corrective role of feedback, as feedback following incorrect responses 'probably has the greatest positive effect'. In consequence, students will be encouraged to reflect upon errors, and address their misunderstandings. While correctional feedback is important, Bourdillon and Storey (2002), and Carless (2006) pointed out that in some situations correctional feedback lacks the information and advice students need to improve their work, and in consequence, this raises levels of uncertainty about how to proceed. In relation to this observation, to foster students' understanding and enable them to meet specific standards, many studies concur that feedback needs to be task-involving and specific (Black and Wiliam, 1998a; McPhail, 2009; Taylor, 2012).

Contrary to error-flagging interventions where no correct response is provided, when errors were flagged with a verbal correction, students within the four case studies did not receive time to reflect upon their errors. Narciss and Huff (2002) observed that feedback which incorporates an immediate correct response could promote a superficial approach to learning, particularly if the student's understanding of the error is not verified. Within this study, when correct responses were provided in this way, the students corrected errors immediately, but their understanding was not consistently verified. Available evidence suggests that this approach to feedback is part of a well-established and widespread culture in musical instrument teaching, which has been reported in

research internationally with students in different age phases (Kostka, 1984; Hendel, 1995; Duke, 1999/2000; Duke and Henninger, 2002; and Zhukov, 2008). Although it is not entirely clear why immediate corrections are provided in this way in piano lessons, it may be due to the teacher's automatic and natural reaction to an error, which, in the absence of formal training in formative feedback, seems to have become part of the established custom. It may, however, relate to the teacher's need to ensure that the student was aware of the error while playing, so that it could be corrected immediately, and not become a habit (Cavitt, 2003), or, teachers may have had a concern that when errors occur in action and are not communicated to the student immediately, they could subsequently be overlooked, and forgotten. This latter point is important in the context of piano lessons, as teachers can forget specific detail, especially if a large number of errors are observed.

Within the context of pianoforte studies, Robert (1964, p.201) indicated that the provision of feedback which actively exemplifies correct responses can be particularly beneficial, especially if it is accompanied by 'verbal explanations'. Contrary to this view, however, Rosenthal (1984, p.272) claimed that 'direct modelling, without any added verbiage, may be most effective in helping a student perform accurately'. While direct modelling without an explanation can enable students to perform music correctly, and assist in fostering motor skill development (Jacobson, 2006), it is likely to promote imitation and a surface approach to learning (Marton and Säljö, 1976), thus limiting creativity and independent learning, for instance when engaging in the interpretation of music (Juslin et al., 2004). When exemplifying correct responses with verbal explanations, this process can facilitate students' understanding, and is more

likely to enable them to transfer the learning when they study similar tasks in the future. Both the strengths and weaknesses of providing feedback using exemplars have been discussed in the extant feedback literature, but it is important to acknowledge Bangert-Drowns et al.'s (1991) warning that when teachers promote learning by rote, or through imitation, mindfulness in the students' learning is not encouraged, and in situations where surface level learning is promoted 'the need for feedback is diminished, and it is likely to receive less mindful attention' (ibid., p.218). In consequence, correcting errors through exemplification would be more beneficial to students, in terms of promoting understanding and conceptualisation, when provided with verbal explanations.

While the number of error-flagging interventions where teachers highlighted errors and provided correct responses through exemplification was less frequent than other means of error-flagging within this study (see Chart 5.2), all of the teachers provided feedback by exemplifying specific issues (see sections 4.2.3, 4.3.3, 4.4.3, and 4.5.3). Although this proved to be an effective feed-up strategy, ensuring students knew what they needed to achieve, there was a small number of instances when it was less effective. For instance, when Mrs Johnson exemplified correct notes while Elaine was playing scales (see section 4.5.3), as Elaine appeared to copy the exemplification, and her understanding of the reason that the note she played was incorrect was not checked or verified. Mrs Johnson could have verified Elaine's understanding through questioning, stimulating 'mindfulness' by prompting her to think, rather than just engaging her in passive imitation. This issue raises questions about the quality of learning in piano lessons, specifically whether this approach to

feedback, which is inherent within the culture of piano teaching, promotes a deep or a surface approach to learning (Marton and Säljö, 1976), and the extent to which teachers use assessment diagnostically to identify and address issues relating to factual knowledge and conceptual understanding.

Despite these observations, Benson and Fung (2005) found the most utilised method of exemplifying correct performance details in pianoforte studies was when teachers played along with their students. In other subject disciplines such as dance, when teachers actively dance along with their students, this process is acknowledged to be an effective strategy for fostering students' understanding (Henderson et al., 2007). In addition to the example cited above, Mrs Johnson actively employed this approach in Elaine's lessons, by playing the piano with her (see section 4.5.3), and similar to Mrs Mercer in Daniel's lessons, she exemplified correct responses by singing relevant notes or melodies (see section 4.2.3, and 4.5.3), and vocalising rhythms while Elaine played the piano. When playing the piano with their students, Mrs Johnson and Mrs Freeman also added explanations as they played (see sections 4.3.3 and 4.5.3), which as suggested by Robert (1964), proved effective in fostering students' understanding.

Within the context of teaching art in schools, Radnor (1994, p.145) acknowledged that when students were expected to be creative, traditional modes of assessment, for instance where teachers 'follow criteria' to grade the student's performance on a task, proved to be problematic owing to the subjective nature of the content. This clearly relates to the assessment of expression and interpretation within musical instrument studies. While some expert teachers have taught expressivity and interpretation effectively (Goolsby, 1999b; Duke

and Simmons, 2006), many authors concur that these attributes have been neglected in instrumental lessons (Rostvall and West, 2003a; Juslin et al., 2004; Karlsson and Juslin, 2008; McPhee, 2011; Brenner and Strand, 2013). Possible reasons for neglecting these attributes in music teaching relate to the 'tacit knowledge that is difficult to convey' (Juslin, 2003, p.275), and the 'time and emotional energy' that is required (Davidson, et al., 2001, p.58). Within the context of immediate error-flagging feedback, where dynamics and expression were highlighted, feedback provided within the case studies tended to be focused and specific (see sections 4.2.3, and 4.3.3). Furthermore, as the students reacted directly to teacher instructions rather than engaging in discussion, their responses illustrated a tendency to emulate the behaviours of their teachers, who were perceived to be 'proficient models' (Bandura, 1997, p.101), thus illustrating their engagement in the master-apprentice relationship (Jørgensen, 2000; Silverman, 2007).

A recurring theme in the extant literature on feedback indicates that correcting every error in written work, or similarly annotating students' musical scores excessively, thus making them difficult to read (Miller, 2006), can prove demotivating, demoralising, overwhelming, and damaging to students' self-efficacy (Hendrickson, 1980). In contrast to correcting every error in written work, within musical instrument studies (Cavitt, 2003; Colwell, 2006), and other cognate performance-based disciplines, specifically in physical education (Rikard, 1992; Lee, et al., 1993; Tan, 1996; and Chen, 2001), the notion that correcting all errors is detrimental can be challenged. As feedback is presented immediately while students perform, either verbally, or through non-verbal gestures, students' misunderstandings, and any feelings of uncertainty

can be addressed straightaway, and they have opportunities to put corrections into practice immediately. This can be particularly beneficial when learning involves the mastery of motor skills, which are essential for the presentation of competent performances. Although all of the students within the case studies received high numbers of error-flagging feedback interventions, these were usually taken positively as students were able to address the errors as they occurred, and then move on, which is quite a different experience to being faced with a piece of written work which is returned covered in corrections.

Although Kulhavy (1977) regarded error-flagging feedback as more advantageous than verifying the accuracy of a student's correct response, as correct response feedback did not require the student to take any action, other studies have highlighted the positive contribution of the verification of correct response feedback, which is discussed in the next section.

5.4 The Role of Verification in Feedback

In their meta-review of feedback literature, Kluger and DeNisi (1996) found that student performance had effectively been improved through the provision of both error-flagging and correct response feedback interventions. This finding is supported by Van-Dijk and Kluger (2000, 2001, cited in Hattie and Timperley, 2007) who observed positive feedback to support learning, although specifically within musical instrument lessons, Duke and Simmons (2006, p.15) found that as negative feedback is 'clear, pointed, frequent, and directed at very specific aspects of students' performances', it can effectively facilitate learning.

Although verification of correct response feedback was employed by teachers within the case studies less frequently than error-flagging feedback (see Chart 5.2), a general trend in musical instrument lessons observed by Duke and Simmons (2006), overall, it proved to be an effective strategy. While both Daniel and Elaine had higher numbers of verification interventions than Steven and Gemma, when teachers within the case studies provided feedback to confirm the accuracy of students' performances, it appeared to be a motivator, reinforcing the accuracy of their knowledge and understanding, and encouraging them to continue, particularly if the feedback was congratulatory in nature.

It has been acknowledged, however, that the effectiveness of positive feedback in situations where students' efficacy beliefs are low is doubtful (Hattie and Timperley, 2007) as positive feedback may interpreted as a confirmation of particular weaknesses. For instance, Steven experienced particular difficulties with sight-reading and was not committed to this activity, only engaging in it because sight-reading was a requirement for his examination. Although she acknowledged Steven's difficulty with sight-reading, Mrs Freeman provided positive supportive and encouraging feedback, regularly verifying the accuracy of his performance. While feedback of this nature could have proved helpful in motivating him to engage in the task, and raising his efficacy beliefs, as Bandura (1997, p.218) observed that 'repeated verification' can alleviate self-doubts, contrary to this view, as Steven's efficacy-beliefs in sight-reading were low, he may have interpreted this feedback as confirmation of his weakness (Hattie and Timperley, 2007), thus proving demotivating and reinforcing his negative disposition. As Steven did not find sight-reading intrinsically motivating, and was not overly committed to developing his skills within this

domain, it may have been more appropriate to provide disconfirming feedback, as Hattie and Timperley (2007, p.99) observed that when engaging in tasks that students 'have to do', they 'are more likely to learn as a function of negative feedback'.

A recurring theme in the feedback literature relates to the value of questioning (Black and Wiliam, 1998a) as this can be an important way 'of eliciting a contribution from students' (Burwell, 2005, p.204), prompting task-involving dialogue (Alexander, 2014), and 'active, overt participation' (Duke, 1999/2000, p.15). Engagement in dialogue provides opportunities for teachers to ask questions which elicit evidence of students' understandings (Wiliam, 2006). This can prove particularly beneficial in circumstances where students provide a correct answer, but without actually knowing whether the answer is correct, or why it is correct (Topping, 1998). Questioning has also been observed to encourage guessing if students do not understand the focus or content of the question (Torrance and Pryor, 1998), or if they do not have the prior knowledge required to provide an answer, although it can motivate them to think and reflect (Brown and Edmondson, 1984).

Questioning was utilised by teachers in all four case studies as part of the verification process (see Chart 5.2), specifically with a view to stimulating students' thinking and checking their understanding (Brown and Edmondson, 1984). It is interesting that Mrs Johnson asked Elaine to verify her understanding on more occasions than all of the other teachers within this study put together (see Chart 5.4). While this could have been a general characteristic of her teaching style, she may well have felt a need to fully confirm Elaine's

knowledge, skills and understanding, to strengthen her confidence that she could engage in effective practice.

While Davis (1997) observed 'evaluative listening' to be a process where teachers verify the correctness of a student's contribution, 'judging it against a preconceived standard' (ibid., p.359), Hodgen and Webb (2008) made a distinction between evaluative and interpretive listening: the teacher's focus in evaluative listening is getting 'students to give the correct answer', whereas 'interpretive listening' is more diagnostic, as teachers listen to what students say in order to work out why they respond in that way (ibid., p.76). Within the case studies, while there was evidence of evaluative listening during error-flagging interventions, when providing more elaborative feedback, including 'try again' and informative tutoring interventions, at times the teachers engaged in interpretive listening. This resulted in asking the students to verify their understanding, which in some cases may have enabled them to confirm the students' understanding, or to establish why the student had responded in such a way (see Chart 5.4).

There were occasions, however, when teachers used closed questions to verify students' understandings, inviting simple, unelaborated responses, and it was not sure whether students had actually understood particular concepts. For instance, when Mrs Mercer engaged Daniel in discussion about the concept of a perfect fifth, although he indicated that he had understood, the way he responded suggested that he was actually unsure (see section 4.2.4). This illustrated the point raised by Jones and Tanner (2006) that some students will agree that they understand, even when they do not, and this situation could

have been resolved if Mrs Mercer had engaged more overtly in diagnostic interpretive listening.

Although exploratory questioning is commonly used in secondary schools (Black and Wiliam, 1998b) and in higher education, Burwell (2005) observed a tendency for teachers to answer their own questions, irrespective of whether students had had time to think, or to reflect upon the content of the question. Within the case studies, however, when teachers posed questions relating to errors, or specific issues that required development, particularly when flagging errors without the provision of a correct response, they always waited for students to respond, and subsequently verified the students' responses, or provided correct answers if required (for example see sections 4.3.3, and 4.4.3).

Students' active engagement in seeking verification of the accuracy of their work, or their understanding, is discussed in the following section.

5.5 Students as Active Seekers of Feedback

While the extant literature on feedback and questioning tends to focus upon strategies employed by teachers to foster student learning (Brown and Edmondson, 1984; Hodgen and Webb, 2008), within the four case studies students actively sought advice by asking their teachers questions (183), and seeking verification of the accuracy of their performances (69) (see Chart 5.5). This behaviour contrasts with conventional classroom settings where students have been found, on the whole, to be reluctant to ask questions of their teacher (Black, 1998) or to take the initiative in engaging teachers in discussions about learning. Within classroom environments, there is a tendency for students to ask far fewer questions than teachers (Depper, 2001) even though they are the

ones engaged in learning. The level of student questioning in classroom contexts remains a topic that is debated in the literature, and Van Der Meij (1994, p.155) stressed that in order to foster student questioning within the classroom, 'favourable social conditions are important', and Karabenick and Sharma (1994) observed that teacher support may assist in stimulating students to formulate questions. Within one-to-one piano lessons, if students are unsure about specific issues, it is essential that they ask their teacher for advice, or to clarify instructions, in order to implement corrections and to make progress, as Thornbury (1996, p.282) indicated 'acquisition is facilitated by the negotiation of meaning in interaction'.

STUDENT QUESTIONS ACROSS THE CASE STUDIES

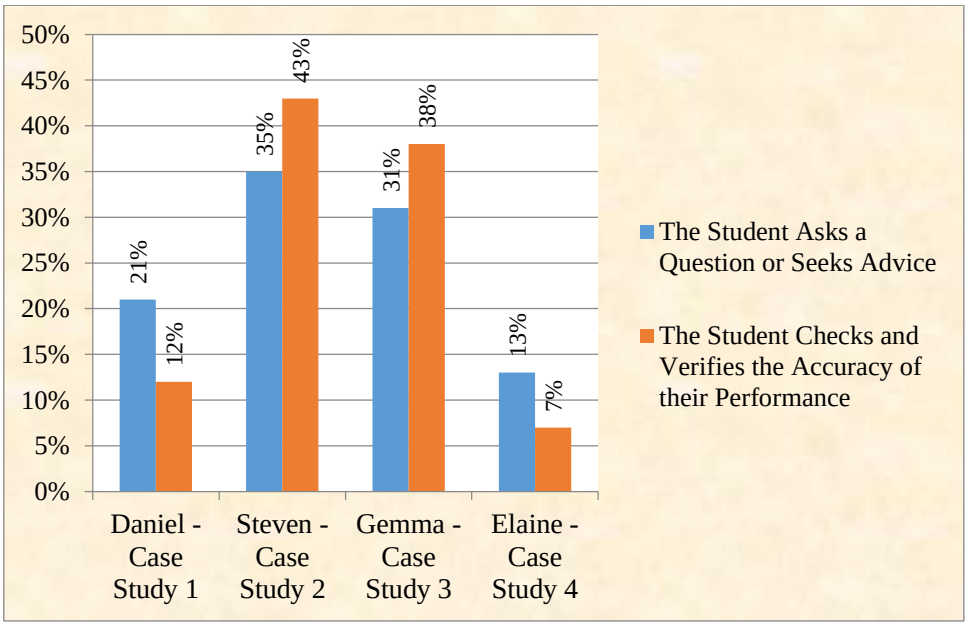


Chart 5.5

Within this study, the questions raised by the students ranged from simple organisational issues relating to note registers (see sections 4.2.6 and 4.5.4), the number of octaves scales need to be played in examinations (see sections 4.2.4 and 4.3.4), and clarifying understanding of specific symbols inherent within a score (see section 4.4.4). As some of the questions students asked exposed

their lack of knowledge and understanding, their willingness to do this in their piano lessons contrasts with more social classroom settings, where students are often reluctant to ask their teachers questions as they do not want to become embarrassed, and are concerned about maintaining their personal image (Black et al., 2003). However, as the case study students were generally active in asking questions, this may well be due to a range of factors, including a desire to develop their knowledge, the absence of any peer pressure, a need to verify their understanding to avoid any embarrassment in their lessons, or simply because they had positive relations with their teachers, which made them feel comfortable about asking questions.

It is interesting that the pattern of interventions in Chart 5.5 is roughly the reverse of error-flagging and verification patterns in Charts 5.3 and 5.4, as Steven and Gemma asked for advice or verification more often than Daniel and Elaine. As well over three quarters of the requests for verification came from Steven and Gemma this may indicate that these two students experienced higher levels of uncertainty in the absence of frequent verification feedback from their teachers.

While feedback is provided to highlight errors in students' work, or to verify the accuracy of their responses, the efficacy of feedback, relating to its clarity, has been questioned. Within the context of higher education, a survey conducted by Maclellen (2001, cited in Gibbs and Simpson, 2005) indicated wide discrepancies between students' and teachers' perceptions of the value of feedback. While teachers felt that feedback frequently assisted in nurturing students' knowledge and understanding, the students contradicted this view indicating that feedback was 'only sometimes helpful' in these ways, and 30%

of students actually stipulated that feedback never helped them to understand (ibid., p.10). In relation to this point, while Kluger and DeNisi (1998) acknowledged that the provision of information relating to a student's task performance may have a positive effect upon their learning and subsequent performance, the findings in their meta-analysis of the effects of feedback interventions were highly variable. Although feedback interventions 'improve performance on average', it was observed that they 'reduce performance in more than one third of the cases' (Kluger and DeNisi, 1998, p.67). As it has been acknowledged that feedback functions formatively only if the information fed back to the student is employed to improve performance (Black et al., 2002), feedback messages to students, therefore, need to be intelligible, and relate to their specific needs (Perrenoud, 1998), ideally drawing upon knowledge of their 'previous performances as well as their personalities' (Sadler, 1998, p.82).

A key theme to emerge from a number of studies is that when feedback lacks clarity, failing to specify whether students meet expectations or otherwise, students will be left feeling uncertain, useless, and frustrated (Shute, 2008; Hattie and Timperley, 2007). Within the case studies, the efficacy of feedback provided to students has been questioned only on rare occasions in terms of the extent to which it assisted students in developing their understanding of particular issues, or because teachers assumed that students had understood the specialised terminology employed. For instance when Mrs Mercer provided corrective feedback by exemplifying a rhythm orally when Daniel was studying 'Blues', although he managed to play the rhythm correctly, it was probably a result of imitating his teacher's exemplification as there was no clear evi-

dence that the feedback had enabled him to understand rhythm notation (see section 4.2.3). Furthermore, when Mrs Mercer provided feedback using specific terms, for instance referring to diatonic intervals, the efficacy of her feedback was questioned as it was not clear that Daniel understood these terms, and his possible lack of understanding about this concept was observed on more than one occasion. Mrs Mercer may have made an assumption about Daniel's prior learning and his understanding of intervals hence she did not check his understanding. As Daniel did not raise this matter, it may have been an indication that as Mrs Mercer had assumed that he knew about intervals, he was too embarrassed to ask for an explanation.

In relation to these issues, teachers within the case studies could have provided appropriate feedback, more consistently, if they had employed interpretive listening and reflected upon students' levels of understanding, by asking questions designed to detect misunderstandings, engaging them in dialogue, and subsequently asking them to demonstrate their understanding, by putting it into action while playing the piano. There was other evidence within the case studies, however, showing that teachers did engage in interpretive listening and diagnostic thinking, specifically when errors had been observed in students' performances, and they clearly focused their attention upon students' individual needs. Having reflected upon the students' errors, they subsequently asked them to 'try again' (see Chart 5.4), thus providing students with opportunities to confirm that they had understood the feedback provided, an important attribute of effective assessment observed by Ofsted (2011). This allowed the students to make corrections if necessary, and enabled their teachers to verify their understanding of specific concepts, related procedural skills,

and the accuracy of their performances. With regard to procedural skills and motor skill development involving 'arm, hand, and finger positions' (Simpson, 1966, p.18), which are inherent within pianoforte studies and other cognate performance-related disciplines, it is particularly important for teachers to monitor the accuracy of students' responses, as '"checking as you go" provides valuable information for formative assessment' (Hale and Green, 2009, p.29), so that teachers can be sure that the students are not practising incorrectly, as once physical motor routines have become automated, they can be difficult to change.

In conventional school settings, both Ofsted reports and research studies have found that students frequently fail to make the corrections suggested by their teachers. The size of class groups in school settings makes it very difficult for teachers to monitor students' responses and to verify their understanding straight away, and in situations where the time lag between completing a task and receiving feedback is extended, the students are less likely to act on the feedback. This is generally because they will have moved on to something else and the feedback will now have reduced relevance, although any underlying misconceptions or performance errors will have become even more firmly established. Within this study, however, as lessons were conducted in one-to-one situations, students were provided with opportunities to make corrections immediately, and their understanding was verified through the provision of try again interventions.

Although try again interventions varied in frequency between the case studies (see Chart 5.4), they enabled teachers to ascertain students understanding of issues within discrete domains, including the understanding of attributes with-

in musical scores, such as notes and rhythms, and how they were put into practice. Again Daniel and Elaine received a higher proportion of 'try again' interventions than Steven and Gemma, but Elaine was in receipt of considerably more of these interventions than any other student, possibly owing to the number of errors flagged in her lessons, and her teacher's need to verify the accuracy of her responses so that errors did not become encoded into her memory (see Chart 5.4). In the next section, the provision of feed-forward in piano lessons is discussed.

5.6 Providing Feed-forward in Lessons

Within this study, feed-forward was evident through the provision of hints and informative tutoring interventions, which enabled teachers to assist students in the development of their understanding, and to make progress in their studies (see Chart 5.6).

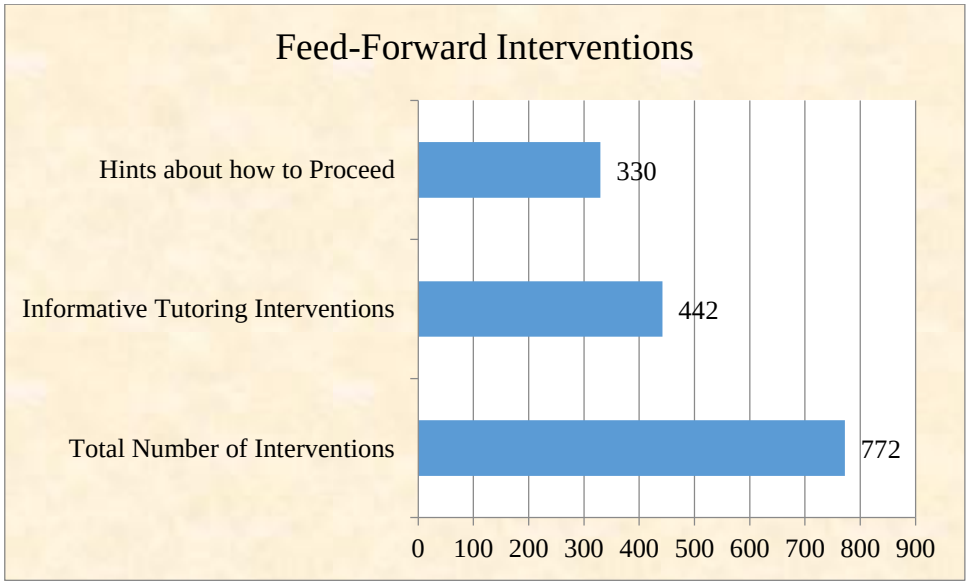


Chart 5.6

When compared to error-flagging and verification feedback interventions, they were noticeably fewer (28%) (see Chart 5.1). Nevertheless, informative tutor-

ing interventions, which were more elaborative and diagnostic in terms of establishing discrepancies in student understanding, were used more frequently than hints which provided only brief reminders while students played the piano. When these feed-forward interventions are compared across the four case studies (see Chart 5.7), it is interesting that a broadly similar pattern to the provision of error-flagging and verification interventions was observed (see Charts 5.3, 5.4 and 5.7).

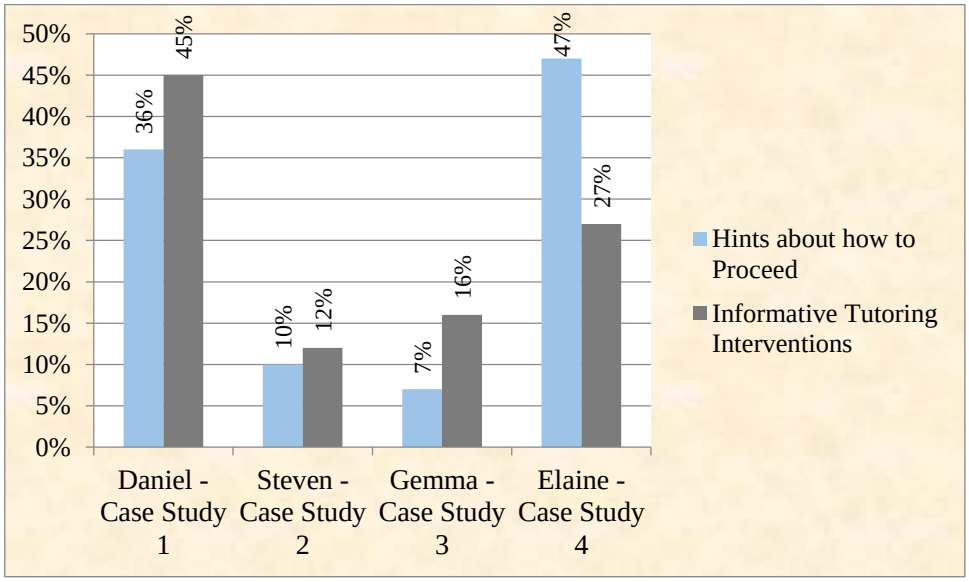


Chart 5.7

Daniel and Elaine received approximately three times as many hints and informative tutoring interventions compared to Steven and Gemma. This may further illustrate these teachers' particular styles of providing feedback and feed-forward or an indication of their experience and confidence. While it has been acknowledged that Steven's lessons were shorter in length, this pattern is part of a continuing trend. As Elaine received a higher proportion of hints than the other students, this could have been characteristic of Mrs Johnson's teaching practice. However, as Elaine spent less time engaged in focused practice

than the other students, Mrs Johnson may have felt a need to provide reminders and to guide her in this way (see Chart 5.7).

Many authors concur that the provision of hints, as a feedback or feed-forward strategy, has benefits, and specifically within cognate performance-related disciplines such as physical education (Lee, et al., 1993), they are employed to guide students and to promote their thinking while they perform. When addressing students' motor skills in physical education, Landin (1994) observed the benefits of hints, which stimulated the recall of specific motor activities. These hints consisted of 'concise phrases, often just one or two words' which were employed to communicate task-involving information (Landin, 1994, p.299). In a similar fashion, in the present study, hints were provided to stimulate thinking relating to previous errors, including fine motor skills, relating to fingering, dynamic control, timing and rhythms (see sections 4.2.5., 4.3.5., 4.4.5, and 4.5.5), and gross motor skills, incorporating body position, arm movement, and leg control for balance and pedalling.

All four teachers involved in this study engaged in a process of 'analysis in action' (Schön, 1987 p.176) providing hints to remind students of specific issues that had previously been flagged as errors, or discussed during informative tutoring interventions. For instance, Mrs Mercer reminded Daniel to 'watch the notes carefully', prompting him to remember previous errors, to think, and analyse what he needed to do (see section 4.2.5). While Shute (2008, p.180) acknowledged that 'novices or struggling students need support and explicit guidance during the learning process' she felt that the provision of 'hints may not be as helpful as more explicit, directive feedback'. Although the students within the case studies were not overtly 'struggling students', they were nov-

ices, and it is interesting that Daniel, Steven and Gemma all received more elaborative informative tutoring interventions than hints.

A recurring theme within the extant literature indicates that feedback provided within classroom contexts enables students to make progress in their learning and to improve their work more effectively when it provides detail about what was performed incorrectly, why it was performed incorrectly, and how improvements can be made (Bangert-Drowns et al., 1991; Bourdillon and Storey, 2002; Carless, 2006; Hattie and Timperley, 2007; Shute, 2008). Black and Wiliam (1998a) also observed that rather than acting as passive recipients of feedback, students should be actively taught how to utilise feedback in the process of breaching a gap, thus indicating that a key feature of effective feedback and feed-forward is that it should 'encourage "mindfulness" in the student's response' (ibid., p.51).

Feed-forward is affiliated with the question 'Where to next?', which relates to Vygotsky's (1978, p.86) notion of a ZPD, and has been described as the provision of 'information that leads to greater possibilities for learning' (Hattie and Timperley, 2007, p.90). In relation to this perspective, and that feed-forward is a process of scaffolding, which can enable students 'to do more advanced activities' and to engage themselves in 'more advanced thinking and problem solving than they could without such help' (Shute, 2008, p.162), when providing informative tutoring in lessons, the teachers enabled students to develop their understanding and to make progress, although there was limited evidence of teaching students how to utilise feedback in their practice. This issue is discussed further in section 5.9, in relation to teachers' professional development.

Although informative tutoring involved issues raised through error-flagging interventions, such as the correction of notes and attributes of score reading, the focus within the case studies was more explicitly on procedural knowledge (Anderson et al., 2001) relating to motor skill development (Simpson, 1966), specifically fingering, which if mastered could facilitate accuracy, fluency, and the control of dynamics, phrasing and expression (see sections 4.2.5., 4.3.5., 4.4.5, and 4.5.5). While error-flagging feedback without the provision of a correct response assisted in promoting reflective thinking, and when correct responses were provided, they potentially fostered the retention of corrections, within all four case studies, informative tutoring proved positive as these interventions incorporated detail of errors, explanations about how students should proceed, and opportunities to put corrections into practice immediately.

With regard to the effectiveness of informative tutoring, while Narciss and Huff (2002) indicated that when students do not have opportunities to resolve errors by themselves, a superficial approach to learning may be fostered, this has proved to be a contentious issue. Many authors concur that students may benefit from errors and misconceptions being highlighted immediately (for example, Topping, 1998), and that the feedback provided should offer explicit information (Sadler, 1989; Hattie and Timperley, 2007; Hale and Green, 2009). As Filer and Pollard (2000, p.11) perceived the process of assessment, and individual interpretations of feedback received, to be embedded in 'social-cultural contexts and caught up in webs of social relationships', it is interesting that some of the difficulties the case study students experienced were not discussed with their teachers immediately. Although the number of issues students found problematic was small, in their interviews, Steven and Gemma in-

dicated that they were unsure how to practise arpeggios and chromatic scales (see sections 4.3.6 and 4.4.6), and Elaine experienced difficulties practising repertoire pieces, specifically 'A Story from Long Ago' (see section 4.5.6). This raises questions about the effectiveness of feedback and feed-forward in developing these students' understanding of how to practise, and how to access the information needed, which could have been addressed through informative tutoring. This is an issue that needs to be considered further in relation to teacher training because, although the provision of feed-forward was generally effective within this study, this is an area that proved less effective, specifically in developing students' planning and metacognition.

Informative tutoring within the four case studies incorporated a range of strategies. While students were prompted to think about specific issues, enabling them to resolve errors by themselves under guidance, these interventions also incorporated corrective responses within teachers' explanations, thus indicating the error, and how to proceed. As the teachers took the lead in this process, identifying errors and instructing the student how to make corrections, a didactic approach was also observed, which is inherent within the behaviourist theory of learning, where learning is viewed as the accumulation of knowledge and the acquisition of skills, which were demonstrated through the immediate correct performance of tasks.

In their lessons, students conscientiously implemented the feed-forward they received from their teachers, although at times, it was clear that they needed time to develop specific motor skills involving co-ordination, such as pedalling (see sections 4.2.8, and 4.3.8). Informative tutoring proved to be task-involving and informational, and, as feed-forward was provided immediately

and orally, the case study teachers were able to clarify their meanings and provide further explanations where needed. Hence, it is suggested that more elaborative informative tutoring, which draws upon 'evidence about student achievement' and focuses on the 'next steps in instruction' (Black and Wiliam, 2009, p.9) is more likely to guide students towards the attainment or mastery of tasks, possibly promoting higher order thinking skills and a deeper approach to learning (Marton and Säljö, 1976), than error-flagging and verification feedback, which simply draws students' attention to incorrect or correct responses. While Pridemore and Klein (1991, p.27) asserted that students who received elaborative feedback tended to perform 'better than students who received verification feedback', Shute (2008, p.158) noted that 'researchers appear to be converging toward the view that effective feedback should include elements of both verification and elaboration'.

With regard to informative tutoring enabling students to do more advanced activities, this was evident in the case studies when Daniel and Elaine were challenged to study pieces for their Graded examinations, specifically Beethoven's 'Minuet in G', and 'Gavotta', and when Gemma was preparing 'Hero' for a concert. While Steven challenged himself to study advanced repertoire pieces, including Mozart's Sonata in A Major K.331, and Bartok's 'Allegro Barbaro', he needed guidance to manage these pieces.

Within this section the efficacy of feed-forward in piano lessons has been discussed, highlighting some similarities with other cognate performance-based disciplines. Within the next section, the efficacy of immediate feedback and feed-forward is considered.

5.7 The Efficacy of Immediate Feedback and Feed-Forward

While the extant literature has illustrated the benefits of corrective feedback for learning, specifically in school settings where it is clearly student focused and individualised by the assessor (Rikard, 1991; Taylor, 2006; Metcalfe, et al., 2009; Philpott, 2012; Byra, 2013; Manross and Templeton, 1997), within the context of sixth form colleges, focusing on written work, Ofsted (2010, p.78) observed that there is 'too much variability in the quality and timeliness of feedback'. However, the notion of 'timeliness' is contested with some authors concurring that delayed feedback can prove beneficial. For instance, Butler et al. (2007, p.280) argued that it allows the 'accessibility of the incorrect response to dissipate, which facilitates learning of the correct response'. Others, such as Higgins (2000), take the view that in order for feedback to facilitate student learning, delays should be avoided.

In the context of peer assessment in higher education, Topping (1998, p.256) observed that immediate, timely, and individualized feedback, whether 'corrective, confirmatory, or suggestive … might increase reflection and generalization to new situations, promoting self-assessment and greater metacognitive self-awareness'. Immediate feedback has proved advantageous in pianoforte studies and other cognate performance-based disciplines, including sports and dance, as it can enhance the acquisition of 'procedural skills, and some motor skills', and assist in preventing errors from 'being encoded into memory' (Shute, 2008, p.163). Indeed, 'the earlier corrective information is provided, the more likely it is that efficient retention will result' (Phye and Andre, 1989, cited in Shute, 2008, p.164). In physical education, specifically when coaching university students in swimming, Zatoń and Szczepan (2014, p.151) noted that

verbal communication, using wireless communication systems, allowed for the 'immediate breakdown of communication barriers', prevented error occurrence and created 'conditions for the development of normal motor habits'. Lee et al. (1993, p. 237) observed, however, that 'the accuracy of feedback is critical for motor-skill learning and that incorrect feedback can be detrimental'. In musical instrument studies, this relates specifically to the potential 'problems of performance', identified by Schön (1987, p.176), including technical issues relating to the properties of an instrument, and the control needed to master expression, interpretation, stylistic features of the composer, and the historical characteristics of the music being performed. Within band rehearsals involving students aged 12-18 years, Cavitt (2003, p.218) observed the need for teachers 'to quickly correct errors that occur, before inaccurate or incorrect aspects of performance develop habit strength that makes them resistant to change'. Thus, there is widespread agreement that the provision of immediate error-flagging feedback in a range of contexts, though specifically in musical instrument lessons, and other practical subjects involving the development of motor skills, can be effective (Blakemore, 2004; Shute, 2008).

In relation to the immediacy of error-flagging feedback, the extant literature on timeliness has stressed the benefits of oral feedback, as it is immediate, enables students to respond immediately (Townshend et al., 2005, cited in Clark, 2012), which is particularly beneficial in musical instrument studies, and assists in addressing students' individual needs (Clarke, 2005; Hodgen and Webb, 2008; Fautley, 2010). Related to this observation, in a study involving internationally recognised instrumental teachers, Duke and Simmons (2006) observed that students were allowed to perform music uninterrupted until an

error occurred, but when an error was observed, the student was interrupted immediately. Error-flagging interventions of this nature generally consisted of 'a single verbal or nonverbal directive from the teacher' (Cavitt, 2003, p.220), and in most instances, the student responded by correcting the error, and subsequently remembered corrections in following lessons or performances. Bangert-Drowns et al. (1991, p.218) also acknowledged that 'feedback can additionally inform mindful retrieval correction', and within the case studies, when errors had been flagged, there was little evidence in subsequent lessons, that the same errors were made.

Duke and Simmons (2006) observed that when students demonstrated fundamental flaws in their playing, expert instrumental teachers addressed misunderstandings with the utmost priority. Kulhavy (1977, p.225) also observed that 'high confidence errors are the point at which feedback should play its greatest corrective role, simply because the person studies the item longer in an attempt to correct the misconception'. Bangert-Drowns et al. (1991, p.217-218) also acknowledged that 'confirming or disconfirming feedback is likely to stimulate mindfulness, perhaps especially when a "sure" response is contradicted'. While Hattie and Timperley (2007, p.100) support this view, they acknowledge that disconfirmation without corrective information 'is of little use because it provides no information regarding what to do or how to respond next time'. Although this occurred rarely within this study, a clear example of a 'sure' response being contradicted occurred in Daniel's lesson, when he was convinced that there was no left-hand part in 'Chez le forgeron' as the music had been notated only on the upper-stave in the score. This was resolved when Mrs Mercer explained that there were separate parts for each hand, and illus-

trated how these were organised. Daniel indicated that he had understood this, and was able to rectify the error immediately.

In their review of literature relating to the timing of feedback, Hattie and Timperley (2007, p.98) observed that while students are engaged in tasks, immediate error correction 'can result in faster rates of acquisition', although they acknowledged this may not necessarily be the case 'during fluency building' as immediate error correction 'can detract from the learning of automaticity and the associated strategies of learning'. Within the case studies, particularly when errors were observed relating to motor skills, for instance when Daniel received feedback relating to the double thirds in Beethoven's 'Minuet in G', it was noted that fluency can take time to develop.

With regard to the immediacy of feedback and feed-forward within this study, verbal persuasion and encouragement proved effective when addressing challenging issues. For instance, immediate supportive feed-forward of this nature proved effective when Mrs Johnson persuaded Elaine that she could make progress, putting the two separate hand parts together, when playing 'Ode to Joy' (see section 4.5.8), and Mrs Mercer effectively supported Daniel when he experienced difficulties in improvisation tests (see section 4.2.8). Immediate verbal persuasion can assist in raising students' efficacy-beliefs, particularly when they experience self-doubts (Chen, et al., 2001).

In reference to Johnson and Johnson's (1990) perspective 'that collaborative discourse can produce significant gains in learning', Black and Wiliam (1998a, p.33) acknowledged the value of talk between teachers and students, particularly in relation to the immediacy of feedback. While this may be the case, it needs to be acknowledged that the effectiveness of outcomes relating

to such dialogue depend upon 'the quality of their interactions' (Black and Wiliam, 1998a, p.16), which will include eye contact, nodding, leaning forward, smiles, and hand gestures (Mehrabian, 1977; Zhukov, 2012). While teacher and student interactions within the case studies were generally positive, there were occasions, in Elaine's case study, when the dialogue was not entirely so, specifically when Mrs Johnson expressed impatience relating to Elaine's lack of practice (see section 4.4.3).

As feedback and feed-forward within the four case studies was verbal and immediate, dialogue with students was promoted, although the teachers might have done more both to foster and to extend the dialogue, a process that is considered 'fundamental to successful learning and teaching' (Nicol, 2010, p.503). Although dialogue between the teachers and students tended to be brief, as it was task-involving, disparities and misunderstandings were usually addressed immediately. For instance, in Steven's case study, when discussing a problem relating to the fingering in 'Chez le forgeron' (see section 4.2.4), and in Gemma's case study, when working on a theory exercise, Miss Marston engaged Gemma in a discussion relating to accidentals, ensuring that she understood that they only related to notes in specific registers (see section 4.3.6). This illustrates ways in which piano lessons have been found to have helpful features which differ from most lessons conducted in generic classroom contexts.

Overall, when learning to play a musical instrument, while there is a widely shared consensus that immediate corrective feedback makes a valuable contribution to the development of 'students' music performance skills' (Cavitt, 2003, p.228), this contrasts with more generic literature, which stipulates cor-

recting every error can be overwhelming and demotivating for students, and has been found to make them more passive and dependent upon their teachers. In the next section, the effects of feedback and feed-forward on students' self-efficacy, motivation and self-regulation are discussed.

5.8 Feedback and the Self

As Bandura (1997, p.2-3) indicated that 'unless people believe they can produce desired effects by their actions, they have little incentive to act', within the context of musical instrument studies, students' knowledge, skills, and understanding need to be developed, to ensure that they have the confidence and self-belief required to make progress and master specific tasks. In order to foster confidence, Duke and Simmons (2006) found that expert teachers were proactive when students made errors which required attention, guiding error correction appropriately. This was managed by identifying fundamental issues that caused problems, and subsequently 'asking students to make adjustments in their playing' (ibid. p.12). With regard to flaws in technique, Duke and Simmons (2006, p.13) also indicated that teachers need to pay 'careful attention to the way students execute physical movements', to ensure that errors do not go 'unnoticed or unmentioned'. Furthermore, Narciss and Huff (2002) and Duke and Simmons (2006) identified the need to limit what they asked students to do, thus ensuring that corrections are manageable, and that they can make adjustments immediately. In the context of physical education, Chen (2001, p.33) supports the view that teachers should avoid overloading students with too much information, and avoid presenting 'feedback on too many key points'. This view is supported by Hattie and Timperley (2007, p.104), who observed that in circumstances where feedback is 'directed at the right level',

it ‘can assist students to comprehend, engage, or develop effective strategies to process the information intended to be learned’.

In relation to these observations, Saville et al. (2014, p.146) found the provision of feedback from teachers, which supports the development of good working relationships, to be ‘instrumental’ in the formation of self-efficacy, although in relation to fostering positive relationships, Topping (2010) acknowledged the difficulties teachers face when presenting feedback, ensuring that it is honest but not dispiriting, and that students are actively encouraged to make improvements. Many authors concur with Vollmeyer and Rheinberg (2005, p.590) that as feedback can have an impact on students’ ‘cognitive motivational, and affective processes’, as well as having enduring effects on their self-concepts, it should be carefully considered (Perrenoud, 1998; Spruce, 2002; Jones and Tanner, 2006; Leung and McPherson, 2011) and ‘fit for purpose’ (Philpott, 2007, p.210). Providing effective feedback, therefore, can be a complex and challenging undertaking, as teachers need to be sensitive to students’ individual needs, (Schmidt, 1989; Burwell, 2005), recognising that it could be received and interpreted in different ways. In pianoforte studies, this can be particularly challenging as feedback is provided immediately, unlike marking written assignments, where teachers have time to reflect, and consider how individual students will respond.

To ascertain the case study students’ efficacy-beliefs, indications that they believed they would master specific tasks, and expressions of self-doubt or struggling to achieve something made during lessons, interviews, or in diary entries were coded accordingly. An interesting finding was that students who demonstrated higher levels of motivation tended to be more self-critical, or

evaluative in terms of their levels of certainty that they could master specific tasks. Students' efficacy-beliefs can also vary within discrete subject domains (Ritchie and Williamon, 2010) and will be affiliated with self-efficacy for performing and self-efficacy for learning. As the students within the case studies demonstrated positive beliefs that they could achieve specific tasks, particularly performing repertoire pieces, their efficacy beliefs for performing and learning within this domain were positive. However, Daniel and Steven found improvisation and sight-reading particularly challenging. The feedback they received from their teachers relating to these tasks took into account these delicate considerations, and proved to be sympathetic and understanding, utilising verbal persuasion and constructive criticism with a view to fostering their efficacy-beliefs, and positive attitudes (see sections 4.2.8 and 4.3.8). Nevertheless, within these domains, their self-efficacy remained low, leading to helplessness and frustration (Abramson, et al., 1978) (see section 4.2.8, and 4.3.8).

While Gemma indicated that there were specific issues that she was unsure she would accomplish, this related to the amount of time she found to practise, owing to other commitments (see section 4.4.10). It is interesting that Elaine only indicated on two occasions that she lacked the confidence to master set tasks, which may be indicative of lower levels of commitment, and her assumption that she could meet specific targets by adopting a surface approach to learning in her studies. Even though Mrs Johnson was aware that Elaine responded well when the corrections she made were acknowledged, there were a few occasions when Elaine's corrections received no verification or approval, which may not have assisted in fostering her efficacy beliefs. Furthermore, on a small number of occasions, Elaine's teacher provided feedback that was

norm-referenced, an approach not observed in the other case studies. In reference to Kluger and DeNisi (1996), Shute (2008, p.167) observed that:

> *'...when feedback is provided to students in a norm-referenced manner, comparing the individual's performance with that of others, people who perform poorly tend to attribute their failures to lack of ability, expect to perform poorly in the future, and demonstrate decreased motivation'.*

This practice may have had a negative effect upon Elaine's efficacy-beliefs, as she became very quiet and reserved on these occasions.

A recurring theme in the literature indicates student motivation is likely to be influenced by a range of factors relating to self-perception, including confidence and feelings of self-worth (Weiner, 1984), and whether tasks are intrinsically or extrinsically rewarding, relating to personal ambitions, or controlled by external factors (Deci and Ryan, 2000). Dweck (1986) also indicated that motivation for learning is affiliated with task orientation, specifically whether the focus is on learning or performance. In situations where the focus is on learning, Black and Wiliam (1998a, p.14) indicated that higher levels of 'motivation and achievement' result.

Within the four case studies, the students' motivation to practise varied, although there were contextual factors, which had an impact upon this. Time was a factor for Gemma and Elaine. Gemma was very conscientious about her involvement in extra-curricular activities and meeting homework deadlines, which had an impact upon her practice at times, and Elaine was also involved in Drama activities, thus indicating that their motivation to practise the piano could have been limited by external factors (Deci and Ryan, 2000). All four students were involved in preparation for ABRSM examinations, which may have proved, albeit implicitly, to be an extrinsic motivator (Harnischmacher,

1997), although the initial focus was on learning, the ultimate focus was performing (Black and Wiliam, 1998a).

With regard to the provision of feedback on learning, Juwah et al. (2004, p.13) observed that motivation is likely to be enhanced when feedback focuses on formative attributes of 'progress and achievement', rather than 'high stakes summative assessment tasks where information is only about success or failure'. The provision of feedback and feed-forward within the case studies, was formative, hence low-stakes, and although this involved error-flagging, which may have proved discouraging, it appeared to motivate students as they put corrections into practice immediately, and in Gemma's case, as she systematically recorded the content of her practice sessions, her motivation to implement corrections was recorded. Verification feedback, which confirmed the accuracy of students' performances whilst they played the piano also proved motivating, as students were able to continue with confidence.

Although Hattie and Timperley (2007, p.91) observed that 'teachers commonly mix corrective feedback with information at the self-level', which can dilute the power of task-involving feedback, Deci et al. (1999) observed verbal rewards can be effective in encouraging students to persist when they face particular challenges. Within the case studies, all of the students received feedback that was congratulatory in nature (see sections 4.2.7, 4.3.7, 4.4.8, and 4.5.7), but it related to the progress made in meeting specific targets, and consequently was thoroughly deserved. It is important to acknowledge that task-involving feedback is considerably more effective than the provision of 'praise, rewards, and punishment' (Hattie and Timperley, 2007, p.84), although Iwaguchi (2012, p.183) acknowledged that praise has been employed

effectively to motivate students to 'practise at the beginning of piano learning'. When Mrs Johnson provided congratulatory feedback in Elaine's lessons (see section 4.5.7), this had a positive effect, which if given more regularly could have motivated her to practise more consistently.

In relation to Stipek's (1984) observation that young people have an innate concern to please adults, when students had forgotten to practise specific tasks, or not engaged in practice, the embarrassment experienced when teachers highlighted these issues, proved to be a motivator to practise during the successive week. This was evident when Daniel had forgotten to practise a chromatic scale, and as he played it confidently, accurately, and hands together in the following lesson, he provided clear evidence for Mrs Mercer that he had engaged in deliberate practice (see section 4.2.7). In contrast, while Steven's task-intrinsic interest (Ames, 1984) was evident in his desire to perform challenging pieces, such as Bartok's 'Allegro Barbaro', he was not always motivated to practise issues within specific domains, possibly because he found them tedious. This was evident in his lack of incentive to master the fingering in scales and arpeggios (see section 4.2.9), and as a result of his low efficacy beliefs (Bandura, 1997) concerning the mastery of sight-reading for his Grade 4 examination, he felt that he should abandon this task and focus on his repertoire pieces. This relates to the control-theory perspective that students will estimate the probability of achieving specific goals if they invest further effort, or modify their plans (Carver and Scheier, 2011), but if the goals seem unattainable, they may decide to abandon them (Peterson et al., 1993). While Steven purchased a book designed to assist with sight-reading, he did not overtly seek help from his teacher, and although Mrs Freeman was

clearly aware of his negative experience with sight-reading, his lack of engagement with this topic may have been an attempt to preserve his feeling of self-worth (Maehr, 1984).

In contrast to Daniel, Steven and Gemma, Elaine was less consistent in her practice. As prolonged, deliberate practice is 'essential for the development of high levels of skill' (Chaffin and Imreh, 2001, p.39) and crucial when learning to play the piano (Ericsson et al., 1993), Mrs Johnson became exasperated when Elaine came to lessons having practised for 5 minutes (see section 4.5.7), thus demonstrating a lack of organisation, motivation and/or commitment. It was evident, however, that following lessons when Elaine had been reprimanded for her lack of engagement, she had been motivated to practise, albeit extrinsically (interviews with Mrs Johnson on 23rd and 30th January). As Mrs Johnson was critical of Elaine's lack of focus, it may have had a negative effect upon their relationship, although Elaine did not indicate this in her interviews. This factor is worthy of consideration as Cornelius-White (2007) observed an association between teacher and student relationships, and students' achievement, and Atlas et al. (2004, p.85) observed that teachers could promote achievement by being 'attuned to the needs of students', demonstrating understanding, and being positive, genuine and empathetic. Although teachers in the other case studies tended to be supportive if students had not practised specific tasks, when Elaine had not practised, Mrs Johnson was not always so sympathetic.

As Elaine's performance in lessons proved disappointing more often than students in the other case studies, this is likely to explain the greater emphasis on negative and corrective feedback. Indeed, this could have become a vicious

circle of poorer motivation leading to less practice, producing a more error-prone performance in lessons, prompting more negative and corrective teacher feedback, which could further demotivate Elaine to practise in the following week. This contrasts with a virtuous circle where better motivated students practised more frequently and for longer on each occasion, enabling them to make the progress which was demonstrated in their lessons, prompting more positive feedback which reinforced their motivation and commitment to their studies. As Elaine also received norm-referenced feedback, this may have compounded the problem.

These students' conscientious applications of the feedback they received in lessons, particularly Daniel, Steven and Gemma, contrasts with reports relating to the provision of feedback in classroom contexts. It has been observed that when teachers provided detailed feedback on students' written work, the students frequently failed to make corrections or improvements, and in situations where students did attempt to respond, teachers rarely acknowledged their endeavours (Ofsted, 1998). In support of this view, Hattie (2012, p.122) acknowledged that feedback is 'poorly received and hardly used in revision of work.'

A recurring theme in the literature concerned the need for feedback provided in lessons to promote self-assessment and self-regulation. Butler and Winne (1995, p.246) argued that 'for all self-regulated activities, feedback is an inherent catalyst', a view reinforced more recently by Nicol and Macfarlane-Dick (2006) and Hattie and Timperley (2007). Hale and Green (2009, p.30) also pointed out that in order to promote self-assessment, students need to be clearly aware of 'what the teacher is trying to accomplish'.

Within the case studies, however, while the content of the students' independent practice was made clear by teachers during lessons, and usually documented in lesson notes (although for Steven, these were not made available, see Table 3.3), the intention was that these notes would be employed as reminders of issues discussed in lessons, as they did not contain detail about how to practise. Practise strategies were only discussed and explained in lessons on 19 occasions, usually through exemplification, and engaging the students in dialogue. This small number supports Burwell and Shipton's (2013, p.329-330) observation that there is little evidence that the teaching of 'strategic approaches to practice' in musical instrument studies takes place. However, on the occasions when teachers engaged in demonstrating how something could be practised, providing an aural and visual model of what needed to be achieved, and how it could be achieved (Robert, 1964; Sosniak, 1985; Juslin et al., 2004; Jacobson, 2006; Sharples et al., 2012), this procedure proved effective. Although this process of exemplification could foster rote learning, Haddon (2009) argued that it could also stimulate motivation.

Despite the infrequency of explanations about how to practise, Mrs Mercer and Mrs Freeman indicated that Daniel and Steven actively employed their feedback in practice sessions (see sections 4.2.7, and 4.3.7), and as previously noted, Gemma kept a detailed record of what she had practised, which related to the focus of her lessons (see section 4.4.7). The strategies students employed in their private practice included practising slowly while focusing on the content of specific bars, actively monitoring/checking the accuracy of notes, and practising hands separately (see section 4.2.7). Effective self-regulation in private practice has been observed to facilitate the development

of self-assessment (Juwah, et al., 2004), which Hale and Green (2009, p.29) acknowledged to be 'one of the ultimate goals of instruction'.

With regard to self-regulation in private practice, there is a requirement for students to engage in self-assessment. In music performance, however, Bergee and Cecconi-Roberts (2002) observed that the master-apprentice relationship in musical instrument lessons, and students' reliance on their teachers as the 'primary means of assessing their performances' (Daniel, 2001, p.221) has contributed to their lack of ability to self-assess their work effectively. While the students within the four case studies were not actively taught how to self-assess their work, or received feedback relating to the implementation of self-assessment strategies, through error-flagging feedback interventions without a correct response, the students were implicitly encouraged to engage in self-assessment, and indeed, this was observed in practice during lessons. This process of error-flagging in lessons, therefore, may have encouraged them to reflect upon their work, and to some extent, assisted them to develop self-assessment routines in their private practice sessions. However, it appears that this is an area for development in the assessment practice of piano teachers as this is essential for students in their private practice.

Within pianoforte studies, in addition to feedback provided by teachers and other external sources, it is self-generated in private practice, and students utilise aural and tactile attributes inherent within their performances for self-assessment (Pfordresher, 2012) referring to musical scores as a guide for monitoring the content of their playing. As piano students have access to these different sources of feedback, both in lessons and independent study, this differs considerably to other curriculum subjects, even other performance-based dis-

ciplines, as in addition to tactile and motor skill feedback, they have self-generated aural feedback. In relation to this, Bartolome (2009, p.38) observed practice to be 'a complex and multi-faceted undertaking', and in consequence, students need to understand how to integrate factual and procedural knowledge (Sloboda, 1985) and apply this independently (Clarke, 2005), which can stimulate meta-cognitive thinking (Hallam, 1998a), and be able to persevere in the face of difficulties (Fitzsimons and Finkel, 2011). Students need, therefore, to develop a repertoire of practice strategies (Jørgensen, 2004), but in situations where they are not taught how to practise, this may be a contributing factor for abandoning their studies.

As students need to be able to make decisions about the most effective practice strategies, Renwick and McPherson (2002) acknowledged that they also need to reflect upon the frequency and duration of their practice sessions, as when compared to other curriculum subjects, which do not require fine motor skill development (Simpson, 1966), they will not require as much time, or the need to interact frequently with an instrument. To facilitate this, Nielsen (2001) indicated that students will require guidance, and a list of topics that need to be practised (Hamel, 2001), but as previously indicated by Burwell and Shipton (2013), overt guidance is rarely provided in musical instrument lessons.

Within the case studies, feedback from sources other than teachers and the self was not accessed regularly, although Daniel, Steven and Elaine received feedback from family members on occasions, which has proved beneficial (Hunter and Russ, 1996; Margiotta, 2011). Miss Marston also encouraged Gemma to seek assistance from a friend, when they were both working on the same piece

of music. Feed-up (Juwah, et al., 2004; Fisher and Frey, 2009) is important for clarifying goals in performance subjects, and in addition to teacher exemplification, students were encouraged to engage within the music community by accessing online videos of performances using YouTube, a process which Miss Marston employed during lessons (see section 4.4.4), or by listening to official recordings, such as the ABRSM recordings, which Daniel and Steven accessed when preparing their Grade 4 examination pieces (see sections 4.2.7, and 4.3.7). Although Daniel, Steven and Gemma had access to official recordings for purposes of feed-up, Mrs Johnson actively performed the pieces Elaine was studying, which proved helpful in lessons when she was working towards her Grade 1 examination, but this meant that she was heavily reliant upon remembering Mrs Johnson's performance when practising at home.

Steven and Gemma also actively engaged in self-monitored ipsative comparison (McCormick and James, 1983) by making recordings to compare their current performances levels with previous performances. This process proved to be motivational (Lebler, 2008) and self-reinforcing (Krathwohl et al., 1964; Schunk, 1982) as they tracked their progress over time.

Within the next section, issues relating to the culture of providing feedback and feed-forward in pianoforte studies are addressed, relating to the experience of the teachers within the case studies, and their professional training.

5.9 The Musical Community's Culture of Feedback

In this study, although there were striking similarities in the types of feedback and feed-forward provided by the four teachers, there were marked differences in the frequencies with which these feedback interventions were made (see

Charts 5.3, 5.4, and 5.7). On each category of feedback and feed-forward identified, Mrs Mercer and Mrs Johnson (case studies 1 and 4) made noticeably more interventions than Mrs Freeman and Miss Marston (case studies 2 and 3), and, therefore, Steven and Gemma received fewer feedback interventions than Daniel and Elaine. In relation to this finding, it is interesting to note that Steven and Gemma sought advice, and asked their teachers questions more frequently than Daniel and Elaine (see Chart 5.5). Whilst in Steven's case this can be partially explained by the difference in lesson length, as Steven's lessons were a third shorter than Daniel, Gemma and Elaine's, the differences between the amount of feedback Daniel and Elaine received in comparison with Gemma cannot be explained in this way, and they are really quite startlingly different. These differences could relate to their teaching qualifications, variability in their pedagogical content knowledge, which concerns 'the distinctive bodies of knowledge for teaching' (Shulman, 1987, p.8), levels of experience at the time of the study (see Table 5.1), and their individual styles and approaches to teaching.

CASE STUDY TEACHERS: TEACHING EXPERIENCE

Teacher	Mrs Mercer	Mrs Freeman	Miss Marston	Mrs Johnson
Teaching Experience	40 years	25 years	7 years	Long history of piano teaching
Qualifications	Certificate in Education (Primary School Teaching)	B.Ed., Associate of the Guildhall School of Music (AGSM)	B.A. (Hons) in Music Performance	Associate of the Royal College of Music (ARCM)

Table 5.1

These differences were apparent during lesson observations, as Mrs Freeman and Miss Marston interrupted performances in Steven and Gemma's lessons less frequently allowing the students to play more consistently, and the interaction between these teachers and their students was sociable and constructive.

Although Mrs Johnson had a degree in English and Music, she was consistently involved in performing music at university, and she had experience as a Head of Music in a public school. Both Mrs Johnson and Mrs Mercer had notably higher levels of experience teaching the piano than Mrs Freeman and Miss Marston, which may account, to some extent, for their readiness to intervene in lessons more frequently. Although Miss Marston had recently gained a degree in music performance, she did not have a teaching qualification, and she had been teaching the piano, which was not her principal study instrument, for a much shorter period of time than all of the other teachers. These factors may contribute to the lower number of feedback and feed-forward interventions in her lessons.

A recurring theme in the literature concerns the benefits of both positive and negative feedback interventions, as both can effectively stimulate student learning. Brooks (2002), however, observed a tendency for school teachers to avoid constructive criticism and the provision of negative feedback, as Kyriacou (1992, cited in Brooks, 2002, p.43) indicated that 'learning is an emotionally high-risk activity' and failure can be 'extremely painful'. Consequently, school teachers are often reluctant to 'reject or correct wrong answers' (Brooks, 2002, p.127). Contrary to this view, Mrs Johnson provided negative feedback quite regularly, and error-flagging feedback, which could have been interpreted as negative, was provided frequently in all case studies. The students within the case studies accepted this as conventional practice, which enabled them to rectify errors immediately. There were times, however, when teachers actively avoided negative feedback, conscious of the effect this could have on students' efficacy beliefs and motivation. For instance, feedback from

Mrs Mercer and Mrs Freeman was supportive when Daniel and Steven engaged in improvisation and sight-reading tasks (see sections 4.2.8 and 4.3.8).

In the provision of verification feedback, indicating the students' correct responses, teachers utilised terms such as 'really good' or 'brilliant', thus praising the students for the accuracy of their work, and the effort they put into their private practice. In relation to the use of praise in feedback, when the accuracy of students' work is verified, Hattie and Timperley (2007) indicated that it carries little information that students could employ to make further improvements. Consistent with this observation, during lesson observations when teachers had acknowledged accuracy and the progress made, there was no feed-forward provided which could indicate further modifications or improvements. In the absence of feed-forward, there is a failure to capitalise on its potential to stimulate development.

As it was evident within this study that, on the whole, students made progress from lesson to lesson, it was implicit that students knew how to practise. On a small number of occasions, however, all four students indicated that there were tasks they were unsure how to practise, for instance, chromatic scales and arpeggios. Despite the assumption that students were independent and self-regulated, on these occasions it was evident that in their private practice they were not as well equipped to make effective use of the feedback they had received as they might have been. Within the lessons observed, as there were only 19 occasions when feedback was provided about how to practise, it is likely that the teachers could have benefitted from training in how to provide feedback which is designed to foster self-assessment and self-regulation.

All of the teachers within the case studies indicated that they had received no formal training in formative assessment or the provision of feedback. It is interesting, therefore, that the feedback strategies employed in lessons were similar, despite differences in their ages, experience, and qualifications. As Sosniak (1985, p.61) indicated that pianists' skills are developed 'simply by being in the presence of the master', the repertoire of teaching strategies has probably developed in similar ways through participation within a community of practice (Lave and Wenger, 1991; Nielsen, 2006) and by learning through the master-apprentice model (Burwell, 2005; Lehmann et al, 2007; Burwell, 2013). Across generations of pianists, students' willingness to conform suggests acceptance of this traditional model, which is strongly affiliated with a behaviourist theory of teaching and learning.

Vygotsky's role in the development of a socio-cultural theory of learning is acknowledged by Kozulin et al., (2003, p.1), as 'the understanding of human cognition and learning' are 'social and cultural' artefacts rather than 'individual phenomena' (ibid.) leading to 'internalised' knowledge (Lave and Wenger, 1991). In the field of pianoforte studies, however, while learning takes place in lessons, illustrating social and cultural elements, as much of the learning takes place in private practice, there would appear to be a combination of both perspectives. Learning takes place through participation in communities of practice, where knowledge is perceived to be co-constructed and located within specific contexts (ibid.). Lave and Wenger (1991) also observed the value of Vygotsky's ZPD, which can be employed as an instrument of analysis to assist in the understanding of learning within social contexts, firstly, to investigate how collaboration with more experienced people may promote the develop-

ment of knowledge, skills, and understanding, and secondly, from a cultural perspective, to explore the development of knowledge, skills, and understanding in everyday contexts, in comparison to situations involving formal instruction.

Rostvall and West (2003a, p.220) found that the 'strong asymmetric distribution of power' between teachers and students, had a negative effect upon 'students' opportunities to learn'. Kreisberg (1992, cited in Ecclestone and Pryor, 2003, p.482) described the shift in the balance of power required to foster positive teacher-student relationships, exercising 'power with' rather than over students, to be a challenge for many teachers, as it involves relinquishing the power and responsibility that was traditionally accepted as resting with the teacher.

Within this study, attributes of both the master-apprentice and mentor-friend models were evident, and this had an impact on how feedback was provided, received, and actively sought by the students. Reid (1997, cited in Lehmann et al., 2007, p.187) indicated that the role of teachers in the master-apprentice model is to tell students about their 'experience and demonstrate their craft', affiliated with a behaviourist theory of learning, which was evident in the majority of feedback and feed-forward interventions in the lessons observed. The mentor-friend model involves a greater exchange between teachers and students, and students are encouraged to experiment, and develop their knowledge and understanding under guidance, which is more affiliated with the social constructivist theory of learning (ibid.). This was evident when students were encouraged to reflect upon errors, and find corrections under the guidance of their teachers.

Harris and Shelswell (2005, p.167) perceive ‘communities of practice’ to be ‘self-regulating systems’, which require ‘mutual respect and support between participants’. Consequently, active engagement within specific teaching and learning communities has promoted acceptance of particular traditions, attitudes, values and behavioural norms. This is characteristic of piano teaching as instrumental teachers are not required to engage in the formal training required for classroom teaching, and consequently, their experience as students and acknowledgement of their teachers as experts, plus the ‘guild knowledge’ acquired through community participation (Sadler, 1989, cited in Tunstall and Gipps, 1996, p.389), promotes a master-apprentice relationship, which within this particular culture has worked well in some respects and for some students, but there is conflicting evidence as concerns have been raised about attrition rates, with too many students dropping out before they have achieved mastery. Hence this is a concern for all community members who have a stake in nurturing the next generation of pianists.

In relation to the development of teaching practice, it has been observed that Lave and Wenger may have underestimated the ‘value of formal instruction’ (Owen-Pugh, 2007, p.89), which raises a question whether independent piano teachers could benefit from the provision of professional development in formative assessment practice, as Siebenaler (1997, p.7) identified a number of studies that reported ‘the incidence of precise feedback’ had increased ‘as a result of teacher training in task-specific responses to student behaviour’.

While teachers naturally focus upon individual students in one-to-one musical instrument lessons, a key theme to emerge from a number of studies is that teachers should be mindful of the individual needs of students, taking into ac-

count their stages of development, and the 'ever-present dangers of vulnerability and defensiveness' (Schön, 1987, p.176). Within this context, while Bloom (1984, p.11) acknowledged that if a student misunderstands a concept, the teacher 'soon becomes aware of it' and will take the initiative to explain it further, in the case studies it was not always clear that students had understood specific concepts, and the teacher did not always take the initiative to check their understanding.

Although the teachers within this study had not received training in formative assessment, their general practice was acceptable, consistent with that reported within their community, and students remained generally well-motivated and satisfied with the feedback they received. Nevertheless, there was a number of issues where the provision of feedback and feed-forward could have been improved through training and professional development, although, in the present circumstances, this would need to be voluntary, as unlike Sweden and Germany, when seeking formal employment as an instrumental teacher in England, teaching qualifications are not required (Haddon, 2009). These issues concerned the use of feedback diagnostically to identify underlying problems and concerns which were sometimes left unaddressed, despite the use of 'try again' and informative tutoring interventions. The employment of strategies to explore how students' utilised feedback in the process of breaching a gap, and explicit training in – and promotion of – self-assessment could have been beneficial, specifically in terms of promoting self-regulation (James and Pedder, 2006) in private practice, and helping students to develop the metacognitive resources to work independently to overcome debilitating weaknesses in their playing.

In summary, a culture of feedback where immediate error-flagging and correct-response feedback predominate has continued in musical instrument lessons over many years (Daniel, 2008). In the absence of formal training in formative assessment and feedback, many musical instrument teachers know little or nothing about current thinking regarding best practice in feedback nor the research evidence behind these recommendations, although evidence within this study suggests ways in which their feedback practice worked well, and did not carry some of the negative connotations that it has acquired in more general school-based contexts.

5.10 Conclusion

In this discussion it has been observed that in piano lessons verification feedback, and more elaborative feed-forward, was presented orally, through the use of a range of illustrative gestures, and through exemplification. As these different types of feedback and feed-forward were presented immediately, dialogue between students and their teachers was encouraged, a process observed to increase 'the retention of elaborated knowledge', owing to its 'fluidity and immediacy' (Gleaves and Walker, 2013, p.251).

While correcting all errors in written work has generally proved humiliating for students, and has encouraged passivity or over-reliance upon the teacher (Hendrickson, 1980; Black and Wiliam, 1998a), within the four case-studies, although a large number of errors were flagged during lessons, this was accepted by all of the students as conventional practice and was not observed to produce the adverse consequences that have been found when written work is heavily corrected. When errors were flagged with the provision of a correct response, students addressed the errors immediately, and, when no correct re-

sponse was provided, reflective practice and self-assessment was encouraged, and corrections were made through links to prior learning (Sutton, 1997) under teacher guidance. It was also evident in lesson observations that corrections made in previous lessons had mostly been remembered by the students, and implemented in their private practice, which suggests that the students had actively engaged in reflective practice and self-monitoring. Also, when the students had employed feedback in their private practice, and made progress, the teachers acknowledged this, something that Ofsted (1998) found to occur only rarely in secondary school classrooms.

Within the four case studies, when some errors were made, and teachers engaged in informative tutoring, they were able to reflect upon possible reasons for the errors, and shape their teaching to meet the students' individual needs, although on some occasions their practice could have been more overtly diagnostic, to accommodate students' lack of certainty. Feedback was often presented sympathetically with a view to encouraging positive motivational beliefs, although it has been observed in situations where students are required to engage with tasks that appear unmanageable, negative feedback could motivate them to correct errors and make progress more effectively, which in Steven's case, may have been worth considering. With regard to sight-reading, however, a task which Steven perceived to be insurmountable, although Mrs Freeman provided strategies that could be employed to overcome this difficulty, they were not wholly effective. If specific elements within sight-reading tasks had been presented discretely, such as working on a small number of notes, or a rhythm, this may have fostered Steven's belief that this skill is attainable. Indeed, these areas of practice could be addressed, if teachers had

better opportunities – and encouragement – to engage in professional development.

While similar to the provision of feedback within classroom settings in terms of drawing students' attention to errors, and providing feed-forward about how to make improvements, within the four case studies, the provision of feedback differed from this context in terms of its immediacy. Similar to other cognate performance-based disciplines, the immediacy of feedback focused on the quality of performance, and the development of motor skills, which is important within these contexts, especially as it was provided in manageable steps, thus empowering students by enabling them to make corrections immediately. The immediacy of feedback, however, did not provide time for the teachers to reflect upon the content and possible effects it could have on individual students, which can be managed more effectively by classroom teachers, when presenting written feedback.

In relation to teaching practice, and the provision of feedback and feed-forward in lessons, there were issues that warranted attention, which have been discussed in relation to initial teacher training and opportunities for continuing professional development. These issues included teachers' limited use of observations and questioning for diagnostic purposes. Although there was evidence of this practice within the case studies, it was not always employed consistently, and some students were left unsure how to proceed, possibly because they felt insecure asking for clarification of specific concepts, despite evidence of positive interactions between the students and teachers. It was also apparent in the case studies that one of the teachers did not always provide feedback that was efficacious in terms of meeting students' needs, and so

training relating to social interaction with young people, who are susceptible adolescents and at a crucial stage in their learning careers, may prove beneficial.

With regard to teacher development and professional training, it would be useful to enable teachers to reflect upon the feedback and feed-forward provided to students, and the sort of learning it fostered, whether a deep or surface approach, and whether the types of feedback and feed-forward provided effectively guided the students towards the attainment or mastery of their goals, and similar tasks in the future.

While feedback prompting students to think about specific errors, proved helpful within this study, such as highlighting incorrect notes, it could also be beneficial to consider the extent to which feedback and feed-forward can promote self-assessment and self-regulation, and whether it can support metacognitive thinking and the development of higher order thinking skills. In order to develop understanding of the range of learning strategies, and how they can be employed to foster learning, Laveault (2007, cited in Brooks and Fancourt, 2012, p.129) observed the benefit of 'self-regulation of learning, and learning of self-regulation'. Feedback and feed-forward facilitating students understanding of learning how to learn (James et al., 2007), and how to self-assess and self-regulate, would prove highly beneficial in pianoforte studies.

Overall, within the four case studies, while the provision of feedback had many positive attributes, as illustrated above, there were some areas where improvements could be made. It would be beneficial if teachers could access training in formative assessment, similar to that which is available to main-

stream teachers, otherwise they may be ill-equipped to foster certain developments in their students.

6. Conclusion

6.1 The Provision of Feedback in Piano Lessons

As ‘feedback is one of the most powerful influences on learning and achievement’ (Hattie and Timperley, 2007, p.81), teachers need to ensure that it is carefully considered (Perrenoud, 1998), relevant, and ‘fit for purpose’ (Philpott, 2007). This study aimed to gain an insight into the efficacy of feedback and feed-forward provided in piano lessons, whether it related to students’ individual needs, nurtured their self-efficacy and motivation to learn, and the development of the knowledge, skills and understanding required to enhance the quality of their performances (Cavitt, 2003).

Within the 4 case studies, different types of feedback, feed-forward and feed-up were observed. An interesting finding was that teachers presented these different types of feedback in similar ways, which suggests that these practices are inherent within the culture of one-to-one piano lessons. Although the feedback and feed-forward provided within this context had similarities with conventional school-based classroom environments, there were some noticeable differences, which will be discussed in the next section.

This chapter opens with a response to the research questions (section 6.2), followed by an evaluation of the strengths and limitations of the research (section 6.3). The final section (section 6.4), presents recommendations, and highlights specific areas that warrant further research.

6.2 The Efficacy of Feedback in Pianoforte Studies

6.2.1 Characteristics of One-to-One Teaching and Learning Environments

In circumstances where teachers dominate one-to-one teaching and learning environments, the extant literature has indicated that there may be a negative effect on students' attitudes (Carless, 2006; Daniel, 2008). Kreisberg (1992, cited in Ecclestone and Pryor, 2003, p.482), however, observed that when teachers exercise 'power with' students rather than over them, the effect could be positive in terms of engaging students, and enabling them to take responsibility for their learning. Within the 4 case studies, although there was evidence of both the master-apprentice and mentor-friend models of teacher-student relationships, there was little evidence of the predominance of either model. When error-flagging and verification of correct response feedback was provided, a master-apprentice model of teaching and learning was observed, and teachers were able to provide rapid feedback, tailored to students' individual needs, consistently throughout the lesson. When more elaborative feed-forward was provided in informative tutoring interventions, illustrating how students should proceed, teachers within the case studies engaged in a dialogic approach (Hattie, 2003; Juwah, et al., 2004; Alexander, 2014), more consistent with a mentor-friend model of teaching and learning, illustrating a positive social atmosphere, which contrasts with views illustrated by Kornreich Davis (1960) who found that the interaction between teachers and students in traditional one-to-one lessons could be unnatural and dull.

Within the dialogue between teachers and students, teachers employed questioning to elicit the student's understanding and to ascertain how to close the gap between their current and desired levels of performance. Students also

asked questions to clarify a range of issues, thus verifying their knowledge, understanding, and in some instances, how to proceed in their playing. This proved effective in the context of piano lessons, as detail was provided about what students had performed incorrectly, and similar to error-flagging feedback, students were able to implement the feedback and feed-forward they received immediately, to demonstrate their understanding, and that they would be able to implement these corrections or improvements in their private practice. Similar to 'try again' interventions, where teachers actively monitored student's learning (Hattie, 2003), questioning proved effective as teachers were able to confirm the student's understanding, which was not always evident in error-flagging feedback interventions.

6.2.2 Response to the Research Questions (See Section 2.5)

In generic contexts, it has been found that when teachers correct every error in written work rather than suggesting strategies that could be employed to overcome those errors (James, 1998), students have interpreted this as failure, which has proved daunting, painful, embarrassing, and resulted in a loss of confidence (Hendrickson,1980; Black and Wiliam, 1998a). In response to question 1a, how feedback provided by the teachers during lessons is received, interpreted and understood by their students, teachers within the four case studies had no apprehensions about correcting all errors while the students played the piano, and when correct responses were provided, the students accepted these corrections and implemented them immediately without displaying any of the negative emotions associated with corrective feedback on written work.

The immediacy of error-flagging feedback proved effective, particularly as it enabled students to correct notes, rhythms, or dynamic and expressive indications in action, all of which required muscular control, and if these errors had not been corrected, they could have become habits (Cavitt, 2003) encoded into memory (Shute, 2008), and proved difficult to change. As students seldom repeated errors in subsequent lessons, it was evident that this feedback had been recalled and utilised in their private practice.

It was unclear however, whether corrections made through exemplification had induced learning through imitation, as in these instances students' understanding was not consistently verified. When error-flagging feedback with correct responses provided through exemplification was employed to highlight errors in dynamics and expression, the teaching and assessment of which has been neglected over time (Juslin et al., 2004), students may have copied their teachers directly. There were instances, however, where students' responses were not exact replications of the teachers' exemplifications, and as their responses were not questioned, discussed or countermanded, this may have indicated that that teachers allowed an element of personal interpretation.

While error-flagging feedback could be interpreted as reprimanding or disapproving, in these instances the students responded positively, possibly due to the fact that the interventions were specific, explicitly task-involving (Duke, 1999/2000), and very few of the interventions were communicated in a sarcastic, demeaning, or personally punishing manner (Cavitt, 2003). As the errors were flagged in private, feedback may have been accepted more readily in the absence of peer pressure, and as it was provided in manageable portions, allowing students to address errors and demonstrate mastery immediately, this

proved empowering and helped to foster their self-efficacy. Providing feedback in this way is quite different to written feedback, which is usually presented after a delay, and if it is on complete pieces of work, and is largely negative, it can be overwhelming and dispiriting. In response to this finding, some teachers have been reluctant to 'reject or correct wrong answers' in students' written assignments (Kyriacou, 1992, cited in Brooks, 2002, p.43) with a view to protecting their feelings of self-worth.

With regard to students' understandings of the feedback they received in lessons, and whether it matched their teachers' meanings and intentions (research question 1b), there is evidence in the findings that feedback and feed-forward were generally well understood and students' responses matched their teachers' intentions, as they were usually able to demonstrate their understanding while playing the piano. Nevertheless, on a small number of occasions, it proved difficult to ascertain whether some types of feedback had effectively promoted students' learning or understanding.

Discrepancies between the teachers' intentions, and students' interpretations of feedback and their responses, may be explained in a number of ways (research question 1c). When teachers provided feedback by exemplifying corrections, rather than explaining the content of an error and why it needed to be corrected, discrepancies between their intentions and their students' responses may have arisen due to teachers making assumptions that the students had understood relevant concepts and their feedback. This happened, for instance, when the feedback involved complex rhythms and note sequences. Alternatively, there may have been an intention that the student should merely copy the exemplification, a method that would promote a surface approach to learn-

ing, which may have been due to the amount of time and effort that would be required to explain such problems. Teachers were not questioned about these issues in their interviews, however, as my concern was to avoid influencing the research, as one of the teachers had indicated how much she felt she had learnt simply by participating in the study, and in consequence, I was anxious to minimise inadvertent researcher effects on the focus of the study.

As a result of providing feedback in this way, students either failed to implement corrections accurately, which occasionally induced feelings of frustration, or they implemented corrections in a way that demonstrated a lack of certainty or confidence. In circumstances where students lacked confidence, felt insecure, or embarrassed to tell their teachers that they had not understood, the underlying musical concepts were not explained in any depth, and the operation of a master-apprentice model of teaching and learning was likely to encourage passive acceptance that students should simply copy exemplifications. This is incompatible with two of the defining attributes of formative assessment: that it promotes a climate of enquiry and increases student ownership of and responsibility for their own learning. In these instances, questioning could have assisted the teachers to diagnose the students' lack of understanding, or stimulated 'mindfulness', by prompting the students to think rather than engaging in passive imitation.

When teachers set new tasks for students, it would have been beneficial if they had planned ahead to ascertain whether there were specific concepts within musical scores that may have been new to students, and warranted explanation. Lack of forward planning was evident on a small number of occasions, for instance when notation was written on one stave, and when indications

such as 8va were presented in a score, which the students had not understood. Had the teachers engaged in baseline assessment before setting these tasks, asking the students to verify their understanding, and providing appropriate feedback and feed-forward to accommodate their lack of understanding, errors of this nature could have been avoided (see section 6.4.1, recommendation 1).

Another issue that proved to be less efficacious concerned the detail provided by teachers in their lesson notes. Some of these notes lacked clarity about what the students needed to practise, merely providing a list of repertoire pieces to focus upon. One of the criticisms within the extant literature is that students in instrumental lessons do not receive tuition about how to practise (Burwell and Shipton, 2013) (see section 6.4.1, recommendation 2), and as the lesson notes lacked this information and detail about specific issues that needed attention, students had to rely on their memory of the feedback and feed-forward that was presented in their lessons (see section 6.4.1, recommendation 3).

The four case study students had access to feedback, principally from their teachers, themselves, and audio models, many of which were employed in their private practice sessions between lessons (research question 2). Three of the students also received feedback from their parents. For feed-up, in addition to listening to teacher performances, 3 of the students accessed official recordings of their examination pieces, which were available online or as CDs.

Feed-up resources were consciously employed by students when practising (research question 2a) to gain a clear understanding of what needed to be achieved, specifically in relation to tempo, fluency, dynamics and expression. However, while the recordings provided an overview, feedback and feed-forward from their teachers was crucial for making progress in their perfor-

mances. There was triangulated evidence that students employed these sources of feed-up, feedback and feed-forward in their private practice in the data from student interviews, lesson observations, and, in three cases, students' detailed practice notes. In addition to these resources, although all students utilised self-generated feedback as they played the piano in their private practice sessions, 2 students recorded their performances so that they could listen for errors, and observe their progress over time.

The students employed feedback and feed-forward from their teachers to address a range of issues in their private practice (research question 2b), to correct notes that had been highlighted as errors in lessons, and to address issues relating to fingering and dynamics. One student, however, experienced particular difficulties implementing the formal fingering for scales and arpeggios, and although for the examination there is no requirement for students to use a formal fingering strategy, the teacher simply directed the student to observe the fingering which was documented in the examination board scale book. This feed-forward proved ineffective, as the student made no further progress with scale fingering in subsequent lessons. In consequence, the student may have benefitted from the provision of clear strategies to employ in his practice sessions, and step-wise targets. Similarly, as two of the students experienced particular difficulties with sight-reading and improvisation, which were also requirements for their examinations, feedback and feed-forward illustrating appropriate practice strategies, and providing manageable targets, could have been beneficial in addition to providing supportive feedback, and demonstrating understanding of the difficulties they experienced (see section 6.4.1, recommendation 4).

The focus of feedback and feed-forward, and the way it is presented is likely to influence students' self-efficacy, their levels of motivation and commitment (research question 3). All of the teachers in this study seemed aware of this and their feedback and feed-forward were almost exclusively task-involving. Error-flagging feedback interventions were accepted by the students as conventional practice, and although these were frequent, there was no evidence that these interventions had negative effects upon their self-efficacy or levels of motivation. Verification of correct response feedback proved helpful in confirming the accuracy of students' work, and fostered their commitment to proceed. Similarly, hints and informative tutoring interventions were accepted positively, as they indicated how improvements could be made, thus assisting in sustaining self-efficacy and motivation.

When the students within the case studies demonstrated progress in their studies, and particularly on occasions when it was evident that they had utilised their teachers' feedback in their private practice, this was duly recognised by the teachers, especially in Daniel's case, as he was particularly conscientious, and the teachers provided congratulatory feedback. This reinforced the students' sense of self-worth, boosted their motivation to succeed in subsequent tasks, and encouraged dialogue with their teachers. On a small number of occasions, however, feedback was less supportive and more critical, particularly if students had forgotten to practise something, or for some reason had not engaged effectively in their private practice. In consequence, the students became extrinsically motivated, possibly fostered by a desire to please adults (Stipek, 1984), so that they could subsequently demonstrate to their teachers that they had practised.

This clearly contrasts with the finding reported by Ofsted (1998) that secondary students often did not respond to school teachers' comments on their written work, even when they were thorough and pointed out the way to make improvements. This observation has recently been confirmed by Hattie (2012, p.122), who indicated that feedback is 'poorly received and hardly used in revision of work', thus illustrating that in these instances, both teachers and students were acting in ways that are inconsistent with evidence from Ofsted inspections and the research literature related to generic classroom contexts.

When students received feedback that lacked clarity, and they did not ask for it to be explained, they were not able to utilise the feedback in their practice, and as a consequence, limited progress was made. When this occurred, if the teachers were not sensitive to the student's needs, subsequent reprisals may have had a further demotivating effect, while in contrast, thoughtful diagnostic feedback may have proved beneficial in terms of ascertaining the reasons for the student's lack of engagement (Schmidt, 1989; Burwell, 2005) so that specific issues could be addressed. The lack of clarity, specifically in Elaine's lesson notes, could have been a factor that inhibited her practice, and subsequent progress.

With regard to students' perceptions and evaluations of task-involving and ego-involving feedback and feed-forward (research question 3a), the four case study students consistently indicated in interviews that they considered their teachers' feedback and feed-forward to be just and fair, and this may reflect the fact that it was almost exclusively task-involving, and focused on the skills and concepts needed to succeed, and when progress was made, this was duly acknowledged. However, on a very small number of occasions, Mrs Johnson

made direct comparisons between Elaine and other younger students, illustrating the marks they had received for the examination grade Elaine was working towards. Although Elaine did not mention this in her interviews, her reaction in lessons indicated that this had a negative effect on her self-worth.

As the balance between what can be learnt in piano lessons and through private practice differs to that in most classroom-based subjects, students need to be enabled to take responsibility for their own learning so that they can engage in self-assessment and become self-regulated. Although feedback from teachers on how to practise at home, consistent with the extant literature on this issue, was very limited, there was evidence that feedback and feed-forward had an effect upon the development of the students' skills in self-assessment and self-regulation (research question 3b). In lesson observations, there was evidence that students had employed feedback and feed-forward in their practice, as progress was observed from week to week, and in some instances, the students had actually exceeded their teachers' expectations by practising scales hands together, and increasing the speed of their scales, when these had not been highlighted as issues to practise. Consequently, in addition to using feedback and feed-forward in their practice at home, the students illustrated that they were intrinsically motivated, that they had engaged in self-assessing their performances and were becoming independent and self-regulated. As it is implicit that students engaged with the feedback and feed-forward they received in their private practice, this is an issue that warrants further investigation, possibly through the observation of practice sessions to ascertain how the feedback is employed (see section 6.4.2).

Students within the case studies made judgements about their levels of attainment and their needs (research question 3c) by evaluating their performances using the feedback and feed-forward provided in lessons, and by self-assessing their performances when comparing them to mental constructs or exemplars provided for feed-up. Evidence of their understanding of the progress they needed to make was recorded in diaries, in interviews, or through interaction with their teachers during lessons. In some instances, however, students were unsure how to make progress in their endeavours. For instance while Daniel realised he needed to make progress in improvising, and Steven in his sight-reading, neither had effective strategies in place that enabled them to make progress, and both indicated an intent to 'give up' on these particular tasks (see section 6.4.1. recommendation 4).

Across the four case studies, feedback provided by teachers proved efficacious in some circumstances (research question 1). Similar types of feedback and feed-forward were provided by the teachers in the four case studies, and although the majority of interventions were brief, and explicitly identified errors, or verified the accuracy of a student's response, these proved effective, in line with the reviews of literature by Hattie and Timperley (2007) and Shute (2008), who indicated that uncomplicated and straightforward feedback has proved more efficacious in promoting student learning than more complex feedback.

While the immediacy of feedback proved to be a particular strength, the clarity of feedback was not always so robust. In order to ascertain whether the feedback provided to students was clear, and whether they had understood specific concepts, a more fully developed use of questioning and diagnostic feedback

could have been beneficial. Although questioning was used effectively in 'try again' interventions to verify students' understanding, on a small number of occasions, when students were not asked to try again, or assumptions had been made about their understanding of specific concepts, they were left unsure how to proceed. It is important, therefore, to acknowledge this as a weakness as, in circumstances where students are faced with concepts which the teacher has assumed that they had understood, they are less likely to ask questions for clarification. It was also observed that when errors had been flagged and students had made corrections, their responses were not always verified, which in some instances left them wondering about the accuracy of their response. Also, with regard to the clarity of teachers' lesson notes, if these had been more explicit, students may have been enabled to engage in specific tasks within the private practice more effectively. Hence, an area for improvement, overall, is for teachers to ensure students understand the focus of their feedback, and to make sure that it is clear, detailed and specified (see section 6.4.1, recommendation 5).

While the feedback provided to students within the four case studies had many merits, there were areas of weakness, which inhibited students' effective use of feedback and feed-forward, and consequently, could be improved (research question 4). These issues related to teachers' personal practice, and the culture of providing feedback within this particular setting. Ofsted (2011, p.53) indicated that in situations where assessment is good, students are provided with 'clear feedback and understand what they need to do to improve', and in order to meet students' individual needs 'teachers can adapt their teaching 'in real time''. Consequently, it needs to be considered whether assessment practice

within the four case studies, which may have become established through participation within a community of practice (Lave and Wenger, 1991), could be enhanced by becoming better informed by recent generic research findings on feedback (see section 6.4.1, recommendation 6).

In summary, since the teachers involved in the study had received no training in formative assessment or feedback, it is clear that their practice could be improved in the following ways:

- ensuring students can be supported effectively (Creech, 2012; Zhukov, 2012)
- making sure feedback and feed-forward are clear to the students
- providing clear explanations of how to practise, a general weakness observed by Jørgensen (2000) and Lehmann et al. (2007)
- providing feedback and feed-forward which nurture students' efficacy beliefs and motivation to overcome weaknesses within specific domains (Ritchie and Williamon, 2010), such as sight-reading, without becoming learnedly helpless
- providing more specific written feed-forward, and
- actively promoting self-assessment, and self-regulation

It is also important to reflect upon the quality of learning, and how feedback and feed-forward may be tailored to foster a deep approach to learning and support higher order thinking skills and meta-cognition.

In a number of studies conducted in America, high drop-out rates have been recorded for students studying the piano. Although no similar studies have been conducted in the United Kingdom, to the best of my knowledge, it is

likely that the quality of teacher-student interaction and provision of feedback and feed-forward have an influence in the UK, so it is important for teachers to consider whether their provision of feedback and feed-forward in lessons could be improved.

Since completing this study, half of the case study students have discontinued lessons, specifically Steven and Elaine.

6.3 Strengths and Limitations of the Study

This study identified the efficacy of a range of different types of feedback and feed-forward utilised in pianoforte studies, some of which reinforced research findings conducted in conventional classroom settings, while some types contravened received wisdom on best practice. The research findings supported extant literature on feedback in classroom settings in that it should be task-involving rather than ego-involving, clear, and purposeful in terms of enabling students to make progress in their learning. Immediate feedback was efficacious as students were able to make corrections immediately, and it specified not only what students needed to improve, but also how they should make those improvements. As the feedback provided was often brief, it fulfilled the expectation that it would not be overwhelming, and provide so much information that it became unmanageable. Some of the findings that contravened research on feedback in classroom settings, related to error-flagging. It is acknowledged that when feedback is provided on students' written work, it may not be helpful if all errors are highlighted, but in piano lessons, teachers actively highlighted all errors, which was accepted by the students positively, particularly as the feedback was task-involving, timely, and presented in manageable units. As the feedback was presented immediately, either verbally,

through gestures or exemplification, task-involving dialogue was encouraged with students, promoting positive teacher-student interaction, which assisted students to clarify their understanding. It was also observed that when students had employed feedback in their private practice, their teachers acknowledged this, something that Ofsted (1998) claimed occurred rarely in secondary schools.

On occasions, teachers highlighted errors without providing feedback or feed-forward, which prompted their students to reflect, and engage in self-assessment, and although students did not receive regular feedback about how to self-assess in their private practice, this process implicitly prompted such action, thus fostering the development of higher order thinking skills and met-acognition.

A strength of this study related to its focus on feedback and feed-forward in the context of pianoforte studies, which has received little attention, particularly within the early adolescent age range. While there are studies of piano teaching, these are principally based in America or other European countries, and while some involve children, many of them focus on students in higher education. The themes investigated in these studies relate to student attentiveness in lessons (Kostka, 1984); student participation (Speer, 1984); student satisfaction (Rife et al., 2001); inter-personal behaviour (Creech, 2012); tactile feedback (Goebl and Palmer, 2008); auditory feedback (Pfordresher, 2008); pitch error analysis (Guðmundsdóttir, 2010); and parental support (Margiotta, 2011). Furthermore, a subsequent search for literature in cognate performance-related disciplines, including dance, drama and physical education, reinforced the observation that, to the best of my knowledge, the role of feedback in per-

formance related disciplines has been neglected when compared to academic subjects, some of which have been investigated extensively.

While there is vast body of research on feedback, the focus of this research on feedback in a subject that involves high levels of physical skill which must be combined with refined mental capacities, including the expressive powers required to interpret music sensitively and imaginatively, is unusual, particularly within this age range.

The case study methodology employed for this study was also judged to have worked well as the case study enabled a detailed longitudinal study into feedback within authentic settings, with highly committed participants for a period of a year. The research methods included observations utilising video recordings, which provided a high level of detail, together with regular interviews with teachers and students. The provision of teachers' notes and students' practice diaries also proved beneficial, so that a wide range of data sources could be employed for triangulation.

One of the challenges in this study related to sampling: it could have been illuminating to involve additional students, within the same age range, but who were at a higher level in their studies, as the students within the four case studies were working towards ABRSM examinations at Grades 1, 3 and 4, and to ascertain whether students at higher levels than grade 4 responded to feedback and feed-forward in similar ways. It would also be interesting to ascertain whether self-assessment and self-regulatory practice was similar across case studies involving students at different levels of accomplishment (see section 6.4.2).

With regard to the validity of the research methods employed, while they generated relevant and detailed data, there were some potential weaknesses. As the study took place over a period of 12 months, or a little over owing to the ill-health of one of the teachers, it soon became apparent that the teacher and student behaviour was natural owing to the rapidity and focus of their interactions, but it cannot be certain that the presence of an observer had no effect, and indeed this is an issue that may not be alleviated. It is difficult to ascertain whether the teachers or students felt privileged to be involved in the study, and changed their behaviour accordingly, demonstrating attributes of the Hawthorne Effect (Dickson and Roethlisberger, 1966), or as the majority of participants were known to me, whether they agreed to take part simply to please me, a trait of 'personal reactivity' (Hammersley, 2007a, p.121). However, a possible strength of being known to me may have meant that they were less – rather than more – likely to be affected by my presence. Alternatively, this could have been remedied in part by involving teachers and students not known to me, or by engaging additional observers. While this could have assisted in alleviating researcher bias, both of these strategies could have presented additional problems. If the teachers or students had felt nervous in the presence of outsiders, the conduct of lessons, and teacher-student interaction could have changed in response. Although the strength of having one observer relates to the ability to achieve greater consistency in observations and data analysis, having a range of different observers may have assisted in establishing whether there were any elements of reactivity to individual observers.

As the students and teachers were known to me, it was apparent to some extent if their behaviour patterns changed. The teachers and students were urged

not to change their practice in any way, and there was only evidence of one teacher, in case study 2, making changes to her practice by becoming more focused on feedback and feed-forward in her lessons and ensuring that her student had understood her feed-forward, and what he needed to practise. Thus, of the 8 participants involved in the study, it was only apparent that one teacher made any changes. This could be addressed in future research by presenting the actual focus, or reason for observing the lessons to the participants in more general terms, such as observing how students make progress in their studies, although this would need careful consideration in terms of the ethics of the research.

In addition to the presence of an observer in the one-to-one lesson context, the fact that lessons were video recorded may have induced an element of 'procedural reactivity' (Hammersley, 2007a, p.121), or 'the ways in which recording an activity might transform the conduct being recorded' (Luff and Heath, 2012, p.275). This is a difficult issue to address, but in future research, teachers and students may accept this intervention more readily, if the researcher actually involved participants in some preliminary recordings designed to familiarise them with the process and provide opportunities to ask questions or make suggestions to improve the process, in addition to making it clear how the videos are employed in the research, and how they are kept secure.

With regard to transcribing the video recordings, as Hammersley (2010) pointed out that transcripts can never be wholly exhaustive, it proved difficult to describe issues observed in the videos in detail and with absolute accuracy, such as the rapidity of interactions, tone of voice, implicit meanings in gestures and visual communications. One thing omitted at the commencement of

the study as it had not been considered as a potential benefit, was seeking permission to share videos along with the transcripts for inter-rater agreement exercises. This may have assisted in clarifying specific issues, which may have been difficult to communicate in a transcript, so, on reflection this is something worth considering in future research to assist in validating the coding of the data.

In the following section, recommendations are made for the development of the efficacy of feedback in piano lessons, and some areas for future research are considered.

6.4 Recommendations and Areas for Future Research

6.4.1 Recommendations

As this study was very small in scale and makes no claims for external validity or generalizability, the recommendations are relevant only to teachers with similar backgrounds, experiences and qualifications to those in the case studies:

- Recommendation 1: as the findings indicated teachers had not engaged in baseline assessment before setting new tasks for students, it is recommended that teachers have opportunities to develop their skills in this field, enabling them to plan ahead more effectively.
- Recommendation 2: as students seldom received instruction about how to practise, it is recommended that training opportunities are offered in how to guide students in their private practice.
- Recommendation 3: as lesson notes lacked detailed feedback, students had to rely on their memory in their private practice. It is recommend-

ed, therefore, that teachers engage in training relating to the quality and presentation of feedback.

- Recommendation 4: research evidence indicated teachers were unable to offer effective strategies for students to overcome difficulties which resulted in helplessness. It is recommended that teachers should have access to training to develop their skills in this area.
- Recommendation 5: there was evidence that feedback provided to students lacked clarity at times hence it is recommended that teachers are alerted to ways to increase the clarity of feedback, and how to ensure students understand the content.
- Recommendation 6: Ofsted (2011) indicated that in order to meet students' individual needs teaching should be better informed by recent generic research findings on feedback. Teachers need to have access to current research findings and evaluate the range of strategies available, discussing their implementation with colleagues.

These areas for development are unlikely to take place without intervention from members of the music education community who have responsibility for the training and development of teachers. As the coalition government indicated that every child from Key Stage 2 to Key Stage 4 and beyond should have opportunities to learn to play a musical instrument (DfE, 2011), more could be done to ensure that musical instrument teachers have appropriate training and professional development opportunities, which cover formative assessment and feedback, areas that have traditionally been neglected by all educational sectors, but are now recognised as being central to good teaching practice. As there is no requirement for formal training or qualifications to teach the piano

in the United Kingdom, non-statutory qualifications are available through a range of Higher Education Institutions and independent organisations such as the European Piano Teachers' Association (2015), which aims to 'raise standards within the profession'. Professional development courses in assessment practice for musical instrument teachers, therefore, may need to be developed, either by further or higher education institutions, or possibly through local authority music services, and as the government sets education policy and controls the funding and provision of further and higher education courses, the government should offer the necessary incentives to promote these developments. Further and higher education could also do more to take the initiative, as the importance of high quality formative assessment and feedback have been increasingly recognised in both of these sectors in recent years.

Professional associations, such as the Musicians' Union, which protect and promote the interest of their members and of music education in general, should be proactive in lobbying the government to give greater priority to music teacher training. Furthermore, an economic argument for the provision of training and professional development for musical instrument teachers is particularly strong as the performing arts in general, and music in particular, contribute substantially to the UK economy.

As the implementation of statutory training requirements in musical instrument teaching in England is not feasible, it is recommended that the government should fund the development of short courses in assessment and feedback, leading to professional qualifications for practising teachers, which could be incorporated within the range of teacher training opportunities provided by Further and Higher Education establishments. Professional organisa-

tions, and the key stakeholder groups, should publicise such courses and promote awareness of their benefits.

6.4.2 Areas for Future Research

In response to research question 3b, how feedback and feed-forward affects the development of students' skills in self-assessment and self-regulation, while there was evidence that students utilised feedback and feed-forward in their private practice, it is recommended that this is investigated further to gain a deeper understanding of the way students actually utilise feedback and feed-forward in their private practice. This could assist in developing a range of strategies that could be employed to assist students in the development of their practice routines, and self-regulation, thus building upon the research findings in this study, as, to the best of my knowledge no research has been undertaken in this particular field.

Also, in relation to teacher training and continuing professional development, it would be valuable to ascertain the extent to which teachers who have engaged in training have changed their practice in providing feedback and feed-forward in lessons, and, if they have made changes, whether they are effective. Although other cognate performance-related disciplines are not usually conducted in one-to-one contexts, research into the different types of feedback and feed-forward they employ, and how they are received by students, would further complement this research, as well as shedding light on whether they are relevant to teaching and learning in other contexts.

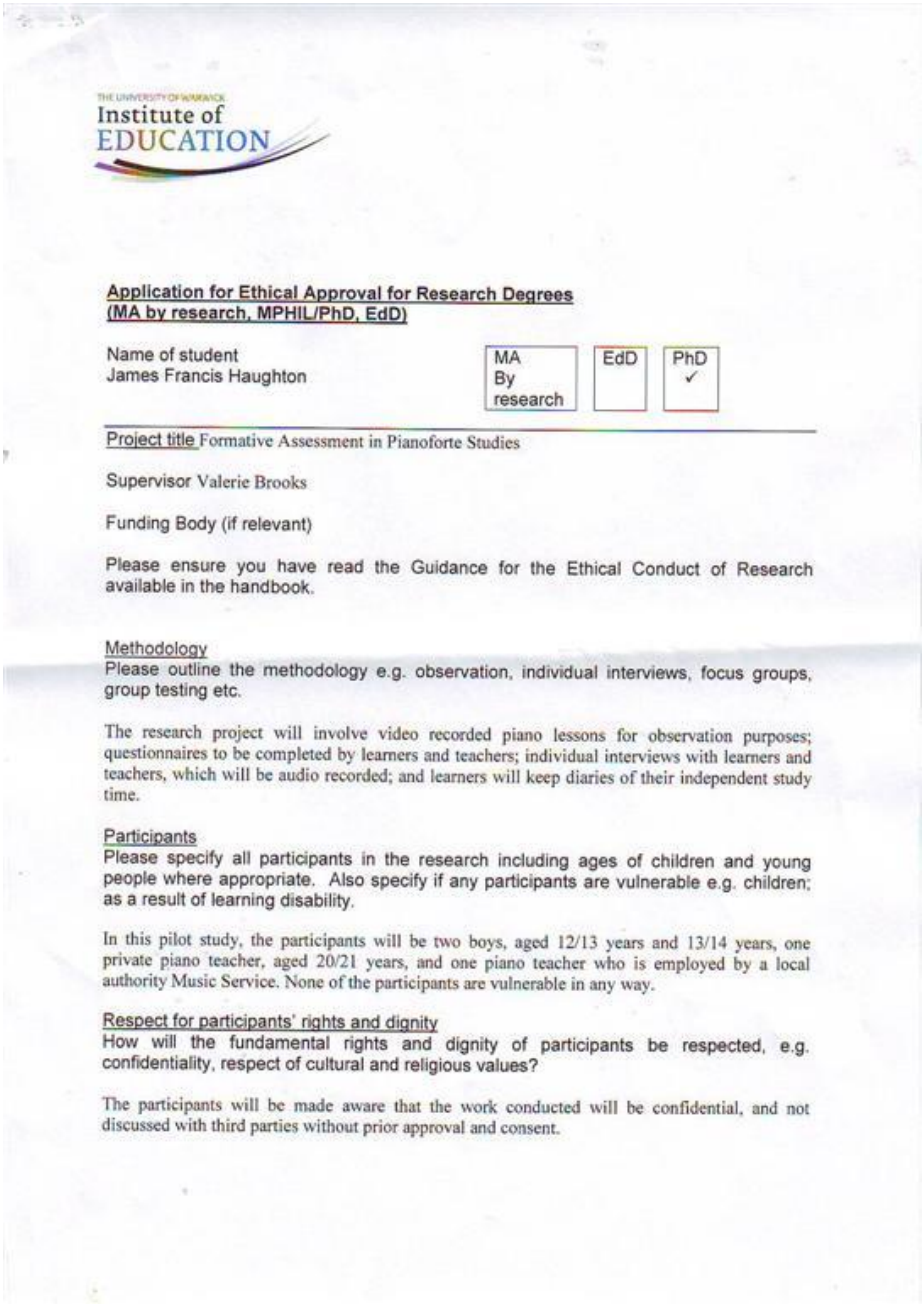
With regard to drop-out rates in pianoforte studies in the United Kingdom, it is important to know whether there is a similar trend to the studies identified in America. It would also be useful to compare drop-out rates with countries

where there is a formal requirement for teachers to receive teacher training in musical instrument studies, albeit when taking place in formal educational contexts (Haddon, 2009).

Overall, this study has provided insight into the efficacy of feedback and feed-forward in pianoforte studies within a rural setting in the United Kingdom involving a small number of discrete case studies. This chapter has drawn together the research findings, illustrating the strengths and weaknesses in the provision of feedback and feed-forward within pianoforte studies, focusing on adolescents, who are at an important early stage in their 'learning careers' (Ecclestone and Pryor, 2003, p.471). It is hoped that the findings from this research will prove helpful for teachers in various musical instrument studies, and for other cognate performance-related disciplines, as well as yielding further insights into subject-specific differences in the nature and efficacy of specific feedback practices.

Appendix 1

Ethical Approval



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EDUCATION

Application for Ethical Approval for Research Degrees
(MA by research, MPHIL/PhD, EdD)

Name of student
James Francis Haughton

MA By research	EdD	PhD ✓

Project title Formative Assessment in Pianoforte Studies

Supervisor Valerie Brooks

Funding Body (if relevant)

Please ensure you have read the Guidance for the Ethical Conduct of Research available in the handbook.

Methodology
Please outline the methodology e.g. observation, individual interviews, focus groups, group testing etc.

The research project will involve video recorded piano lessons for observation purposes; questionnaires to be completed by learners and teachers; individual interviews with learners and teachers, which will be audio recorded; and learners will keep diaries of their independent study time.

Participants
Please specify all participants in the research including ages of children and young people where appropriate. Also specify if any participants are vulnerable e.g. children; as a result of learning disability.

In this pilot study, the participants will be two boys, aged 12/13 years and 13/14 years, one private piano teacher, aged 20/21 years, and one piano teacher who is employed by a local authority Music Service. None of the participants are vulnerable in any way.

Respect for participants' rights and dignity
How will the fundamental rights and dignity of participants be respected, e.g. confidentiality, respect of cultural and religious values?

The participants will be made aware that the work conducted will be confidential, and not discussed with third parties without prior approval and consent.

Privacy and confidentiality

How will confidentiality be assured? Please address all aspects of research including protection of data records, thesis, reports/papers that might arise from the study.

During the research project, all data will be anonymised before it is shared, for example with my supervisor, and stored on computers, one private computer which is kept at the home of the researcher, and the other a secure, password protected lap-top computer, which is kept locked in a store room at the participant learners' school.

The data collected will be kept secure and not released to any third party. When the research project is complete, the security of all data will be maintained. When writing up the research project, all the names of participants, and locations, if appropriate, will be changed, so that individuals cannot be identified.

Consent - will prior informed consent be obtained?

- from participants? Yes from others? Yes (Parents and the Head-teacher)

- explain how this will be obtained. If prior informed consent is not to be obtained, give reason:

All participants will receive a letter explaining the research project, and the data that will need to be collected. Consent will be required from the participant teachers, assent from the children, who are under the age of 16 years, and voluntary informed consent from parents.

- will participants be explicitly informed of the student's status?

Yes, the participants are aware that the research I am conducting will relate to my studies. All participants know me as a teacher: both of the learners attend the school where I teach; one of the teachers studied with me at this school; and the other teacher attends the school where I teach every week as an employee of the local Music Service.

Competence

How will you ensure that all methods used are undertaken with the necessary competence?

In addition to completing the Advanced Research Methods (ARM) course at the University of Warwick, I have considerable experience of conducting research projects, which have included the use of questionnaires and interviews. At this stage, however, I need it to be recognised that I have no experience of conducting video recorded observations, although it is my intention to consult the literature on the use of visual research methods, and to acknowledge that all of the research tools I plan to employ within this project will be scrutinised by my supervisor prior to their use.

I have access to a digital video recorder, a high quality digital audio recorder (Zoom H4), and prior to the pilot research project, ICT staff at the school where I teach, will ensure that I have

developed the necessary skills in using this equipment. I am also experimenting with the use of speech recognition software, with a view to transcribing audio recordings of the interviews.

Protection of participants

How will participants' safety and well-being be safeguarded?

Audio and Video recordings will be kept secure, at the researcher's home, and at the school where I teach. Interviews conducted with the learners taking part in the research project will take place within a school environment, where I am employed as a teacher. All subjects will be told that they have the right to withdraw from the research at any time, to decline to answer any particular questions or to request that the process of recording ceases.

Child protection

Will a CRB check be needed? Yes (If yes, please attach a copy)

Disclosure Number: 001303343007, dated 24th November 2010

Addressing dilemmas

Even well planned research can produce ethical dilemmas. How will you address any ethical dilemmas that may arise in your research?

All participants, and the learners' parents, will be contacted on a regular basis, and should any dilemma become apparent, I would consult my supervisor and relevant ethical guidelines, following which all participants will be contacted, if appropriate, and the issue discussed. Resolutions, which are acceptable to all parties, will be sought.

Misuse of research

How will you seek to ensure that the research and the evidence resulting from it are not misused?

No-one, other than participants, will have access to the research data, and the documents I write will be shared only with my supervisor. At a later stage, however, my report will be read by others, such as members of the upgrade panel, and internal/external examiners. All participants, and institutions involved in the study, however, will be anonymised.

Support for research participants

What action is proposed if sensitive issues are raised or a participant becomes upset?

As a teacher with nearly 30 years' experience, I can deal with such issues sensitively, and have the ability to enable learners to see that we can all get upset over certain issues, particularly relating to our piano playing, how our skills develop over time, and the difficulties that we, as pianists, can encounter. Should the learner or teacher participants become upset over any issues,

the research will stop to allow these to be discussed, and in the case of the learner, parents will be contacted, if appropriate, providing the learner's consent is given, and invited to discuss issues, which may have caused upset, or concern. Resolutions, which are acceptable to all parties, will be sought.

Integrity

How will you ensure that your research and its reporting are honest, fair, and respectful to others?

I adopt an open approach, and in the case of pianoforte studies, as an experienced teacher and performer, I am fully aware of the range of different approaches learners take, and the different levels of commitment to study. I will adhere to approaches to analysing and presenting data that I have learnt about in my research methods training. For instance, I am aware of the issue of bias in research and steps, which can be taken to minimise this. In my research, I always ask participants if my interpretations of the data collected are accurate (participant verification). Bearing this in mind, I will be fair and honest, and this level of honesty will be checked through the supervision process.

What agreement has been made for the attribution of authorship by yourself and your supervisor(s) of any reports or publications?

Other issues?

Please specify other issues not discussed above, if any, and how you will address them.

Signed  need signature

Research student: James F. Haughton Date 21st January 2011

Supervisor Val Brooks Date 23 January 2011

Action

Please submit to the Research Office (Louisa Hopkins, room WE132)

Action taken

☑ Approved

☐

Approved with modification or conditions – see below

☐ Action deferred. Please supply additional information or clarification – see below

Name G WINDSOR Date 26.1.11

Signature

Stamped

Notes of Action

Appendix 2

Letter to Teachers

Dr. J. F. Haughton
(Research Student)
Institute of Education
Westwood Campus
University of Warwick
Coventry, CV4 7AL
j.f.haughton@Warwick.ac.uk
haughton.j1@we-learn.com
j.f.haughton@open.ac.uk
Telephone: 01926 811919
1st September 2011

Dear [Teacher's Name],

Following my recent interest in assessment practice in music education, I am conducting a formal research project, which will investigate formative assessment practice, specifically within Pianoforte studies. My main interest is in how learners studying the piano actually employ the feedback they receive about their playing, whether it is from their teachers, parents, peers, other people or indeed from themselves through self-regulation as they practise.

I should be most grateful if you would agree to be involved in my main research project. Therefore, I need you to understand what will be required of you, and for you to agree to be involved by completing, and signing the form below.

During the main research project, I would like to attend, observe, and video-record two cycles of four lessons during the autumn and spring terms, and during the second half of the summer term, I will observe one lesson. Immediately following each lesson, I will interview [Student's Name] (no more than ten minutes), and conduct a brief interview with yourself. Prior to subsequent lessons within the project, I will conduct a more in depth interview with [Stu-

dent's Name], to discuss the work he has done during the week, and as an aid to this interview, I will ask him to keep a diary of his practice, which could include audio or video clips, to demonstrate the progress he makes, or to highlight any difficulties he encounters. During the project, you will of course, be able to request that the video recording of lessons, or recordings of interviews, be stopped at any point if you feel this to be necessary. Likewise, if you decide that you wish to discontinue your involvement in the project, you can elect to stop at any time.

The data collected, and the results of any research project conducted through the University of Warwick, constitute personal data under the Data Protection Act. The data collected will be kept secure and not released to any third party, and all data will be destroyed once the project is complete. When writing up my research project, all the names of participants, and locations, if appropriate, will be changed, so that individuals cannot be identified.

I do hope I have covered everything that you need to know at this stage but please feel free to contact me if you require any further information. Finally, I hope that you will feel able to help me and I look forward to your reply.

Sincerely,

Dr. James F Haughton

THE UNIVERSITY OF WARWICK
Institute of
EDUCATION

Research: formative feedback in Pianoforte studies

☐ I am willing to take part in this research project, and I give my permission for the data collected to be used anonymously in any written reports, presentations, or published papers relating to the study.

☐ I am **not** willing to take part in this research.

Name: .....

Contact details: (address) .....

.....

(email address) .....

(telephone number).....

Signed:.....

Date: .....

Letter to Students and Parents

Dr. J. F. Haughton
(Research Student)
Institute of Education
Westwood Campus
University of Warwick
Coventry, CV4 7AL
j.f.haughton@Warwick.ac.uk
haughton.j1@we-learn.com
j.f.haughton@open.ac.uk
Telephone: 01926 811919
1st September 2011

Dear [Parents' Names] and [Student's Name],

Following my recent interest in assessment practice in music education, I am conducting a formal research project, which will investigate formative assessment practice, specifically within Pianoforte studies. My main interest is in how learners studying the piano actually employ the feedback they receive about their playing, whether it is from their teachers, parents, peers, other people or indeed from themselves through self-regulation as they practise.

I should be most grateful if you would agree for [Student's Name] to be involved in my pilot research project. Therefore, I need you to understand what will be required of you, and for you to agree that he can be involved by completing, and signing the form below.

During the main research project, I would like to attend, observe, and video-record two cycles of four lessons during the autumn and spring terms, and during the second half of the summer term, I will observe one lesson. Immediately following each lesson, I will interview both [Student's Name] (no more than ten minutes), and [Teacher's Name]. Prior to subsequent lessons within the project, I will conduct a more in depth interview with [Student's Name], to discuss the work he has done during the week, and as an aid to this interview, I will ask him to keep an audio diary of his practice, to demonstrate the progress he makes, or to highlight any difficulties he encounters. If, at any time you decide that you wish [Student's Name] to discontinue his involvement in the project, please just inform me of your decision.

The data collected, and the results of any research project conducted through the University of Warwick, constitute personal data under the Data Protection Act. The data collected will be kept secure and not released to any third party,

and all data will be destroyed once the project is complete. When writing up my research project, all the names of participants, and locations, if appropriate, will be changed, so that individuals cannot be identified.

I do hope I have covered everything that you need to know at this stage but please feel free to contact me if you require any further information. Finally, I hope that you will feel able to help me and I look forward to your reply.

Sincerely,

Dr. James F Haughton

THE UNIVERSITY OF WARWICK
Institute of
EDUCATION

Research: formative feedback in Pianoforte studies

(Parents)

☐ I give permission for [student's name] to take part in this research project, and for the data collected to be used anonymously in any written reports, presentations, or published papers relating to the study.

☐ I am **not** willing for [student's name] to take part in this research.

Name: .....

Contact details: (address) .....

.....

(email address) .....

(telephone number).....

Signed:.....

Date: .....

THE UNIVERSITY OF WARWICK
Institute of
EDUCATION

Research: formative feedback in Pianoforte studies

(Student)

☐ I am willing to take part in this research project, and I give my permission for the data collected to be used anonymously in any written reports, presentations, or published papers relating to the study.

☐ I am **not** willing to take part in this research.

Name: .....

Signed:.....

Date: .....

Appendix 3

Interview Schedules

Before Lesson Interview with Students: First and Subsequent Interviews

Dates of piano practice, and the time practised [collect the Student's practice diary] Use previous lesson video for recall if needed

Issues relating to teacher feedback

- Do you think you've done everything your teacher asked you to do?
- In your practice, did you use the advice your teacher gave you? [If yes, can you give me an example of what you found helpful? If not, is there a reason?]

Self-Assessment

- In relation to your practice [technical exercises or repertoire pieces] how do you feel you've got on?
- During the week did you experience any particular difficulties or challenges [clarify this in terms of reading the score, technique, or expressive issues]? [If so, can you provide an example?] **Refer here to the content of the diary, teacher's notes, or video and the score.**
- If you experienced a difficulty, how did you cope? What did you actually do about it? [analyse the score; slow practice; focus on specific sections of pieces]
- Was this strategy effective? Did you achieve what you intended?
- Do you feel that you still have progress to make with [*refer to specific pieces*]? [If so, do you know what you need to do to make progress? If so, can you provide an example?]

Issues relating to feedback from other sources

- In addition to the advice provided by your teacher, was there anything that you decided to focus upon in your practice?

- Did you receive advice from anyone else? [If so, what was this advice?]
- Did you listen to a recording of the pieces you are practising?
- Did you record yourself, and listen to your playing? [If so, what did you learn from listening to yourself?]

Affective Attributes

- Have you been motivated to practise this week? If so [or not], can you tell me why this is?
- Did you do as much practice as you had planned?
- Do you feel that you have met the learning goals set by your teacher?
- Could you give me an example of something you are pleased with?
- Is there anything you are disappointed with? [If so, what?]

After a Gap

- Last week/month/term you told me that you wanted to achieve X. Is that still your goal? (Why if changed)

After Lesson Interview with Students

Motivation

- Are you pleased with how the lesson went? Why?
- Were you pleased with your teacher's comments about your work? Do you think the comments were fair?
- Has the lesson made you more, or less keen to practise next week, or will you do about the same?

Self-Regulation

- Was there anything that your teacher had asked you to concentrate on during the week that you didn't do? [Why?] **Refer to Diary, Video, Teacher notes**
- Is there anything that you feel that you could have done better in your practice, or during your lesson?

Feedback – for the week ahead

- Do you understand what your teacher wants you to focus upon during the week ahead?
  - Why do you think you have been asked to focus upon this?
- Is there anything else, which you feel that you need to focus upon in addition to your teacher's advice?
- Could you sum up the main points that you will concentrate upon during the week ahead?

Self-Efficacy

- Do you feel positive that you will achieve the tasks your teacher has set?
  - [If the response is negative] Do you feel that there is anything you could do to enable you to meet your teacher's expectations?

After Lesson Interview with Teachers

Feedback to Students

- Were you please with <Student's Name> progress today? What had s/he achieved?
- Was there anything that you expected <Student's Name> to concentrate on during the week that s/he has not done? [If this is the case, can you provide details?]
    a. [If this is the case] Could this be because <Student's Name> had not understood what s/he was asked to do?
- Do you think <Student's Name> has understood and is clear about what s/he needs to focus upon during the week ahead?
- What do you expect him/her to have achieved by next week?

Learners' Levels of Motivation

- Do you consider <Student's Name> to have been well motivated this week? [Depending on the response, is there evidence to support this view?]
    a. Did you try to boost his/her motivation during the lesson? How did you do that?

Self-Regulation

- Do you feel that <Student's Name> has put enough time and effort into his/her practice this week?
- Do you think s/he has paid enough attention to your feedback during the week? [Depending on answer, what could be done to improve this?]

Appendix 4

Principal Coding Categories

The principal coding categories used to analyse observation and interview data are defined here, and illustrated by examples.

Feed Up: Clarify the Goal

The first component of an effective feedback system involves establishing a clear purpose (Fisher and Frey, 2009, p.21). Hattie and Timperley (207, p.86) illustrated the notion of feed-up with the questions 'Where am I going? (What are the goals?)', which illustrate the need for students to know what they are aiming to achieve.

In addition to providing feed-up through teacher exemplification, other sources of feed-up include official recordings of set examination pieces on CDs (compact disks), or online. An example would be:

Teacher: Did you watch the B pieces on YouTube?

Student: Yes.

Error-Flagging Feedback

Three types of error-flagging feedback categories have been identified: error-flagging feedback without the provision of a correct response (Shute, 2008); error-flagging providing the correct response verbally; and error-flagging with a correct response through exemplification.

Error-Flagging Feedback without the Provision of a Correct Response

Error-flagging feedback or the 'location of mistakes' (Shute, 2008, p.160), highlights errors without providing a correct answer:

> *Teacher: Hang on. Stop. What's the first chord?*
>
> *Student: It's not that, is it?*
>
> *Action: Student looking at the music.*
>
> *Teacher: No.*
>
> *Action: Pause. Student receives thinking time.*

Error-Flagging Feedback Providing the Correct Response Verbally

Within this study, error-flagging feedback was provided where correct responses were provided verbally, with no additional information.

> *Action: In bar 12, the student plays the F# in the left-hand part with an E in the melody rather than D.*
>
> *Teacher: That's not an E there, is it? It's a D.*
>
> *Action: The teacher points at Bar 12.*

Error-Flagging Feedback with a Correct Response through Exemplification

Error-flagging feedback with correct responses provided through exemplification was provided by teachers when they played the piano, sang melodies, or clapped rhythms.

> *Action: The student plays G with his left-hand, and C with his right-hand instead of D. The teacher sings the correct note, highlighting the error. The student realises he has made an error and changes the C in the right-hand part to D.*

Verification (of Correct Response)

Verification informs students that their responses are accurate:

> *Action: Student plays A, G#, F#, E, D#.*

Teacher: Good.

Action: Student plays C#.

Teacher: Good.

'Try Again' Feedback to Verify Students' Understanding

'Try Again' feedback required students to demonstrate the accuracy of their work and their understanding by playing the relevant section of a piece again, so that the teacher could closely monitor their response:

Teacher: Try it again…

Action: The teacher starts singing the melody, and the student finds her notes. The student plays it accurately.

Teacher: That's it!

Feed-Forward

Feed-forward is provided to specify what students need to do in order to make progress in specific tasks. Two categories of feed-forward were employed, the use of hints as reminders, and more elaborative informative tutoring.

'Hints'

Hints are provided as suggestions or reminders of previous errors, to guide students 'in the right direction' (Shute, 2008, p.160). These hints reminded students about correct notes and issues relating to motor-skill development.

Action: The student plays from bar 7 and as he approaches a note that was previously played incorrectly the teacher provides a reminder…

Teacher: A

Similarly, teachers provided hints to remind students about fingering:

Action: As the student approaches bar 13…

Teacher: …fingering…

Action: The student continued playing.

Teacher: …yes [confirms correct fingering in bar 13].

Informative Tutoring

Informative tutoring is elaborative, descriptive, and task-involving (Shute, 2008). As teachers flag errors, they provide strategic information about how to proceed, thus 'constructing the way forward' (Tunstall and Gipps, 1996, p.393), usually encouraging dialogue with the student (Alexander, 2014).

Teacher: There is a little break after this one here.

Action: Teacher points at the score.

Teacher: … a little break, do you see that?

Student: Yes.

Teacher: … at the end of that one, you've got to try to get that one in as well. I will write that one down for you, so you know what to do.

Differentiation between Feed-Forward and Teaching

Teaching has been classified as a process of communicating subject content of which the student had no previous knowledge. An example of teaching within the context of this study is:

Teacher: Here, una corde, you probably won't know what that means. You've got to use the soft pedal.

Action: Student looks at his feet.

Student: Is that the middle one?

Teacher: No, it is the one on the left.

No Feedback

This code was used to denote occasions when a teacher had corrected an issue, and the student subsequently performed it accurately but no verifying feedback was provided by the teacher.

Teacher: Just do that again.

Student: OK.

Action: Student plays the scale with the correct fingering.

Teacher: …and then try F.

An Example of Coding Video Transcripts (NVivo 10)

Positive Feedback relating to the task – congratulating the student

Action: Teacher writes some notes in Student's Lesson Note book.

Teacher: 'Chez le forgeron', I think you have managed that - all of page 12. OK, lovely.

Action: Teacher stops writing.

Reference 4 - 0.53% Coverage

Teacher: Let's see if you can do the right-hand, just the right-hand.

Student: Just the right-hand? OK.

Action: Student plays right-hand 'Carnival in Rio' from bar 9 to bar 16.

Teacher: That's very good. You got all of the fingering right. Brilliant!

Student: Yes!

Reference 5 - 0.32% Coverage

Teacher: Let's see the left-hand; just show me the two chords that you have to – the two chords.

Action: Student plays the left-hand part.

Teacher: Super.

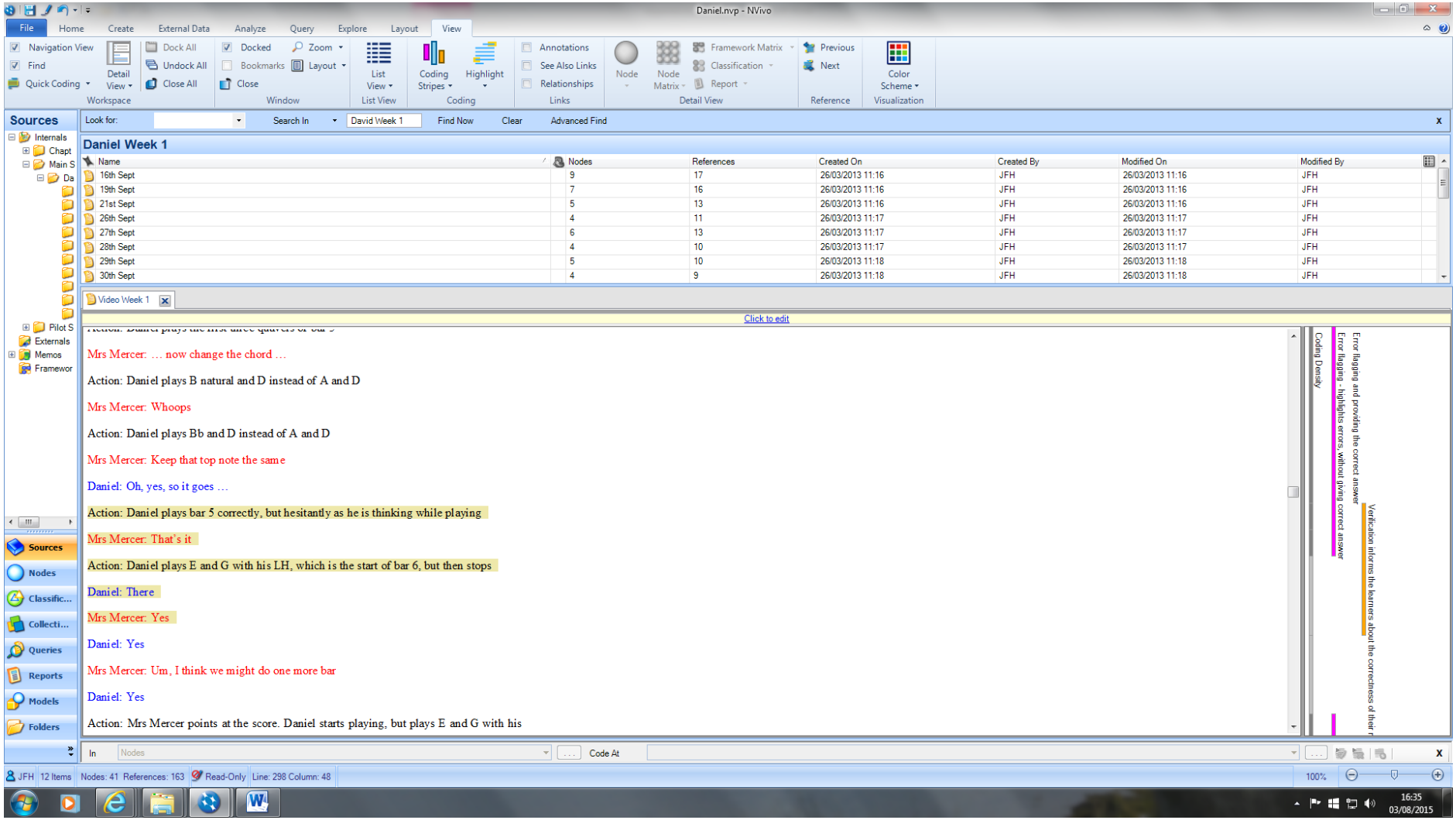
Reference 4 - 0.65% Coverage

Teacher: Can you do 4 and 1 on that?

Student: Yes.

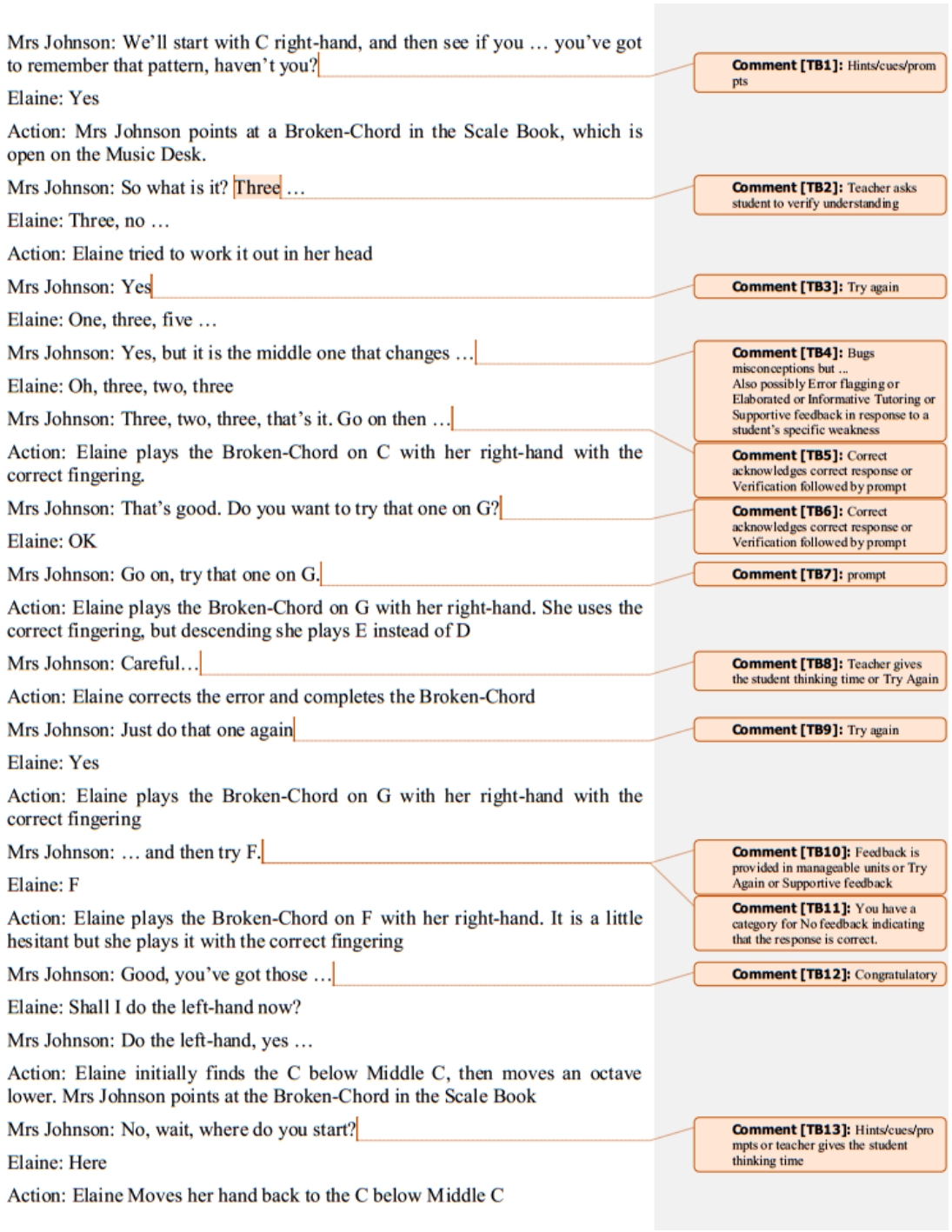
Teacher: Yes! Brilliant…

Quantitizing Qualitative data (NVivo 10)



Inter-coder Agreement

Supervisor Coding



Mrs Johnson: That's right

Action: Elaine plays the Broken-Chord on C with her left-hand with the correct fingering. Descending she played an A, but she corrected this

Mrs Johnson: Now G.

Elaine: OK

Action: Elaine moves her right-hand

Mrs Johnson: left-hand

Action: Elaine finds her position on the piano. Mrs Johnson points at the Broken-Chord in the Scale Book

Mrs Johnson: Where do you start?

Elaine: Down here …

Action: Elaine moves her hand to the G an 11th below Middle C

Mrs Johnson: That's right, down there …

Action: Elaine plays the Broken-Chord on G with her left-hand with the correct fingering.

Mrs Johnson: … and then F … go down a note

Action: Elaine plays the Broken-Chord on F with her left-hand but descending, on the root position chord she plays D instead of C. She realises the error and corrects it.

Mrs Johnson: Do that one again, once more.

Elaine: OK

Action: Elaine plays the Broken-Chord on F, but ascending in the second inversion, she puts her 3rd finger on C rather than her 2nd finger. She realises this and changes it. When Elaine completes the Broken-Chord, Mrs Johnson removes the Scale Book from the Music desk

Mrs Johnson: Well done, you have done really well with those. Once you have got the patterns, they are quite straight forward aren't they?

Elaine: Um hum

Comment [TB14]: Correct acknowledges correct response or Verification

Comment [TB15]: Again no explicit feedback is provided

Comment [TB16]: Correct acknowledges correct response or Verification

Comment [TB17]: Again no feedback

Comment [TB18]: Try again

Comment [TB19]: Congratulatory feedback

Comment [TB20]: Teacher makes assumption and seeks confirmation that her assumption is correct rather than inviting the child to say how she actually feels about her accomplishment of the task

Researcher Coding

Mrs Johnson: We'll start with C right-hand, and then see if you … you've got to remember that pattern, haven't you?

Elaine: Yes.

Action: Mrs Johnson points at a Broken-Chord in the Scale Book, which is open on the Music Desk.

Mrs Johnson: So what is it? Three …

Elaine: Three, no …

Action: Elaine tried to work it out in her head.

Mrs Johnson: Yes.

Elaine: One, three, five …

Comment [J21]: Hints/cues/prompts

Comment [J22]: Teacher asks student to verify understanding

Mrs Johnson: Yes, but it is the middle one that changes …

Comment [J23]: Informative Tutoring

Elaine: Oh, three, two, three.

Mrs Johnson: Three, two, three, that's it. Go on then …

Comment [J24]: Verification

Action: Elaine plays the Broken-Chord on C with her right-hand with the correct fingering.

Mrs Johnson: That's good. Do you want to try that one on G?

Comment [J25]: Verification

Elaine: OK.

Mrs Johnson: Go on, try that one on G.

Action: Elaine plays the Broken-Chord on G with her right-hand. She uses the correct fingering, but descending she plays E instead of D.

Mrs Johnson: Careful…

Comment [J26]: Error-flagging without a correct response

Action: Elaine corrects the error and completes the Broken-Chord.

Mrs Johnson: Just do that one again.

Comment [J27]: Try again

Elaine: Yes.

Action: Elaine plays the Broken-Chord on G with her right-hand with the correct fingering.

Mrs Johnson: … and then try F.

Comment [J28]: No feedback indicating that the response is correct

Elaine: F.

Action: Elaine plays the Broken-Chord on F with her right-hand. It is a little hesitant but she plays it with the correct fingering.

Mrs Johnson: Good, you've got those …

Comment [J29]: Verification

Elaine: Shall I do the left-hands now?

Mrs Johnson: Do the left-hands, yes …

Action: Elaine initially finds the C below Middle C, then moves an octave lower. Mrs Johnson points at the Broken-Chord in the Scale Book.

Mrs Johnson: No, wait, where do you start?

Comment [J30]: Teacher asks a question and gives the student thinking time

Elaine: Here.

Action: Elaine Moves her hand back to the C below Middle C.

Mrs Johnson: That's right.

Comment [J31]: Verification

Action: Elaine plays the Broken-Chord on C with her left-hand with the correct fingering. Descending she played an A, but she corrected this.

Comment [J32]: The student acknowledged an error

Mrs Johnson: Now G.

Comment [J33]: No feedback indicating that the response is correct

Elaine: OK.

Action: Elaine moves her right-hand.

Mrs Johnson: left-hand.

Comment [J34]: Error flagging and providing correct answer.

Action: Elaine finds her position on the piano. Mrs Johnson points at the Broken-Chord in the Scale Book.

Mrs Johnson: Where do you start?

Comment [J35]: Teacher asks a question

Elaine: Down here …

Action: Elaine moves her hand to the G an 11^{th} below Middle C.

Mrs Johnson: That's right, down there …

Comment [J36]: Verification

Action: Elaine plays the Broken-Chord on G with her left-hand with the correct fingering.

Mrs Johnson: … and then F … go down a note.

Comment [J37]: No feedback indicating that the response is correct

Action: Elaine plays the Broken-Chord on F with her left-hand but descending, on the root position chord she plays D instead of C. She realises the error and corrects it. [The student acknowledged an error]

Mrs Johnson: Do that one again, once more.

Comment [J38]: Try again

Elaine: OK.

Action: Elaine plays the Broken-Chord on F, but ascending in the second inversion, she puts her 3rd finger on C rather than her 2nd finger. She realises this and changes it. When Elaine completes the Broken-Chord, Mrs Johnson removes the Scale Book from the Music desk.

Mrs Johnson: Well done, you have done really well with those. Once you have got the patterns, they are quite straight forward aren't they?

Comment [J39]: Congratulatory feedback

Comment [J40]: Teacher asks for verbal verification

Elaine: Um hum.

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