This portfolio is submitted in fulfilment of the requirements for the degree of Master of Music (Performance) of the University of Western Australia.

School of Music

2013
This portfolio contains a 15,000 word thesis presented by Hye Sook (Sharon) Chung and a recital performance of 65 minutes duration that was presented on 26th of April 2013. Both elements are submitted in fulfilment of the requirements for the Master of Music at The University of Western Australia.

1.1 Dissertation Component: ‘Expressive bodily movement in a piano trio, observed in individual practice, group rehearsal and performance contexts’.

In group performance, an effective communication between the co-performers is paramount to create a successful musical ensemble. Research into the bodily movement of solo performance have stressed that movements perform a significant role in expressing and conveying expressive musical ideas. A number of research projects on ensemble performance also reported that visual cues play an important part in conveying the musical ideas and coordinating the performance. Based on the previous findings, this dissertation investigates in how an ensemble group, particularly a less cohesive one – a piano trio, uses expressive bodily movements to create a successful ensemble performance. In order to gain a fuller understanding, individual practice of the pianist, group rehearsals and performance are investigated to examine the types and the development of expressive movements, and coordinative gestures between the co-performers.
1.2 Creative Component: Piano recital in a combination of solo and ensemble works by Brahms and Franck

The creative component of the submission is a recital including piano solos, a work for violin and piano, and a piano trio. All works are of the Romantic idiom, with a total duration of 65 minutes. This recital, therefore, demands wider knowledge and technique of both solo and ensemble skills. The solo repertoire is two Brahms Rhapsodies from Op. 79. These were selected since they require a deep sound with clear voicing of the thick textures and extended phrasing skills.

The violin and piano duo is Franck’s sonata for violin and piano in A major. This sonata is one of the major works for the violin and piano duo that frequently appears in international competitions and recitals, and is a milestone for the pianists to achieve good ensemble in an equal partnership. Brahms piano trio No. 2 Op. 87 in C major is regarded as Brahms’s first masterpiece – composed after the piano quartets, the piano quintet, the string sextets and all three string quartets. These two ensemble pieces demand great coordinative performance skills.

The combination of all three different genres in this recital offers substantial challenges and an understanding of how to engage and approach performance as a soloist, a duo and a trio player. The recital can be found on DVD, attached at the back of the dissertation.
Expressive bodily movement in a piano trio, observed in individual practice, group rehearsal and performance contexts

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Master of Music

This thesis is presented in partial fulfillment of the requirements for the degree of Master of Music (Performance) of the University of Western Australia School of Music
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ABSTRACT

In chamber music performance, an effective interaction and communication between co-performers is of paramount importance to create a successful ensemble. Through research into body movement in solo performance, it has been shown that bodily movement has a significant role in expressing and conveying musical ideas. Research on ensemble performance also reports that visual cues play an important part in coordinating and conveying musical ideas between co-performers. However, relatively little attention has been given to the role of bodily communication in ensemble performance. Hence, this thesis seeks to understand the use of expressive bodily movements in creating an effective ensemble performance.

As the author is a pianist, a piano trio has been chosen for an investigation. Particularly, the study focuses on the pianist examining solo practice and group rehearsals as well as performance in order to gain a fuller understanding of the use of expressive movements in these different contexts. Solo practice and ensemble rehearsal are examined to investigate how the pianist shifts from solo to ensemble contexts in employing bodily movements for expressive effect. Also three courses of practices and rehearsals are selected to analyse the development of expressive bodily movement in the use of musical expression and interaction between co-performers. Analysis revealed that in the solo context, expressive movements are closely related to the expression of musical ideas, particularly to the contour of musical line. In the ensemble context, some of the same movements from the solo also appeared in the ensemble specifically assisting the coordination between co-performers. In addition, the coordination was successfully achieved through providing, receiving, synchronising
and transferring the coordinative cues based on the leadership of the performers which occasionally changed according to the musical material. In consequence of the unique layout of the piano trio – where the piano is positioned at the back of the string players – glancing, which has been reported in the research literature to be significant in the interaction between the co-performers in ensemble performance, is largely limited. Therefore, larger bodily movements are revealed to be fundamental in achieving an effective coordination between the co-performers in the piano trio.
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Context for the current study

The current study investigates the expressive bodily movements of music performance in both solo and ensemble contexts. The investigation here focuses only on the expressivity communicated through bodily movements, since movements related to motor programming and the accomplishment of technical features of performance (accurate note-playing) are beyond the scope of this thesis.

The work contributes to an emergent area of research in the psychology of musical performance. It aims to investigate the similarities and differences in the use of expressive bodily gestures in the development and execution of performance. Solo practice, group rehearsal and the performance of a piano trio are examined to gain a detailed understanding. Indeed, a function of the study is to see how a performer uses expressive communication when he/she shifts from a solo to an ensemble setting. Given that the author’s principal study is the piano, working on this instrument provided the focus for these investigations.

Piano trio has been chosen as the focus of the current investigation as it juxtaposes the piano with violin and cello and has its specific challenges related to the sitting arrangements, with the capacity to interact visually during performance being rather constrained. It provides a significant variation to the typical topic of ensemble study, which has largely been focused on the string quartet because of its group cohesiveness. In a string quartet, all four members play instruments of the same family and all sit facing one another, within their collective visual field, as they perform. Therefore it provides the best condition to investigate communication and interaction
between co-performers. However, the current study shifts attention to the less cohesive ensemble to investigate how co-performers communicate effectively within a restrained environment.

The dissertation begins by outlining the background literature relevant to the practical study, which in turn leads to address the research focus of the current investigation. The methodology of the investigation is then presented reviewing the techniques used in previous studies that channel the current research towards its proposed methodology. The results of the investigation are then explored in depth, and the dissertation concludes with a discussion of the findings and implications for future practice.
CHAPTER 1

Literature review

This literature review begins by outlining the cross-modal interaction between sound and vision in the production and perception of a musical performance. Proposing that physical movement, as detected by an audience, is as important as sound as an information channel; the importance of body movement in the execution, production, perception and coordination of the musical performance is surveyed. Furthermore, the strategies of preparation for an expert music performance are also evaluated, examining solo musical practice and ensemble rehearsals respectively. With an emphasis on the bodily movement in ensemble performance, the various types of non-verbal communication are reviewed as they have been studied in the coordination between co-performers.

Auditory and visual perception: cross-modal interaction

Within the field of study referred to as the psychology of music, research into expressive music performance has tended to focus on the aural component. This is partly due to sound being a primary product of music-making. Furthermore, technology has permitted musical expression to be more easily examined through developments in recording and through the use of digital instruments where statistical profiles of the sound files generated can be examined. However, since the early 1990s,
the importance of the bodily movement, as it contributes to both the production and perception of expressive performance, has been increasingly emphasized by researchers.

Empirical study of bodily movement has been identified as originating in a study by Davidson (1993). In a study of violinists, Davidson showed the importance of visual information in conveying and perceiving performers’ expressive intentions. The study involved the violinists performing their music in three different expressive manners: deadpan (minimal expression), projected (expression that is usually expressed in public performance), and exaggerated (overstated expression). Video recordings of the performances were presented to the perceivers in three different modes: sound only, sound and vision and vision only. The result showed that the vision mode allowed the perceivers to differentiate the deadpan and exaggerated manner the most while the sound mode differentiated the least. Moreover, only the vision enabled the perceivers to clearly distinguish between all three expressive manners. Thus, the study suggested that visual information is the most effective in perceiving and understanding the expressive musical ideas.

Following Davidson’s work, there has been increased emphasis on aural-visual perception in music. Vines, Krumhansl, Wanderley and Levitin (2006) proposed that the interaction of both senses is important in enhancing the understanding of musical information. Schutz (2008) asserted that the human brain was “evolved to use visual information when processing sound” (p. 85). This leads to a notion of cross-modal sensory interactions – “the degree to which information from one sensory channel influences our interpretation of information arising through other sensory channels.” (Vines et al., 2006, p.81). That is, when the same information is perceived through
more than one sensory mode, it causes redundancies, resulting in a more accurate understanding of the information (Wickens, Lee et al. 2004). Thus, visual and aural senses can reinforce, contradict, or modify information from one another (Vines et al., 2006).

Various studies reflect the growing interest in audio-visual integration. In speech perception, MacDonald and McGurk (1978) proposed the McGurk effect, in which participants tended to perceive different sounds of speech when different auditory and visual displays of speech were paired. For example, when the sound /ba/ is paired with the visual speech movement of /ga/, they tended to perceive /da/ or /tha/. The McGurk effect has also been applied to the musical domain. Saldana and Rosenblum (1993) demonstrated that the aural perception of bowed or plucked cello sound was significantly influenced by the visual stimuli of cello string being either bowed or plucked. A study by Schutz and Lipscomb (2007) involved the observation of marimba performance and also revealed a similar result. The perception of the note duration on the marimba was affected by either long or short gestures of striking the marimba note although the note duration itself did not change (Schutz & Lipscomb, 2007).

A study by Broughton and Stevens (2009) also revealed that both visual and aural components provide more (even enhanced) information for perceivers of musical performance. Their study presented excerpts of a marimba performance to the participants in two conditions, audio-only and audio-visual. Participants were then asked to rate the interest and expressivity of each excerpt. The results revealed that the interest rate of the excerpts recorded higher in the audio-visual condition in comparison to those presented in the audio-only condition. Through the findings, they demonstrated that, “in comparison to a listening-only experience, seeing performers’
bodily movements coupled with the sound significantly enhanced differentiation of intentionally expressive from inexpressive performances” (Broughton & Stevens, 2012, p.340). Their results indicated that the experience of music is fuller when the performance is both heard and seen.

From these studies, it is apparent that both visual and aural information was found to be essential in experiencing and understanding the music. Cross-modal interaction enhances the perception of communicative ideas. Thus, as much as aural, the visual component, that is the body movements used in the music performance, has a significant role in the perception of music performance.

**Body movement**

A series of studies on body movement have demonstrated its crucial role in the execution, production, perception and coordination of musical performances (e.g. Davidson, 2001, 2002, 2005, 2007, 2012; Davidson & Correia, 2002). Thompson (2011) stated that “music has inherent association to movement” (2011, p. 13). First of all, music is executed through physical movement, such as bowing or plucking the strings and pressing the piano keys. The body movements bring the music into existence.

One of Davidson’s other studies investigated the body movement of a pianist performing with the three different but explicitly given expressive intentions she had used in the 1993 study of violinists (see Davidson, 1994). The study measured the extent of the physical movement in each expressive intention and revealed that statistically less body movement was generated during the deadpan, and larger
amplitude and more frequent movements were found in the exaggerated intention.

A further study by Davidson and Dawson (1995) reported that when performers were placed in a physically restraining condition during their musical learning, performers were less expressive than when physically free to learn. They stated that “[their] performances were never as musically expressive or indeed as visually ‘pleasing’ as the freely learned pieces” (Davidson, 2005, p.224). This latter study demonstrates how crucial the body movement is in producing musical expression.

Body movement is also influential in the perception of the broader and more typically emotional expression associated with performance (rather than prescribed performance intentions). For example, Thompson, Graham and Russo (2005, Experiment 5) demonstrated significant differences in emotional valence (negative and positive) when the excerpts of a performance by Judy Garland, a renowned singer, were assessed in audio-only and audio-visual presentations. Dahl and Friberg (2007) also reported that specific emotions such as happiness, sadness and anger could be distinguished through body movement alone (vision-only presentation condition). Study of Lang Lang’s performance also demonstrated that the emotional context of the music – in this case the theme of love– was presented through the bodily and facial expressions (Davidson, 2012). Based on the above studies, body movement is proved to be vital in offering insights into the musical ideas that a performer conveys.

Although body movement reported in the studies above are perceived by audiences, there are other perceivers who are significantly influenced by the perception of body movement: co-performers. Body movement is critical in coordinating or synchronising between the co-performers in music making. For instance, the study of Rosie Brown (a
professional solo jazz singer) and Mark Slater (a composer and pianist, skilled in both jazz and classical styles) worked through Gershwin’s *Summertime* together. The recording of their practice clearly showed that the use of communicative bodily movement such as clicking the fingers (to set the tempo), eye contact, head nods and arm gestures make it possible for them to ‘get into a groove’ without any prior session (Davidson, 2005). Mark commented:

“It was all very clear. That’s good music-making!” (Davidson, 2005, p.228).

Mark’s experience indicated that good music-making happens when co-performers successfully understand and respond to one another, and in many rehearsal and performance contexts, this is only possible through body movement. Despite Mark’s insight, the majority of the studies on musical expression and body movement were undertaken in case studies with live performances (Davidson 1997, 2001, 2007), video recorded live performances (Thompson et al., 2005; Davidson, 2012) or studio recorded performances (Delalande, 1988, 1990). Almost no attention has been given to the development of expressive body movement through rehearsal. The following sections investigate the importance of rehearsal studies and review the small number of existing studies.

**Study of musical practice and rehearsal focusing on body movement**

Recently, the examination of musical practice and rehearsal as a way of understanding the mental and physical skills involved in developing a performance has gained
attention in the study of music performance in both solo and ensemble contexts. In considering both solo and ensemble contexts, the term practice and rehearsal need some clarification. Practice involves an individual player focusing on achieving particular techniques, phrasings and tones that are required for the accurate execution of music. Rehearsal, on the other hand, is associated with the social component which brings an ensemble together, adjusting balance, correcting intonation in context and learning how to fit all the different parts together (“Practicing Flutist”, 2013). Although practice and rehearsals are related in terms of a preparation for the performance, they are in a way non-comparative. Therefore clear understanding of practice and rehearsal is necessary.

A number of studies have examined both practice and rehearsal with topics including planning and practice, practice strategies and skill acquisition, and social interaction of co-performers. In the pages that follow, I shall review this literature, pinpointing the areas of relevance to my own study. It begins with studies on rehearsal processes with the soloist and then moves on to consider ensembles.

**Studies examining practice with the solo performer**

Studies on the performer’s practice have mainly focused on strategies for effective and efficient practice (Barry, 1992; Gruson, 1988; Hallam, 1995; Miklaszewski, 1989; Nielsen, 1999a, 1999b; Weinstein & Mayer, 1986; Williamon & Valentine, 2000; Williamon, Valentine & Valentine, 2002); but within the study, very little attention has been given to the development of musical expressions, certainly as manifest in bodily movement. The studies by Chaffin and others (Chaffin & Imreh, 2001, 2002; Chaffin,
Imreh, & Crawford, 2002; Chaffin & Logan, 2006) are not directly related to the development of expressive body movement but to a certain extent, are relevant to the developmental process of learning music for performance. In these works, practice and performances have been examined to understand retrieval cues that the performer implements during performance played in memory. Specifically, these studies have shown that learning for retrieval in their case study on the pianist Gabriela Imreh consists of a focus on three types of performance cues: basic, interpretative and expressive. These performance cues act as three stages of the learning process: early, mid-term and final. Their results showed that the performer firstly attends to the basic performance cue that might be regarded as the technical stage. It involves an awareness of technical difficulties, the patterns of notes and particular fingerings (Chaffin & Logan, 2006). Once the techniques are automated in motor memory, the performer shifts attention to the next stage, referred to as interpretative performance cues. This stage explores features of interpretation such as phrasing and the change of dynamics and tempi. The final stage has been labelled expressive performance cues. This stage aims at generating musical emotions in the performer such as excitement and tension. In summary, a performer – a pianist in this context – learns music from sensory motor activity (techniques) to more complicated cognitive activity (emotions).

The progressive stages of the retrieval cues described by Chaffin and colleagues effectively demonstrate the development of an expert memory for performance, but also represent the learning process leading to an expert performance. While Chaffin and others focused on motor and cognitive development in musical learning, the current study aims to focus on the development of expressive body movement in musical learning, which clearly interfaces with skills development. The reason bodily
movement has been selected over work more specifically concentrated on the musical material is that the body seems to be the core site in which the performer both learns the technical aspects of instrumental mastery and generates the expressive intentions to be executed.

Studies examining rehearsal process with ensembles

Rehearsal for ensemble performance is necessary and complex due to the social dimension. In contrast to the soloist, ensemble performers need to consolidate timing and musical interpretation with co-workers in order to produce a unified music performance. Co-performers also need to be familiar with each other in order to detect and immediately act upon the spontaneous variations that might occur during live performances. It is during the rehearsal that the points mentioned above can be integrated. Therefore, examining rehearsals will provide benefit to the current research in order to understand more fully the development and execution of the expressive communication in the ensemble context.

A few studies investigating ensemble rehearsal processes have reported that the exchange of musical ideas between professional musicians during rehearsals occurs primarily through playing rather than talking (Blank & Davidson, 2007; Murnighan & Conlon, 1991; Williamon & Davidson, 2002). Blank and Davidson (2007) indicated that 82% of the piano duos they studied spent up to 25% of the time talking and the rest playing. This suggests that expressive body movement is the major mode of communication for co-performers to share their musical ideas in rehearsal. According to Goodman (2002) and Clayton (1985), visual and aural modes were of paramount
importance in coordinating and communicating with co-performers. Between the two channels of communication, Goodman claimed that aural was more important than visual communication. In a cello-piano duo, for example, the pianist quickly altered her approach in response to the cellist’s by listening to what the cellist was doing (Goodman, 2002). Clayton, by contrast, emphasised the importance of visual communication. His study showed that performers were less coordinated, in terms of timing and dynamics, when they could not see each other. Goodman, nevertheless, did not ignore the importance of visual (non-verbal) communication; she provided the recognition of its importance by suggesting, in reference to the work of Appleton, Windsor and Clarke (1997) and Clayton (1985), that visual information contributes significantly to the accuracy and the expressive freedom of co-performers.

A number of studies have focused on the role of non-verbal communication in ensemble performance, for example, Yarbrough (1975), Clayton (1985), Durrant (1994), Appleton et al. (1997), Gordy (1999), Goodman (2000), Williamon and Davidson (2002), Ginsborg, Chaffin and Nicholson (2004, 2006), Ginsborg and King (2007a, 2007b, 2012), and King and Ginsborg (2011). All have suggested that eye contact, facial, and bodily expression enable successful interaction and accurate message transaction between co-performers and also between co-performers and audience.

Given the literature on ensemble rehearsal, an investigation of non-verbal communication in group work seems crucial to understand the production of an expert music ensemble. Again, it is necessary to consider both rehearsal and performance in order to gain a full understanding of the non-verbal communication between the co-performers. In light of the previous studies, the current research will benefit from examining the non-verbal communication in ensemble rehearsals.
Non-verbal communication in ensemble performance

Davidson and colleagues’ early ensemble studies (Davidson & Good, 2002; Williamon & Davidson, 2002) examined social and musical communication between co-performers by exploring both rehearsals and performances. The results of both studies indicated that musical communication is facilitated by verbal and non-verbal cues.

In extension of the preceding studies, Davidson recently carried out another ensemble study on the clarinet and flute duo (2012). She examined two groups of clarinet and flute duos in practice, rehearsals and performance scenarios with both solo and ensemble contexts to explore how the (co)performers approached and achieved musical effects with bodily expressions. This study provides a new contribution to the research field by examining the expressive movements in two different performance contexts with the same ensemble repertoire.

In Davidson’s study, four performers, two clarinettists and two flautists, were firstly given only a solo line of the duo to investigate their approach to the solo. After six run-throughs of the individual practice, two different duo pairings were gathered to work on the duo version to investigate their approach to an ensemble. Detailed analyses of the expressive bodily movements used in both solo and ensemble conditions revealed some specific uses of the body according to the biochemical features of playing a woodwind instrument; for example the circling action of the instrument. Ensembles displayed highly interactive performances with the use of glances and other expressive body movements identified in the solos to assist successful coordination.

Davidson’s study is strongly relevant to the current study since the focus of the present research is to examine both solo and ensemble contexts of an ensemble group.
to explore the types and development of the expressive movements used by the
performers. Therefore, Davidson’s study (2012) provides a useful model to set a
framework for the current investigation.

Types of non-verbal communication

There are a few types of non-verbal communication that are commonly reported in
Davidson and colleagues’ ensemble studies (Blank & Davidson, 2007; Davidson, 2012;
Davidson & Good, 2002; Williamon & Davidson, 2002). According to their work, eye
contact is the most common non-verbal communication in ensemble rehearsals and
performances. The studies revealed that co-performers use eye contact to share
musical information specifically to coordinate the timing at the phrase boundary and
musical entrances and exits. A cellist from the student string quartet (Davidson and
Good, 2002) also noted that it was important to be “conversational with the eyes”
(p.196), reaffirming its significance. Furthermore, the group showed evidence of a
particular looking relationship between particular players. This might be because of
the advantage of a specific sitting arrangement, since an arc-shaped arrangement
provides a good setting for maintaining eye contact. As above, eye contact played a
substantial role in rehearsing and performing an ensemble performance to share
information between the players as well as the ability to synchronise.

Body sway which has been explored primarily in solo piano performance (Davidson,
1994, 2001, 2007) has also been shown in ensemble performances, regardless of the
instrumental groups such as piano duos, string quartet or clarinet and flute duo
(Davidson, 2012; Davidson & Good, 2002; Williamon & Davidson, 2002). The work by
Cutting and his colleagues (Cutting and Kozlowski, 1977; Kozlowski & Cutting, 1977; Cutting, Proffitt & Kozlowski, 1978; Cutting & Putting, 1981) proposed a notion of *centre of moment* for physical expression which argues that there is a physical centre in the body where all the expressive movements – swinging, swaying and rotating – are generated which is critical in expressing the information about intention (Davidson, 2012). They also argued that “it is the natural means through which the body manifests its internal intention” (cited in Davidson, 2012, p.614). In sum, the body naturally expresses internal intentions through the body movement with the central point of the body as a primary source of the bodily expression. In reference to Cutting and his colleagues’ proposals, swaying movement is apparent throughout rehearsals and, mostly, in performance in the ensemble studies cited above, and so may be the core element for generating coordination and natural expression in the proposed study.

Davidson’s recent study (2012) showed that coordination may also be facilitated by expressive bodily movements used in solos, when transferred to ensemble contexts. Study of clarinet and flute duos investigating both solo and ensemble conditions illustrated that a number of expressive body movements which appeared in the solos also occurred in ensembles, modified to assist the coordination. For instance, the ‘bob and sway’ apparent in solos appeared in ensembles for interactive purposes. It is therefore necessary to investigate both solo and ensemble contexts to understand more completely the expressive body movements in musical performance.

Based on the literature reviews above, the current study models Davidson’s recent study (2012) as follows: i) identifying the expressive bodily movements used in both solo and ensemble contexts; and ii) observing the developmental process of the
expressive body movements across the rehearsals to the performance.

Types of ensemble groups studied

Ensemble studies have been involved with a wide range of instrumental groups, from small to large. Such groups include choirs (Cox, 1989; Durrant, 1994; Yarbrough, 1975), orchestras (Atik, 1994; Weeks, 1996), string quartets (Butterworth, 1990; Davidson & Good, 2002; King, 2006; Murnighan & Conlon 1991; Seddon & Biasutti, 2009; Young & Colman, 1979), wind quintets (Ford & Davidson, 2003), voice and piano (Ginsborg, 2009; Ginsborg, Chaffin & Nicholson, 2004, 2006; Ginsborg & King, 2007a, 2007b, 2012; King & Ginsborg, 2011), piano duos (Blank & Davidson, 2007; Gordy, 1999; Williamon & Davidson, 2002) and other instrumental duos (Davidson, 2012; Goodman, 2000, 2002).

Among the ensembles, the string quartet gained the most interest for study, in part owing to its analogous instrumental techniques. It has been suggested that cohesion or “affiliation” of the group is essential for any group to function (Douglas, 1993). Thus the string quartet was regarded as a good initial ensemble for study for Davidson and Good (2002). Furthermore, the string quartet consists of four players, already dealing with larger social group work as compared with two-player ensembles such as the piano duo and accompanied solo performance. Also, the stage layout for the string quartet in an arc shape allows all the members to see and potentially offer direction to one another. Hence social interaction and communication can be effectively investigated. The question remains, however, about whether or not a small ensemble that has less cohesive factors can manage to communicate effectively?
The question above led to the current study, which involves the piano trio as a case study. The piano trio comprises two instruments from the same family – violin and cello – and the piano, and so has fewer analogous instrumental techniques than the string quartet. It also has a unique layout seeming to isolate the piano from the string players who are physically positioned more directly in contact with one another. Often, the pianist is positioned slightly behind the two string players (see figure 1 below). Accordingly, it is interesting to look at how the members of the piano trio interact and communicate musical ideas to each other for successful music performance production.

![Figure 1 showing typical seating arrangement of a piano trio (taken from Google images)](image)

**Research focus of current study**

In light of the previous studies, the current study is undertaken to raise the following questions:

i. What specific types of expressive bodily communication does a performer (mainly concentrating on the pianist for the current study) utilize in solo and
ensemble performance respectively?

ii. To what degree are changes in expressive bodily communication implemented over the timeframe – from first rehearsal to performance – in both solo and ensemble contexts?

iii. What are the similarities and differences in the use of expressive bodily communication between the solo and ensemble contexts?

iv. How do co-performers successfully coordinate their musical expression within a piano trio? In this question, in order to keep the theme of the study consistent, I have chosen to focus on expressive bodily movement (that is, movement of limbs, head and torso), given the overarching aim of the study. This is despite the fact that there are other ensemble techniques beyond the current scope of enquiry, such as aural responsiveness to the breathing of co-performers and instrument noises.

According to the previous studies (Murnighan & Conlon, 1991; Davidson & Good, 2002; Williamon & Davidson, 2002), the current study will explore both rehearsal and performance of a piano trio in order to develop a fuller understanding of the types of expressive communication, interaction undertaken, working towards and producing a music performance. Practice and rehearsal as well as performance are investigated to examine the developmental process of expressive bodily communication. Based on the literature review, it is hypothesised that there will be some similarities between the solo and ensemble contexts since the types of expressive movements occurring in the solos might appear in ensemble conditions, with some modification potentially occurring to assist in coordination within the trio. The current study is to be focused through reflective work, the current author being the pianist in question.
CHAPTER 2

Methodology for a case study of solo and piano trio work

The study utilises the methodologies employed in preceding studies. Therefore, this chapter firstly reviews the research methods for the current study, giving reference to the relevant studies. Then the methodology of the current study is discussed according to the following topics: participant, materials, repertoire, procedure and exploration of the data.

Review of research methods suitable for the current study

Multi-observational methods have been used widely in the work described in the literature review. Particularly, video recording has been employed as an observational tool in many studies (Miklaszewski, 1989, 1995; Nielsen, 1997, 2000; Chaffin, Imreh, & Crawford, 2002; Davidson, 1993, 2007; Williamson & Davidson, 2002; Davidson & Good, 2002). Davidson (2007) used slow motion video of a pianist performing a Beethoven Bagatelle in order to undertake a systematic observation of the playing to identify particularly distinctive ‘expressive’ movements. The analysed data were then tabulated in terms of their duration and a verbal description of the movement. This specific analysis method had been introduced to the current author in pilot work which investigated types of non-verbal communication used between co-performers in piano
duo performance performed by herself and her twin sister. The current study has extended the pilot work and employed Davidson’s (2007) which employed the same analysis method, using video recorded data to retrieve specific body movement.

In Nielsen’s (1997, 2000) study of rehearsals, participants reported verbally what they were thinking and doing in each rehearsal. A comparable method was also used by Lehmann and Ericsson (1998), in which participants kept a practice diary of each rehearsal. Furthermore, in the studies by Davidson & Good (2002) and Williamon & Davidson (2002), participants were interviewed as well as having their performances video recorded in order to collect further information. Based on the previous work, additional data collection seemed necessary for the current project to produce a triangulated account of events. Thus a practice diary and interview approaches appeared suitable for the proposed study to complement video-recorded data.

The structure of the practice diary is based on the format used by the pianist in Lehmann and Ericsson’s (1998) study. GM, the pianist in Lehmann and Ericsson’s study, noted the starting and ending time of her practice on each piece, metronome markings, history of her musical development, practice habits and a ranking of the difficulty of pieces in her practice diary for further detail of the practice. In reference to the above study, the practice diary for the present study is written largely in two sections: 1) details of the practiced piece including the name of the piece, the starting and ending times of practice on the piece; and 2) the practice method stating the sections focused upon the practice session, practice metronome markings, and the main approaches used (based on Imreh’s notion of performance cues).
Analysis of expressive communication between co-performers in the study builds on Davidson’s study of clarinet and flute duo (2012). The study chose two run-throughs, first and final, to analyse the expressive bodily communication. A description of the body expressions was made with all four performers in both solo and duo conditions. The description was arranged in tables organised by movement types, body and face, in a division of three musical sections of the entire score according to the performers/groups. The above analysis method seemed useful to the current study. Therefore, the study manipulates the framework of the above analysis procedure including the table format used. Analysing two run-throughs, however, seemed insufficient to understand the development of the expressive communication. Thus, the current study chooses three periods of rehearsals (early, mid and late) and the performance for the analysis. Furthermore, the current study has chosen only one section of the repertoire due to the extensive length of the music.

All the research methods mentioned above will be effectively accommodated to the current study. Analysis will be done mainly on the video-recorded data using the analysis method used by Davidson’s recent study (2012). Data from the practice diary and interview will be occasionally referred to, in order to help interpret the intention behind the observed gestures.

Methodology of the current study

Participants

As a reflective study, the author acted as a pianist for the case study in the piano trio.

Two female undergraduate students of the University of Western Australia – Alex Isted,
a violinist, and Sophie Parkinson-Stewart, a cellist – also participated as members of the piano trio. This ensemble group has a mean age of 23 years, formed with all female participants. All have comparable levels of experience in solo as well as chamber performance contexts. They have seen each other socially and watched one another perform solos, but prior to this specific project, they had never performed together.

Materials

A Sony handy camcorder was used to record practice, ensemble rehearsals and performance, and these recordings included all spoken and musical interactions. In solo practice, the camera was placed to capture the pianist’s head and upper body excluding the lower limbs. This frame was set to eliminate any unnecessary view, for the view of pianist’s legs was inessential. Such a close-up facilitated clearer sight of the pianist’s expressive facial movements. In the recording sessions for ensemble rehearsals, the camera was placed so that all three performers were captured within the frame. Voice recording devices from an iPhone as well as the camcorder were used for the interviews. An A5 sized notebook was used to keep a practice diary for every practice and rehearsal.

Repertoire

The piano trio was asked to prepare the second movement of Brahms Piano Trio Op. 87 in C Major (shown for study purpose in Appendix 1). The choice of Romantic repertoire for the study was because of its abounding expressive disposition. As one of
the great composer-pianists of the 19th Century, Brahms’s work was appealing to the present study. Brahms’s works for the piano trio were to become some of the most influential in chamber works of the 19th Century (Frisch, n.d.). Also Brahms’s music, owing to the rubato (flexibility of the tempo as a way of expressing the musical expression (rubato, n.d.)) employed in this style of music, provided ample opportunities to observe performers’ expressive communication. Therefore, Brahms was considered to be a suitable choice for this study.

The second, slow movement of the Brahms Piano Trio Op. 87 in C Major is in the form of theme and variations – containing a theme with 5 variations in the movement. The movement is in the key of A minor which is a relative minor of the main key, a C major. Marked ‘Andante con moto’, the theme has a passionate or rather desperate quality of ambience with the reflection of Hungarian gypsy music, like much of Brahms’s music (Gilling, 1985). The form of the theme itself and all the other variations is in rounded binary form in simple duple time, “being constructed using four-bar blocks or phrases carefully marked by a basic coincidence of phrase and harmony” (Gilling, 1985, p. 28). Based on this structure, variations are diversified with rhythmic and motivic development, a typical feature in Brahms’s mature works, in various moods and atmospheres.

**Procedure**

For the current project, the author formed a piano trio with two students studying at The University of Western Australia. This project was used for the chamber music assessment of the two string players. The author organised the rehearsal venue and
the time for group rehearsals. There were no restrictions or special instructions given to the group for rehearsal sessions or their individual practice, keeping as natural a rehearsal environment as possible.

The author kept a practice diary for every solo practice and group rehearsal, recording what had been done in order to track a process of the musical learning. Video recordings of both the solo and ensemble were taken on only four occasions: in the first practice/rehearsal; in a practice/rehearsal midway through the learning process; in a practice/rehearsal that preceded the performance; and during the performance. Solo practice video was recorded only for the author since the focus of the study is the pianist. After these data were recorded, the author then systematically observed all data. Based on her previous experiences of such analysis, she marked start and end points of movements perceived by her to be expressive. These were noted in real time and described in terms of their movement form and physical location. The project supervisor then checked analysis samples to ensure that the observations made were both systematic and consistent across the analysis. With a high level of agreement achieved in this exercise, it was deemed that the author’s observations were ‘valid’.

In addition to the observations, semi-structured interviews were carried out with the violinist and cellist immediately following the performance and then after the data observation by the pianist. The first interview questions are formed based on the post-performance questions used by Willamon and Davidson (2002). The second interview questions were formed after the pianist’s video data analysis and became an opportunity to gain a better understanding in the use of the expressive movements. A sample of the questions for both interviews is provided in the appendices 2 and 3.
**Exploration of the data**

Once the data were collected, video and voice recorded interviews were transcribed into a written form for easier data assessment, and thorough movement analyses were done. Due to the limited duration of the study, the author selected only one section of the repertoire, Variation 1, to analyse the expressive communications used in all four occasions of video recordings in both performance contexts. Variation 1 was selected because the specific variation required intensive coordination between the members particularly between the string players since their parts are structured mostly in unison.
CHAPTER 3

Results

This chapter outlines the results of systematic study undertaken with the various data collected. It begins with the identification of the types of expressive bodily movements the pianist employed in solo practice, group rehearsals and performance. It reports the development of the pianist’s expressive movements over the solo practice and group rehearsals, both in reference to data collected from the practice diary and observation of the video recordings. The chapter then concludes with a discussion of the general coordination between all three performers in the piano trio.

Types of bodily movements

The types of expressive bodily movements the pianist employed in both the solo and ensemble contexts were identified consecutively. These are described and discussed in sequence below.

The solo: solo practice

Of the data available, three sessions of solo practice were chosen for analysis – the first, middle and the last sessions. This was to limit the time of analysis as the task was extremely time consuming. The identifiable moments where expressive bodily movements could be seen were tabulated. A descriptive analysis is shown in Table 1.
which is located at page 30. The table groups the pianist’s expressive movement types into bodily and facial movements according to the three chosen practice sessions. In each session, the expressive movement types are organized in three musical sections which are divided by the structure of different musical materials. In reference to the table, types of expressive movements used in the solo practice are identified.

**Types of expressive movements**

Looking at Table 1, the pianist’s expressive movement types used in solo practice are focused in three body areas: head, body and face. Head movements include movements of nodding (down-up gesture with moving in a forward direction), reverse nodding (up-down gesture with the head moving backward), lifting (and maintaining a held upward position), lowering and shaking the head in a side-to-side action. Body movements include a side-to-side torso sway, circular torso sway (rotational movement on the piano stool in which the body circles above the seat/hips area), forward and backward rocking movement, crouching close to the keys and inhalation (using the in-breath as an affective tool). The facial movements/expressions were confined to the lifting of the eyebrows. These are all listed in table 2 located at page 32. Note that hand gestures are not included as a type of expressive movement because they seemed to have a technical rather than expressive purpose.

The expressive bodily movements identified seem to be generated in relation to specific musical intentions. It is demonstrated by number of previous studies. Davidson and her colleague (Davidson, 2012; Davidson & Good, 2002) showed that a number of identified expressive body movements are generated in relation to musical structure,
musical tension and relaxation, and narrative meaning of the music. The study of clarinet and flute duo (Davidson, 2012) demonstrated that rocking, swaying and toe-tapping movements are coincided with rhythmic musical passages; the circling of the instrument at the phrase end was associated with musical closure; and bobbing of the body (up and down movement of the knees) was linked to the rising and falling of the phrase. These indicate that particular expressive movements are associated with rhythmic, phrase and melodic structure. Furthermore, the study of body and facial expressions of the renowned pianist, Lang Lang (Davidson, 2012), demonstrated a use of expressive body movements according to principles of musical tension and relaxation. For example, he swayed backward and forward in exaggerated manner as the music built to a climax. At relaxation, he swayed his upper body and nodded his head backward, letting his mouth fall open in a state of clear relaxation. In addition to this, Lang Lang’s hand gestures, in which he strokes his chest at the location of his heart with a raised left arm close towards his chest, also suggest an indication of the narrative of the composition. This seems to indicate a narrative expression of the music, which is ‘touching the heart’.

Referring back to the analysis shown in Table 1, generation of the expressive movements identified also exhibits a strong relationship with the musical intentions. Types of expressive bodily movements are discussed below in relation to the associated musical intentions.
<table>
<thead>
<tr>
<th>Solo</th>
<th>Section A (bars 28-39)</th>
<th>Section B (bars 40-47)</th>
<th>Section C (bars 48-54)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Body</td>
<td>Face</td>
<td>Additional comment</td>
</tr>
<tr>
<td>First practice</td>
<td>Lifting head up (the second chord at bar 28) Very small side-to-side sway followed by forward rocking (bar 30-41, 34-35, 38-39)</td>
<td>Lifting eyebrows (bar 28)</td>
<td>No expressive movement (bar 32-33, 36-37)</td>
</tr>
<tr>
<td>Midway practice</td>
<td>Small forward and backward rocking (bar 28, 32, 36) with lifting up (bar 28, 32, 36) Lowering head down (bar 29, 33, 37) Small frequent head nodding, acknowledging the resolution (bar 33, 37) Side-to-side sway followed by forward and backward rocking movement (bar 30-31, 34-35, 38-39) Head shaking (bar 31, 35)</td>
<td>Lifting eyebrows (bar 28-29, 32-33, 36)</td>
<td>All bars contain expressive movement</td>
</tr>
<tr>
<td>Last practice</td>
<td>Inhale (bar 28) and crouch to the right</td>
<td>Lifting eyebrows</td>
<td>All bars contain expressive movement</td>
</tr>
</tbody>
</table>
A large portion of the identified expressive movements seemed to be generated in relation to the melodic structure. Indeed, side-to-side body sway and circular torso sway seemed to be associated with the rise and fall of the phrase. For instance, the ascending and descending figure at bar 30 led the pianist to play according to the melodic line moving right and left as she played, causing a side-to-side torso sway. This is shown in figure 2 provided with the music score at figure 3.
Head movements include lifting, lowering, and reverse nodding and these seemed to be related to the harmonic structure. Head lift, for instance, appeared to be employed at harmonically unresolved moments such as at bars 28, 32 and 36. The effect was as if the pianist was questioning the resulting sound. Figure 4 shows the head lift occurred at bar 32. When the section was harmonically resolved, the head was lowered, as illustrated in Figure 5. More often, small but frequent head nodding or reverse nodding was used, seemingly to acknowledge the harmonic resolution which can be seen at bars 29, 33 and 37. These small nods at a fast speed are as if the pianist is nodding to answer ‘yes, I accept you’ to the resolution as it occurs.

Note that these interpretations are based on reactions to what is perceived, but also on the pianist’s self-perception and memory of what was done at the point of execution, which is in turn informed by the diary she kept. She cannot be certain she was actually saying ‘yes’ to the resolution, though at a level of consciousness and in line with her subsequent consideration, this seems like a highly credible interpretation of what she was doing.
Inhalation also appeared to coincide with phrase structure. It occurred at the beginning of the variation, accentuating a clear entry. Breathing was consciously used by the pianist as an aid for clear statements between the phrases/sections of the work and/or marking musical timing effects. Inhalation in these contexts operated like breathing in singing which prepares for breathing support to sing the next phrase. This had been taught to the pianist as a technique to make the music flow in a more natural, sung way. Ironically, given its importance in the pianist’s learning history, over three solo rehearsals, inhalation used for such musical ends only occurred once at the beginning of bar 28.
Intriguingly, the analysis revealed only one movement (the forward and backward rocking) that was related to the building and releasing of musical tension and relaxation. Like Lang Lang’s bodily expression (Davidson, 2012), the forward and backward rocking movement of the upper torso was used when the music built up to a climax. Figure 6 shows a huge forward rocking movement at bar 42, which contains a quick build-up to a climax at the highest note marked with a *rinforzando* (meaning to reinforce the note). An increase of musical tension like this appeared to cause the body to move forward. Forward movement might be the result of a technical purpose, as it prepares for a backward movement, a necessity to create a big sound through the weight of the torso passing down the arms to the fingers and the keys.

![Figure 6 shows rocking forward movement at bar 42 (extracted from last rehearsal)](image)

Head shaking and raised eyebrows seemed to be associated with the expressive quality within the music. Head shaking was mainly apparent at the two-bar phrase of the piano solo where the score indicates to play expressively (bar 31, 35 and 39). It also occurred at bars 42-43 where the first musical climax happens. Raised eyebrows were sometimes visible alongside the head shaking. The head shaking and raised eyebrows seemed to be used at locations where it was expressively emotional or musically
intense. Furthermore, raised eyebrows seemed to occur at points where there was a change of emotion. Figure 7 demonstrates raised eyebrows occurred between bars 31-32 where the music shifts from expressive and passionate piano solo to mystic and delicate chords at the higher register. Whilst these expressions are not as clearly ‘narrative’ as Lang Lang’s performance when he touched his heart, the head shaking and raised eyebrows seem to mark the pianist’s acknowledgement and expression of progressive emotions in the music.

![Image of a pianist playing a piano](image)

*Figure 7 demonstrates the eyebrow movement that occurred between bar 31 and 32 (extracted from midway rehearsal)*

In summary, the solo practice revealed bodily movements of the pianist including side-to-side torso sway, circular torso sway, forward and backward rocking, crouching, inhalation, head nodding, reverse nodding, head lifting, head lowering, head shaking and raised eyebrows. These movements were seemingly mostly expressive, generated in relation to the specific musical intentions such as melodic, harmonic and phrase structure, and or musical tension and relaxation.
The ensemble: group rehearsals and performance

To control the amount of data for analysis, only three out of the total of nine group rehearsals were selected – the first, midway and the last rehearsals – along with the performance itself. This was done to investigate the types of expressive movements used by the pianist in the ensemble context. Descriptive analysis of the pianist’s expressive movements used in the ensemble context is shown in Table 3 below, using the same model as Table 1. General characteristics of the other players’ expressive bodily movements are also briefly identified. The pianist’s and the other players’ expressive movement types are investigated consecutively in reference to Table 3.

Types of expressive movements used by the pianist in an ensemble context

Looking at Table 3, most of the expressive movements identified in both the group rehearsals and performance are identical to those movements that occurred in the solo practice. There are two likely explanations for this: i) the movements observed are part of the performer’s expressive movement vocabulary that she would use time and again; ii) the music rehearsed in the solo practice is the same as in the group rehearsals, thus, it is expected that the expressive movements used in the solo practice are also accommodated during the group rehearsals since the rehearsed material is the same.
<table>
<thead>
<tr>
<th>Group</th>
<th>Section A (bars 28-39)</th>
<th>Section B (bars 40-47)</th>
<th>Section C (bars 48-54)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Body</td>
<td>Face</td>
<td>Additional comment</td>
</tr>
<tr>
<td>First rehearsal</td>
<td>A slight side-to-side</td>
<td>Glancing at violinist</td>
<td>No expressive</td>
</tr>
<tr>
<td></td>
<td>swaying followed by</td>
<td>(bar 32, 36) Responses</td>
<td>movement (bar 28-29, 33,</td>
</tr>
<tr>
<td></td>
<td>forward and backward</td>
<td>to eye contact from</td>
<td>37)</td>
</tr>
<tr>
<td></td>
<td>rocking movement</td>
<td>violinist (bar 36)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(bar 30-31, 34-35, 38-39)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midway rehearsal</td>
<td>Up-down-up</td>
<td>Lifting eyebrows</td>
<td>All bars contain</td>
</tr>
<tr>
<td></td>
<td>(bar 28, 36) or down-</td>
<td>(bar 28, 32, 36)</td>
<td>expressive movements</td>
</tr>
<tr>
<td></td>
<td>up (bar 32) head</td>
<td>Glances at the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>nodding with</td>
<td>cellist (bar 28)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>inhalation (bar 28)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>and crouching down to</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>the right and lifting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>up (bar 28, 32-33, 36-37)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>head nodding reverse</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>nodding at the second</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>chord (bar 29, 33, 37)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lifting the head at</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>the first chord (bar</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>32, 36)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Head shaking</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(bar 31, 39)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Side-to-side sway followed by forward and backward rocking movement (bar 30-31, 34-35, 38-39)</td>
<td>Glances at cellist (bar 32)</td>
<td>All bars contain expressive movements</td>
<td>Huge circular sway (bar 40-43)</td>
</tr>
</tbody>
</table>

| Last rehearsal | Up-down-up (bar 28) or down-up (bar 32, 36) head nodding and crouching down to the right and lifting up (bar 28-29, 32, 36) Side-to-side sway followed by forward and backward rocking movement (bar 30-31) Frequent head nodding at the last chord, acknowledging the resolution (bar 33, 37) Large circular sway followed by forward and backward rocking movement (bar 34-35, 38-39) Head shaking (bar 39) | Glances at cellist (bar 32) | All bars contain expressive movements | Huge circular sway (bar 40-43) | Head shaking (bar 42) | Forwards and backwards rocking (bar 42, 45-47) | Side-to-side sway at the ascending arpeggio (bar 44) | Glances at violinist as a signal (bar 44) | All bars contain expressive movements | Up-down-up head nodding for coordination (bar 48) | Inclines forward (bar 48-49) | Semi-circular sway followed by head shaking (bar 50) | Forward and backward rocking (bar 52-54) | Reverse nodding (bar 54) | All bars contain expressive movements |

<p>| Performance | Up-down-up (bar 28, 32) or down-up (bar 36) head nodding and | No expressive movement | All bars contain expressive movements | Huge circular sway (bar 40-43) | No expressive movements | All bars contain expressive movements | Up-down-up head nodding for coordination | Eye contact to cellist for coordination | All bars contain expressive movements |</p>
<table>
<thead>
<tr>
<th>movements</th>
<th>movements</th>
<th>movements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>crouching to the right and lifting up</strong></td>
<td><strong>Forwards and backwards rocking</strong></td>
<td><strong>Small crouch</strong></td>
</tr>
<tr>
<td><em>(bar 28-29, 32, 36)</em></td>
<td><em>(bar 42-43, 45-47)</em></td>
<td><em>(bar 48)</em></td>
</tr>
<tr>
<td>Side-to-side sway followed by rocking forward and backward movement <em>(bar 30-31)</em></td>
<td>Head shaking <em>(bar 42)</em></td>
<td>Small crouch <em>(bar 48-49)</em></td>
</tr>
<tr>
<td>Large circular sway followed by forwards and backwards rocking <em>(bar 34-35, 38-39)</em></td>
<td>Side-to-side sway at the ascending arpeggio <em>(bar 44)</em></td>
<td>Semi-circular sway <em>(bar 50)</em></td>
</tr>
<tr>
<td>Head shaking <em>(bar 31, 34, 39)</em></td>
<td></td>
<td>Forward and backward rocking <em>(bar 52-54)</em></td>
</tr>
<tr>
<td>Frequent head nodding in acknowledging the resolution <em>(bar 33)</em></td>
<td></td>
<td><em>(bar 48)</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Glances at cellist as a signal</strong> <em>(bar 51)</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>movements</strong></td>
</tr>
</tbody>
</table>
Exceptionally, the semi-circular torso sway – a movement not evident in the solo practice – appears in the group rehearsals and performance. It occurs at bar 50 where a group of chords are located in the higher and lower registers consecutively. In the solo practice, backward rocking is evident at the location. However, when it comes to the group rehearsals, the movement seems to get bigger and modifies into a semi-circular torso sway. Referring to diary notes and employing self-reflection, this effect is probably the result of hearing the complete parts of the music, thus enhancing the pianist’s understanding of the musical meaning at this particular location. At bar 50, indeed, the piano part alone simply provides harmonic progression of an imperfect cadence. When it is added with the other parts, which is the violin melody line, its intended musical intention is revealed outside of the simple harmony. The string appears to heighten the impact of the moment in ensemble context. It could have been this intensity that caused the pianist to produce larger expressive bodily movement. Therefore, group rehearsals and performance offer a complete musical experience that can create modifications to the expressive bodily movement that have been developed in solo practice, though here, rather surprisingly, there is only one instance of this happening.

Ensemble performance requires careful listening and good coordination between the co-performers to create the music as a whole. Thus, the coordination between the co-performers is a major concern in group rehearsals and performance. The previous ensemble studies revealed that eye contact acts as a significant means for sharing ideas and coordinating musical timing. The current investigation revealed that occasional glances did occur in this context, but mainly at places where the string parts
join with the piano after a rest, such as bars 28, 32 and 36; and where the piano and
the other part play the same musical material, such as at bar 48. However, most of the
glances seem to act as conscious gestures, acknowledgement of the entrance of the
other players, rather than having any real coordinative function. The glance seems to
be accommodated for coordinative purpose only at bar 48, in order to synchronise the
same rhythmic figures with the cello.

In addition to the glances, some of the expressive bodily movements that occurred in
the solo practice also appeared in the group rehearsals and performance and were
clearly being used to assist coordination. Like Davidson’s study (2012), some
movements were modified to facilitate the coordination but others stayed as they were,
integrated into the playing from the solo context. Head nodding is an example of such
modified movement. Head nodding, seemingly used for acknowledging harmonic
resolution in the solo practice, is modified to a big down or up-down motion to
integrate with co-performers at the coordinative locations. Figure 9 illustrates the up-
down head nodding occurred at bar 48 to coordinate with the cellist to play the same
rhythmic material.

Figure 8 demonstrates the up-down head nodding occurred at bar 48
Unlike the head nodding which varied somewhat between solo and group conditions, crouching and inhalation maintained the same appearance in both conditions and assisted coordination in the group rehearsal. Crouching, which primarily seems to aid the shift from lower to the upper register in the solo practice, seems to assist the head nodding through the engagement of a bigger upper body movement in the group rehearsals and performance. It seemed to provide a clear entry cue which seemed to help coordination.

Inhalation also seems to aid the co-performers and offer a clear entry to a section as it accentuates the phrase structure. Observations reveal that the inhalation takes place in the semiquaver upbeat before the section or phrase begins. This acts as a timing cue for coordination within the group rehearsals and performance.

Both crouching and inhaling occur at the same locations in the group rehearsals and performance as in the solo practice sessions. They appear without modification but contribute to the coordination between the co-performers.

The types of expressive bodily movements used in the group rehearsals and performance are mostly shared with those in the solo practice. Observation reveals that some of the identified expressive movements are facilitated, either through modification or remaining as before, to enhance the coordination. Glances, on the other hand, seem to contribute not as significantly as the expressive bodily movements for coordination.
Expressive movements of the other performers

The other two performers, the violinist and the cellist, showed specific expressive movement characteristic of their playing. The violinist’s characteristic movements were forward and backward rocking movements, crouching, up-down movements of the violin and head nodding with the use of raised eyebrows. Movements of the cellist included head nodding and eye glances. Their characteristic movements are listed in Table 4. These movements were mainly used for coordinative purposes since the string parts were mostly in unison with the particular section under examination, which therefore required intensive coordination between the two players. The use of their expressive bodily movements is argued in relation to the coordination later in the chapter.

<table>
<thead>
<tr>
<th>Table 4 Characteristic movements of the violinist and cellist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Players</strong></td>
</tr>
<tr>
<td>Characteristic movements</td>
</tr>
<tr>
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<td></td>
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</tbody>
</table>
Development of expressive bodily movement over the practice/rehearsals

When examined across the course of practice and rehearsal, the pianist’s expressive bodily movements identified above reveal that the movements develop according to the practice intentions in each session. Through the practice diary, it was evident that these movements are progressive and consistent with three practice intentions – basic, interpretive and expressive – which are in line with the performance cues based on the work by Chaffin and Imreh (2001, 2002). Therefore, both practice and rehearsals are now analysed with reference to these practice intentions.

The development of the expressive movement in ensemble rehearsals and performance is discussed in comparison with the solo practice. Note that in fact the solo practice and group rehearsals happened synchronously, which provided a good condition for the development of the expressive movements between both contexts to be explored. Yet, the first group rehearsal was preceded by 5 solo practice sessions and had already passed the first stage of note learning.

In addition to the development of the pianist’s expressive movements in both solo and ensemble contexts, the development of the general group rehearsals is also briefly observed.
Development of expressive movement over solo practice in reference to diary information

More insight can be gained about the nature and development of the expressive movements by examining both the video recordings and pianist’s diary entries together. Based on the data collected from the practice diary, the development of the expressive bodily movement in the solo practice seemed to start with a basic intention. The first practice mainly focused on reading and learning the notes, and deciding on suitable fingerings. As a consequence, expressive movements were less apparent. However, by the end of the first rehearsal the music started to become somewhat familiar, and the practice diary showed that the pianist was occasionally conscious about the phrasing to be stressed (interpretive intention). The video showed that the expressive movements were present, though the number and degree (amplitude) of the movements were smaller than in subsequent contexts.

The main focus of the midway practice session was shown to be principally interpretive and expressive. Although basic intention was still apparent, the diary notes revealed an aim to achieve better expression and musical flow. Moreover, music was more familiar to the pianist by this stage. Consequently, the expressive movements were apparent throughout the entire session; and when compared to the first practice, a bigger number of movements was present showing both a modification to increase in the number of new movements and an occurrence of previously identified expressive movements.

The last practice session was exclusively dedicated to expressive intention. The practice
was focused on expressing the different musical ideas and personal emotions identified by the pianist in her diary. The use of rubato was evidently a main musical effect that has increased in focus.

Overall, the movements were very similar to the midway practice but there seemed to be small variations in the expressive movement types in this last session. For instance, side-to-side movement at bars 40-41 in the midway practice was modified to circular sway in the last session. Greater attention to expression seemed to stimulate bigger movements, causing the movements to be at their largest amplitude and sometimes modified as in the above example in this specific practice session.

This specific analysis exercise reveals that identified expressive movements occurred consistently in specific locations across the practice. Indeed, once the movements appeared at a certain location, they persisted in subsequent practice sessions. Side-to-side sway followed by forward and backward rocking movements, for example, were apparent at bars 30-31, 34-35 and 38-39 from the first practice through to the last session. Particular movements such as head shaking did appear at different locations across the practice sessions but they appeared at locations where they contained similar musical contours or emotional ideas. Thus, the occurrence of the expressive movements was consistent within similar musical locations.

In summary, the complementary use of the practice diary and the video data revealed the progress of the practice intentions – basic, interpretive and expressive – throughout the practice sessions. Accordingly, the expressive movements emerged and then were increasingly forged into the musical production. The biggest change in the
movements occurred between the first and the midway practice sessions but the biggest movements were seen at the last practice. It was also evident that the occurrence of the expressive movements was consistent in particular locations or places with similar musical structural features throughout the practice.

**Development of expressive movement over the group rehearsals and performance in reference to diary information**

Development of the pianist’s expressive movements in the group rehearsals occurred more or less in parallel with the solo practice sessions. The first rehearsal was actually between the first and midway solo practice sessions. This is a norm expected of ensemble performers, so that rehearsal time is not wasted with individual practice concerns. It was focused on basic intention, but in context, the players already knew their parts. The rehearsal was spent sorting out the rhythmic problems between the parts, figuring out the tempo and deciding the bowing for string players.

The midway rehearsal showed a dramatic development of the expressive movements. Various new expressive movements were appeared, modified and increased in the degree of the movements in this rehearsal. The practice diary and the observation of the video-recorded rehearsal showed that the rehearsal focused on all three intentions such as coordination, deciding the tempo, awareness of the phrase shaping and the atmosphere of the sections. The tempo seemed to affect the musical flow significantly, thus getting the right tempo seemed to be the main focus in creating an agreed
interpretation. After a trial run-through of the particular section, all performers responded that “that was better”, meaning that the music flowed more successfully between them. With this kind of trialing, a dramatic development of the expressive movements increased.

The last rehearsal comprised two run-throughs. Since it was the last run-through prior to the performance, the pianist focused on expressing everything that was rehearsed such as the character of the particular sections, musical flow, phrase shape, tempo, coordination and balance. Although the basic intentions, coordination and balance were still being considered, they were well rehearsed so coordination and balance were achieved without much conscious concern. Thus, in parallel with the last solo practice, the last group rehearsal mainly focused on expression. This seems to have caused the amplitude of the expressive movement to be the largest of all the rehearsals, although the types of expressive movements are in very small variations when compared to the midway rehearsal. This seemed to be a result of similar practice intentions between the midway and the last rehearsals, just as shown in the solo practice.

The performance, which took place a few hours after the last rehearsal, displayed the common types and amplitude of the expressive movements as they had occurred in the last rehearsal. However, variations in the occurrence of the particular movements were still present, despite the last rehearsal, and the performance took place on the same day. A movement that showed the most distinctive difference was glancing. The glances, which showed an increase in occurrence throughout the rehearsals, dramatically reduced in the performance. This was an unexpected result, contradicting
the findings of previous studies that reported a dramatic increase in the usage of eye
glances during performance as compared to rehearsals (Blank & Davidson, 2007;
Williamon & Davidson, 2002). This may have been a side-effect of the performer being
nervous, which is reported in the diary and which might have caused the pianist to pay
more attention to her own part and become less conscious of the communication with
the co-performers. A lack of communication, in turn, resulted. Yet, this did not seem to
affect the actual coordination. The coordination was well rehearsed throughout the
preparatory period, so it seemed to be aurally and physically automated and made it
possible for the pianist to coordinate without glancing. However, it may have been a
different case for the other players. Occurrences of the other players’ glances will be
discussed later in the chapter.

The occurrences of expressive movements in the group rehearsal and performance
were revealed to be consistently at specific locations or places with similar musical
contour, just as they had appeared consistently throughout the solo practice. However,
glances mostly appeared at inconsistent places. They occurred at different locations
from one rehearsal to subsequent ones, although there are two places, bars 44 and 48,
where the glances occurred consistently throughout from the midway rehearsal to the
performance. The locations where the glances occurred in an inconsistent manner
seemed to be the places where the other players joined with the pianist after a rest or
where rhythmic coordination was required between the performers. Thus, although
they are inconsistent, the glances still happened around the places where they are
required. Some of the glances such as at bar 32 also reappeared at the same locations
in the other rehearsal. These results suggest that occurrences of the glances at
consistent and/or inconsistent locations are based on their common purpose; in other words, their appearances are under a consistent musical purpose.

In conclusion, the development of expressive bodily movements in the group rehearsal and performance was closely related to development in the solo practice, with similarly progressed practice intentions throughout the rehearsals. The expressive movements also showed consistent occurrences at common locations, as shown in the solo practice; all except eye glances. Yet, glances still occurred at locations with common musical purposes, which makes their occurrences somewhat consistent.

General development of the group rehearsals

As the expressive bodily movement and the practice intentions developed throughout the group rehearsals, the duration and the amount of talking and playing during the rehearsal also changed over the course of rehearsals. Observation revealed that the duration and the amount of talking that took place during the rehearsals gradually declined. The three selected video-recorded rehearsals showed that the first rehearsal lasted for 47 minutes, with 39% of the time being spent talking, the midway rehearsal took 35 minutes, with 26% of it being focused on talking and the last rehearsal ran for 23 minutes, with 16% of it being talking-focused. The early rehearsals contained much repetitive section-focused rehearsal with more talking in which time the performers mainly interpreted their playing and suggested alternative ideas for musical expression and coordination. As they reached the performance date, suggestions were reduced and the rehearsal became more like a series of run-throughs, rather than repetitive
section rehearsals. In consequence, the duration of the rehearsal and the amount of
talking was gradually reduced and the performers spent more time playing as the
rehearsals progressed.

Through the observation of the types and the development of the expressive bodily
movements, it has been possible to observe how a single performer, the pianist in this
context, used expressive movement to express musical ideas throughout the practice
and rehearsal timeline up to the performance. Now, it seems necessary to examine
how all three members learned to coordinate with one another. The characteristic
movements of the other players are to be addressed in the discussion of coordination.

**Coordination**

Analysis revealed that the co-performers coordinated together synchronising common
coordinative gestures. When everyone started the phrase at the same time, for
instance at the entry of variation 1 (bar 28), the pianist started the cue with inhalation
and a crouching movement which produced an up-down gesture. From that gesture,
the violinist lifted at the pianist’s inhalation and dropped the tip of the violin along
with a downward movement of her head and eyebrows as the pianist crouched down,
thus synchronising with the pianist. The cellist glanced at the violinist, receiving the
upward cue which then synchronised the downward gesture with a nodding movement.
Then all three players played the first note with an upward gesture, again coming back
to an upright posture. Although the time of synchronisation was slightly different
between the players, they all synchronised with the common gesture – the up-down-
up or down-up movement – which is apparent at all coordinative locations.

Observation revealed that performers, particularly string players, had individual role in general. The violinist generally seemed to act as a leader and the cellist as a follower, particularly in relation to each other. When they started the musical fragments together at bars 32, 36 and 40, the violinist always led the cellist with up-down gesture, and the cellist glanced to the violinist in order to follow the violinist’s coordinative cues. Their roles seemed to be influenced by the leadership of a string quartet where the violinist acts as the main leader of the group. Perhaps this is a consequence of string players being frequently exposed to the string quartet as a chamber group. Based on their individual roles, the violinist also seemed to act as a mediator between the pianist and the cellist, for instance at bar 28, since the violinist had a better view of the pianist. Therefore, individual roles created the basic system of leadership (leading versus following) for effective coordination.

However, leadership did not always seem to stay with a particular player; rather it moved around the players according to their musical materials. When everyone played the first note of the variation, the pianist provided the first cue. Also the violinist mentioned in the post interview that she looked at the pianist’s hands in her peripheral vision in order to coordinate that first note. These indicate that the pianist acted as the main leader of coordination. To understand the pianist’s coordinative role in this particular place, it is necessary to note that the pianist alone closed the previous section with slower tempo (speed of the music). Since the pianist was the last one to play and control the tempo, it seems it is her role to lead the other players to enter the next section, which is variation 1. However, at bar 48, the pianist followed the cellist.
when they played the same rhythmic material. The video recordings of the last rehearsal and the concert showed that the pianist glanced at the cellist when they started the first common rhythmic figure as if to follow the cellist’s bow to synchronise the first entry. Thus, the leadership has moved on to the cellist at this location. In summary, players take the leadership, depending on their musical material, to generate successful coordination.

Another distinctive gesture that was involved in coordination was glances. Through the rehearsals to the concert, glances were developed, but differently according to which player was involved. The violinist and the pianist showed a similar development in their use of glances. The glances were increased throughout their rehearsals but then dramatically reduced in the performance, although the violinist showed a dramatic reduction from the last rehearsal. By contrast, the cellist, who was generally in a supporting role, gradually increased the use of glances from the rehearsal to the performance, most glances being in the performance. One of the possible reasons for the reduction of the glances of the violinist and the pianist is that it is a result of being nervous during the performance, as discussed earlier. However, reduction of the violinist’s glances from the last rehearsal indicates that being nervous might not be the only reason for reduction. Another possible reason might be that, since they are well rehearsed, it is not necessary for the players who lead to give a glance to the others to notify the coordinative cues by the time of concert because they already know when to look out for them. Thus, leaders start to focus gradually more on providing the clear coordinative cues with bodily movements without glancing to the co-performers. Hence, looking behavior seems to be more essential to the follower who needs to
perceive coordinative cues to synchronise with co-performers.

In summary, coordination was achieved by synchronising a common bodily gesture; the up-down-up or down-up gesture. In synchronising the common coordinative gesture, there seemed to be a systematic order between the co-performers according to the general role of the individual. However, the leadership occasionally changed depending on their musical materials. Glances seemed to be another gesture used to facilitate coordination. This is increasingly accommodated by the performer, who follows the coordinative cues. On the other hand the one who leads uses glances less as time progresses.
CHAPTER 4
Discussion

Implications of the results of the investigation

This study has contributed to the growing literature on the use of expressive bodily movement in musical performance, particularly in the form of a case study of a pianist in a piano trio. In the section that follows, the key research questions are answered based upon a detailed analysis of the types of expressive bodily movements used in the preparation and the production of the piano trio performance in both solo and ensemble contexts.

In response to the first question relating to the types of expressive bodily movement used, it seemed that all the identified movements were fairly consistent with those one would expect from a pianist: movement such as swaying, head nodding, and rocking. Somewhat surprisingly, unlike other studies of pianists (see Davidson, 2007), there was no expressive hand movements reported. This could have been because the pianist was fairly constantly occupied with the duty of executing the notes, but it is nonetheless a distinguishing feature of the current research. Otherwise, it seemed that information about expression (be it expression of the musical ideas, such as melodic contour, or more narrative/emotional points like ‘playing from the heart’) is communicated through these specific gestural devices.
In the current study, the expressive movements seemed to be closely related to conveying musical ideas emanating from the musical score. For example, side-to-side sway is related to the ascending and descending melodic figure and the frequent nodding at the second chord of bar 29 seemed to acknowledge the harmonic resolution. This result replicates the finding of Davidson’s recent study (2012) which reported that the most common expressive movements of the woodwind players and the pianist studied are shown to be closely related to the musical structure.

Throughout practice and rehearsals, the most prominent expressive movements were the upper body movements occurring around the waist. The expressive movements apparent in the first solo practice and group rehearsal were shown to be mainly body sways such as side-to-side and circular torso sway, and forward and backward rocking movement. The first solo session and group rehearsal are when the focus is purely on the basic intention (technical stage of learning the notes and deciding the fingerings) which is expected to involve the least expression. In such conditions, body sways were evident with small amplitude of the movement. Given the presence of sway in this learning condition, there is an indication that body sway is a primary mode of movement for the pianist. As the practice sessions and rehearsals increase, the amplitude of the movement throughout the sessions increases, mainly shown through the body swaying. This finding suggests that as the performer expresses more musical effects as the rehearsal progresses, the body sway becomes more engaged.

The finding above that links to swaying brings us back to Davidson’s exploration of Cutting and his colleagues’ idea of *centre of moment*, which proposes that the body contains a central point that acts as a core for all expressive movements to be
generated. Davidson’s numerous case studies (2001, 2002, 2007, 2012) showed that body sway is presented throughout the course of the rehearsals and performance for a number of instrumentalists, acting as the most significant mode of expressing intentions. The predominance of the body sway during the practice, rehearsals and performance in the current case study also indicates that body sways are a vital means of expressing musical ideas.

Considering the original research questions about the degree of change in the movements over the course of practice, rehearsal and performance (questions ii and iii), occurrences of expressive bodily movements were shown to be consistent in common locations across practice, rehearsals and performance. Most of the expressive movements appeared consistently at specific locations. Some movements, however, occurred at different locations, yet the places they appeared were associated with either common musical ideas such as melodic contour, or common expressive purpose such as conveying the expressive quality of the music, which continued to demonstrate consistency in occurrences. Therefore, the occurrences of all the identified expressive movements were in a way consistent.

The development of expressive movements during the solo sessions seemed to be closely related to the development during the ensemble rehearsals and performance. The study revealed that both the solo practice and group rehearsals progressed according to the three stages of practice intention that were based on Chaffin and Imreh’s concept of performance cues: basic, interpretive and expressive intentions. Based on these stages, analysis of the data demonstrated that the musical learning progressed from the sensory motor activity (technique) to more complicated cognitive
activity (emotional expression).

The learning stage was allied to the development of the expressive movements that gradually generated a larger number and amplitude of movements as the learning stage advanced. Since both solo practice and group rehearsals took place concurrently, the learning stages also progressed simultaneously.

Furthermore, both solo and ensemble playing were found to share similar types of expressive movements. Most of the bodily movements used in the solo were apparent in the group rehearsals to express similar musical intentions. Some of these expressive movements also seemed to assist coordination between the co-performers in the ensemble performance. Davidson’s recent study (2012) demonstrated that ensemble performance of clarinet and flute duos shared strong characteristics of the expressive movements used in their solos. The expressive movements were modified in the duo enabling the players to synchronise and interact with one another. Accordingly, the current study also revealed that expressive movements are shared in group rehearsal and performance to help coordination. In fact, only one movement was modified, but others were apparent in the ensemble conditions just as they occurred in the solo conditions, preserving their generative musical intentions, yet also acting as assistance to coordination. Consequently, expressive movements used in a solo are closely related to the movements used in an ensemble, for which, as it was hypothesised earlier in the literature review, the solo and ensemble share similar expressive movements.
In the group rehearsals, it was shown that there is much more playing than talking. The investigation revealed that 39% of the first rehearsal is spent talking and the rest playing. Although the rate of talking is slightly higher (14% higher) than what Blank and Davidson (2007) found in professional piano duos, it still indicates that a large portion (61%) of the rehearsal is spent playing. This supports Blank and Davidson’s proposal that the exchange of musical ideas between the performers is primarily through playing rather than talking. Furthermore, the time spent in talking declined to only 16% by the time of the last rehearsal, and an increased portion of the rehearsal time was devoted to playing. As the co-performers became more familiar with one another throughout the rehearsals, they seemed to understand each other better. This, in turn, seemed to lessen the necessity of verbal communication; and musical ideas were increasingly shared through playing. Therefore, playing per se is found to be a key source of sharing musical ideas in group rehearsal.

In relation to the last research question on successful coordination within a piano trio, glances seemed to assist the coordination and interaction between co-performers in both the rehearsals and performance, as previous ensemble studies have reported (Blank & Davidson, 2007; Davidson & Goodman, 2002; Davidson & King, 2004; Williamson & Davidson, 2002). However, glances did not occur frequently, appearing only at the locations where the glances are needed for coordination. The study of clarinet and flute duos (Davidson, 2012) revealed similar results where the glances did not occur regularly, but rather at major structural boundaries. Furthermore, the occurrence of glances during the performance dramatically reduced in number, offering a contrasting result from the previous studies (Blank & Davidson, 2007;
Davidson & Goodman, 2002; Williamon & Davidson, 2002). Diminished quantities of glancing were found in the case of the pianist and the violinist but, interestingly, the cellist increased her glances. These particular results suggest that the significance of the glance might differ according to individuals, possibly in relation to their role (leading or supporting) within the group.

Coordination was also involved in synchronising a common gesture. The leader accommodated an up-down-up gesture which co-performers synchronised with the next down-up motion. The leader’s first upward gesture, which acted as a coordinative cue for co-performers, seemed to provide the upbeat, helping the players to feel the pulse, which assisted them to synchronise the rest of the motions for effective coordination. Such processes exposed a systematic order of synchronisation that provides, receives, transfers and synchronises the coordinative cues according to the players’ general role of leadership. However, the leadership often changed according to the musical materials. Since only one variation of the music is analysed, it is limited to an observation of the change of leadership of which only two examples were evident. Thus, it is necessary to investigate further to conclude this statement.

It seemed that the violinist had a distinctive role in this particular ensemble. She seemed to act as a mediator between the pianist and the cellist to transfer the pianist’s coordinative cues to the cellist. Perhaps it is due to the unique layout of the piano trio. The sitting arrangement of this ensemble allows the violinist to have a better view of the pianist compared to the cellist who is hindered by the piano. The cellist commented in the first interview that it is exceptionally difficult for her to maintain eye contact with the pianist because the piano is positioned behind her seat.
In consequence, the violinist was able to keep eye contact with both performers and act as an intermediary between giving and receiving the coordinative cues from the pianist and thus being able to lead the cellist. This peculiar role seems to help the group to be cohesive within such a difficult layout.

Being a pianist, playing the unique keyboard instrument of the group, it is noteworthy that the current author seemed to employ larger bodily movements in order to offer cohesive cues to her co-performers. Interestingly, both string players mentioned in the first interview that they find it harder to coordinate in the piano trio configuration, compared to the string quartet. The typical sitting arrangement of the piano trio certainly seemed to limit glancing between the co-performers, which was reported to be important in ensemble performance (Blank & Davidson, 2007; Davidson & Goodman, 2002; Davidson & King, 2004; Williamon & Davidson, 2002).

Overall, large body movements seem to occupy an essential role in the piano trio to assist in the effective coordination between the co-performers. It was shown in the current study that the author (the pianist) made larger bodily movements when she moved from the solo to the ensemble context. Through larger body movement, clear coordinative cues were provided to the co-performers that allowed a production of successful ensemble performance.
Contribution of this work to the research literature

This study provides a number of unique contributions to the research literature. Firstly, a new contribution is made for performers, specifically pianists, by offering a brief guideline for those who are unfamiliar with ensemble performance, particularly a piano trio, in that it showed how expressive bodily movements for expressing and coordinating music were employed in one specific context. The study also contributed new insights into the understanding of coordination between co-performers within the piano trio, an ensemble that was found to be less cohesive and interactive than the string quartet, due to the different instruments and layouts. The discovery of a relationship between coordination and the musician’s individual role provided a new insight into how effective coordination between the players can be created. Furthermore, the results of the current study further supported the findings of the previous studies in the presence of expressive bodily movement in both solo and ensemble contexts. Accordingly, the work offered significant contributions to the research literature, providing replication of old findings and new findings strengthening and enhancing the knowledge of the field.

Suggestions for future research

This study is an exploratory study providing a framework for further exploration. A number of points should be considered and consolidated into these future explorations. Firstly, the work described here investigated only one set of co-
performers in only one type of ensemble. In order to generalise the results of the current research, examination of more than one set of co-performers is required with different levels of skill and amounts of time the ensemble have played together. Examining other types of piano ensemble, such as piano quartet and piano quintet or even a non-cohesive ensemble such as piano, clarinet and cello will further generalise and enrich pianists’ understanding of effective ensemble music making. Secondly, the analysis of only one variation of the music has limited the observation of the leadership that changed according to the musical material and the consistent use of coordinative gesture. It is necessary to examine whether the change of the leadership and the use of coordinative gesture are also consistent throughout the piece. Therefore, the analysis of more than one section or even a whole piece of music is required to further support the findings of the current investigation. Thirdly, the study only observed one mode of communication, the non-verbal, in the interaction between the co-performers. A number of ensemble studies (Blank & Davidson, 2007; Murninghan & Conlon, 1991; Davidson & Good, 1997; Ginsborg & King, 2007; Williamon & Davidson, 2002) stated that verbal is also an important mode of communication in rehearsal situations. Whilst the quantity of verbal interaction was reported herein, the content of that talking was not discussed. Investigation of both verbal and non-verbal communication in the preparation of the ensemble performance will enhance the understanding of effective communication in successful ensemble music making.

Observation of the results of the current research has offered some insight into the expression of musical ideas and interaction between co-performers using expressive
body movements developing from the practice and rehearsals through to the successful ensemble performance. Further research is necessary to validate the findings. By considering and incorporating the above recommendations, a general view of how performers prepare and achieve highly effective ensemble performances can be obtained.
BIBLIOGRAPHY


Web Resources


Appendix 1

Music score of Variation 1 from the second movement of Brahms Piano Trio Op. 87 No. 2
Appendix 2

Sample of the questions asked in the first interview.

A. Personal questions
   1. How long have you been playing your instrument?
   2. When was your first public performance?
   3. How often do you perform in public?
   4. Do you think you move a lot when you perform?

B. About the piece
   5. Have you heard of this piece before?
   6. Have you ever played this piece before?
   7. Have you played any other ensemble pieces by Brahms?
   8. How would you rate the difficulty of this piece?
   9. To what extent do you find these pieces musically satisfying?
  10. Please indicate whether, while learning these pieces, there were locations in the score that were particularly important for coordinating performance and communicating musical ideas. If so, why were they important?

C. About ensemble
   11. Have you ever performed piano trio before? If yes, how may experiences do you have?
   12. Have you ever performed different ensemble types? If so, what kind? How many experiences do you have for these ensemble performances?
   13. Which ensemble type do you feel more difficult?
   14. Which ensemble type do you feel easier to coordinate?
   15. Is piano trio easy to coordinate?
   16. Did you feel as if you were belonged to the group when you rehearsed and performed? Why?
   17. Would you willing to learn other piano trio with these members?
   18. Did you feel as if you had an equal voice during the discussion? If not, why?
   19. How did your ensemble practice influence your individual practice?
   20. How did your individual practice influence your ensemble practice?
Appendix 3
Sample of the questions asked in the second interview.

Sophie
1. How do you bow? Is there specific reason to bow in specific direction?
2. Why do you think you move down-up motion on your head?
3. Why do you think you reduced in degree of movement at last rehearsal and concert from midway rehearsal?
4. There was increased in number of eye glances. Were you conscious about being more coordinated?

Alex
1. How do you bow? Is there specific reason to bow in specific direction?
2. Why do you think you move forward and backward?
3. Were you following my cue at the beginning?
4. Did you glance at me at bar 28, 32 and 36 for cue?