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# THE INFLUENCE OF MUSICAL ANALYSIS AS A STRATEGIC TOOL ON UNDERGRADUATE PIANO STUDENTS' MEMORISATION OF A CLASSICAL SONATINA

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Submitted in fulfilment of the requirements in respect of the Master of  
Music in the Odeion School of Music in the Faculty of  
Humanities at the University of the Free State.

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## **ACKNOWLEDGEMENTS**

I hereby acknowledge the inputs of and support from the following people:

- My supervisor on this project, Dr Anchen Froneman, and co-supervisor, Prof. Matildie Wium, for their valuable guidance, respected input and expert insight during all stages of this project. I sincerely appreciate your support and all the time and effort invested in this project.
- My family and friends who showed an interest in this project and who constantly motivated me. I deeply appreciate your support and understanding.
- My parents, in particular, for their encouragement, love and support. Thank you for your patience and motivation.

## **ABSTRACT**

As a normalised notion, professional pianists are often expected to perform recitals from memory, which can increase their performance anxiety. In pursuit of committing the various components of a piece to memory, analytical strategies in particular are beneficial to establishing a secure memory of a piece, as concluded in previous research by Williamon and Valentine (2002), Timperman and Miksza (2019) and Ginsborg (2019), among others. Regarding memorisation strategies, the literature to date has concluded that piano students often refrain from using analytical strategies to facilitate memorisation, despite their positive effects. The limited nature of the existing literature in providing adequate guidance in this regard might explain this phenomenon. Accordingly, this study therefore investigates the influence of musical analysis as a strategic tool on undergraduate piano students' memorisation of a Classical sonatina as they have experienced it. The aim of the study was to support undergraduate piano students' memorisation of Classical sonatina movements by means of an analytical strategy based on William Caplin's theory of formal functions (applied to the Classical sonatina by Edward Jurkowski [2010]). A second aim was to establish the ways in which implementing such a strategy influences their memorisation process – in this case, three undergraduate piano students.

To this end, a collective case study was conducted in which three voluntary undergraduate piano students from two different South African institutions implemented a formulated analytical strategy over a six-week period to facilitate the memorisation of a Classical sonatina movement. The strategy consisted of complementary materials, including an example analysis, a series of videos and a glossary of relevant terms. These materials aimed to demonstrate and explain how concepts specifically related to Caplin's theory can be implemented practically to facilitate memorisation primarily through structural analytical processes. The data collected through various procedures provided valuable insights into the participants' experiences. Analysis of the data highlighted the effect that the implementation of the strategy had on their memorisation. It provided insights into their experience and perception of the strategy and revealed how analysis could be used in combination with other strategies to achieve the goal of memorisation of a piece. Overall, the findings reflected positive engagements with structural analysis to facilitate

memorisation, to the extent that they will hopefully inspire both the participants and readers to explore further the use of analysis for this purpose.

**Keywords:** piano performance; memorisation; components of memory; structural analysis; new Formenlehre; William Caplin; theory of formal functions; inter-thematic fusion; sonata form; sonatina; undergraduate piano students

## LIST OF ABBREVIATIONS

OSM	Odeion School of Music
UFS	University of the Free State
Op.	opus
No.	number
b.i.	basic idea
c.i.	contrasting idea
frag.	fragmentation
PAC	perfect authentic cadence
IAC	imperfect authentic cadence
HC	half-cadence

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# CHAPTER 1: INTRODUCTION

## 1.1 BACKGROUND AND RATIONALE OF THIS STUDY

The practice of memorising music for recital was first promoted by the celebrated performers of the Romantic period; and for professional pianists in particular it has ever since become the norm (Aeillo & Williamon 2002, p. 168; Nagel 2015, p. 62). Because of this expectation, many performers constantly seek to find the most effective strategies for memorising music (Palmer 1997, p. 121; Walls 2007, p. 63). When fully embraced, the memorisation of music and its performance from memory can be extremely valuable to the performer, providing them with artistic freedom and offering numerous benefits. Furthermore, it can also have a positive influence on the musicality of the performance (Bernstein 2020, p. 53; Hargest 2014, p. 47; Klickstein 2009, p. 52; Walls 2007, p. 64). Memorisation is therefore a powerful and extremely valuable skill which can transform a musician's performance for the better<sup>1</sup>.

Memorisation is a very complex process, though, involving several brain processes and structures across various cerebral systems. A series of neurochemical and electrophysiological changes lead to the creation of memories and enable the acquisition of new information (Baddeley 2014, p. 4; Fourie, Van der Merwe & Swart 2016, pp. 121–122). The exact processes in the human brain that lead to memorisation are still not completely understood by performers or researchers. Several theories and models have been hypothesised throughout the past several decades, aiming to explain the function of different forms of memory (Baddeley 2014, p. 4; Reichling 1989, p. 9). Scholars have, however, identified six different components of memory involved in the memorisation of music. Specifically, these are: visual, auditory, kinesthetic, tactile, emotional and analytical memory (Ginsborg 2019, p. 17; Kenyon 2016, p. 8). A musician should strive to engage all of these components when memorising music in order to form a really secure memory of a piece (Ginsborg 2019, p. 17).

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<sup>1</sup> Important to mention, however, is the fact that memorisation is not always preferred by all musicians and that, in some cases, it can be less beneficial for musicians to perform from memory. Varying from individual to individual, playing from memory can significantly increase performance anxiety and therefore, does not always necessarily transform a performer's playing for the better. See for example, 'To use, or not to use?' (Nagel, 2015), 'Performance anxiety and memorisation: Tricks to help you avoid having memory slips under pressure on stage' (Hodges, 2018) and 'With or without your music' (Bernstein, 2020).

In addition to the memory components, the influences of sensory processing systems in the memorisation process are significant and should not be overlooked. Processes known as interoception, exteroception and proprioception are all engaged and actively involved in the cognition and therefore the memorisation of music (Marzvanyan & Alhawaj 2023). More recently, however, the role of the entire body and body movements in the cognition of music has been investigated. An embodied music cognition theory suggests that perception and body movements are interconnected in the processes of learning and memorising music (Leman & Maes 2014).

Despite these various components and systems, the focus of this study is primarily on analytical memory (one of the components of memory). The analytical component of memory is typically viewed as a more cognitive component than the others, one that requires cognition-based approaches (Mishra 2010, p. 10). Over the past several decades, many researchers and authors have acknowledged the multiple benefits of using analysis to facilitate memory (Chaffin 2007; Mishra 2010; Rubin-Rabson 1937; Williamon & Valentine 2002). However, analytical strategies for memorising music appear to be less instinctive and require deliberate action. Consequently, this component of memorisation is often neglected (Shteinberg, Newcomb, Kwak & Chance 2014, p. 52).

With the analytical component of memory and associated memorisation strategies in mind, Mishra (2010, p. 10) stated the following regarding the content of the existing literature concerned with the memorisation of music:

Understanding of human thinking and especially memory has changed drastically ... . In psychology, the influence of the sensory memories (aural, visual, and kinesthetic) has been supplanted by a more concept-driven understanding of human memory. However, the proportion of articles specifically advocating an analytical or conceptual approach to musical memorization has changed little over the century.

As Mishra remarked in the quotation above, there has not been the significant increase in investigating and advocating different analytical strategies that can be used as a tool to aid memorisation that one might have expected. Furthermore, the studies that have been undertaken during the last century have not produced specific guidelines

for implementing such analytical memorisation strategies. In the past, musical analysis has been the focus of several studies, articles and research projects. Certain aspects of musical analysis have been discussed, investigated and observed in the previous literature. These include the hierarchy of and the relationship between the different levels of music to facilitate memorisation (Chaffin 2007; Chaffin, Gerling, Demos & Melms 2013; Froneman 2008), guided analysis of single-line melodies during training (Ross 1961) and strategies for identifying patterns and motifs in music (Chaffin & Imreh 1997; Lartillot 2014). Only a few studies have investigated the use of structural analysis to some extent (Chaffin 2007; Noice et al. 2008), but again, their focus was not to develop a tool that musicians might implement.

For almost a century, researchers have affirmed that the use of analytical strategies for memorising music is beneficial (Chaffin 2007; Mishra 2010; Rubin-Rabson 1937; Williamon & Valentine 2002). Perhaps because of the lack of literature providing specific guidelines for implementing analytical memorisation strategies as well as the less spontaneous character of the use of analysis for memorisation, many musicians continue to rely on conventional strategies and descriptions of memorisation (Mishra 2010, pp. 11 & 17). These often include approaches associated with sensory memory components, such as primary dependence on 'muscle memory' (Gerling & Dos Santos 2017, p. 74; Mishra 2010, pp. 11 & 17). But while these approaches might be sufficient for short pieces, Hallam (1997) asserts that more complex pieces require more focused and analytical approaches.

Hallam (1997) concluded that it is mainly expert musicians who employ analysis extensively to aid memorisation. This conclusion is supported by the findings of studies by Noice et al. (2008), among others. In contrast, it became evident that university students did not necessarily depend on analytical methods for memorisation, instead applying or incorporating various other methods, as shown in research by Mishra (1999), Williamon and Valentine (2002), Lehmann, Sloboda and Woody (2007) and Gerling and Dos Santos (2017).

With the intention to provide aid to university students in this respect, a statement by Chaffin (2007) provides valuable insights. Chaffin (2007, p. 378) asserted that 'formal structure provides musicians with a ready-made retrieval scheme that can be used to

provide reliable and flexible access to their memories of the music'. Therefore, it is sensible to assume that an understanding of formal musical types and their unique characteristic structure, especially the sonata form in this case, may be a good starting point to facilitate undergraduate piano students' memorisation.

To illustrate the importance of the sonata form for the purposes of this study, which is concerned with sonatina movements, I would like to emphasise the close connection that sometimes exist between the two form types. In this regard, Hepokoski (2006, p. 344) states:

Type 3 sonatas are the standard 'textbook' structures, with expositions, developments, and recapitulations that normally begin with P [the Primary Theme] in the tonic ... the Type 3 is the most familiar type of sonata ....

He continues:

At times Type 1s [also known as 'sonatina' form] with modestly expanded retransitional links connecting the exposition to the recapitulation become virtually indistinguishable from Type 3s with small development sections (2006, p. 344).

These statements clearly highlight the fact that the sonata form and the sonatina form share certain characteristic qualities in some instances. Hepokoski (2021, p. 84) dispels any further confusion or doubt regarding this connection by additionally asserting: 'First movements of "sonatinas" ... can be Type 3 sonatas ....' The understanding of the sonata form is therefore crucial to this study as the sonatina movements included in this study were selected specifically for their structural relation to the sonata form, as in the cases mentioned by Hepokoski above. The understanding of the sonata form should therefore also help participants with memorising the first movement of a sonatina (which is the focus of this study).

A complete formulated theory of the sonata form was first documented in 1826. Subsequent theories that aimed to describe the sonata form structure in a systematic manner resort under the term *Formenlehre* (Bergé 2010, p. 17; Prim 2017; Randel 2003a; Webster 2001a, p. 21); prominent authors in this group include Adolph

Bernhard Marx<sup>2</sup> (1795–1866), Heinrich Schenker<sup>3</sup> (1868–1935) and Charles Rosen<sup>4</sup> (1927–2012) (Bergé 2010, p. 17; Caplin 2010a, p. 64; Greenberg 2022, p. 14).

Since the late 1900s, a re-evaluation of theories of the sonata form known as the *New Formenlehre* (Hepokoski 2021, p. xi) have improved on previously problematic elements and created clearer classifications and descriptions of concepts while still preserving all the functional aspects of this musical form (Caplin & Martin 2016, p. 4; Hepokoski 2021, p. xi). Two fundamental approaches forming part of the *New Formenlehre* are James Hepokoski and Warren Darcy's Sonata Theory and William Caplin's theory of formal functions. Although both theories are widely acknowledged, providing extremely valuable information and insights, I have chosen Caplin's theory of formal functions as the analytical strategy used in this study. Caplin's theory is widely respected, it is highly influential and relevant to the current field of music theory and analysis. Furthermore, the principles of Caplin's theory are flexible and applicable to all Classical forms, including sonatina movements, making it the ideal choice for this particular study.

As this study focused on sonatina movements, the literature in this regard is also considered. In contrast to the large volumes of literature available on sonata movements, the previous literature concerned with sonatina movements specifically is significantly less. Nevertheless, the available literature has explored various facets of sonatina movements, including analytical procedures and pedagogical insights (Blakley 1982; Höhmann 2007; Lee 2016; Messaritaki 2016; Rhoden 1998; Thomson 1989; Yuan 2016). Jurkowski's application of Caplin's theory to sonatina movements as presented in a 2010 article stood out, however. Despite Caplin's silence on sonatinas specifically, Hepokoski's observations of the close connection between certain sonata and sonatina movements (as highlighted in the quotations above) provided Jurkowski with the opportunity to apply Caplin's principles effectively to sonatina movements. The analytical materials created for this study were inspired by and based on these demonstrations by Jurkowski in an attempt to facilitate undergraduate piano students' memorisation of sonatina movements.

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<sup>2</sup> See *Die Lehre von der Musikalischen Composition* (1837–1847).

<sup>3</sup> See *Das Meisterwerk in der Musik*, published in 1925.

<sup>4</sup> See *Sonata Forms*, published in 1988.

## 1.2 RESEARCH AIMS, OBJECTIVES AND QUESTIONS

This study aimed to support undergraduate piano students' memorisation of Classical sonatina movements by means of an analytical strategy based on William Caplin's (1998, 2013) theory of formal functions (especially those applied to the Classical sonatina by Edward Jurkowski [2010]). Furthermore, the study aimed to establish how implementing such a strategy influences the musicians' memorisation process as experienced by the undergraduate piano students. This strategy will indicate how concepts specifically related to Caplin's theory can be implemented practically to facilitate memorisation primarily through structural analytical processes.

According to Mishra (2010, p. 9), few existing articles concerning the memorisation of music focus only on one memorisation strategy, as has been attempted in the present study. Although this study focused very closely on only one specific memorisation strategy by means of structural analysis, I do, however, believe that the use of a combination of strategies is potentially the most effective approach. Therefore, the strategy that is discussed in this dissertation could be supplemented by other memorisation strategies regarding the sensory components of memory, which fell outside the scope of this study. The incorporation of various memorisation and practising strategies, in addition to analytical strategies, was observed both in scholarship (for example, Mishra (1999, 2002) and Gerling and Dos Santos (2017)) and in the processes that were followed by the participants in this study.

The objectives of this research project were as follows:

- To develop an analytical strategy, in the form of a series of complimentary materials, and sufficient guidelines to using it, which can serve as an effective tool to aid undergraduate piano students in memorising a Classical sonatina.
- To identify the specific and unique analytical processes involved regarding the structural analysis of a Classical sonatina according to William Caplin's theory of formal functions that should be considered when memorising.
- To investigate undergraduate piano students' experiences of using an analytical strategy as a strategic tool to memorise a Classical sonatina and its influence on their memorisation.

Based on the stated aims and objectives, hence, the research question guiding this study is: How does the use of musical analysis as a strategic tool influence undergraduate piano students' memorisation of a Classical sonatina?

The following sub-questions are also of importance to the study:

- What are the specific and unique analytical processes involved regarding the structural analysis of a Classical sonatina according to William Caplin's theory of formal functions that should be considered when memorising?
- How do undergraduate piano students experience the use of musical analysis as a strategic tool for the memorisation of a Classical sonatina?

### **1.3 RESEARCH HYPOTHESIS**

Based on the information presented in the background and rationale (and later in Chapter 2) I had certain expectations regarding the participants' implementation of the analytical strategy, their engagement with the materials and the processes they were expected to follow to memorise the sonatina movement. These can be viewed as my research hypothesis, stating my expectations regarding participants' experiences and possible outcomes.

It was my belief that the implementation of an analytical strategy, focused specifically on structural analysis and Caplin's theory of formal functions, would facilitate participants' memorisation of the sonatina movement. I expected that the strategy would enhance their ability to remember musical elements by engaging different components of memory, including sensory memory and emotional memory. I further expected that participants would experience general memorisation processes (including perception, ingraining, maintaining and recall) not specifically limited to memorisation of music. It was my hope that the execution of these processes would lead to the transfer of information to long-term memory storage, which would enable recall further in the future.

Participants were anticipated to benefit from a sensory-rich experience through hearing, sight and touch as part of sensation and perception processes at the beginning of the memorisation process. As they engaged with the music, neural

connections were expected to form (during the process of ingraining). Further, through constant practice, these pathways would potentially be maintained and linked to their pre-existing knowledge of music theory, analysis, and form. Consequently, they would be able to recall the piece from memory with ease.

It was expected that the auditory and visual elements of the experience in particular would contribute to the formation of sensory memories, which would engage the visual and auditory components of memory. This might include visualisation of the score: seeing their fingers playing the piano and perceiving the sound produced by their playing the piano and hearing different recordings of the piece. Accumulated knowledge and personal past experiences would facilitate in long-term memory retention. Furthermore, the kinesthetic awareness developed through memorisation was expected to enhance performance comfort and technical execution of the piece.

Overall, the detailed and thorough analysis, including the use of a marked-up score and a color-coded system, was assumed to significantly influence the participants' memorisation of the sonatina movement. Consequently, this was expected to lead to a comfortable and confident performance.

#### **1.4 RESEARCH DESIGN AND RESEARCH METHODOLOGY**

The project unfolded in four stages: a literature review, the development of an analytical strategy for the Classical sonatina to support memorisation, the implementation of the strategy and the data analysis. The literature review summarised the existing literature on the following topics that forms an important background to the study: general memorisation processes; memorisation of music and the different components involved, focusing especially on the analytical component with its benefits; the sonata form, focusing on the development of both the form itself and the theories aiming to describe the form; two main approaches to the structural analysis that forms part of the *New Formenlehre*, focusing especially on William Caplin's theory of formal functions and, finally, a discussion of sonatinas and the previous literature concerned with their analysis.

The second stage involved the formulation of an analytical strategy, and the associated materials to be presented to participants, based on Caplin's theory of formal functions. For this stage of the project, a series of complementary materials were formulated that aim to provide detailed guidance in using the form and structural analysis of a Classical sonatina to be used as a memorising tool. This was achieved through an in-depth analytical case study, where a series of five videos, focused on the first movement from Clementi's sonatina op. 36, no. 2 was created. The series of videos was supplementary to a detailed colour-coded marked-up score of the same sonatina movement and a glossary listing all the relevant terms and concepts. These materials were created as part of the analytical strategy.

The third stage followed a collective case study design and involved voluntary participants' implementing the formulated strategy. Participation spanned a six-week period situated within a predetermined six-month period. This stage of the study aimed to investigate the influence of the analytical strategy on the participants' memorising process as experienced by each of them. A case study design was considered and found most appropriate for this study as I, the researcher, 'has clear identifiable cases with boundaries and seeks to provide an in-depth understanding of the cases or a comparison of several cases' (Creswell & Poth 2018, p. 159). The collective case study design, specifically, allows for the incorporation of different perspectives on the matter for an even better and more comprehensive understanding (Creswell & Poth 2018, p. 157).

The participants were selected based on a volunteer sampling strategy, with undergraduate piano students having been identified as the target population. The sampling process maximises the information and knowledge acquired in the limited time period of the study (Du Plooy 2009, p. 108; Tellis 1997). The volunteered undergraduate piano students (a total of three participants) came from four specifically identified South African universities. This allowed those participants who had had exposure to various music theory pedagogies to be included in the study. The participation of three voluntary students was considered ideal, as Creswell and Poth (2018, p. 160) suggest that single cases should be limited so as not to exceed four or five with a collective case study, such as this one, to ensure maximum detail. First-

year piano students were excluded due to the greater possibility that they might not have sufficient theoretical knowledge required for participation in this study.

The participants were provided with the materials developed in the second stage, to serve as a comprehensive example. After that, they were asked to implement the proposed strategy themselves by memorising a given sonatina movement with a similar structure to the example provided but which was shorter in length. The participants were asked to provide comments about their experience as part of the data collection.

Data collection took place through various procedures: Feedback was gathered through semi-structured interviews, which prompted participants to reflect on their experience; audio recordings of their practice sessions were also requested for observation; a video-recording at the end of their six-week period of themselves attempting to play the piece from memory was observed and finally, documentation in the form of journaling, kept by each participant, was collected. The use of multiple data sources, known as triangulation, that were used to collect all the participants' individual data was intended to help ensure the reliability and validity of the case study (Baxter & Jack 2008, p. 556; Fidel 1984, p. 276).

The fourth and last stage of the research design involved the analysis of each participant's self-reflections and of all of the data collected from them. Within-case analysis and thematic analysis were used to analyse the data and to make sense of it. I thoroughly consulted each individual participant's data in order to identify significant statements among them, as suggested by Ayres, Kavanaugh and Knafel (2003, p. 881). Next, I engaged in cross-case analysis in comparing the data from the individual participants with one another. This process contributed to distinguishing between those elements of the experience that were relevant to all the participants and those that were relevant to the individual participants only, which would lead to the identification of relevant themes. This process of cross-case analysis was intended to decontextualise the data; however, after the identification of common themes and categories, significant statements from the individual participants were again recontextualised through within-case analysis (Ayres et al. 2003, pp. 871–874).

In the context of thematic analysis, the data set was systematically categorised, the coding being applied in an inductive manner. Connections and relationships between codes were identified to establish themes and categories through a semantic approach. The analysis was conducted following a realist/essentialist paradigm. A report of the data analysis is presented in Chapter 4 and features rich thematic descriptions across the entire data set (Braun & Clarke 2006).

The aim of the data analysis was to help me form a better understanding of the manner in which each participant interpreted and implemented the analytical strategy with which they had been provided. The focus was on the participants' experiences, which helped to answer the research question and the sub-questions (Ayres et al. 2003, p. 876). Furthermore, it enabled me to draw conclusions and make further recommendations. A more descriptive account of the research methodology and analytical processes is presented in Chapter 3.

The thesis itself is structured as follows:

Chapter 1 – Introduction

Chapter 2 – Literature review

Chapter 3 – Methodology

Chapter 4 – Data analysis and discussion

Chapter 5 – Conclusion.

## **1.5 ETHICAL CONSIDERATIONS**

Respect for the participants, informed consent by them, voluntary participation without coercion, their right to withdraw, the preservation of anonymity and specific permission required from the participants for audio- or video-recording were all important ethical principles that were considered throughout the study.

Gatekeeper's approval was obtained from all the relevant institutions to use their students as participants in the study and final ethical clearance had been obtained from the University of the Free State's General and Human Research Ethics Committee. The Ethical Clearance number assigned to this study is: UFS-HSD2022/0712/23

## **1.6 VALUE OF THE RESEARCH**

The study and the consequent findings are valuable as they contribute to the existing body of knowledge regarding the implications of musical analysis on memorisation. This study followed a unique research design, which provided a new perspective on the investigation of this topic. What makes this research design unique is the fact that the participants received a thorough analytical strategy to aid memorisation. This included sufficient guidelines for and demonstrations of using this strategy and an in-depth example of its implementation. The incorporation of such a practical and concise guide to analysing music in order to facilitate memorisation before its implementation responds to an identified gap in the literature on the subject. Previous qualitative studies that were consulted, concerned with analysis and memorisation, excluded the implementation of such analytical materials to serve as a tool for facilitating memorisation.

For both piano students and prospective pianists the memorisation of music is a crucial skill to acquire as professional pianists are mostly expected to perform from memory. The study has practical implications as it had a direct impact on the participants. The knowledge gained might potentially have a positive influence on their future memorisation endeavours. The materials included in the study and presented in this dissertation have the potential to influence readers in a similar manner through some investigation on their part.

The study provided the participants with the opportunity to comprehend and implement an analytical strategy themselves with guidance from the researcher. Participation in this particular study therefore enabled the participants to acquire new skills, contributing to improved memorisation abilities, which could be strengthened even more in the future.

In addition to the visual, auditory and kinesthetic components of memory (also known as the sensory components), incorporating analytical strategies that engage the analytical component in the memorising process might contribute to a more secure memory of a piece. I believe that this study has the potential to improve undergraduate

pianists' quality of memorisation, leading to an enriched musical performance and experience.

## CHAPTER 2: LITERATURE REVIEW

This chapter discusses the existing literature on three interconnected areas of focus to contextualise this research project: the concepts of memorisation, musical analysis and musical form. The first discussion is on memorisation processes in general and how the human brain functions to formulate memories. This section forms a foundation to the rest of the discussions that follow in this chapter by providing a concise explanation of the basic principles and concepts related to memorisation. This is followed by the memorisation of music, focusing on the specific components involved and the role of sensation and the embodiment of music perception and cognition. The significant role that musical analysis plays in facilitating memorisation is emphasised by referring to and reflecting on the previous research concerned with musical analysis and memorisation. Finally, the focus shifts to musical form. Here, in particular, the sonata form is highlighted because some first movements of sonatinas (pointing in particular to the selected sonatina movements used in this project) relate to this structure. A brief reference is made to the concept of *Formenlehre*, pointing to various theories and descriptions of the sonata form, and a brief overview of the form's historical development is provided. The *New Formenlehre* is the next point, where the two main approaches to it are highlighted, namely, James Hepokoski and Warren Darcy's Sonata Theory and, more importantly for the present study, William Caplin's theory of formal functions. The last part of the literature review focuses on sonatinas, including: a clarification of the relevant terminology, a view on the form's historical applications and a reflection on the previous literature concerned with the analysis of sonatina movements.

### 2.1 GENERAL MEMORISATION

The processes and systems involved in the human brain to orchestrate memorisation in general, with a particular focus on important models and theories of memorisation, are discussed in this section. This should help to form a basic idea of the way in which the human brain functions in creating and storing memories, before we shift focus to the memorisation of music specifically.

Memory is a grouping of various systems that function together to allow a person to learn from past experiences and predict the future. It performs a critical role in the functioning of all human beings (Baddeley 2014, p. 1; Gaddis & Adler 2023; Madigan

2015). People share the same neurological and cognitive systems involved in the process of memorisation and for centuries these mental processes have been under investigation (Chaffin, Demos & Logan 2016, p. 568; Seibert 2023). In the late 1800s, psychologists had already proposed that memory is an active process which can be 'divided' into various sections or systems (Baddeley 2014, p. 5; Seibert 2023). However, the fundamental mechanisms leading to more complex facets of memory and learning remain uncertain (Baddeley 2014, p. 8). A generalised simplified process of memorisation, including all the stages involved, is discussed below.

### **2.1.1 Processes involved in forming memories**

The process of memorisation involves several complex processes, systems and structures in the human brain (Apostolaki 2013, p. 226; Gaddis & Adler 2023). Also involved is a chain of neurochemical and electrophysiological changes that occur in order to formulate memories and acquire new information. It is very difficult for researchers to fully understand these neurological processes involved in human beings (Baddeley 2014, p. 4; Fourie et al. 2016, pp. 121–122).

With reference to the neuronal structures, the creation of memories is understood to be grounded on changes occurring in the strength of the synaptic connections relating to the memory (Rasch & Born 2013). The memorisation process in general can be described in a four-stage process, involving perception, ingraining, maintaining and recall. The more these stages are executed, the more reliable and secure will be the memories that are formed (Klickstein 2009, p. 52). Essentially, throughout the process, every system involved in memory needs to be able to register given information, store that information over a period of time and retrieve it when necessary (Baddeley 2014, p. 9). The process can be described briefly as follows, as starting with a process known as sensation, which is very closely related to perception.

Before exploring the first of these four stages in the memorisation process, it is worth pointing to the significance of sensation. Going hand in hand with perception, this process, known as sensation, facilitates the way human beings perceive and interpret the world surrounding them. Sensation involves the process through which the sensory receptors and nervous system sense sensory stimuli from the external environment through interoceptors and exteroceptors and respond to them (Hodges

& Sebald 2011, p. 351; Marzvanyan & Alhawaj 2023). Sensation explains how raw sensory information is processed: the senses receive sensory information and through the receptors physical stimuli are converted into electrical signals, which are transmitted to the brain (Hodges & Sebald 2011, p. 111). These signals are then processed further. The topic of sensation is discussed in further detail with specific reference to learning music in section 2.2.3.

Viewed as a process that occurs after sensation but before cognition, perception is very closely coupled to memorisation (Apostolaki 2013, p. 218; Hodges & Sebald 2011, p. 348). Perception involves the gathering and accumulation of external stimuli through the senses, which is processed by various brain systems to form a sensory memory (Auday & Schafer 2023; Baddeley 2014, p. 18). Neural networks that support the perception of a given stimulus grow stronger as exposure to the stimulus increases (Hodges & Sebald 2011, p. 138). Perception triggers emotions, stimulating different systems in both the brain and the body (Koelsch 2011; Leman & Maes 2014, p. 237). The perception of external stimuli through various senses can contribute to ensuring a vibrant memory (Klickstein 2009, p. 53). After these external stimuli are gathered through the processes of sensation and perception, ingraining is the next step of the memorisation process to occur.

The ingraining process involves the formation of neural pathways into the brain as information is processed and interpreted by neurons (Klickstein 2009, p. 53). The brain processes the perceptions formed from external stimuli, leading to the creation of new neural connections in the brain. At first, these connections are very vulnerable and easily prone to decay, which results in forgetting. This process of perception leading to the creation of neural connections is also known as encoding. Encoded stimuli are stored to enable easy retrieval on demand later in the process; the manner through which the stimuli are encoded originally will have an influence on the recall at later stages (Apostolaki 2013, pp. 218–219; Rasch & Born 2013). In order to preserve and strengthen these newly formed connections in the brain, maintenance – the next step in the four-stage process – is essential.

The maintenance of memory is a constant and continuous innovative process where the neural pathways, imprinted during the ingraining stage, are effectively maintained

to reduce the probability of forgetting a memory; this will prevent the gradual disintegration of the mental pathways that were previously constructed and therefore help to keep memories secure and vivid (Klickstein 2009, p. 54). Consolidation processes over the short and long term strengthen and stabilise the neural connections and transfer memories from the short-term to the long-term memory. These processes are also necessary to integrate the newly formed memory into the individual's network of pre-existing knowledge (Rasch & Born 2013). This familiar pre-existing information is very important as it serves as the building blocks with which new memories are able to form (Bernardi, Schories, Jabusch, Colombo & Altenmüller 2012, p. 277; Fourie et al. 2016, p. 123). The final step of the process is the recall of the newly formed and maintained memory.

Recall refers to the process of accessing one's stored memories (Rasch & Born 2013). A retrieval system is necessary to organise the cues that provide access to newly formed sections of information in one's long-term memory. Recalling memories starts with relevant retrieval cues associated with the various senses and the information is often recalled according to an individual's conceptual interpretation (Bernardi et al. 2012, p. 277; Madigan 2015; Palmer 1997, pp. 117 & 128). During this stage of the memorisation process, multidimensional and multi-layered relationships are being developed and reflected (Palmer 1997, p. 121). This is the final stage of the process that describes the general process of memorisation.

To conclude, memorisation is an intricate process across various systems and structures in the brain (Baddeley 2014, p. 4). It can, however, be explained in a simplified manner, describing a four-stage process that includes perception, ingrain, maintaining and recall (Klickstein 2009, p. 52). Through careful execution of all four stages, a newly formed, secure memory should be the result. Performing a music piece successfully from memory would be the result of a thoroughly executed memorisation process.

### **2.1.2 Forms of memory: sensory, short-term and long-term**

Researchers have tried to explain the systems and processes of memory by means of various theories created through decades of research. These theories have some fundamental differences in the way they view retaining and retrieval actions during

memorisation (Gaddis & Adler 2023). Controversy during the mid-1900s led to various theories and models of memory being formulated. These various theories and models aim to explain the function, cooperation and interaction of three distinct forms of memory, namely, sensory memory, short-term memory and long-term memory (Apostolaki 2013, p. 226; Gaddis & Adler 2023; Reichling 1989, p. 9). Each of these three forms of memory has a unique function and is explained below.

The first form of memory, sensory memory, points to the role of storage during the processes involved in perception (Auday & Schafer 2023; Baddeley 2014, p. 18). The two most researched components of sensory memory, include visual/iconic and auditory/echoic memory (Auday & Schafer 2023). The visual memory is dependent on the stimuli's brightness and the information received by the brain from the retinas that remains after the stimuli ends (Baddeley 2014, p. 7). The auditory memory also involves various systems to perceiving and processing information through hearing and is not limited to the sound of speech alone (Baddeley 2014, pp. 11 & 14). This leads to the second form of memory: short-term memory.

The storage of information to the short-term memory is necessary in order to perform a variety of cognitive tasks such as reasoning, problem-solving, comprehending, long-term learning and understanding (Baddeley 2014, p. 14 & 18; Seibert 2023). In order to create a representation of a certain object, short-term memory enables a person to access and integrate a variety of information from different sources, forming a comprehensible view of their surroundings (Baddeley 2014, p. 7). Short-term memory persists only for very short periods of time if information is not further processed and it also has a relatedly restricted capacity (Apostolaki 2013, p. 226; Hodges & Sebald 2011, p. 137; Madigan 2015; Seibert 2023). After further processing, such information will be admitted to long-term memory stores (the last of the three forms of memory) and perish from one's short-term memory.

Also worth mentioning, is working-memory. Although short-term memory and working-memory are related, they function differently. Working-memory, unlike short-term memory, is not only involved in temporary storage of information, but also the processing and manipulation of information necessary for complex cognitive tasks. It includes various components, each responsible for the processing of different sensory

inputs, which then transfers information to long-term memory storage (Apostolaki 2013, p. 226).

Long-term memory is a more durable encoding system, one enforced through sleep, among other aspects, and stores information to memory for very long periods of time – some might say permanently (Baddeley 2014, p. 15; Hodges & Sebald 2011, p. 137; Rasch & Born 2013). Long-term memory can be categorised as two types: semantic and episodic. Semantic memory is concerned with generalised information about everyday life, acquired over longer periods of time. Episodic memory, on the other hand, includes memories about personal experiences (Baddeley 2014, p. 16; Gaddis & Adler 2023; Hargest 2014, p. 47; Madigan 2015; Rasch & Born 2013). It is still unclear, however, whether these resemble separate systems of memory or just different parts of the same system (Baddeley 2014, p. 16).

The exact difference between short-term and long-term memory systems remains controversial. While some believe that it is the same system functioning under different conditions, others believe that they are two separate systems functioning very closely together (Baddeley 2014, p. 15).

Nevertheless, it is clear that, although there are many theories of memory, sensory memory, short-term memory and long-term memory are the three most acknowledged forms of memory to occur. They all play a fundamental role in formulating memories. For musicians, it is important to take note of these various processes and structures involved in memorisation, because knowledge of this might help one to develop a better understanding of the various processes and components involved in the memorisation of music specifically. Topics related to this are discussed in the following sections.

## **2.2 MEMORISATION OF MUSIC**

With the basic principles necessary to understand general memorisation processes having been explained, this section now focuses on the memorisation of music specifically. The reasons that musicians should consider memorising their music are discussed, with further reference being made to the various components involved

which should be engaged in the memorisation of music. The components referred to include sensory components (tactile, visual and auditory components of memory), the kinesthetic and emotional component and the analytical component of memory.

With the focus for present purposes on the emotional and sensory components, a brief discussion of sensory-processing systems is also included, highlighting proprioception, interoception and exteroception. These processes highlight the integration of the memory components into the cognition process. Flowing from and connected to this discussion on sensory perception and cognition, the idea of an embodied music cognition paradigm within the context of music performance is also included. This section therefore provides a brief background to all the elements necessary to form a holistic and secure memory of a piece for performance.

### **2.2.1 Importance and potential benefits of memorising music in general**

The historical practices concerned with memorising music place an expectation on certain instrumentalists to perform from memory (Nagel 2015, p. 62). Although important for pianists in particular, memorisation is considered a skill which can be acquired by anyone and can be improved through practice (Klickstein 2009, p. 52; McKinney 2008, p. 26). Despite the fact that the memorisation of music often threatens to increase a performer's level of anxiety, it offers numerous benefits which most often outweigh its negative aspects (Walls 2007, p. 63). In my opinion, these benefits justify the time and effort spent on memorisation. These benefits can appear in and improve upon various facets of a musician's skills to memorise and perform music: from an artistic level to a technical and theoretical level, and many more. The benefits are all intertwined with and connected to each other.

First, Hargest (2014, p. 47) asserts that the use of the visual cortex, the biggest neuro-system in the brain, is reduced when the use of a score is eliminated during a performance from memory. This allows the musician to place more focus on other aspects of the performance, improving their concentration, communication and artistry that might have otherwise been compromised (Hargest 2014, p. 47). Playing from memory therefore provides a performer with more artistic freedom (Klickstein 2009, p. 52).

A further benefit of a score-free performance is the fact that a performance from memory gives a performer the opportunity to explore new and innovative ideas. For example, it enables a musician to discover aspects of the music that might have been overlooked otherwise, while increasing musicality and expression (Hargest 2014, p. 47; Klickstein 2009, p. 52; Shteinberg et al. 2014, p. 53; Walls 2007, p. 63). In addition, this close connection to the music and independence of the score enables the musician to perform the music with greater fluency, better tone, more confidence and greater awareness (Hargest 2014, p. 48; Walls 2007, p. 64).

Furthermore, at a technical level, memorisation can make it easier for a performer to execute technically challenging aspects of a performance (Bernstein 2020, p. 53). This is because memorisation enhances a musician's kinesthetic awareness of the music, which increases the performer's 'kinetic comfort' while playing the instrument. Such kinesthetic awareness directly connects to the activity of sensory-processing systems known as interoception, exteroception and proprioception (fully discussed in section 2.2.3). This leads to more comfort and ease during a performance (Bernstein 2020, p. 53; McKinney 2008, p. 26).

However, to play any piece from memory in a confident and secure manner (and in a way that will most likely produce these benefits), extensive knowledge of all aspects of the piece at a theoretical level is also required. The performer needs to form a deep theoretical and structural familiarity with the piece, which is achieved through analytical memorisation strategies in order to perform it independently of the score (Hargest 2014, p. 47; Klickstein 2009, p. 52; Walls 2007, p. 64). These analytical encounters with the score increase the musician's awareness of the relationships between the melodic, harmonic and diatonic aspects in the music (Palmer 1997, p. 121). This in turn leads to improved musical quality while reducing any errors that may arise in the music as a result of a more accurate hearing and understanding of the notes (Hargest 2014, p. 47; Walls 2007, p. 63). More benefits specifically associated with analytical encounters when memorising music are discussed in section 2.3.1.

For the moment, I share one final thought regarding the effect of analytical interactions with the score when memorising. In a sense, when seeking benefits associated with playing from memory, in addition to those mentioned above, the musician needs to

spend adequate time analysing the score to become familiar with the piece to such an extent that the score is no longer necessary. I believe that such theoretical familiarity of a piece poses benefits beyond its immediate implications on the memorisation of the specific piece in question: improved theoretical knowledge and newly acquired information, obtained through a deep engagement with a score in an attempt to store it in memory. This can be valuable as it might enrich and extend a musician's existing framework of theoretical knowledge. In my opinion, such an accumulated reservoir of theoretical knowledge can be implemented and beneficial to facilitating the memorisation of other pieces in future interactions.

Drawing on all these, it is my observation, assumption and personal experience that a performer playing from memory is more focused, attentive and aware of the music and their surroundings. Such a musician seemingly has the freedom to be more expressive, creative and adventurous in their interpretation and performance, communicating their intention more easily and effectively to the audience. A musician not bound by the score often holds deep and valuable theoretical knowledge obtained through the memorising process, which is likely to shape them into more sensitive, confident and holistic performers altogether.

Hodges (2018, p. 81) notes that memorisation and all the benefits it brings (such as those mentioned above) have the ability to influence both the performer and the performance positively when fully embraced. It is therefore important that pianists are aware of these benefits and embrace them. More important, however, is taking cognisance of the various components of memory and their associated memorisation strategies that are most likely to lead to the effective memorisation of a piece. This is more likely to result in a musician's reaping these benefits. These components are discussed in the following section.

### **2.2.2 Components of music memorisation**

Although it is important to take note of the processes and systems involved in memorisation, musicians might also benefit from understanding the various components of memory. In the existing literature, reference is made specifically to five components of memory: visual, auditory, kinesthetic or 'muscle memory', emotional, and analytical memory (Ginsborg 2019, p. 17; Kenyon 2016, p. 8). Although not

considered as one of these five main components of memory, tactile memory is a sixth component also mentioned in the literature; it plays an important role in memorisation (O'Brien 1943, p. 552). These components of memory (most of which is dependent on the five senses) are not exclusively connected to the memorisation of music specifically. Nevertheless, their application in music memorisation, is extremely significant.

It is normal for musicians to have a natural tendency to apply certain components more than others; however, it is important that they aim to engage all of the components of memory as much as possible. This will enable a musician to develop a mental representation of a piece, which is more secure and reliable (Ginsborg 2019, p. 18; Shteinberg et al. 2014, p. 52). Each of these components of memory is dependent on various aspects of a musician's musical knowledge and each requires a different amount of time to master. This is unique for each individual musician and can also vary from piece to piece (Shteinberg et al. 2014, p. 52). In order to optimise the transfer of all the various components to memory, though, Ginsborg (2019, p. 17) asserts that it is necessary to spend sufficient time on the memorising process, working in a deliberate and strategic manner in short sessions.

Dubé (2003) stated that visual, auditory, kinesthetic and conceptual (or analytical) memory are the four components necessary for pianists to memorise music. Even though this project focuses primarily on the analytical component to memory, these other components are still worth mentioning in this literature review as I am convinced that these components cannot fully function independently. Being cognisant of the function of these components and knowing how to engage all of them fully when memorising music is vital to memorising music in the most effective and secure manner. The following is a brief description of each of the six components to memory.

### *Emotional memory*

The first component of memory, emotional memory, focuses on the emotion conveyed through the piece and the emotions that the performer associates with the piece (Kenyon 2016, p. 44). Emotional memory is personal and each individual musician's imagination and creativity, pertaining to the way that they interpret and connect to the piece through dynamics and articulation, is extremely important for it to take effect

(Ginsborg 2019, p. 17; Kenyon 2016, p. 44). Emotional cues in music that facilitate the retrieval of the music from one's memory are established through expression in playing the piece (Chaffin et al. 2016, p. 563). Despite Dubé's statement mentioned above (not specifically listing emotional memory as a vital component to memorise piano music), Sloboda (2005, p. 334) mentions that strong emotions play a fundamental role in any musical engagement and therefore interoception also forms an essential part of this discussion (in section 2.2.3).

### *Tactile memory*

The next component is tactile memory, which depends on the sense of touch. For instrumentalists, this memory is formed by the physical interaction between the musician's hands and body and the instrument. It is the recall of the physical feeling of the way chords and passages feel under the musician's fingers and the way in which the body moves to be able to play and reach certain notes on the instrument (Kenyon 2016, p. 17). Therefore, also contributing to the establishment of tactile memory, is the musician's choice of fingering for each individual piece. Fingering should be carefully considered to be most efficient and should be applied consistently throughout practice (Klickstein 2009, p. 53; Shteinberg et al. 2014, p. 53). This type of memory can play a significant role in developing certain musical and instrumental techniques (Baker & Green 2016, p. 13). Also concerned with the relationship between the musician's body and the instrument is the next component of memory: kinesthetic memory.

### *Kinaesthetic memory*

Also known as muscle memory, this component is many musicians' primary component as an aid to memorisation (Mishra 2010, pp. 11 & 17). With this type of memory, the physical movements of the musician's hands and body in relation to the instrument are recalled and this is achieved through constant and deliberate repetition in order to eventually automatise movements (Aiello & Williamon 2002; Ginsborg 2019, p. 17; Mishra 2010, p. 12; Shteinberg et al. 2014, p. 53). Opposed to what one might assume from the term 'muscle memory', the memory is not being physically stored in the muscles. Rather, when a series of muscle movements are frequently repeated, the movement pattern is stored as a complete unit in the brain. When recalled, the sequence of specific movements runs automatically, therefore establishing muscle memory (Hodges & Sebald 2011, p. 235).

Further on the topic of automatised movements relating to muscle memory, Chang (2007, p. 107) mentions two types of reflex motion that are necessary in order for a musician's hand to move in an automatised manner: the reflex motion from the hands when touching the keys on the instrument and the brain's reflex response to the sounds that are being produced. Regarding the motor systems in the body, neurons in the brain become more effectual through constant practice and training, which reduces the number of neurons eventually required to execute the task (Hodges & Sebald 2011, p. 173). Again, the involvement of sensory processing systems, in this case proprioception in particular, cannot be excluded as it is so closely connected (section 2.2.3).

Although muscle memory can increase anxiety and be very unreliable in stressful situations when used in isolation, it is still very useful. It plays an essential role in mastering difficult passages in the music and to provide confidence while performing (Chaffin et al. 2016, p. 561; Ginsborg 2019, p. 17; Shteinberg et al. 2014, p. 53).

#### *Visual memory*

The next component is the visual memory. It includes two main elements: the visualisation of the sheet music and the visualisation of the hands on the instrument. To achieve the former, the musician needs to remember what the notes look like on the printed paper by 'seeing' them in their mind's eye. Some musicians may find this easier and more useful than others (Chaffin et al. 2016, p. 563). Although less instinctive, this process might also aid a musician's sight-reading abilities and enable mental practice away from the instrument (Chang 2007; Ginsborg 2019, p. 17; Kenyon 2016, p. 39; Mishra 2010, p. 11; Walls 2007, p. 64). The latter – visualisation of the hands on the instrument – is more concerned with remembering the topography of the instrument and the patterns formed by the hands while playing the instrument (Mishra 2010, p. 11; Shteinberg et al. 2014, p. 52).

#### *Auditory memory*

Auditory memory is the penultimate component. This type of memory depends on the harmonic, melodic and rhythmical elements of the music and the sound of it (Shteinberg et al. 2014, p. 52; Walls 2007, p. 65). During a musical performance, there are two forms of auditory memory: retrospective auditory memory (remembering what

was already played) and prospective auditory memory (remembering what still needs to be played). These two types of auditory memory are crucial to helping the performer to navigate through a piece (Chaffin et al. 2016, p. 562; Ginsborg 2019, p. 17; Kenyon 2016, p. 30). It is through listening and audiation that the elements of melody, structure and rhythm are remembered in order to create an overall picture of the specific piece and therefore strengthen this component (Ferrari, Kokotsaki, DP Newton & LD Newton 2017, p. 4; Mishra 2010, p. 11).

### *Analytical memory*

This then leads to the last component of memory and also the one in consideration in this study: analytical memory. In the memorisation of music, theoretical knowledge of the music forms the foundation of this component of memory. This includes form, patterns and motifs, harmonic and phrase structures and other elements related to the structure of a piece (Kenyon 2016, p. 10). Mishra (2010, p. 12) describes analytical memory as ‘the cognitive interpretation of patterns in a musical work’. Analytical memory is crucial because musical structures and units are recalled from a musician’s memory according to their conceptual interpretation while performing (Hargest 2014, p. 47; Palmer 1997, p. 117).

This type of memory is developed by the thorough and in-depth analysis of a piece before the memorisation process starts and also by constant engagement with the analysis during the memorisation process (Ginsborg 2019, p. 17; Kenyon 2016, p. 10). This is the most important component in this study as the participants applied structural analysis to facilitate the memorisation of a sonatina movement.

To conclude, existing literature highlights six components involved in the memorisation of music in particular. Even though some of these are more instinctive than others, depending on each individual musician, musicians should still strive to engage with them all if they are to gain the best result when memorising music. When used in isolation, these individual components may increase anxiety during performances, leading to a less-secure memory. However, when combined and integrated, the performer is likely to experience a more confident and secure memory of the piece.

While the emotional memory is probably the most abstract of them all, relying on deep inner feelings, connections and emotions, the visual, auditory, tactile memory are each clearly bound to the senses, making them ideal to enhancing the process of perception when attempting to memorise a piece. Establishing memories with these various components (pointing to the sensory memory components) is subject to the co-operation of several sensory processing systems in the human brain. These systems are briefly discussed in the following section before devoting full attention to the component of primary concern in this project: the analytical component.

### **2.2.3 Sensory processing systems: proprioception, exteroception and interoception**

A variety of different sensory processing systems are involved and intertwined in order for human beings to make sense of the world around them. Interconnected with the various components of memory as discussed above, these systems also have an influence on musicians' ability to learn and ultimately memorise music. These systems include processes known as exteroception, interoception and proprioception; they explain how sensory stimuli are detected, interpreted and processed to enable understanding and learning. For musicians, these processes play an important role in their ability to master both the cognitive and the physical aspects necessary to play an instrument. These three processes are briefly discussed in the light of their significance to learning and performing music specifically.

#### *Proprioception*

The first of these interconnected systems is proprioception. This is an interconnected process involving the ability to perceive the movements, position and orientation of a person's own body in space through proprioceptors (Barlow 2018; Marzvanyan & Alhawaj 2023; Smitt & Bird 2013, p. 469). This system is necessary to successfully maintain balance and to coordinate movements. In addition to the sensory organs receiving input from the muscles, mechanoreceptors in the skin are also sensitive to physical changes such as pressure, touch and stretch (Marzvanyan & Alhawaj 2023; Moller 2003, pp. 83 & 197).

For musicians, proprioception is an important process necessary in order to coordinate the playing of an instrument. It promotes accuracy in finger positions on the instrument

and sensing both body movements and muscle engagement. It might contribute further to keeping the correct body alignment and posture. Proprioception connected to playing an instrument can be significantly enhanced through practice (Smitt & Bird 2013, p. 471). The next system being discussed is exteroception.

### *Exteroception*

Exteroception points to the perception of external stimuli from the external environment, which are detected through exteroceptors and the senses (Herman, Olszewska, Gaca, Drożdżiel & Marchewka 2023; Marzvanyan & Alhawaj 2023). The 'Gestalt laws of cognitive organization' create a firm basis for music cognition and provides a foundation for the way musicians structure sensory stimuli (Hodges & Sebald 2011, p. 151). It explains how people perceive stimuli by recognising patterns, grouping similar elements and simplifying complex information, all of which is applicable in the cognition of music (Hodges & Sebald 2011, pp. 130–132; Patel & Demorest 2013, p. 666; Tan, Pfordresher & Harrép 2010, p. 78).

For musicians, exteroception can be related back to the sensory components of memory, as explained in section 2.2.2 (especially auditory memory). The detection and processing of stimuli through the auditory systems enables musicians to interpret and respond to musical elements such as pitch, timbre, sound dynamics and rhythm. Psychological variables, including signal shape, time and frequency, also plays a role in a musician's psychological perceptions of these elements (Hodges & Sebald 2011, p. 127). When playing with other musicians, exteroceptive skills are necessary to listen, respond and adjust accordingly in response to the other musicians' playing. Although the detection of and reaction to external stimuli have an impact on a musician's performance, the awareness and processing of internal stimuli is just as important.

### *Interoception*

Interoception, also referred to as body sensations, refers to a person's ability to perceive internal stimuli and to sense their physiological and physical state (Herman et al. 2023; Köteles 2021, p. 19). In a musical setting, interoception points to the performer's emotional connection to the music. Consequently, emotions felt by a performer may influence the expressive qualities communicated through a

performance (Crispin & Östersjo 2017, p. 296; Köteles 2021). Listening to music increases the biochemicals released in the body, which provokes emotional responses in the brain. Other parts of the brain integrate these emotional responses, input from the sensory system and other inputs, which facilitates the experience of conscious emotions (Hodges & Sebald 2011, p. 193).

Continuing the discussion on interoception, it is known that a person can experience several physiological changes in response to hearing and performing music, including possible changes in heart rate, breathing and biochemical responses. Some physical movements that may occur include reflexive motor movements such as foot-tapping, facial gestures, body-swaying and head-nodding. Such responses can be evoked in both the listener and the performer. The different life experiences of different people lead to different responses when engaging with music (Hodges & Sebald 2011, pp. 178 & 184; Williamon, Clark & Küssner 2017, p. 206). Interoceptive skills enable a musician therefore to develop a better awareness of their physical responses to music, further improving their capability to express emotions through a performance. This brief discussion of interoception reveals a clear connection between interoception and the emotional component to memory, as discussed in the previous section.

These processes play a critical role in the cognition of music. They explain how musicians gather information, presented as stimuli from both the environment and from within the individual and how the brain proceeds to process these stimuli. It can be concluded that the cognition of music, leading to learning and memorising music, is processed in a variety of ways. Each stimulus is processed through one of the various sensory processing systems (as discussed in this section). The information can consequently be associated with one of the components of memory (as discussed in the previous section), depending on what the stimulus was.

Important to remember, however, as mentioned earlier and as with the components of memory, that these various processes and systems are all interconnected. They do not function independently or separately, which makes this matter more complex. The next section, relating more to the kinesthetic component of memory, points to the shift in more recent views of music cognition and how the body is acknowledged to be a major contributor.

#### **2.2.4 Cognition as an interactive or embodied process**

The role of body movements, such as those evoked by performing and listening to music, has been at the centre of more recent research, building upon older theories about music cognition and perception. Body movements play an important role in music performance and researchers now acknowledge the significant role of the human motor system in musical interactions (Davidson & Correia 2002; Leman & Maes 2014, p. 236).

In the past, the cognition of music was primarily and almost exclusively considered from a perspective of perception, considering the capacity to experience music in connection with learning, predictive processes and memory (Leman, Maes, Nijs & Van Dyck 2018, p. 748). Such views concentrated on predictive mechanisms in perception, disregarding the potential impacts of bodily factors on such predictions (Leman et al. 2018, p. 748). Perception and action were viewed as being separate processes, with actions and body movements as the exclusive outcome of perception (Leman & Maes 2014, p. 236). The paradigm of embodied music cognition, in contrast, emphasises the connection between and the importance of physical experiences and actions in the cognition of music (Cox 2016, p. 11; Leman et al. 2018, p. 748).

Embodied music cognition suggests that perception and action (body movements) are interconnected and have an influence on each other (Leman & Maes 2014, p. 237). Both motor and perception systems therefore play significant roles in our interaction with the external environment (Hodges & Sebald 2011, p. 240; Leman & Maes 2014, p. 237). Physical information is sensed from the musical environment, which results in physical expression as a reaction to such detected information: this creates a deliberate musical interaction (Cox 2016, p. 11; Leman & Maes 2014, p. 236). Music in turn inspires physical movements that convey numerous expressive qualities, inner emotions and intentions (Leman & Maes 2014, p. 237). Elements of music, such as dynamics, touch, articulation and phrasing, are directly related to the way musicians move their bodies in space and the physical movements they produce (Cox 2016, p. 12; Davidson & Correia 2002).

Essentially, action and perception function in a continuous cycle, each dependent on each other. In basic terms, sensory information detected and gathered by the senses

generates motor commands for action; the expected sensory outcomes as a result of those actions are being predicted in advance (Leman & Maes 2014, p. 236; Leman et al. 2018, p. 748). When music is perceived, sensory-motor mechanisms are being activated; these movements or actions then again lead to the perception of music. This repeated interaction sequence with the music is at the core of a sense-giving musical experience (Leman & Maes 2014, p. 242).

The strong relationship between gesture and sound is also highlighted: expressive gestures are translated into sound and sound is decoded back into expressive gestures. Any form of musical expression is communicated through actions and gestures. Music-driven gestures may therefore be facilitating musical perception (Davidson & Correia 2002; Hodges & Sebald 2011, p. 233; Leman & Maes 2014, p. 237). These statements clearly suggest a direct relationship between perception and action, which can be demonstrated through observing the interaction between the perceived sounds, produced as the musician plays an instrument, and the expressive gestures that form part of the performance.

Our perception, experience and understanding of music are not exclusively restricted to mental processes occurring in the brain, as previously believed; instead, the entire body is actively involved. Physical actions shape and are shaped by the musical environment, with constant interactions occurring between the musical environment, body movements, the mind and the sensations experienced. The body in its entirety is crucial to creating and enhancing a musical experience.

The analytical component requires the musician to engage with the score at an intellectual level, demanding one to apply theoretical knowledge in order to analyse and understand the various structural elements that led to the construction of a piece. The internalisation of a piece's structural features allows the musician to integrate this knowledge with physical actions and responses, which contributes to embodied cognition processes and the action–perception cycle discussed above. For example, understanding of the form, section boundaries and phrases enables the performer to prepare physically for the transition and flow between sections, which might manifest through physical gestures such as changes in body tension and breathing that might lead to changes in dynamics and tempo. These gestures then heighten the performer's

perception of the approaching section boundary or a new phrase. This might especially be the case as the performer approaches cadences in a piece, realising the function of the cadence within the piece.

Understanding of the harmonic framework can also be a valuable tool. Certain harmonic progressions and harmonies can provoke certain emotional responses, which can be expressed through the body as either tension or relaxation. These bodily states influence expressive gestures in the music. The performer therefore physically responds to harmonic changes in the music, which helps with the perception of expressive cues, tension and release in the music. Another example, might be how repeated sections in a piece (such as the material in the exposition and recapitulation of the sonatina movement) lead to repeated physical movements, which might reinforce muscle memory. Subtle changes that occur, however, might demand changes in body movements to accomplish changes in, for example, dynamics or articulation. Each repetition might therefore 'feel' different and unique for the performer; however, it is still connected to similar material. These subtle physical changes may also in turn heighten the performer's perception of these changes that occur between different sections in the music.

Although embodiment plays an important role in the perception of music, it is only one element forming part of a complex interconnected network of cognitive, motor and sensory systems (Leman & Maes 2014, p. 236). The nature of these individual systems in a specific context at a particular moment influences the way in which external sensory information is perceived (Leman & Maes 2014, p. 241). Hodges and Sebald (2011, p. 233) assert that a good balance between cognitive skills, expressive skills and motor skills is required in order to achieve an effective musical performance.

Structural cognisance can therefore be valuable in enriching embodied music cognition. It is this component of memory (the analytical component) that stands at the core of this project and which has the potential to benefit the memorisation of a piece immensely when it is correctly understood and applied.

## **2.3 ANALYSIS OF MUSIC FOR MEMORISATION: DIFFERENT APPROACHES, POTENTIAL BENEFITS AND RESEARCH FINDINGS**

The focus is now placed on the analytical component of memory exclusively as this component forms the base of this study. In this section, insights are briefly shared on the various ways one can approach analysis. The potential benefits of musical analysis are then discussed with regard to its ability to facilitate memorisation. Previous literature concerned with musical analysis and memorisation is then highlighted and the findings and conclusions of qualitative studies regarding musical analysis and memorisation strategies are discussed. The findings and conclusions of these studies provide the context for this research project.

### **2.3.1 Ways of approaching the analysis of music for memorisation**

Music analysis is a broad field of scholarly interest with many kinds of application to music practice. The analysis of music with a view to supporting memorisation includes aspects such as the form and style of the piece; understanding and identifying phrase and section boundaries; identifying rhythmic, harmonic and melodic patterns, and analysing the melodic and harmonic structures (Hargest 2014, p. 47; Hodges 2018, p. 79; Klickstein 2009, p. 53; Shteinberg et al. 2014, p. 53). Approaches to analysing music for the purposes of memorisation can be extremely basic and straightforward: for example, simply acknowledging and identifying certain kinds of chords and progressions mentally – Mishra (2010, p. 12) calls such approaches ‘informal’. In contrast, the analysis can be extremely complex and multifaceted, taking the form of a thorough in-depth theoretical analysis of a specific piece by engaging in labelling strategies (Hargest 2014, p. 47; Ross 1964, p. 269; Shteinberg et al. 2014, p. 52).

The addition of colour in the analytical process is an important option to consider when analysing for memorisation. This use of colour has been advocated by Aeillo and Williamon (2002) and has been investigated by Ferrari et al. (2017). They suggest that by associating a certain colour with certain features of key recurring themes and other aspects of structure, a musician’s mental burden is reduced, which leads to an increase in one’s capacity for analytical thinking (Ferrari et al. 2017, p. 8).

Taking it one step further, Ferrari et al. combined the use of colour with a graphical representation of a piece's structure to facilitate the understanding of the musical form even further (2017, p. 4). A colour-coded and graphical representation adds another visual component in addition to the score. It might therefore potentially facilitate the learning of the piece for musicians with a preference for visual learning methods. Additionally, it supports listening and audiation of a piece. This leads to a much deeper connection with and understanding of the structure to be formed (Ferrari et al. 2017, p. 14): the more senses that receive and perceive external stimuli, the deeper the understanding and the more secure the memory might be.

It is therefore clear that the act of analysing music can vary greatly, ranging from in-depth approaches to more simplified and basic approaches. The incorporation of other elements, such as the use of colour, can further be beneficial.

### **2.3.2 Potential benefits**

The analytical component of memory, as mentioned earlier, can be set apart from the other components. The visual, auditory, kinesthetic and tactile memories are classified as sensory memories, relying as they do on the senses to gather relevant information in order to be memorised (Mishra 2010, p. 10). The intellectual (or analytical) component is considered to be a more cognitive component and therefore requires cognitively oriented and conscious approaches for it to develop properly (Mishra 2010, p. 10). Analysis appears to be less instinctive for many musicians and requires deliberate actions to develop, rendering it potentially more challenging. As a result, the development of an analytical memory is often neglected by many musicians (Shteinberg et al. 2014, p. 52).

However, the effort and time spent on improving and developing one's analytical memory is certainly worthwhile, as the analysis of music can be very beneficial to memorisation. Analysis of music engages an additional component to one's memory, potentially making it more secure. Consequently, it might lead to more benefits, in addition to the benefits mentioned in section 2.2.1, that might enrich a performance even further.

Both researchers and musicians themselves have affirmed that the use of analytical strategies for the memorisation of music is beneficial: as early as 1937, research by Rubin-Rabson concluded that analysis prior to practice facilitates memorisation (1937); subsequently, Ross (1964), Reichling (1989) and Chaffin (2007) all concluded that analysis essentially reduces the amount of time required for memorisation, and Mishra (2010, p. 13) stated that the analysis of a piece activates musicianship, which might further strengthen the relationship that exists between general musicianship, musical sophistication and memorisation abilities, as described by Zhang, Schubert and McPherson (2020, pp. 68–69). Research by Williamon and Valentine (2002) concluded that analysis improves the quality of memorisation and therefore benefits musical performance; and Timperman and Miksza (2019) concluded that verbalising the analytical features of a piece facilitates and strengthens the long-term memory of it.

Furthermore, the analysis of music promotes the cognitive interpretation of a piece, creating a clear ‘map’ of a piece and contextualising each individual note, which strengthens the analytical component of one’s memory and reduces confusion while memorising (Brigden 1936, p. 218; Mishra 2010, p. 12). It appears to be such a map of a piece that allows experienced performers to perform from memory with greater ease and to recover seamlessly in the event of a possible memory slip (Chaffin et al. 2016, p. 560). Furthermore, structural analysis can also benefit musicians who rely mainly on kinesthetic memory while improving their emotional component of memory, because such analysis can inspire new and more creative interpretive notions (Klickstein 2009, p. 54; Reichling 1989, p. 11; Shteinberg et al. 2014, p. 52). However, for the best outcome, the analysis of music and the analytical strategies applied to facilitate memorisation should occur both at and away from the instrument (Bernardi et al. 2012, pp. 276, 286).

Continuing to highlight some of the potential benefits observed by researchers, it has also been asserted that musical analysis makes the musician aware of the structures and elements that construct a piece and that it can help them to understand how it is put together. Chang (2007, pp. 60, 199 & 212), for instance, is of the opinion that through the analysis of a piece the musician forms an understanding and derives insights into the structure of a piece, which aids memorisation and interpretation. This

is very important, as understanding and insight makes large amounts of information meaningful, enabling further learning to occur. Understanding also enables more flexible and spontaneous responses to occur when an individual is placed in unexpected situations, and it nurtures creativity (Newton 2012).

Research conducted as early as 1936 by Brigden showed that the knowledge and awareness of the structural components of a piece, acquired through analysis, were more effective and efficient in supporting memorisation than the frequent repetition of a piece associated with muscle memory (1936, p. 217). Understanding and identification of the various structures and elements of a piece can help the musician to form associations by indicating differences and similarities that occur in it, which might make it more memorable (Shteinberg et al. 2014, p. 51). Developing an awareness of the sections and themes associated with the hierarchical organisation of a piece can improve memory and therefore performance (Chaffin et al. 2016, p. 559). All of these are advantageous properties that can be extremely valuable to a musician.

The list of potential benefits is near-endless, some of the most important having been stated above. I suspect, however, that only musicians who have truly experienced these benefits themselves, and who at some stage decided to explore the possibility of employing analytical strategies to facilitate memorisation, are those who are fully committed and motivated to continue applying analytical strategies consistently to memorising a piece. I believe that this might be a reason for the limited implementation of analytical strategies for memorisation, as I describe in the next paragraph.

Unfortunately, as I have indicated in the Introduction, despite the research-proven benefits of using analytical strategies to support memorisation, according to Mishra (2010, pp. 11 & 17), many musicians still rely on the conventional strategies and descriptions of memorisation associated with sensory memory components, such as a primary dependence on 'muscle memory'. Consequently, systematic and cognitive approaches are often dismissed and neglected (Mishra 2010, p. 17). These conventional strategies and approaches might be sufficient for shorter pieces, but Hallam (1997) is of the opinion that longer and more complex pieces require more focused and analytical approaches. Chaffin et al. (2016, p. 1) believe that memories

gained from both such unconscious and conscious procedures should be integrated. It is my hope that this study will serve as an opportunity for the participants to explore the possibility of applying analytical strategies to facilitate memorisation. And that, in doing so, they will experience some or all of the abovementioned benefits themselves, leading to a wholesome experience that will serve to inspire them to also employ analysis in the future.

### **2.3.3 Previous literature and qualitative research findings**

Owing to the fact that the memorisation of music holds so many potential benefits, many authors and researchers have written about this phenomenon, including literature on how memorisation works, the different components of memorisation and various strategies for implementing it sufficiently.

Several professional pianists and teachers have also written on memorisation of music as part of being a performer. They share insights from their perspective, drawn from their personal experiences. These authors share valuable insights in their respective books and articles. In all of these accounts the importance of memorising music in a holistic manner, engaging physical, mental and intellectual aspects, are evident.

Giesecking and Leimer (1972) places focus on internalisation of a piece through visualisation, ear-training and mental practice along with a thorough understanding of the structure, while Neuhaus (1973) emphasises the importance of emotional engagement and artistic understanding. Rosen (2002) considers both physical and mental challenges of piano playing, emphasising the essential role of having a comprehensive understanding of the structure. A combination of artistic interpretation and analysis is central to his approach to memorisation. Furthermore, a more philosophical perspective on memory and interpretation is shared by Brendel (2015) where he explores the philosophical and intellectual aspects of musical memory. The deeper musical meaning and underlying structure are key aspects highlighted by him.

These authors all provide a unique understanding and insights into performance and memorisation. They highlight various aspects that contribute to memorisation, including the importance of structure and form. The analytical component to memory

and several analytical approaches and strategies to facilitate this component have also been explored, investigated and observed in previous studies, as indicated below.

Some previous studies focused on the hierarchy and the relationship between different levels of the music. Chaffin (2007), for instance, focused on the hierarchy in Western music, and Froneman (2008) investigated the use of Schenkerian analysis and principles as a memorisation strategy. Similarly, research conducted by Chaffin, Gerling, Demos and Melms (2013) also placed the focus on this topic, investigating the use of Schenkerian analysis in combination with performance cues as a strategy for memorising music by forming an understanding of the bigger picture. Other types of musical analysis that were discussed, investigated or observed in previous studies and the existing literature include guided analysis of single-line melodies during training, as investigated by Ross (1961), and identification strategies for patterns and motifs in music, which has been a topic for research through many decades (Chaffin & Imreh 1997; Lartillot 2014; Shockley 1986). Only a few studies have observed the use of specifically structural analysis to some extent (Chaffin 2007; Noice et al. 2008).

In previous studies of structural analysis and memorisation, Hallam (1997) concluded that it is mainly expert musicians who employ analysis to aid memorisation. This conclusion is supported by studies where the respective authors observed how professional and experienced musicians memorised music without limiting themselves to the use of a specific prescribed method. Instead, these musicians were free to employ any memorisation method(s) of their choice. In these studies, it became clear that expert musicians used structural analysis to a large extent in their memorisation process, identifying the structural properties of a piece. Such structurally aware and analytically oriented processes led to successful memorisation. This resulted in less time being spent on memorising the piece, while ensuring a secure memory and improving the quality of the performance (Chaffin 2007; Chaffin & Imreh 2002; Chaffin, Lisboa, Logan & Begosh, 2010; Noice et al. 2008).

In contrast, Mishra (1999 and data revisited in 2002) observed how university students memorised a piece without specifying a particular memorisation method to be used (following a similar method as in the studies mentioned above). The results showed that a variety of strategies were used by these students, all of which were not equally

efficient, with some being more time-consuming and leading to memories that are less secure during performances. The methods that were observed being used by the students were segmental, holistic, additive and serial strategies. Almost two decades after Mishra's investigation, Gerling and Dos Santos (2017) observed how undergraduate piano students memorised a piece of music in phase I of their study. Just as with Mishra, they observed a wide variety of different methods being used. Analytical strategies and structural cues accounted for only 26% of all the reported strategies employed by the participants to aid their memorisation. Many of the students mainly used strategies related to sensory memory components (auditory, visual and kinesthetic memory) which, according to Mishra, are the more conventional strategies of memorisation (Gerling & Dos Santos 2017, p. 74; Mishra 2010, pp. 11 & 17).

Strengthening the argument even further, Lehmann, Sloboda and Woody (2007) found that novice pianists mostly learned small sections through constant repetition and then linking these sections, which seemed to be a less effective strategy when the performer needed to perform under pressure. There could be many reasons why a number of musicians do not make use of sufficient analysis when memorising, even after proving and showing all of its benefits. A possible explanation, for the students at least, might be concluded from Chaffin et al. (2016). They stated that it might be that students often labour under the misconception about the type of memory required for a successful performance, believing that the type of memory more unconsciously acquired through motor and auditory procedures is sufficient for performing a piece outside of the practice room. On the contrary, in reality the more reliable type of memory gained through deliberate and conscious memorisation processes is what prevents memory failure during performances. It might be that students are unaware that these are two different types of memory, acquired through different processes.

Regarding previous studies on the use of structural analysis specifically to aid the memorisation of piano music, two contrasting conclusions stand out: first, professional and expert pianists make extensive use of analytical strategies to some extent with great success, while novices and university students mostly refrain from using it, which results in a less secure memory of the piece. These conclusions correlate with the conclusion reached by Williamon and Valentine (2002) that the use of musical structure (and therefore analytical procedures and structural awareness) to facilitate

the memorising and practising of a piece, increases as the musician's proficiency, expertise and skill increases.

Based on the observations made from the abovementioned conclusions and findings, it might be safe to assume that analytical engagement of some sort, perhaps pointing to structural analysis more specifically, plays a key role, contributing to more effective memorisation as measured by quality and time efficiency. Chaffin et al. (2016, p. 3) state that a reason why many musicians have trouble attempting to memorise music is due to a lack of understanding of the musical structure. Flowing from my assumptions and further to this statement, I consider that a thorough understanding of a piece's form, including all its structural elements, is more likely to provide the necessary tools that a musician (and the participants in this research project) needs to memorise a piece effectively.

In this study specifically, the primary formal type in question is the sonata form: Hepokoski specifically remarks that, in many instances, the first movement of a sonatina (as in the sonatina movement selected for this study) is structured in sonata form (Hepokoski 2021, p. 84). Therefore, in order to understand the structure and to memorise the first movement in certain sonatinas (as in this study), it is necessary to understand the principles underlying the sonata form. Continuing with this way of thinking, I suggest that a comprehensive understanding of all the relevant aspects related to sonata form can be useful in the process of memorising a sonatina movement such as the one in this study. The next two sections of this chapter are therefore devoted to the sonata form, highlighting various important and relevant aspects of it.

## **2.4 SONATA FORM**

As mentioned above, this section focuses exclusively on the sonata form. Insights into the establishment of the term 'sonata form' and what is meant by it are shared. Furthermore, the way this form came to have the characteristic structure we acknowledge today is discussed and a brief historical overview of the form's development through the centuries is provided. Finally, reference is made to theories

that arose in later decades in an attempt to categorise and describe the elements of the structure.

‘Sonata form’ in contemporary usage refers to the structure of a single movement within a multi-movement instrumental composition; it is not limited only to sonatas. And movements in sonata form also appear in other genres, such as symphony, string quartet and piano trio (Allegraud, Bigo, Feisthauer, Giraud, Groult, Leguy & Levé 2019, p. 82; Prip 2020, pp. 69-70; Randel 2003b). Therefore, sonata form refers not only to the disposition or character of various movements forming part of, and known as, a sonata. Instead, it points to a formal convention employed for separate movements within a sonata and other related genres. Sonata form features less often in compositions such as fantasies and vocal compositions. However, principles taken from the sonata form may have an influence on other aspects of form in such compositions (Prip 2020, p. 69; Webster 2001a, p. 1).

Although the sonata form is most commonly used in the first movement of a cycle with a fast and lively character and tempo, it is not limited to these circumstances and is often found in other movements, including slow movements (Bigo, Giraud, Groult, Guiomard-Kagan, Levé 2017; Prip 2020, p. 69; Webster 2001a, p. 1). This point is significant for the discussions that will follow later. For this reason, the term ‘sonata form’ is often preferred over terms such as ‘first-movement form’ or ‘sonata-allegro form’ (Randel 2003a). With a clear explanation of what is meant by ‘sonata form’ now stated, brief notes on historical context follow.

#### **2.4.1 Historical development**

The early development of the sonata form is fairly complex. It reveals how all the various structural processes and principles, including tonal organisation, thematic function and contrast, thematic development and recapitulation, became connected to each other to produce and create the specific structure known as the sonata form (Randel 2003a).

Before the 1600s, the term ‘sonata’ was used simply to implicate instrumental compositions, regardless of their form (Prip 2020, p. 70; Randel 2003b). By the 17<sup>th</sup> century, compositions imposing a balance between monody and counterpoint

eventually led to be the Baroque sonata and the form further evolved into rounded and expanded binary forms by Bach's time (Jacobson 2013; Prip 2020, p. 70; Webster 2001a, p. 7). Carl Philipp Emmanuel Bach's arrangement of compositions in three sections, fast-slow-fast, as well as increased tonal variation, became the norm during the Classical period (Jacobson 2013; Prip 2020, p. 69; Randel 2003b).

In the Classical period, compositions featured emotional expression and simplified textures (Prim 2017; Webster 2001a, p. 5). Additionally, numerous contrasting ideas with dramatic developmental passages became more evident (Webster 2001a, p. 5). Only by the 1760s, the full sonata form became the norm for fast movements in sonata-related genres and composers such as Haydn, Mozart and Beethoven were considered masters of the form (Bigo et al. 2017; Greenberg 2022, p. 26; Prim 2017; Randel 2003b; Webster 2001a, p. 8).

Despite its decline in popularity during the Romantic period, the sonata form continued to evolve. Innovations, such as dissonant harmonic styles and remote key areas became standardised (Randel 2003a; Webster 2001a, p. 19). From the 1920s, however, some composers reconnected with traditional styles during an era known as the 'neo-classical' period (Randel 2003a; Webster 2001a, p. 19).

The discussion of the sonata form's development can be rather complex and debatable, there being several opinions and thoughts on the topic. Although the physical compositions examined are a constant, the advent and further development of the sonata form can be viewed differently, depending on the various and varying aspects of these compositions that could be taken into consideration. Greenberg (2022, pp. 21–22) explains, when viewed from the perspective of a qualitative approach, that one could argue that the form came into existence from the first appearance of a clear set of sonata attributes, featured simultaneously in a single piece. Such an approach acknowledges the various contributions from numerous composers over the years in the 'invention' of the form, which led to its further development and increasing popularity towards the 1750s. But a quantitative perspective would only acknowledge sonata form from the 1750s onwards, as this was the time when the form appeared in a continuous and consistent manner in numerous

compositions, especially those by Haydn. Any isolated instances of the form prior to this are dismissed and viewed as being a superficial resemblance of the form.

Greenberg's view on the topic is, however, made clear in the following statement, as he explains the development (2022, p. 91):

Sonata form ... would have emerged by chance from the coincidence of numerous smaller-scale features, shaped by the common practice of a huge variety of composers, none of whom would have had any intention to create anything markedly different from accepted norms or been in any way conscious of doing so. This is why sonata form is only described in theoretical writings from the end of the eighteenth century, by which time it had already existed for decades. ... And it is why it was only once that emergent form had departed from the foundations of binary form, only when it challenged the framework within which it had developed, that it became necessary to provide it with a title of its own: sonata form.

Following the journey of the 'sonata' over a period of roughly 350 years, with early roots in binary form, it becomes clear that the form came a long way to eventually establishing fundamental structural properties unique to it. Reaching its peak in the 18th century through the masters of the Classical period, the sonata form is probably the most renowned formal type to have ever existed and which underlined and shaped thousands of instrumental compositions. As the sonata form developed, it intrigued composers and theorists throughout the centuries who not only sought to compose in this form, but also to understand and teach it, leading to the discussion in the next section.

#### **2.4.2 Descriptions of sonata form**

*Formenlehre* is central to this discussion as the focus now shifts to the various attempts by theorists throughout the centuries to ultimately understand and describe the structure of the form. The concept of *Formenlehre*, in German meaning 'the theory of form', points to German traditions from the 19th and 20th centuries, in which publications discussed and represented all the various standard musical forms of Western music in a systematic manner (Bergé 2010, p. 17). The *Formenlehre* sought to establish generalisations about the various formal types, including the sonata form, based on a large variety of individual pieces (Webster 2010, p. 125). The various formal types discussed in writings

concerned with *Formenlehre* were described and referred to using terms such as 'phrase', 'idea' and 'repetition'. Secondary parameters, including melody, harmony, rhythm, texture and cadences, are all relevant aspects that were included in discussions about form and formal types, including the sonata form (Caplin 2010b, p. 21).

The sonata form, as mentioned previously, essentially developed as the result of constant and gradual extensions of the binary form in search of a more variegated and expressive form and, therefore, had at its basis the same modulatory plan as the binary form (Greenberg 2022, p. 20; Hepokoski 2021, p. 53). Certain characteristics of the form were evident in the early writings about binary and rounded binary forms, but not yet described or identified in that manner (Greenberg 2022, p. 20; Webster 2001a, p. 20). Adequate descriptions of the sonata form specifically, appeared only after the 1790s (Greenberg 2022, p. 20).

Despite these descriptions of what was later perceived as the 'sonata form', the actual term was first introduced only in 1824. Adolph Bernhard Marx, a German theorist, introduced the term in an essay, after which composers and music theorists in the 19th century started referring to this specific term (Bigo et al. 2017; Greenberg 2022, p. 20; Prim 2017).

Some of the first mentions of a complete and fully developed theory of the classical sonata form, in the *Formenlehre* tradition, appeared in A.B. Marx's *Die Lehre von der musikalischen Komposition* (1837–1847). Such early works included descriptions of the musical material and its development, following a certain structure within a movement. These writings further served as a 'recipe' for teaching composition and analysis of the form (Allegraud et al. 2019, p. 82; Bergé 2010, p. 17; Webster 2001a, p. 21).

Numerous theories concerned with sonata form, some introducing new perspectives and ideas regarding ways to describe its construction, followed in the ensuing decades. Such theories from the first half of the 1900s included work by Heinrich Schenker and William Newman, among other composers (Greenberg 2022, p. 14; Hepokoski 2021, p. xi).

To conclude, the development and emergence of the sonata form was an intricate process, one that is difficult to define. To summarise, using Greenberg's (2022, p. 185) words:

The process as a whole is very gradual, and at no particular point along the way can we distinctly say that sonata form has now emerged, whereas it was absent beforehand.

The sonata form therefore became a fundamental formal type, probably becoming one of the most important formal types in history, as attempted to be understood through the *Formenlehre*. The quest to formulate strategies and theories to facilitate a better understanding and analysis of the sonata form movements was already evident centuries ago. However, fascination with the form and its structure is still alive and well through recent years as the form continuously inspires innovative theories. Such theories are elaborated on in the following section.

## **2.5 THE NEW *FORMENLEHRE***

During the 20th century, support for *Formenlehre* grew significantly less as problems with the theory arose (Galand 1999, p. 156). In recent decades, many theorists have started to reinterpret previous and conventional descriptions of the sonata form, questioning aspects of these older descriptions (Webster 2001a, p. 21). One of the problems was the fact that numerous pieces which were composed, seemingly in the forms expressed by *Formenlehre* theory, depart from these types as described in textbooks. Classifications were not as distinct and clear, with some concepts not yet clearly categorised and distinguished. For example, the sentence and period were only later clearly distinguished by Caplin (Galand 1999, p. 156). This reinterpretation of conventional formal types led to a phenomenon known as the *New Formenlehre* (Hepokoski 2021, p. xi).

Two fundamental approaches forming part of the *New Formenlehre* are James Hepokoski and Warren Darcy's sonata theory and William Caplin's theory of formal functions (Greenberg 2022, p. 16). Hepokoski and Darcy's sonata theory is only briefly mentioned, because the primary focus relevant to this project is William Caplin's theory of formal functions, which highlights his approach to analysing the sonata form.

These two theories and various aspects of their approach to analysis are based on fundamentally different theoretical grounds, that is, ways of understanding the role,

structural purpose and style of structures and themes in different ways (Caplin & Martin 2016, p. 10; Hepokoski 2016, p. 74). Although very different, both of these approaches contribute greatly to what people understand and perceive as the Classical form. Both approaches provide different analytical tools uniquely suited to addressing diverse types of analytical matter and question (Hepokoski 2016, p. 45). Whereas both theories focus on the same fundamental elements of form, such as thematic groupings, they each have their own unique way of viewing and explaining these aspects (Hepokoski 2016, p. 58). Regarding certain aspects of their theory, Hepokoski states that Caplin's theory did help to shape their perception of form, with Caplin's terminology playing an important role in their approach (Hepokoski 2016, p. 45; Hepokoski 2021, p. 17). The first theory to be discussed is Hepokoski and Darcy's sonata theory.

### **2.5.1 Hepokoski and Darcy's sonata theory**

This is a 21st-century theory and approach to the sonata form, one much more detailed in comparison to the old *Formenlehre* (Greenberg 2022, p. 16; Hepokoski 2021, p. 1). It aims to give new life to the old classifications in a different and innovative way, following a 'top-down' approach and focusing on thematic groupings and thematic content (Hepokoski 2016, p. 46). Their theory is a modern approach to understanding compositions in the sonata form and it is primarily concerned with the analytical interpretation of such works in the classical style and beyond (Hepokoski et al. 2021, p. 1). At the centre of this approach is the concept of 'dialogic form', where the compositional selections that created each sonata movement are in a dialogue with the normative expectations of the form (Hepokoski 2021, p. 2).

This theory refers to the exposition, development and recapitulation as broad action zones or action spaces, with each being subdivided into smaller zones with an expected tonal and thematic structure (Hepokoski 2021, p. 7). For each stage of the sonata form, they identified the most typical or standard types (described as 'norms') of action or activity occurring in the music at that specific point. These can be viewed as the various options available for use by composers (Hepokoski 2016, p. 46; Richards 2010, p. 246). The norms are then further placed in order according to their frequency. Consequently, the music can, at any point, do something viewed as normal, deviating from the normal, but still significant or something entirely unusual, in which case it becomes classified as a 'deformation'

(Richards 2010, p. 246). Their theory is therefore focused on the expected paths of cadential fulfilment within the exposition, as it is their view that no sonata follows a generic 'textbook' form (Hepokoski 2016, p. 46; Richards 2010, p. 246). The norms identified by Hepokoski and Darcy change according to the era of composition and are therefore period-specific. Sonatas from the 18th and 19th century therefore have different sets of norms associated to themes and which they are analysed against (Greenberg 2022, pp. 29 & 30; Richards 2010).

This theory, based on action zones and norms, is a new, refreshing approach to viewing the sonata form, introducing unique terminology and principles. The theory recognises and acknowledges the evolution of the form and its characteristics over the decades that brought changes in the structure, therefore requiring different principles to be applied to it. Although this sonata theory is well structured and clearly defined, it is the next theory that stands at the base of this project.

### **2.5.2 William Caplin's theory of formal functions**

The theory relevant to this research project is William Caplin's theory of formal functions. This section emphasises the essential characteristics of Caplin's approach that make it unique, shares some insights into Caplin's textbook that expounds on this approach and provides a broad overview of the sonata form from Caplin's perspective compared to older, more conventional perspectives.

With this extremely detailed theory, Caplin attempted to make old classifications more meaningful (Greenberg 2022, p. 16). His entire approach to analysis is essentially based on a form–functional perspective, observing thematic functionality (Caplin & Martin 2016, pp. 21 & 28). Caplin introduces several new and innovative concepts and ideas, which provides a new and refreshing view of the sonata form and its construction. Some of these significant perspectives are shared in the following section.

#### ***2.5.2.1 Unique perspectives of Caplin's theory***

Caplin's theory includes several unique characteristics, explaining the sonata form and all of its various elements in extreme detail. All the aspects of his theory are clearly set out and introduced in his book, published in 1998, as discussed below in this section.

Caplin's theory focuses on the interactions between phrases and also phrase members in a sonata to determine their role in the formation of the musical content at both the thematic level and the composition in its entirety (MacKay 2020, p. 380). The theory further aims to classify and categorise themes into specific thematic types (sentence, period and hybrid theme types) and describe units as small as two bars that construct these themes (Allegraud et al. 2019, p. 82). Caplin notes that the disposition of the various thematic functions depends to some extent on the genre, a similar concept to that observed by Hepokoski and Darcy (Galand 1999, p. 167).

He focuses especially on the concept of 'formal functions', which are the essential and basic parts that construct each theme. It is this concept of formal functions along with his introduction to intra-thematic functions that sets Caplin's theory apart from previous theories (Galand 1999, p. 160). The following quotation describes Caplin's point of view regarding the role of formal function in the theory of form (Caplin & Martin 2016, p. 35):

... these same formal functions [found for example within a sonata movement] are operative across a wide variety of formal types within the Classical literature .... These functions are the fundamental building blocks of Classical form. The logic of their succession confers formal coherence on the manifestly different melodic, rhythmic and textural materials contained within these functions.

Additionally distinctive of Caplin's approach is the necessity to distinguish between hierarchical levels when identifying the formal functions in a piece. This influences the criteria. At lower levels, the type of harmonic progressions that support the passages determines the function: prolongational progressions resemble a formal initiating function, sequential progressions resemble medial functions, while cadential progressions point to formal closure. Harmony works closely with vital processes of grouping structures such as fragmentation, which also poses important medial functions (Caplin 2010b, p. 34). The recommencement of a bigger unit after fragmentation, for instance, can be used to indicate formal initiation (Caplin 2010b, p. 34). Tonality, as established through cadential articulation, and compositional processes regarding formal organisation are responsible for the differentiation of higher-level thematic functions.

In his approach, Caplin also considers several problem areas that arose from older theories of form. These include terminological uncertainties, such as the case of determining the role and term for the second half of a sentence; the role of different orders of magnitude in distinguishing thematic types, and the difference between 'real' and 'notated' measures (Galand 1999, pp.153, 156, 157).

Compared to not only the old *Formenlehre*, but also to other theories of the *New Formenlehre*, Caplin also adopts a unique perspective on the treatment of certain elements and materials in a sonata movement (Caplin & Martin 2016, p. 21). One such unique concept that has relevance to this project is Caplin's idea of a transition or subordinate theme fusion – a notion that stands in opposition to Hepokoski and Darcy's 'continuous exposition' (Hepokoski 2016, p. 44).

Another essential and interesting aspect of Caplin's theory is its association with musical temporality. This refers to a human being's ability, when experiencing time, to observe the beginning, middle and end of something in a certain time span. It is these temporal experiences and functions of a piece that are directly involved in musical form. Caplin explains that formal functions can have an initiating, medial or concluding function in a piece or a large-scale structural component, signalling the beginning, middle or end of a section (Caplin 2010b, p. 23; Caplin 2013, p. 47). A formal function is connected to a temporal sense of 'beginning, being-in-the-middle, or ending' (Caplin 2013, p. 73). This concept of the temporal effect of various functions enables this theory to offer an analysis that describes its effect, even in pieces that deviate from the norm.

Caplin's approach, with all the elements and concepts such as those mentioned above, is compiled and fully explained in his book, *Classical Form: A Theory of Formal Functions for the Instrumental Music of Haydn, Mozart, and Beethoven*. This book was published in 1998 and explains his approach in detail. It was originally aimed at a fairly wide audience. The book originated from materials compiled for a theory course presented at McGill University and earlier versions of the book were tested against the curricula at various tertiary institutions. The purpose of the book is – in Caplin's words (1998) – to 'revive the Formenlehre tradition by establishing it on more secure and

sophisticated foundations'. In broad terms, Caplin's approach, as demonstrated in his book, starts by covering small units of music, after which these are combined in expanding hierarchies to form an entire movement (Galand 1999, p. 143).

Caplin starts by providing primary descriptions and definitions of the harmonic and thematic concepts that are of essential value to his approach. These descriptions are followed by Caplin's establishment of a typology of the various tight-knit themes that are typically presented in the principal key area of the exposition in a sonata. This includes the period, sentence, hybrid themes, compound themes, small ternary and small binary. Caplin then focuses on looser formal regions, where he considers the subordinate theme, transition, development, recapitulation and codas. He then presents full-movement forms such as the sonata form by way of illustration (Caplin 1998; Galand 1999, p. 143).

In his book, Caplin places emphasis on a previously unfamiliar concept, namely, the intra-thematic function, which refers to functional components within individual themes. He expresses his interest in theme types with their individual functional components but also makes the strong argument that formal function is independent of the motivic content in a piece (Galand 1999, pp. 145–146).

Certain elements and ideas presented in older theories of sonata form served as inspiration for Caplin. Descriptions and traditions of the period and sentence as formulated by members from the Schoenberg school and distributed by Erwin Ratz, Josef Rufer and Edwin Stein were Caplin's main inspiration in formulating his typology. Another aspect of Caplin's theory influenced by Schoenberg includes factors and criteria established by Caplin that determine and distinguish between tight- and loose-knit organisations through certain loosening devices (Galand 1999, pp. 144, 146, 171).

Original to Caplin's work is his development of a typology of intra-thematic functions. This allows for most deviations from the sentence or period form to be analysed as expansions, extensions or compressions of one or a few of these determined intra-thematic functions or as interpolations between different functions (Galand 1999, p. 160). Caplin illustrates that intra-thematic or formal functions, constructing the sentence and period, can be used in various combinations to form hybrid themes. In principle, intra-thematic functions might be detachable; however, their syntactic

meaning remains unchanged (Caplin 2013, p. 100; Galand 1999, p. 166). Caplin demonstrates that all intra-thematic functions are therefore not completely interchangeable with some limitations that exist. For instance, an initiating function cannot be replaced by a concluding function, and vice versa (Galand 1999, p. 164).

Caplin demonstrates how all of these various aspects, as discussed in this section, are connected and applied to analyse not only the sonata form, but other Classical forms too. The concepts and terms established by Caplin provide a different view of the sonata form compared to those of conventional descriptions. The next section outlines the sonata form by providing both insights into these conventional descriptions and, more importantly, sharing Caplin's views in comparison.

### ***2.5.2.2 Sonata form structure and characteristics***

With a clear view of Caplin's perspectives outlined above, the following illustrates how Caplin's views compare with conventional descriptions of the sonata form structure in a broad overview. This brief illustration demonstrates how Caplin's interpretation of the form differs to older descriptions in some instances. In some cases, Caplin refers to structural elements in a similar manner, not changing his description from the conventional perspective. The first point to notice is that both the old and the new theories of sonata form typically identify three main sections in the structure (exposition, development and recapitulation) with a two-part tonal organisation (Caplin 2013, p. 263; Hepokoski 2021, p. 52).

In the exposition, older, more conventional descriptions of the form typically point to a two-part division of the exposition: the 'first group', presented in the tonic harmony, followed by the 'second group', presented in a different key (most frequently the dominant) (Bigo et al. 2017; Webster 2001a, p. 1). These descriptions proceed to emphasise further that the material presented in these two groups is in contrast to each other, highlighting the tonal polarity (Webster 2001a, p. 2). Conventional terms used to describe the first and most protrusive theme include 'first subject' or 'primary material', whereas the first and most prominent theme presented in the second group is referred to as the 'second theme' or 'subject' (Webster 2001a, p. 1).

Caplin, in contrast, shares a different view of the exposition, describing three main thematic functions that construct the typical exposition: the main theme (in the tonic harmony or the home key, as he refers to it), the transition (modulating to a different key or the subordinate key, as he refers to it) and the subordinate theme (in the subordinate key, which is often the dominant) (Caplin 2013, pp. 263-264). Each of these three thematic functions consists of a combination of different phrase functions and smaller units, portraying specific theme types, as listed in Caplin's typology of theme types.

The next part to follow in a sonata-form composition is typically recognised as the development section (Greenberg 2022, p. 14). Overall, conventional theories and Caplin's approach share similar perspectives on the role of the material in the development in relation to the rest of the movement. It describes that the development section aims to develop the material presented in the exposition in a dramatic manner and further modulates to, and introduces, new keys (Caplin refers to these as 'development keys'). This leads to more unstable tonal conditions. This section is the least predictable and does not follow a stereotyped design. The severe thematic development and tonal instability creates tension within the movement (Bigo et al. 2017; Randel 2003a).

Although unpredictable, commonly applied developmental techniques include melodic variation, compressions or expansions, fragmentation, contrapuntal combination, contextual and textural change, and transforming old or introducing new thematic material (Bigo et al. 2017; Randel 2003a). Finally, towards the end, the development prepares the statement of the recapitulation. From a structural point of view, the development can be seen as a dramatic transition between the exposition and the recapitulation that creates an immense amount of tension (Caplin 2013, pp. 272–273; Webster 2001a, p. 1).

Caplin proceeds to describe various models that can be applied to describe a development section's structure. The most profound of these is what Caplin refers to as a 'pre-core/core technique' (Caplin 2013, p. 273). Other possibilities described by Caplin, in the absence of a clearly defined core, include a core substitute. This can

take the form of a pseudo-core or a theme-like unit such as a transition-like-unit (Caplin 2013, p. 451).

Unique to the sonata form is the fact that the recapitulation returns to the main theme and the tonic key simultaneously, creating parallelism between the start of the exposition and the start of the recapitulation, which releases the tension created throughout the movement (Bigo et al. 2017; Webster 2001a, p. 2). The recapitulation repeats all the important material presented in the exposition. The second group (or the part labelled as 'transition and subordinate theme', according to Caplin) is transposed and presented in the tonic (or the home key, according to Caplin) (Bigo et al. 2017; Caplin 2013, p. 279; Randel 2003a; Webster 2001a, p. 2). Finally, the end of a movement in the sonata form is either signalled by a cadence or a coda in the tonic (Webster 2001a, p. 1). This leads to the end of the recapitulation and therefore the end of a movement in the sonata form.

The sonata form forms part of a larger class of 'key-area' or 'binary' formal types (forms consisting of a two-part structure, with the first part ending in a key other than the tonic) (Greenberg 2022, p. 14). Of all the forms included in this class, the sonata form exclusively exhibits the following characteristics: a distinct and separate development section with a retransition; a return of the main theme with the tonic at the same time, and, lastly, a recapitulation of the 'second group' (Webster 2001a, p. 3). These characteristics set the sonata form apart from other formal types.

Essentially, the sonata form can be viewed as a fusion of sectional and cadential arrangements, tonal structuring and the organisation and development of various musical ideas as described above: there exists therefore no such thing as 'regular' sonata form (Bigo et al. 2017). The form (with numerous variations to the basic structure) simply serves as an 'ideal type' and cannot be regarded as a rigid framework (Randel 2003a; Webster 2001a, p. 1). The way in which musicians attempt to describe and comprehend the structure of compositions in sonata form, dating back to the 18th century, has changed significantly over the past century, adopting this perspective. Instead of viewing sonata form as a set of rules used to construct a rigid archetype, perspectives shifted to a more relaxed view, interpreting it as a set of principles and

optional procedures that can fit to a variety of different variations to the conventional form (Greenberg 2022).

In conclusion, William Caplin's theory of formal functions serves as a comprehensive analytical model for analysing Classical forms, such as sonata form. His classification and identification of the various thematic types, constructed from the smallest units, provides a basis for understanding the musical organisation of compositions in the Classical style. In his approach, formal functions are identified based on compositional processes as well as harmonic progressions, with clear distinction being made between hierarchical levels. Caplin's approach to analysis serves as a valuable tool for theorists, musicologists, composers and hopefully also for musicians striving to use analysis to facilitate memorisation of a piece.

As explored in this section, several characteristics are unique to Caplin's approach. His typology of inter-thematic functions, allowing for the identification of expansions and deviations of thematic units, and his perspective on elements such as thematic fusions, are of particular importance to this study. Caplin's perspective on the sonata form structure was presented; however, these elements in particular are promising as they enable one to apply Caplin's approach to compressed forms, such as sonatina movements. Sonatina movements are discussed in the sections that follow.

## **2.6 SONATINA FORM TERMINOLOGY**

Terminology regarding sonatinas and the sonatina form may cause confusion (as seen throughout history) and needs some clarification for the purposes of this study. This section highlights the connections and differences between terms such as 'sonatina form', 'sonata without development' and 'sonatina' by briefly highlighting their structural characteristics. Caplin's views on these terms and the associated forms are also shared. Once clarified, attention shifts to 'sonatinas' in the context as used throughout this study.

The term 'sonatina form' or simply 'sonatina' as first referred to by A.B. Marx in the mid-19th century is often used to refer to a sonata movement lacking a development section (Caplin 2013, p. 571; Hepokoski & Darcy 2006, pp. 346–347; Hepokoski 2021,

p. 84; Webster 2001b). Movements of such a nature were often used in the slow movement of opera overtures and sonatas from the 1700s, as seen in works by Mozart (Britannica 2007; Webster 2001a, p. 22).

Another term used for 'sonatina', in the same context as Marx described it, is the 'sonata without development'. The latter was the term preferred by Caplin (2013, p. 571). Although the sonata form without a development section most often occurs as a slow movement in a composition, this form can also be written for sections with a faster tempo. These slow movements still present as the sonata form, but often include alternations and modification (Caplin 2013, p. 656).

A 'sonatina' used in the context of a 'sonata without development' or a 'sonatina form', is typically described as having a two-part structure: an exposition and a recapitulation that are mostly structurally similar to that of a regular sonata. The exposition is often followed by a retransition which can be relatively long. Although chromatic harmonies and the model-sequence technique may occur, it is, however, not enough to justify a true development section (Caplin 2013, p. 571). The fact that there is no formal development section leads to a change in the form functions in comparison to a regular sonata. In a sonata without development, the recapitulation resembles a sense of repletion rather than a sense of return.

This structure is one of a few different variants from the traditional sonata form and is determined and classified by Greenberg (2022, p. 16) as being part of so-called *refinement* strategies. According to Greenberg, this refers to theories in which theorists started to acknowledge and describe variations in the traditional sonata form (2022, p. 16). Such strategies accepted a series of subcategories of sonata forms with resembling functions rather than a single, rigid model of the conventional sonata form (Greenberg 2022, p. 16; Hepokoski 2021, p. 51).

Musicologists later started refraining from using the term 'sonatina' in this context. Instead, the term 'sonata without development' took precedence over 'sonatina' as they felt that the term 'sonata without development' suggested incompleteness in a formal type that could stand independently on its own, while large symphonic movements described as having a 'sonatina form' may be more misleading (Hepokoski & Darcy 2006, p. 347).

Continuing to refer to the various terminologies, Caplin remarks that the confusion may be caused by the fact that some theorists use the terms 'sonata without development' and 'sonatina form' interchangeably, pointing to a 'little sonata'. He explains that the term 'sonatina form' used in this context does not particularly refer to the form associated with pieces categorised and labelled as sonatinas in their title (Caplin 2013, p. 571). Pieces, titled 'sonatinas' can have various formal structures, but in some instances (as with the sonatina movements selected for this study), movements in sonatinas are structured in sonata form (Hepokoski 2021, p. 84).

'Sonatinas', referring now to pieces labelled and titled as such, can be described as a 'little sonata', with similar formal properties to a sonata of the Classical period. Such pieces may occasionally correlate with the sonata form structure; however, they are presented on a smaller scale, being more compressed. The technical abilities demanded to perform and execute such pieces are often significantly less compared to full-length sonatas (Caplin 2013, p. 571; Jurkowski 2010, p. 9; Randel 2003c).

The sonatina is also mainly structured in three independent sections, similar to a sonata's three-movement structure, with the first movement most frequently being in sonata form (Webster 2001b). Of the sections constructing the sonatina's first movement, the exposition and recapitulation correlate very strongly with the corresponding sections in a sonata. The development section of the sonatina, however, does not necessarily follow sonata form conventions, but deviates from them quite often. The development is often very short or may be lacking altogether (Britannica 2007; Webster 2001b). Jurkowski (2010, p. 10) mentions that the sonatina often articulates a small ternary form's formal functions, presenting as an exposition, a contrasting middle and a recapitulation. When examining a sonatina, the formal functions of the sonata form are also often compressed or altered (Jurkowski 2010, p. 9).

Formal types often associated with slow movements in a cycle often compare with the structure of pieces labelled 'sonatina' (Caplin 2013, p. 571). Although Caplin does not refer to the sonatinas and the structure of such pieces directly, the formal structure of the specific sonatina movements used in this project in particular correlate very strongly to what Caplin describes as 'sonata form in slow movements' (Caplin 2013,

p. 590). In his book he mentions the following alterations and techniques most commonly associated with the sonata form to achieve formal compression in a slow movement. These include the following (Caplin 2013, p. 590):

- The presence of only one subordinate theme in the exposition. In such a case, the subordinate theme usually has a relatively tight-knit organisation, but is still looser than the main theme.
- Standing on the dominant sections is generally more controlled and constrained.
- Form-functional fusion occurs frequently, especially between the transition and subordinate theme functions, forming one grouping unit: Fusion leads to compression of the form as various phrase-functional aspects are being eliminated. These often include the half-cadence and standing on the dominant of the transition as well as initiating unit/new basic idea of the subordinate theme (Caplin 2013, p. 591).
- The transition section might be omitted. Compression occurs as the main theme's final cadence is directly followed by the beginning of the subordinate theme (Caplin 2013, p. 592). Tonally, as a result, the emphasis on the subordinate key's dominant is then shifted to the subordinate theme, usually through a standing on the dominant.
- Reduction of the development section (Caplin 2013, p. 690). This includes the following common changes to the development that may occur: the absence of a full core; however, some model sequence sections may occur as well as no cadential confirmation of the development key.
- Replacing the development, a section resembling a contrasting middle section of a small ternary form might instead be presented (Caplin 2013, p. 593).

From all of the abovementioned information, it can be gathered that the term 'sonatina' can be used interchangeably with the term 'sonatina form' and 'sonata without development', referring to a specific two-part formal structure. In this context, the term 'sonata without development' is typically preferred. Nevertheless, the same term, 'sonatina', can also refer to pieces labelled as such. In those cases, the term means 'little sonata', pointing to pieces that are similar to sonatas consisting of three distinct movements', but on a smaller scale. Sonatinas in this context may or may not be in 'sonatina form'. It is clear that the latter description of 'sonatinas' is of relevance in this

study as movements from pieces labelled 'sonatina' are in question. The last section of this literature review, presented in the following section, briefly gives an overview of the existing literature concerned with sonatinas.

## **2.7 ANALYSIS OF SONATINA MOVEMENTS**

Although scholarly sources on the sonata form and all the concepts and topics related to it are widely available, articles and sources focusing specifically on sonatinas are more limited, with little attention being given to this genre. Neither Caplin (1998, 2013) nor Hepokoski and Darcy (2006) give much attention to sonatinas, despite their pedagogical value and potential.

Although not highly prioritised by theorists such as Caplin and Hepokoski, the topic of sonatinas has long captivated researchers and authors, as seen in the literature briefly discussed below. These include literature on the topic written in the 1980s and 1990s, but also more recent insights from the 2000s and 2010s. This literature concerned with sonatinas specifically has focused on sonatinas across various stylistic periods, examining sonatinas composed in the Classical period, through to especially the 20th century and even into the modern era (Blakley 1982; Yuan 2016; Höhmann 2007; Lee 2016; Messaritaki 2016; Rhoden 1998; Thomson 1989; Yun 2017). In these writings, sonatinas are observed and discussed, focusing on various facets of the compositions. These include the stylistic comparisons, performance guidelines, pedagogical insights and analytical observations (Blakley 1982; Höhmann 2007; Lee 2016; Messaritaki 2016; Rhoden 1998; Thomson 1989; Yuan 2016).

Previous literature focusing on Classical sonatinas, including references to works by Clementi and Diabelli, among other authors, include a book by Warren Thomson dating back to 1989 and work by Lori Ellen Rhoden published in 1998. In this book, Thomson provides insights into the unique compositional traits and associated performance practices of various composers. The form of selected sonatinas by these composers is also discussed. Rhoden's work is more pedagogically based, providing guidelines for teaching the Classical period style. Rhoden provides pedagogical analyses of selected sonatinas by the relevant composers, making reference to analytical aspects.

More recently, Anna Messaritaki (2016) examined the piano repertoire by Ferdinand Ries. Messaritaki highlighted the differences and similarities in the implementation of different ternary forms and the sonata form as applied on a small scale (as with sonatinas) and a large scale (as with sonatas) respectively. On a similar note, Hyorim Lee (2016) examined certain movements of Johann Wilhelm Hässler's Six Easy Sonatas. Although these compositions are not termed *sonatinas*, Lee points out that the sonatas play an important role in the Classical repertoire, bridging the transitional gap between music at an intermediate level (as seen with sonatinas of Kuhlau and Clementi) to those at a more advanced level (as observed in sonatas by Haydn, Mozart and Beethoven).

However, one article in particular that provided valuable insights for and guidance to this project is that by Edward Jurkowski, 'Clementi's "Progressive Sonatinas," Op. 36: Sonata semplice or Mediating Genre between Minuet and Sonata Design?' (2010). The significance of this article to this project specifically can be attributed to a few key factors.

First, as previously stated, Caplin's theory of formal functions was considered the most suitable analytical model to base this particular study on. This decision was motivated by the fact that Caplin's theory of formal functions is widely recognised and taught as a model for analysing Classical forms, making it relevant in modern age analytical practices and research. Jurkowski's article, unlike the other literature mentioned, is focused exclusively on Caplin's theory, providing an extreme amount of detail. He applied the principles of Caplin's analytical approach to all six expositions of the first movements from Clementi's op. 36 cycle of 'Progressive sonatinas'. Therefore, the analytical insights provided by Jurkowski in this regard, in addition to Caplin's textbook, were extremely valuable throughout the process of conducting the analyses included in this study.

Secondly, in his article, Jurkowski demonstrates the application of Caplin's theory of formal functions to sonatinas specifically. Caplin (2010, p. 32) stated the following:

I see classical form arising out of a common set of formal functions, which are deployed in different ways to create multiple full-movement types. The common element is not

sonata form per se, but rather the functions that make up the various forms. Thus we can recognize the appearance of subordinate-theme function, to take one example, in a short minuet form, in a moderately-sized rondo form, in a large-scale concerto form, and, of course, in a sonata form. ... the fundamental compositional techniques that define this function are manifest in similar ways throughout these differing forms.

With this quotation in mind, Jurkowski expertly demonstrated the application of such formal functions to various sonatina movements, emphasising how the same formal functions can be used to describe and analyse more than just the sonata form. These illustrations by Jurkowski were particularly insightful as such applications to sonatina movements specifically were not demonstrated by Caplin himself. As this project is focused on sonatina movements exclusively, these illustrations and demonstrations by Jurkowski provided critical insights. They enabled me to further elaborate on these ideas by extending them to a full sonatina movement.

Jurkowski's demonstrations further exhibited extreme detail as he illustrated various compositional possibilities and techniques available as the genre evolved. He showed variations in the form from one leaning towards a single-themed minuet exposition to those more associated with a fully established sonata exposition. Throughout the article, Jurkowski demonstrates how formal functions are compressed and modified to analyse sonatina movements by introducing the concept of formal fusion as conceptualised by Caplin.

In the first exposition (from the first movement of op. 36, no. 1), Jurkowski highlights the modulation to the subordinate key occurring in the later section of the main theme, in the consequent phrase. In this scenario, both transition and subordinate theme functions are presented in the same phrase. Within the short themes of the sonatina movement, a transition or subordinate theme fusion therefore occurs (Jurkowski 2010, p. 12). A very similar structure was observed in the exposition of op. 36, no. 2, except for the elision between the main theme and the subordinate theme that was excluded. As further discussed, and elaborated on in Chapter 3, it is sonatina movements similar in structure to these two analysed by Jurkowski (especially the latter) that played a significant role in and formed part of this project.

In both instances, the main theme function is significantly weakened due to the lack of cadential confirmation in the home key. With the structure of these two expositions in mind, Jurkowski (2010, p. 12) stated: ‘... instead of miniature sonatas, it might be more useful to conceptualize these two examples as sophisticated expositions from dual-themed minuets.’ The remainder of the article illustrates how the structure of the next four sonatina expositions gradually leans closer to the sonata form and further away from the minuet form as compressions in formal functions reduce.

To conclude, the literature on sonatinas, and their analysis specifically, is significantly more limited compared to the literature on sonatas. This is even more so the case when Classical sonatinas are considered exclusively. However, as discussed, some of the literature does in fact provide insights into the analysis of sonatinas from the Classical period, with research by Jurkowski proving to be of particular importance throughout this study.

This concludes Chapter 2 and the literature review presented. This chapter covered a variety of different topics all interconnected with and providing background to this research project. Each part of this chapter provided valuable context and insights to assist and guide the development of an analytical strategy to facilitate the participants’ memorisation of a Classical sonatina. Immersion in the previous literature on topics related to this project has further helped to shape my expectations and predict potential outcomes. The next chapter is devoted to the methodological processes involved throughout all the stages of this study. This includes an account of the processes followed in creating the analytical strategy, implementing the strategy and analysing the participants’ data.

## **CHAPTER 3: METHODOLOGY**

This chapter explains and discusses the methods and processes that were followed during three stages of this project, as described in the introduction. This includes stage two (comprising the formulation of an analytical strategy and the development of appropriate materials based on Caplin's theory of formal functions); stage three, which involved implementing the formulated strategy by voluntary participants by utilising the developed materials, and stage four, the analytical processes followed in conducting the analysis of the collected data. The research design and methodology were carefully considered and executed to provide sufficient insights that will achieve the aims and objectives set for this study.

### **3.1 RESEARCH DESIGN AND CONTEXT**

The research design that was considered most appropriate for this study, was a collective case-study design. A collective case study is defined as a qualitative approach in which the researcher explores 'a real-life, contemporary bounded system (a case)' over time, through thorough data collection, involving multiple information sources. The researcher reports a case description and case themes (Creswell & Poth 2018, p. 153).

According to this description, a collective case study design was selected as it fulfilled the following criteria:

- The collective case study examined a current phenomenon (the memorisation of a Classical sonatina movement among undergraduate piano students) within a real-world setting.
- A single entity or issue (memorisation of a Classical sonatina utilising analysis as a strategic tool) was examined across multiple cases, or participants, in order to illustrate different perspectives on the matter.
- The study took place in a bounded system as it took place within a controlled and well-defined environment with specific parameters, such as time and place.
- In-depth data collection through various data sources took place, including interviews, journals and videos to ensure detailed data.

- Trustworthiness, authenticity and credibility was achieved through the triangulation of data and truthful reporting of data, including positive and negative aspects.
- The research questions that led the study, answered ‘how’, ‘what’ or ‘why’ questions.

### **3.2 PARTICIPANTS**

A volunteer sampling strategy was followed, with undergraduate piano students specifically being the target population of this study. Mishra (2010, p. 5) asserts that it might be helpful to approach memorisation as a ‘specific instrumental technique’ rather than a general process, hence the focus on piano students. Volunteer second-, third- and fourth-year undergraduate piano students from specifically identified universities participated in the study to accommodate the possibility of participants’ withdrawing. First-year piano students were excluded as it was considered that they would probably not yet have acquired the level of proficient theoretical knowledge required of the participants. The choice of the specific institutions selected stemmed from the fact that their music departments have strong or leading piano divisions and they enabled those participants who had been exposed to various music theory pedagogies to be included in the study. The names of these institutions will not be disclosed in order to maintain their anonymity and that of the participants.

In total, five students from two of the participating institutions initially expressed an interest in the project. These five students responded to the recruitment materials circulated by their respective music departments. Of the five students who reacted, four proceeded to receiving, reading and signing the written informed consent form (as presented in Annexure 3). Of these four students, three (students from both institutions, being in their third or fourth year of study respectively) proceeded with the study for data collection and completed their self-selected six-week participation in the study. One student withdrew before commencing with the data collection due to academic responsibilities. Each participant was assigned a pseudonym and was referred to using it in order to maintain their anonymity. Three participants in this case study provided sufficient data, as Creswell and Poth (2018, pp. 159–160) suggest that the ‘single cases’ included in case studies of this nature should not exceed four or five

participants to ensure sufficient theme identification and cross-case analysis, without compromising the amount of detail.

Upon receiving the informed written consent form (as seen in Annexure 3), the participants were also required to complete a form indicating the desired time frame for their participation (as seen in Annexure 4). They were asked to select a six-week period in which they would be actively participating in the study, engaging with the materials provided, participating in communication sessions with the researcher and following the data-collection procedures.

### **3.3 MATERIALS DEVELOPMENT**

The goal of formulating an analytical strategy for the analysis of a Classical sonatina based on Caplin's theory of formal functions was to develop materials for the participants in this study. These materials were intended to provide them with detailed guidance on using the analysis of a Classical sonatina as a memorising tool. This would be achieved through an in-depth analytical case study, where a series of complementary materials were created to explain and discuss Caplin's strategy for analysis towards implementation. The materials focus on the first movement from Clementi's sonatina op. 36, no. 2. The series of materials consists of the following:

- a detailed colour-coded analysis of the first movement from Clementi's sonatina op. 36, no. 2 in the form of a marked-up score;
- a series of five videos, and
- an extensive glossary.

The first of these materials was the marked-up score.

#### **3.3.1 Written analysis in the form of a marked-up score**

The creation of a written analysis and a detailed marked-up score involved three stages. First, all the relevant terms and concepts used to describe and analyse the sonata form, as demonstrated by Caplin in his book, *Analyzing Classical Form: An approach for the classroom* (2013), were identified. Secondly, a colour-coded system, interconnected to the specific terms and concepts identified, was incorporated. Thirdly, suitable sonatina movements were selected, after which the terms and concepts as

applied specifically to the sonata form were applied to these movements. This was done in the manner demonstrated by Jurkowski (2010).

### ***3.3.1.1 Identification of relevant terms and concepts***

The first step towards creating a detailed analysis was to identify and understand the terminology unique to Caplin's theory, which defines all the main elements and concepts related to structure and, more specifically, that of the sonata form. The most significant terms and concepts that I identified include large-scale structural components, thematic units, theme types, phrase functions, units, tonality, cadences, structural changes and ornamental changes. These terms are used by Caplin to define structure and analyse Classical forms. The full descriptions and explanations of these concepts, and other relevant terms, were provided to the participants and can be viewed in Annexure 1 under the sonatina analysis glossary.

After identifying the essential elements and concepts used by Caplin to explain and describe the construction of the sonata form, a colour-coding system was applied to these concepts.

### ***3.3.1.2 Colour-coding system***

The choice of incorporating a colour-coding system in both the analysis and the videos flows from previous research: Aeillo and Williamon (2002) advocate the use of colour as part of the analytical process, while a study by researchers at Durham University several years later (2017) observed how it might be useful to assign primary colours to the large structures of a piece to facilitate their memorisation.

After identifying the elements, I proceeded to assign a specific colour to each of the identified elements that would be used in the written analysis, as shown in Table 3.1. Flowing from the conclusions made in the 2017 study, as mentioned above, I assigned the three primary colours to the three largest structural elements in a sonata-form movement. The rest of the elements were assigned a colour randomly according to my personal preference. The colour selection for each structural element was as follows:

Table 3.1 Colour selection of each structural component.

<b>PRIMARY COLOURS</b>	<b>DARK BLUE:</b>	Large-scale structural components
	<b>RED:</b>	Thematic units
	<b>YELLOW:</b>	Theme type
<b>OTHER COLOURS</b>	<b>LIGHT BLUE:</b>	Phrase functions
	<b>GREEN:</b>	Smaller units
	<b>DARK PINK:</b>	Cadences
	<b>BLACK:</b>	Tonality
	<b>LIGHT PINK</b>	Structural changes
	<b>ORANGE:</b>	Ornamental changes

This colour-coding system was presented to the participants in the document listed in Annexure 1 under Clementi sonatina op. 36, no. 2: first movement analysis. In the document, the different colours, as assigned to each structural component, were presented with a diagram that illustrates the relationship between these colour-coded components as applied in the marked-up score. This establishment of a colour-coded system then led to the last and probably the most important step to be followed to start the written analysis of the sonatina movement.

### ***3.3.1.3 Applying terms and concepts to sonatina movements***

The next step was to select two suitable sonatina movements to be presented in this project and to see how these different elements of the sonata structure could be applied to describe the structure of the movements, applying concepts and terminology relating to Caplin's approach. This was done by understanding mainly the sonata structure but also by considering some other tripartite structures, including the small ternary and minuet that could help to explain the compressed nature and structure of some sonatina movements.

In his book, however, Caplin does not treat sonatinas specifically, there being very few mentions of such pieces and their form. Therefore, the application of Caplin's approach to sonatina movements, as demonstrated by Jurkowski (2010) (discussed in section 2.7), served as a further guide in the process of analysing the sonatina movement for this project.

The article by Jurkowski provided valuable insights into understanding the different techniques used by composers (pointing specifically to compositions by Clementi) to achieve a compressed version of the sonata form, and other tripartite forms, as presented in many sonatina movements. The article highlights the different degrees to which these techniques could be employed to achieve a variation in the extent to which the formal functions of the sonata form can be compressed and modified to fit the structure of different sonatina movements. Jurkowski demonstrated this point by analysing and discussing the structure of the expositions of the first movements from Clementi's op. 36 cycle of six sonatinas.

Jurkowski demonstrates how, in some sonatina movements, the formal functions associated with the sonata form are highly compressed by introducing certain compositional techniques, especially inter-thematic fusion. This leads to compact formal functions in a short movement. In these instances, Jurkowski remarks that such movements may be more characteristic of the minuet form than the sonata form. He also demonstrates how, in certain sonatina movements, the formal functions associated with the sonata form are less modified and compressed, leading to longer sonatina movements with more definite sonata form characteristics.

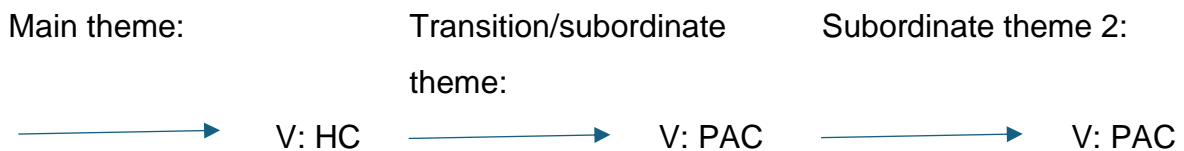
In addition to the illustration of varying levels of sonata form compression found in the expositions of some sonatina first movements, Jurkowski conducted this demonstration by applying Caplin's approach to analysis. He analysed the expositions of the sonatina movements using the elements, concepts and terminology established by Caplin.

An article titled 'Review: "Formenlehre" Revived' by Joel Galand (1999) provided further guidance in understanding and connecting the appropriate cadential patterns to the sonatina movements. In the article, Galand presents a variety of six cadential patterns most commonly found in sonata expositions, as identified by Caplin. One of the patterns presented (displayed in Table 3.2) relates strongly to the cadential patterns of the first two sonatina movements analysed by Jurkowski, confirming the close connection between the sonata and the sonatina forms in some instances. The specific pattern referred to illustrated a main theme ending on a half-cadence in the dominant region, followed by a transition or subordinate theme, ending in a perfect

authentic cadence in the dominant (subordinate) key. The illustration concludes with a second subordinate theme, leading to a perfect authentic cadence in the subordinate key. A fusion therefore occurs between the transition and subordinate theme within the main theme's consequent phrase, ending with a perfect authentic cadence in the subordinate key (Galand 1999, p. 174). This cadential pattern can therefore be seen as a period with a modulating consequent phrase. This was also the pattern observed in the first two Clementi expositions analysed by Jurkowski.

Table 3.2 The relevant cadential pattern of a sonata exposition, based on the illustration by Joel Galand (1999).

**SONATA EXPOSITION:**



After gaining a better understanding of how some sonatina movements are constructed, based on Jurkowski's representation, I analysed four different sonatina first movements in a similar manner as that demonstrated by Jurkowski. The aim was to find two suitable movements for this project: one to present to the participants as an example, forming part of an analytical strategy, and another to give to the participants to apply the strategy on themselves. The four sonatina movements that were analysed were the first movements from Clementi's sonatina op, 36, no. 1 and 2 and the first movements from Diabelli's sonatina op. 168, no. 1 and 2. Two of the four sonatina movements I analysed (both Clementi sonatina movements) were partially presented in Jurkowski's article.

Once all four sonatina movements had been analysed, I selected two movements with which to continue the project, namely, the first movement from Clementi's sonatina op. 36, no. 2 and the first movement from Diabelli's sonatina op. 168, no. 1. The other two sonatina movements that were also analysed (the first movement from Clementi's sonatina op. 36, no. 1 and the first movement from Diabelli's sonatina op 168, no. 2) were therefore abandoned at this point.

The selection of these two sonatina movements specifically was not accidental, but rather strategically planned. They were selected as they fulfilled the following criteria:

- They are short in length, so as to make memorising them within a relatively short time frame achievable for the participants.
- They feature structural elements characteristic of the sonata form, combined with minuet form characteristics, so that the analyses in this project could draw meaningfully on Caplin and Jurkowski's existing analytical apparatus.
- They are both closely related in their structure, so that my own sample analysis, offered to the participants, would be quite similar to the sonatina movement they were expected to analyse themselves.

The longer of these two sonatina movements (Clementi's op. 36, no. 2) was chosen to serve as the example of the strategy. The shorter of the two movements (Diabelli's op. 168, no.1) was chosen to be used by the participants to implement the strategy themselves.

I now describe the content of my analyses of the two selected sonatina movements, commencing with the first movement of Clementi's sonatina op. 36, no. 2.

The marked-up score that was created based on the analysis of this movement was presented to the participants as part of an analytical strategy (as attached in Annexure 1, under sonatina op. 36, no. 2). The marked-up score served as an example to demonstrate the analytical processes involved to participants. On this detailed marked-up score the established colour-coded system, as discussed in section 3.3.1.2, was incorporated. The exposition of this movement was presented by Jurkowski in his article, as mentioned earlier. Building further on his logic and demonstration, I analysed the remainder of the first movement, including the development and the recapitulation.

The exposition of the first movement of Clementi's sonatina op. 36, no. 2 opens with a main theme in the home key structured as a compound basic idea plus consequent, the fourth hybrid theme type identified by Caplin (2013, p. 100), ending with a perfect authentic cadence in the subordinate key. Towards the end of the main theme, inter-

thematic fusion occurs between the transition and subordinate theme functions. A separate subordinate theme follows, structured as a sentence, and it ends with an imperfect authentic cadence. The entire subordinate theme is then repeated, ending this time on a perfect authentic cadence. The exposition ends with a closing section. The development, in a development key, starts with a section associated with a compound basic idea. A continuation phrase follows, including fragmentation, a modulation back to the home key and a half-cadence. The last part consists of a standing on the dominant. The entire development section resembles a transition-like unit. The recapitulation then follows, structured in a similar manner to the exposition, except for the lack of a modulation to the subordinate key. This briefly sums up the structure of the movement as I had interpreted it.

As explained above, the sonatina movement selected for the participants' implementation of the analytical strategy was the first movement from Diabelli's sonatina op. 168, no. 1. Although a fully detailed marked-up score was also created based on the analysis (presented in Annexure 2), this analysis was not presented to the participants, but was completed for my own use during the process of selecting the sonatina movements for this project and to examine and compare the participants' analyses. The participants were provided with the clean sheet music of this movement (as provided in Annexure 1 under Diabelli sonatina op. 168, no. 1: first movement). Ideally, it was my expectation that the participants would perceive the structure of this movement in a similar manner as demonstrated in Annexure 2. A concise summary of this movement's structure follows below.

The exposition of the first movement of Diabelli's sonatina op. 168, no. 1 starts with a period-structured main theme in the home key and ends with a perfect authentic cadence in the subordinate key. Towards the end of the main theme, inter-thematic fusion occurs between the transition and subordinate theme functions. This section is followed directly by a closing section, including two codettas. The development, in a development key, starts with a compound basic idea and leads to an evaded cadence. A continuation phrase then follows, introducing fragmentation. The tonal region temporarily shifts and return back to the home key. A dominant arrival signals the start of a standing on the dominant, which leads to the end of the development. The recapitulation that follows is structured in a similar manner to the exposition. However,

the entire section remains in the home key and two extra codettas are added at the end to extend the recapitulation.

I applied the same terminology and procedures for labelling and analysing the scores associated with Caplin’s approach. The analyses and marked-up scores of both sonatina movements are therefore based on Caplin’s principles of formal functions. The resulting marked-up scores are also an extension of Jurkowski’s interpretations.

Table 3.3 illustrates these similarities and differences in the structures of the Clementi sonatina movement and the Diabelli sonatina movement. As the structure of both movements mostly corresponds throughout, the table highlights these similarities by presenting the structural components of the movements in parallel. The occasional differences are pointed out at the end of each thematic unit’s structural presentation in the table.

Table 3.3 Similarities and differences in the structure between two sonatina movements.

<b>Structural component</b>	<b>Clementi op. 36, no. 2 first movement</b>	<b>Diabelli op. 168, no. 1 first movement</b>
<b>EXPOSITION:</b>		
<b>Main theme:</b>	Conventional tight-knit, eight-measure long thematic unit: hybrid 4	Conventional tight-knit, eight-measure long thematic unit: period
1st phrase function:	Compound basic idea: Basic idea + Contrasting idea	Antecedent phrase: Basic idea + Contrasting idea
<i>Identified cadence:</i>	No cadence present at the end of this phrase	The phrase ends with an imperfect authentic cadence
<i>Key:</i>	In the home key	In the home key
2nd phrase function:	Consequent phrase – Transition/subordinate theme fusion:	Consequent phrase – Transition/subordinate theme fusion:

	Basic idea + Contrasting idea	Basic idea + Contrasting idea
<i>Identified cadence:</i>	The phrase ends with a perfect authentic cadence	The phrase ends with a perfect authentic cadence
<i>Key:</i>	Modulation to the subordinate key (dominant of the home key)	Modulation to the subordinate key (dominant of the home key)
<i>Identified differences:</i>	In both cases the main theme is presented as a conventional theme type from Caplin's typology of theme types. The hybrid 4 and period are very similar in structure, both structured as basic idea-contrasting idea-basic idea-contrasting idea, concluding with a perfect authentic cadence. However, the presence or absence of a weak cadence at the end of the first phrase function (at the first contrasting idea) distinguishes them: the period has a weak cadence present at that point, while the hybrid 4 does not have a cadence present at that point.	
<b>Subordinate theme:</b>	More loosely knit, six-measure thematic unit: sentence	No additional subordinate theme is presented
1st phrase function:	Presentation phrase: Basic idea + Basic idea (repeated)	
<i>Identified cadence:</i>	No cadence present at the end of this phrase	
<i>Key:</i>	In the subordinate key	
2nd phrase function:	Continuation phrase (shortened): Cadential idea	
<i>Identified cadence:</i>	The phrase ends with an imperfect authentic cadence	
<b>Subordinate theme (repeated):</b>	The entire subordinate theme repeats:	

<i>Identified cadence:</i>	The repeated cadential idea ends with a perfect authentic cadence	
<i>Identified differences:</i>	After the fusion occurred in the consequent phrase of the main theme in both movements, the Clementi movement continues with an additional subordinate theme and a complete repetition of the subordinate theme. The Diabelli movement however, does not state such an additional subordinate theme at all and continues rather directly to the following phrase function. This makes the Diabelli exposition much shorter in length.	
Last phrase function of the exposition:	Closing section: Codetta + Codetta (repeated)	Closing section: Codetta + Codetta
<i>Identified differences:</i>	The second codetta in the Clementi movement is basically an exact repetition of the first, while in the Diabelli movement the melodic material of the second codetta has been more embellished.	
<b>DEVELOPMENT:</b> 1st phrase function	Transition-like-unit: Compound basic idea: New idea + Contrasting idea	Transition-like-unit: Compound basic idea: New idea + Contrasting idea
<i>Identified cadence:</i>	No cadence present at the end of this phrase	The phrase ends with an evaded cadence
<i>Key:</i>	In the development key (supertonic of the home key)	In the development key (supertonic of the home key)
2nd phrase function:	Continuation phrase: Fragmentation	Continuation phrase: Fragmentation
<i>Identified cadence:</i>	The phrase ends with a half-cadence	The phrase ends with a dominant arrival
<i>Key:</i>	The phrase modulates back to the home key	The phrase modulates first to the dominant region of

		the home key and then back to the home key
3rd phrase function:	Standing on the dominant:	Standing on the dominant:
<i>Identified cadence:</i>	No cadence at the end of this phrase	No cadence at the end of this phrase
<i>Identified differences:</i>	<p>Again, the two development sections are very similar in structure. Three small differences occur:</p> <ul style="list-style-type: none"> <li>• At the end of the compound basic idea, the Clementi movement does not lead to any cadence, and while a cadence is also not formed at the corresponding point in the Diabelli sonatina, the latter represents an evaded cadence.</li> <li>• During the continuation phrase, the Clementi returns back to the home key, while the Diabelli movement first momentarily moves to the dominant region before returning to the home key.</li> <li>• The continuation concludes with a half-cadence in the Clementi movement, but only with dominant arrival in the Diabelli movement.</li> </ul>	
<b>RECAPITULATION:</b>	Various ornamental changes to the melody, accompanimental patterns and texture were introduced throughout the recapitulation	Various ornamental changes to the melody, accompanimental patterns and texture were introduced throughout the recapitulation
<b>Main theme:</b>	Conventional tight-knit, eight-measure long thematic unit: hybrid 4	Conventional tight-knit, eight-measure long thematic unit: period
1st phrase function:	Compound basic idea: Basic idea + Contrasting idea	Antecedent phrase: Basic idea + Contrasting idea
<i>Identified cadence:</i>	No cadence present at the end of this phrase	The phrase ends with an imperfect authentic cadence
<i>Key:</i>	In the home key	In the home key

2nd phrase function:	Consequent phrase (No fusion): Basic idea + Contrasting idea	Consequent phrase (No fusion): Basic idea + Contrasting idea
<i>Identified cadence:</i>	The phrase ends with a perfect authentic cadence	The phrase ends with a perfect authentic cadence
<i>Key:</i>	Structural change: there is no modulation taking place and the phrase remains in the home key. The rest of the recapitulation remains in the home key.	Structural change: there is no modulation taking place and the phrase remains in the home key. The rest of the recapitulation remains in the home key.
<i>Identified differences:</i>	The lack of a cadence at the end of the first phrase function in the Clementi movement (as in the exposition) is again the only structural difference between the main themes of these two movements.	
<b>Subordinate theme:</b>	More loose-knit, six-measure thematic unit: sentence	No additional subordinate theme is presented
1st phrase function:	Presentation phrase: Basic idea + Basic idea (repeated)	
<i>Identified cadence:</i>	No cadence present at the end of this phrase	
2nd phrase function:	Continuation phrase: Cadential idea	
<i>Identified cadence:</i>	The phrase ends with an imperfect authentic cadence	
<b>Subordinate theme (repeated):</b>	The entire subordinate theme repeats:	
<i>Identified cadence:</i>	The repeated cadential idea ends with a perfect authentic cadence	

<i>Identified differences:</i>	An entirely separate subordinate theme is again omitted in the Diabelli movement, while the Clementi movement features one plus the repetition of it. Owing to its more extended nature, the Clementi movement features more ornamental changes throughout the recapitulation.	
Last phrase function of the exposition:	Closing section: Codetta + Codetta (repeated with structural changes)	Closing section: Codetta + Codetta + Codetta + Codetta (with structural changes).
<i>Identified differences:</i>	In addition to the melodic embellishments to the second codetta in the Diabelli movement that are not as prominent in the Clementi movement, the closing section of the Diabelli movement has also been more extended than the Clementi movement. In the Diabelli movement, two additional codettas have been added, while the Clementi movement features only two additional chords, which does not justify an additional codetta.	

Once the two sonatina movements were selected and analysed, with the incorporation of the established colour-code system, the next step in the creation of the materials was followed. The series of videos created to support the example analysis were based on the Clementi sonatina movement that was created as an example of the analysis. These videos were created after completion of the written analysis and were based on the marked-up score. They are discussed in the next section.

### 3.3.2 Series of videos

A series of five videos was created to supplement the marked-up score of the first movement from Clementi's sonatina op. 36, no. 2 that were given to the participants as an example of analysis. The videos explain and discuss Caplin's strategy of

analysis as demonstrated in the marked-up score. The videos could be viewed as an extension to the marked-up score provided.

The first video provides a general overview of the sonatina movement, discussing the large-scale structure, the large-scale tonal structure and expected cadences within each large-scale structural component. The next four videos are each devoted to one of the three large-scale structural components, namely the exposition, development and recapitulation (two videos are devoted to the last of these). The participants received hyperlinks that gave them access to the respective videos. These links are presented in Annexure 1 under Clementi sonatina op. 36, no. 2 first movement analysis explained.

Within each video, the analysis of the respective large-scale structural component is discussed in detail with regard to the phrase–structural and tonal organisation. In each video the thematic units, phrase functions, smaller units, tonal regions and cadences are discussed. In addition to the marked-up score, displayed on the screen and the verbal explanations of them, sound clips of the different phrase functions, smaller units and cadences were incorporated to enable the participants to form an even better understanding.

Throughout the videos, the same colour-coding system as used in the marked-up score was applied. Each video concludes with a short summary of the large-scale structural component and a multi-coloured graphic representation of it.

The creation and use of a graphical representation of a score can be very beneficial throughout the learning process and can potentially make a piece more memorable. It adds a strong visual component to the concept of form and structure (Ferrari et al. 2017, p. 1). Research by Ferrari et al. (2017) showed that a graphic representation of sonata form movements can enhance and deepen the understanding thereof and can further serve as a tool to processing the score more efficiently. The brief format of such a graphic representation provides a concise manner of accessing the information (Ferrari et al. 2017, p. 1).

In this project, as indicated in Figure 3.1, I chose to use a multi-coloured flowchart that clearly indicates all the essential elements of structure within the movement, their relation to each other as well as the passage of time throughout the movement. I added a graphic representation at the end of each video as an additional summary. These flowcharts were structured as follows, proceeding with the same colour-coding system as established and applied in the marked-up score.

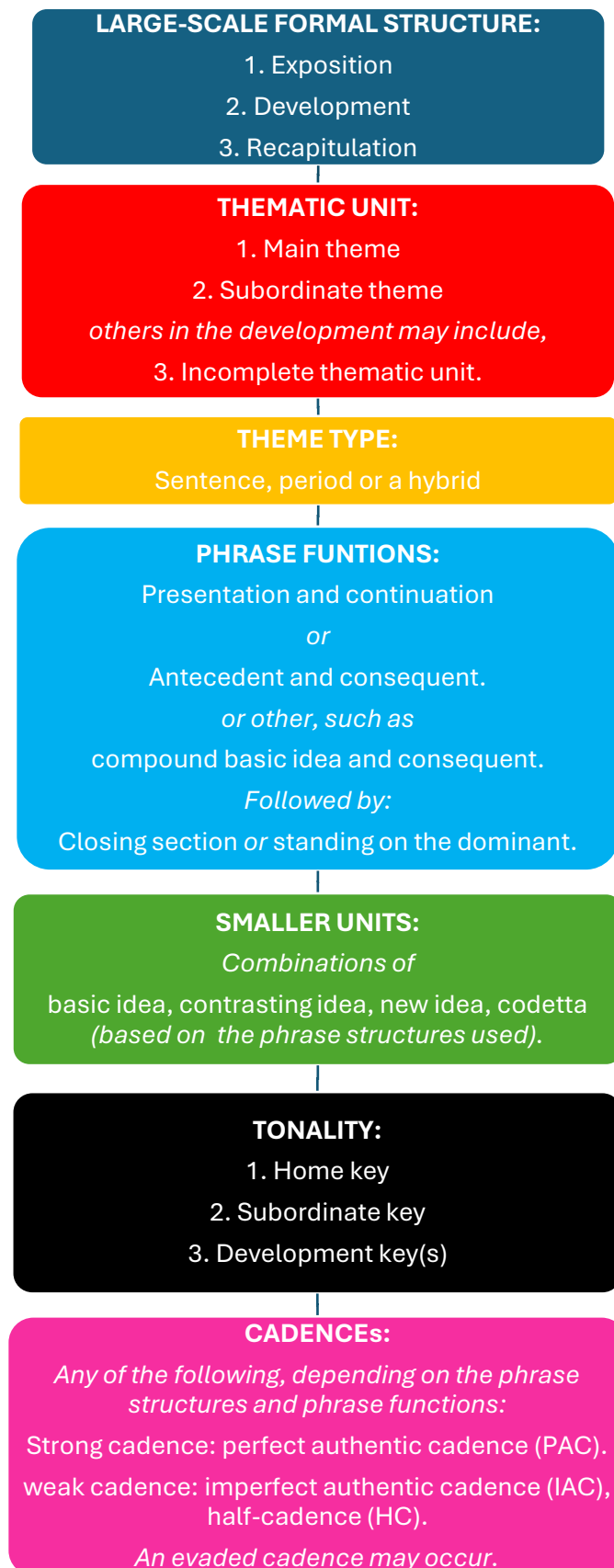


Figure 3.1 Structure of multi-coloured flowchart.

With such a combination of verbal explanations, visual elements and auditory reinforcement, the aim of the videos was to create an optimal medium through which participants could fully understand the analytical strategy and Caplin's approach to analysis before attempting it themselves. The last of the set of complementary materials that were provided with the marked-up score and the series of videos was an extensive glossary.

### **3.3.3 Extensive glossary**

An extensive glossary with descriptions, definitions and examples of all relevant terms and concepts was created to accompany the marked-up score and the series of videos (presented in Annexure 1, under sonatina analysis glossary). The glossary was created to assist the participants and ensure that they were fully equipped when attempting to implement the analytical strategy themselves. It contains cross-references throughout all the entries to ensure easy and quick access to any term.

The concepts and terms listed in the glossary were limited to only those relevant to the structure of the two sonatina movements selected for this project. Although there are many more concepts and terms relating to Caplin's theory, the aim was to limit them in an attempt not to overwhelm the participants, by keeping strictly to only those applicable in this project.

The glossary was not only intended to inform the participants about the concepts. In the instances where the structure from the Diabelli movement differs from the example, it was my intention that the participants would make the connection between what they encounter on the score with something that they read in the glossary. The glossary was therefore also created to guide their own analyses.

This concludes all the processes followed to compile a series of complementary materials that were provided to the participants. By using the marked-up score, series of videos and glossary in combination, it was my belief that they should be fully equipped to implement the strategy themselves with confidence.

### **3.3.4 Materials' role and contribution to the data collection**

The third stage involved the voluntary participants' implementing the formulated strategy during a self-selected six-week period anywhere within a specified six-month period. The brevity and compactness of the Classical sonatina made this genre a suitable choice for this study because it should be relatively easy for the participants to analyse a sonatina movement and to apply the analytical findings to their memorisation process in a limited time frame. This stage of the study was designed to investigate the influence of the analytical strategy on the participants' memorising process as they experienced it. The stage followed a collective case-study design, which is defined as a qualitative approach in which the researcher explores 'a real-life, contemporary bounded system (a case)' through thorough data collection, using multiple information sources (Creswell & Poth 2018, p. 157).

On the start date of each participant's self-selected six-week period, they were provided with a document containing the strategically analysed Classical sonatina movement in the form of a marked-up score (in this case, the first movement of Clementi's sonatina op. 36, no. 2), the five videos and the glossary as presented in the second stage, to serve as a comprehensive example. The document also contained a set of instructions that the participant had to follow, a breakdown of the colour-coding systems, the clean sheet music of the first movement from Diabelli's sonatina op. 168, no. 1 and suggestions for journalling. These were all provided to the participants in the form given in Annexure 1.

When they received this document, I had an individual communication session with each participant, going through the document, explaining the process and answering any questions they had regarding the study. The first instruction was to work through the document, engaging with the example analysis, the videos and the glossary to gain an understanding of the analytical strategy and to familiarise themselves with Caplin's approach. Coincidentally, all three participants took 11 days (one-and-a-half weeks) to go through the materials, in the process familiarising themselves with the analytical strategy. After working through the materials and feeling confident that they understood the approach, I had another individual communication session with each participant to discuss any obstacles they might have faced and to answer any more questions that might have arisen as they worked through the materials. Generally, the

participants did not seem to have experienced any problems in understanding the approach through the materials provided.

After that session, each participant was asked to implement the proposed strategy themselves by analysing the given sonatina movement (the first movement from Diabelli's sonatina op. 168, no. 1) in a similar manner to the sample analysis that was treated in the materials, and then to memorise the movement. The participants had the remainder of the six-week period in which to do this, during which time I did not communicate with any of them. They were, however, assured that they could contact me at any time during this stage if they needed any further guidance on their analysis.

It was my expectation that the participants would identify the structural components in a similar manner as presented in section 3.3.1.3 above and then continue to produce a marked-up score derived from this structure. Such a marked-up score, which I expected to receive back from the participants, is included in Annexure 2. Ideally, each participant would then use their marked-up score to facilitate their memorisation of the movement. On such a marked-up score, they would preferably employ all the principles of the strategy they had observed in the sample and the complementary materials provided, clearly identifying and marking all the elements of the structure in Caplin's style, using colour-coding.

I had, however, considered the strong possibility that the participants might find it difficult to reach these same conclusions, especially those who were not previously familiar with Caplin's approach. The possibility therefore existed that the participants would interpret the structural elements differently, leading to a marked-up score that was different from the one presented in Annexure 2.

### **3.4 DATA COLLECTION METHODS**

Data collection took place through various procedures. The participants were asked to document their entire process in the form of journalling. They kept a record of all the forms of written analysis performed on the score in addition to any relevant comments they made and thoughts they had as they went through the process. Each participant handed this over to the researcher at the end of their self-selected six-week period.

They were provided with guidelines and tips to guide the journaling process as suggested by Creswell and Poth (2018, pp. 230–231). Furthermore, they were requested to make a video-recording at the end of their six-week period of themselves attempting to play the piece from memory (a week before each participant's six-week period came to an end, I reminded them of the need to make a video and of all the written comments they were required to submit).

Feedback was gathered through an individual interview with each participant (lasting approximately 25 minutes each) after I received all the required materials from them (see Annexure 5 for the interview schedule). Each interview comprised nine pre-determined general, open-ended interview questions followed by follow-up questions that asked the participants to reflect on their experience. The interview questions presented to the participants were these:

1. Approximately how much time did you spend on this study?
2. How did you experience the difference aspects included in this memorisation strategy? Can you reflect on the different aspects?

Contents of the document:

- Example analysis
- Videos (explanations, sound clips, summary, graphic representation)
- Glossary (terminology, concepts explained)
- Colour-coding system.

Aspects of the analytical strategy:

- Caplin's approach to structuring according to units, phrase functions, thematic units and large-scale structural components
- Harmonic structure, tonality, cadences
- Structural and ornamental changes
- Articulation and dynamics.

Follow-up questions:

- Which aspects of this memorisation strategy, if any, contributed positively towards your memorisation of the piece and, would you say, form an important component of this strategy?
  - Which aspects of this memorisation strategy, if any, contributed negatively towards your memorisation of the piece and, would you say, should rather be excluded in this strategy?
  - Which aspects of this memorisation strategy, if any, did not really have an impact on your memorisation of the piece at all and which did you not include in the memorisation of the piece?
3. Is there any aspect that you think should have been included in this strategy to make it more effective?
  4. What is your opinion of this strategy for memorisation?

Follow-up question:

- Would you change anything about it by including or removing some aspects?
5. How did this strategy influence your memorisation of the piece?
  6. How would you describe your experience in using this analytical strategy for the memorisation of a Classical sonatina movement?
  7. Would you consider using this strategy for the memorisation of other pieces in the future? Why?
  8. Are there any other remarks regarding this strategy, your implementation of it or your experience that you would like to add?
  9. Did you incorporate any other methods or strategies in the memorisation process of the piece that was not part of this specific strategy?

Before the participants started with their own analysis and memorisation process, they were also asked to provide audio-recordings of their practice sessions for observation; however, none of the participants submitted any form of audio-recording. The use of multiple data sources, known as triangulation, to collect all the participants' individual data was included in an attempt to ensure the reliability and validity of the case study (Baxter & Jack 2008, p. 556; Fidel 1984, p. 276). Each of the mentioned data sources

provided a unique perspective on the participants' experiences, thoughts, challenges and progress. The information was cross-verified, which contributed to a more reliable and comprehensive understanding of their experiences and the influences analysis had on their memorisation.

To summarise, all the voluntary participants from the identified institutions who met the specific requirements of the study received a document outlining an analytical strategy based on Williem Caplin's theory of formal functions. It was accompanied by a comprehensive example of the strategy. The creation of this document and its content were subject to numerous steps being followed. In the process, a fully colour-coded marked-up score was created with a series of videos and a glossary to complement this example. Jurkowski's application of Caplin's approach to six first-movement expositions of a sonatina played a critical role in the compilation of the sample analysis as presented to the participants. During a six-week period, the participants implemented the analytical strategy themselves to facilitate their memorisation of the movement of a sonatina. The data-collection procedures prompted the participants to reflect on their experience in an attempt to understand and evaluate the influence that such an analytical strategy had on their memorisation of a Classical sonatina. A discussion of this data is presented in Chapter 4.

### **3.5 DATA-ANALYSIS PROCEDURES**

The final stage of the research design was the data-analysis process, through which all the data collected from the participants during their participation in the study were analysed to make sense of it. The processes followed in analysing the data are associated with within-case analysis, but mostly comprised thematic analysis. Thematic analysis was selected to guide the data analysis as it is an accessible tool that is used to analyse qualitative data in a theoretically flexible manner, which provides a detailed and rich account of the data (Braun & Clarke 2006, pp. 77–78).

First, I, as the researcher, reviewed each participant's data by reading and rereading all their transcripts, comments and notes collected to familiarise myself with the information and to make sense of it (Braun & Clarke 2006, p. 87). This contributed to my identifying all the significant statements (Ayres et al. 2003, p. 881). Cross-case

analysis continuously played a role, because the data from the individual participants were constantly compared with one another in order to distinguish between statements that reflected commonly shared experiences across different participants and those that pointed to uniquely encountered experiences (Ayres et al. 2003, pp. 871–874).

The immersion in the data led to the identification of key concepts and patterns across the data set. This was achieved through a process known as coding. Codes refer to the most basic sections or segments of the data and symbolise those interesting features observed in the data (Braun & Clarke 2006, p. 88). An inductive approach was followed, meaning that the data were analysed with a minimal predetermined framework or structure, the identified themes being strongly connected to the data without ‘fitting’ them to any analytic preconceptions (Braun & Clarke 2006, p. 83; Burnard, Gill, Stewart, Treasure & Chadwick 2008, p. 429). Different aspects of the data were systematically categorised in order to identify recurring ideas. After the initial coding was completed, the process started through which relationships and patterns that exist between the codes were identified and categorised into themes and categories (Braun & Clarke 2006, p. 82; Burnard et al. 2008, p. 430) – the themes reflecting all the major concepts uncovered across the entire data set. Furthermore, the themes capture meaningful information in the data that relates to the research questions (Braun & Clarke 2006, p. 82). The categories elaborate further on significant perceptions related to each theme to shine a light on these aspects.

A semantic approach was followed in identifying the themes. This is described as follows (Braun & Clarke 2006, p. 84):

With a semantic approach, the themes are identified within the explicit or surface meanings of the data, and the analyst is not looking for anything beyond what a participant has said or what has been written. Ideally, the analytic process involves a progression from description, where the data have simply been organized to show patterns in semantic content, and summarized, to interpretation, where there is an attempt to theorize the significance of the patterns and their broader meanings and implications, often in relation to previous literature.

Furthermore, these identified themes in Chapter 4 were presented in the way described by Braun and Clarke (2006, p. 83). This involves the presentation of rich thematic descriptions of the whole data set in a way that highlights the important and predominant themes for the reader. The analysis unfolded in a realist or essentialist paradigm that allows for the theorising of meaning, experience and motivations in a straightforward manner (Braun & Clarke 2006, p. 85).

In the present study, the aim of the data analysis was to gain an understanding of each participant's perception of the analytical strategy towards memorisation through their interpretation and implementation of it. With a clear focus exclusively on the participants' experiences, the analysis should provide valuable insights which can potentially answer the research question and sub-questions (Ayres et al. 2003, p. 876).

This concludes the detailed account of all the processes and procedures followed during multiple stages of this project. The chapter provided insights into the steps taken to formulate the analytical strategy to facilitate memorisation, to enforce its implementation and to analyse the data in order to reflect on and discuss the findings. The next chapter contains the analysis of the data that were collected from the participants during the study. The findings are discussed in an attempt to draw conclusions about the participants' experience of using this analytical strategy to memorise a Classical sonatina movement.

### **3.6 ETHICAL CONSIDERATIONS**

Research was conducted in an ethical manner throughout all stages of the study. Before any data collection processes started, final ethical clearance was successfully obtained from the University of the Free State's General and Human Research Ethics Committee. This included obtaining gatekeeper's approval from all four identified universities.

In alignment with the POPI-Act law, no personal information (such as names and contact details) of any potential participant was shared by the respective music departments. Instead, all recruiting materials, including the information sheet and consent form, was distributed by the music departments, whereafter potential

participants had the choice to contact me first. To further maintain their anonymity, each participant was assigned a pseudonym that was referred in this dissertation. Participants were not contacted simultaneously during any stage of the process, nor was their collected data shared with other participants. At any point, they had the opportunity to withdraw their participation from this study, even after signing the written consent form.

Potential participants were informed of all these ethical considerations as part of the information sheet (as seen in Annexure 3). These ethical considerations were held at the highest regard and the researcher meticulously adhered to them, upholding them throughout all stages of the process.

### **3.7 RESEARCHER BIAS**

The researcher's own personal beliefs, expectations and preferences potentially had an influence on the way research was conducted. Consequently, it might have influenced the outcomes. Various sources of potential bias, that might have occurred during various stages of the process, were identified and considered. The researcher, however, took several steps to minimise these biases.

Materials development stage: The development of an analytical strategy and the relevant materials provided to the participants, was influenced by the researcher's own knowledge and understanding of structural analysis and Caplin's theory of formal functions. The interpretation of the sonatina movements' analyses, was driven partially by my own understanding of these concepts. This could have potentially influenced the content and structure of the materials in such a way that reflects the researcher's personal beliefs about what constitutes effective analysis. This potentially influenced the participants' experiences and outcomes. However, these materials were reviewed by experts (supervisor and co-supervisor) to ensure they were comprehensive and unbiased.

Data collection stage: During data collection procedures, the researcher's interactions with the participants during individual communication sessions and interviews, could have potentially introduced bias. The researcher's phrasing of questions or tone of

voice might have slightly influenced the participants' responses. Additionally, the fact that one of the three participants were previously exposed to Caplin's theory of formal functions, could have influenced their engagement and performance. Thus, introducing inconsistencies that may be attributed to the researcher's choice of strategy. Nevertheless, standardised interview procedures were consistently employed across all participants to maintain consistency. Furthermore, no efforts were spared to ensure that all participants were well informed of all elements related to the chosen strategy.

Data analysis stage: The researcher's hypotheses and expectations about the effectiveness of structural analysis on the participants' memorisation of the sonatina movement could have influenced the interpretation of the collected data. However, the researcher took care to report on all the data in a truthful manner, mentioning both positive and negative aspects. The data analysis reflects data that both supports and invalidates these hypotheses and expectations.

Despite the researcher's best efforts to minimise bias, some degree of bias may still be present. The familiarity of Caplin's approach to only one participant potentially introduced an imbalance in the data, while the researcher's beliefs about musical analysis might have influenced the study's design and interpretation. Acknowledgement of these limitations is essential for understanding the research findings within the appropriate context.

## **CHAPTER 4: DATA ANALYSIS AND DISCUSSION**

In this chapter, the data collected from the participants in the study are analysed and discussed. Thematic analysis was used to guide the analytical process and several themes were identified. These themes reflect all areas of the participants' experience in implementing an analytical strategy to facilitate memorisation of a Classical sonatina. Categories and sub-categories are also presented to further provide a detailed account of all the various aspects related to individual themes. The aim of this chapter is to identify and understand all the various aspects that formed part of the participants' experience and how each of these influenced their perspective to assist in answering the research questions and sub-questions.

In this account of the data, themes are stated and discussed, further elaborated on through categories that highlight the major aspects related to each theme. In some instances, the categories are discussed further through sub-categories.

### **4.1 OVERVIEW OF EACH INDIVIDUAL PARTICIPANT**

Before discussing the identified themes across all the participants' experiences, a brief overview is first provided, where I summarise my observations regarding each participant's approach and interpretation as they engaged with the study. This account of each participant is intended to contextualise my interpretation of their experiences.

#### **4.1.1 Participant 1**

Participant 1 used and worked through all the materials provided, especially the example analysis, to get a sense of how to approach her own analysis. She interpreted the structure in a completely different manner than anticipated. Furthermore, she started with the analysis of the exposition and recapitulation first, followed by the development last. Not having been previously exposed to Caplin's approach seemed to pose a challenge for her. However, although she identified smaller sections, such as phrase functions and smaller units in certain areas differently and did not consistently apply Caplin's exact terminology throughout, she did, in her own way, take cognisance of the structural processes occurring. For example, instead of labelling units as 'basic idea' and 'contrasting idea', she referred to them as a 'basic idea' and 'modified basic idea'. Although she did not use Caplin's precise wording, she still

acknowledged that they were two different units, labelling them accordingly. During this stage, she did not request any additional assistance or guidance, interpreting the structural elements in her own manner.

All the harmonies were clearly identified, along with all changes in tonality, showing where modulations took place. She took note of the structural and some of the ornamental changes that occurred. Regarding using the large-scale structural components, her intention was clear: using the differences between the exposition and the recapitulation, along with the harmonic structure, as a way of making sense of the piece.

After completing the analysis, a total of eight practice sessions over a span of four weeks were reported, during which she aimed to learn and memorise the sonatina movement. The order in which she chose to memorise the large-scale structural components corresponded with the order in which she conducted her analysis. She first started memorising the exposition, followed by the recapitulation and the development. Throughout all communication sessions and data collected from her, it became evident that the harmonic identification, tonal understanding and acknowledgment of the large-scale structural components were the most crucial aspects for her in this process. Understanding the harmonic structure in certain areas, such as the development, proved to be challenging for her.

The data collected from her reflect her intense effort and determination in learning and memorising the piece. Practising for relatively short periods at a time (at no point longer than 45 minutes), she introduced several practising strategies to facilitate the learning process, working in a focused manner each time. Her practice sessions included methods both at and away from the piano. She incorporated a colour-coded system in her own analysis, but claimed that it did not particularly facilitate her memorisation process. It is important to consider the fact that the effect of color-coding in music relies on multiple underlying cognitive, neurological, and psychological mechanisms. It is therefore possible that participants could not fully and accurately assess and verbalise its influence on their memorisation.

Overall, she portrayed confidence throughout the process and, after a few tries, produced a well-performed recording of herself playing the movement from memory. Playing at a relaxed tempo, her video reflects a comfortable performance without a trace of any memory lapses.

#### **4.1.2 Participant 2**

Participant 2 used the materials provided to facilitate her understanding of how to do her own analysis. She stated that the example analysis was the biggest help in this regard. Consequently, her attention was more focused on the example analysis provided with less time spent looking at the videos. She recognised and acknowledged that the two sonatina movements were very similar in structure. Like Participant 1, Participant 2 had not previously been exposed to Caplin's approach, and she used the glossary to familiarise herself with the concepts. During this stage, she did not request any additional assistance. A similar tendency as in Participant 1's analysis was observed: she especially placed emphasis on harmonic identification and clearly marking all the tonal changes. Cadential material was in most instances observed and marked. She, too, completed the analysis of the development last, first analysing the exposition and the recapitulation with their similar structures.

Although phrase functions were mostly interpreted differently than anticipated and Caplin's terminology was not always consistently applied, she, too, nonetheless acknowledged all the important structural procedures, marking them insightfully. Interestingly, despite the fact that the term 'modified' was never used in the materials provided, the term 'modified basic idea' was once again observed to indicate material that differs from the basic idea. However, she made the following statement, which might explain why Participants 1 and 2 both referred to such terms. It could potentially have come from their specific education background, as Participant 2 remarked: 'When I learned analysis of sonata form and that kind of thing, ... we used some kind of different terms, they weren't exactly the same ....'

Furthermore, large-scale structural components were marked as anticipated and ornamental and structural changes were identified. From her responses during the interview, and her journaling notes, it became evident that this participant has a strong preference for visual learning strategies. Although she claimed that the colour-coding

was beneficial to her understanding the analysis, she completed her own analysis in pencil, excluding the use of any colour to facilitate her memorisation process.

Over the course of three-and-a-half weeks, Participant 2 reported seven practice sessions. During this time, she memorised the large-scale structural components in chronological order. Some of the practice sessions were kept short and focused, while others lasted for longer periods of time. This participant seems to be well aware of her own preferences and strong points regarding learning styles and memorisation strategies. Over this time, she, however, experimented with a range of different practising strategies, both at and away from the piano, to challenge herself.

Through speaking to her and reading her notes, it became clear that certain facets of this approach strongly correlate with her normal way of memorising, while others contrasted with it. For example, she made it clear that having a structural understanding and harmonic overview of a piece has always been of importance to her: two aspects that stand at the base of this approach. Furthermore, she commented that it was an interesting experience to go into so much depth with the analysis and to focus so much attention on a single piece over such a relatively long period of time.

From what I observed, Participant 2 continuously evaluated her implementation of the strategy throughout her participation in the study, adapting her approach accordingly. Through self-evaluation, she managed to focus her attention on the areas that needed more attention in order to produce a very confident video-recording of herself playing the movement from memory with excellent execution.

#### **4.1.3 Participant 3**

Out of the three participants, Participant 3 was the only one to have had prior exposure of Caplin's approach; however, she mentioned that she did not normally rely heavily on analytical strategies to facilitate memorisation. Despite the fact that this strategy did not correlate with her usual methods of memorisation, she made a considerable effort to implement as many aspects of the strategy as possible. Although Caplin's concepts were not completely new to her, she did find it challenging to apply them to the sonatina movement. She spent a great amount of time studying the example analysis and especially the videos to make sense of the approach. She also used the

glossary to refresh her memory on Caplin's terms and concepts. Upon analysis, her thought process was similar to Participant 1's and 2's as she also completed the analysis of the development section last.

Her interpretation of the smaller sections such as phrase functions and smaller units was different than anticipated, while the larger structures correlated more to what was expected. She fully incorporated a colour-code system into her analysis, which correlated with her personal preference of visual learning strategies. From her analysis, it was clear that her focus was on identifying harmonic progressions, while clearly noticing the tonal changes in the exposition and structural change in the recapitulation where the modulation was omitted. The development proved to be more challenging as fewer details of the tonal changes and harmonies were marked. Most of the cadential material was observed. A clear overview of the structure was portrayed through her analysis.

Despite her best efforts to adhere to the prescribed memorisation strategy, it became clear that her own personal learning preference was what ultimately helped her most in the memorisation process. She reported several hours (approximately two hours per week) of spending time analysing and memorising the piece over a three-week period. She, too, followed a chronological approach to the order in which she chose to memorise the large-scale structural components. As mentioned in the interview and in her journaling notes, she has a strong tendency towards visual cues and auditory learning, through which she memorises music. It was primarily those components that were most significant in her memorisation process through visual patterns and the audio-recordings.

Nevertheless, some analytical engagement with the score did seem to leave an impression on her. Most important was the overall sense of the structure and the peace that she gained from her analysis, which served as a 'road-map' to guide her. Similarly to the other participants, it became clear that the harmonic understanding of the piece also played a significant role in helping her to understand and memorise the piece. As a result, she managed to memorise and master the piece completely, playing it with ease and portraying self-confidence.

This brief overview of each participant demonstrates how they each applied and interpreted the same strategy and instructions uniquely. Although there were clear similarities observed in their individual approaches, it was apparent to me that each participant played into their individual strengths, using these to their advantage and to guide their memorisation process along with this analytical strategy. In the end, all three participants managed to produce a marked-up score and use it in combination with various memorisation techniques to memorise the piece – all of which reflected their individuality and personality. As a result, all three of them delivered a musical and accurate performance of the movement from memory, portraying self-confidence and assurance.

Throughout the remainder of this chapter, I share all the identified themes that cover the significant aspects observed across the participants' experiences. Table 4.1 provides an overview of all the themes, categories and sub-categories, followed by the detailed discussion:

Table 4.1 Overview of themes, categories and sub-categories.

<b>THEMES</b>	<b>CATEGORY</b>	<b>SUBCATEGORY</b>
Theme 1: Effect on memorisation process (4.2).	Deeper learning through analytical interaction (4.2.1).	Facilitation of memorisation (4.2.1.1).
		Enhanced attention to detail (4.2.1.2).
	Increased efficiency in learning and memorisation (4.2.2).	Easier learning and acceleration of the learning process (4.2.2.1).
		Automatic and subconscious learning and memorisation of notes (4.2.2.2).
	Reassurance while playing from memory (4.2.3).	Enhanced memory retention (4.2.3.1).
		Comforting feeling while playing from memory (4.2.3.2).
	Positive experience (4.3.1).	Exciting and enjoyable (4.3.1.1).

Theme 2: Experience and perception of the strategy (4.3).		Clear and effective approach (4.3.1.2).
	Intention of future use (4.3.2).	Acknowledgment of the strategy's relevance and importance as an analytical tool to facilitate memorisation (4.3.2.1).
		Enthusiasm to implement selected elements of the strategy for future memorisation (4.3.2.2).
	Potential for improvement (4.3.3).	Implementation of the strategy over a shorter period of time (4.3.3.1).
		Availability of additional resources (4.3.3.2).
		Implementation of the various aspects thoroughly (4.3.3.3).
	Areas of difficulty experienced (4.3.4).	Adopting the principles of the strategy with the accompanied terminology and applying it to the sonatina movement (4.3.4.1).
		Analysing and memorising the development section (4.3.4.2).
		Remaining focused and actively engaging with different components to memory (4.3.4.3).
	Theme 3: Integration of additional methods and strategies (4.4).	Mental practice (4.4.1).
Using visual cues with mental practising methods (4.4.1.2).		
Additional analytical reinforcement (4.4.2).		Individual hand analysis and practice (4.4.2.1).
		Pattern identification (4.4.2.2).

	Visual memory strategies (4.4.3).	Visualising the score (4.4.3.1).
		Visualising the typography of the piano (4.4.3.2).
	Listening strategies (4.4.4.).	Listening to a recording of the piece several times (4.4.4.1).
		Listening to multiple covers (4.4.4.2).
	Sight reading (4.4.5).	
	Muscle memory strategies (4.4.6).	Deliberate actions leading to the establishment of muscle memory (4.4.6.1).
Establishment of muscle memory subconsciously through instinctive and natural actions (4.4.6.2).		
Video-recording as a self-assessment tool (4.4.7).		

## 4.2 THEME 1: EFFECT ON MEMORISATION PROCESS

The implementation of the strategy effected the participants' memorisation of the Classical sonatina movement. The use of structural analysis to facilitate memorisation had a positive influence on various areas of the participants' experience.

### 4.2.1 Deeper learning through analytical interaction

Spending time immersed in the score and analysing all the structural elements of the piece not only had an effect on the participants' learning and memorisation of the piece, but it opened their eyes to many details of the piece that would perhaps otherwise have been overlooked. Analytical engagement with the score therefore contributed to a rich learning experience, helping the participants to engage and understand the piece at a deeper level.

#### **4.2.1.1 Facilitation of memorisation**

As a general observation, it was clear that across all three of the participants' analyses, the harmonic identification, tonal awareness (and therefore the structural changes), along with the large-scale structural and inter-thematic component identification, were most significant to them. This analytical engagement with the score seemed to have contributed greatly to their understanding of the piece, which facilitated their memorisation of it. The most significant aspects that facilitated the participants' memorisation, as established through analytical interaction with the score, are briefly discussed.

##### *Importance of structural components and the differences between them*

The participants repeatedly emphasised how important an understanding of the structural elements was to their memorisation. Showing the effect it had on her in having a structural understanding of the piece, Participant 1 stated: 'The opening section was the easiest to play through as I understand the structural layout of the music well.' More specifically, Participant 3 mentioned how a structural understanding at a thematic level helped to guide her memory. Very important to the participants were the large-scale structural components that served their memory well, as explicitly stated by Participants 1 and 3. Participant 1 mentioned how these large-scale elements helped her to keep track of where she was in the memory. Participant 3 commented: 'The big parts, the exposition, development and recapitulation, that helped me the most. I think that really helped me a lot.'

Generally, the participants recognised two overarching levels in the piece's structure: larger sections or inter-thematic functions, pointing to large-scale structural components and thematic units; and smaller sections or intra-thematic functions, pointing to phrase functions and smaller units. From the above statements, it became clear that the inter-thematic functions identified by the participants played a decisive role in their memorisation.

Further on the topic of structural understanding was their observation of the subtle changes that occurred between the exposition and the recapitulation. The fact that these two sections are so closely related made the memorisation of the recapitulation especially easy. All three participants clearly identified and marked the large-scale

structural components with the structural changes that occurred in the recapitulation, indicating the importance of these elements to them. Participant 2 remarked: 'I tackled the recap which was much easier to remember as it is obviously really similar to the exposition.'

Participant 1 mentioned how it was helpful to know the analysed differences between the two sections in the process of memorising the exposition and recapitulation. Participant 2 came to a similar conclusion, stating: 'The structural changes were obviously very important when I was analysing it, ... the difference between sections that have similar material, noticing what the changes are, that was definitely very helpful.'

#### *Importance of harmonic framework*

An understanding of the harmonic layout of the piece, of all the chords, was also a very significant factor for all three participants, which led them to successful memorisation. From their analyses it became clear that they all made an effort really to grasp the harmonic framework and to identify all the harmonies. They spent time intently studying and immersed in the chords and harmonic framework.

Participant 1, in particular, reported how she engaged with the harmonic structure frequently, studying, observing and memorising it. Throughout the memorisation process, the harmonic layout was constantly on her mind as she tried to recall the harmonies to further secure her memory. This harmonic understanding directly influenced her memory as a lack of it led to memory failure. She concluded: 'When I have a memory lapse, its almost always in the sections where the harmony is unclear to me.' Furthermore, Participant 3 also pointed to the value of analysing the chords, as she stated: 'Looking at the chords, that helped me with the left hand ... because the left hand mostly played the broken chords.'

Contrary to my expectation, very little mention was made to the identification of cadences, with little reference to cadences in the participants' analyses. However, their identification of the harmonies, mostly correlated with the cadential progressions. Although not specifically identified as such, participants clearly relied on the harmonic layout of the piece. Therefore, it is likely that these cadential progressions aid their

memorisation. A specific comment by Participant 1 led me to believe that it held some value. She commented, '... but then, going to the cadences and harmony, that helped a lot, I think the most out of everything in the memorisation.'

#### *Role of the colour-coding system throughout the process*

Also worth mentioning is the participants' perception of the colour-coding system. Overall, they found it useful in the earlier stages of the study. They claimed that the system facilitated their understanding of the various formal functions as highlighted in the example analysis and also in conducting their own analysis. However, they found it not impactful during the memorisation process, not exercising an influence on this process. Participant 1 remarked: 'I don't think the color-coding particularly helped from a memorisation point of view.'

#### **4.2.1.2 Enhanced attention to detail**

Through the process of deliberately conducting a thorough analysis of the piece, the participants reported an increase in awareness of details and aspects that form the construction of the piece. Their cognisance of detail helped them to become familiarised with the piece at a much deeper level.

Participant 2 acknowledged that engagement in such an analytical process requires a person to go into more depth, prompting them to notice differences and similarities between various sections. Participant 1 also pointed to this depth, stating how such attention to detail can help one to keep track of the memory easily, being conscious of every note while playing. She mentioned:

Because of the attention to detail, again you know, it forces you to notice things you wouldn't otherwise if you would just sight-read, going straight into it, muscle memory, repetition: you miss things. It forces you to be thorough and really sure in what you are playing.

#### **4.2.2 Increased efficiency in learning and memorising**

The implementation of this strategy effected the participants' perceived efficiency regarding the learning and memorising processes. Not only did they report quicker learning, but also increased subconscious memorisation with less effort required.

#### ***4.2.2.1 Easier learning and acceleration of the learning process***

Participant 2 reported that the structural awareness she had of the piece as a result of conducting an analysis made the process of learning the notes much easier. Furthermore, both Participants 1 and 2 pointed to the fact that the implementation of the strategy led to their learning and memorising the piece quite fast, being therefore perceived as a time-efficient strategy for memorisation. Participant 1 stated: 'I learned it a lot faster than I normally learn pieces you know, just by muscle memory or repetition.'

#### ***4.2.2.2 Automatic and subconscious learning and memorisation of notes***

As the participants conducted a structural analysis on the sonatina movement, they became aware that in some instances, segments and notes were memorised automatically and subconsciously, without a deliberate intention to do so. This was achieved through the act of engaging with the score. Participant 3 pointed to this phenomenon, acknowledging the role that ornamental changes and cadences might possibly have had subconsciously on her memorising notes in this manner. Participant 1 made a similar comment, stating: 'I think even in just doing the analysis before I even started practice, I memorised a great deal of it.'

#### ***4.2.3 Reassurance while playing from memory***

This category reflects on the comfort experienced by the participants as a result of implementing the strategy and why this was reported to be the case. The knowledge that a well-secured memory was established through this strategy provided them with a sense of comfort and confidence. It gave them the reassurance that they can perform the piece with reduced anxiety about memory lapses.

#### ***4.2.3.1 Enhanced memory retention***

The knowledge and information acquired through time spent immersed in the score apparently has an effect on the preservation of the memory. It enabled the participants to establish a memory that is more durable and not as easily lost. Participants 1 and 3 both pointed out that implementing the strategy and doing the analysis resulted in their obtaining a broad overview of the piece, which helped them to retain the memory. Participant 1 mentioned that by applying this strategy, the memory of the piece was better preserved compared to the effect of other approaches. She continued, stating

that the implementation of the strategy provided various facets, contributing towards the memory, making it so secure. She explained: 'There were so many routes I could go if I were to have a memory lapse to remember things.'

Participant 2 came to a similar conclusion. She stated the following, referring to the important role that implementation of the strategy played in the memorisation process and how it ultimately had an impact on her memory of the piece:

It definitely kind of forced me to take a step back and actually go into every single aspect of memorisation, not just the physical aspect, also the aural and theoretical aspects. So, it definitely brings all these aspects together and gives you a much stronger memory of what you are learning.

#### ***4.2.3.2 Comforting feeling while playing from memory***

The effect of having all the information gathered through the analysis in the back of one's mind while playing seems to be significant in assuring a sense of ease while playing from memory: Participant 1 expressed how she felt comforted with a sense of calm in the knowledge that all the details and aspects of the music were secured in her memory while she was playing. This made the potentially daunting process of playing from memory much easier and more comfortable.

### **4.3 THEME 2: EXPERIENCE AND PERCEPTION OF THE STRATEGY**

As the participants went through the process of implementing the strategy, their experiences and impressions were varied across the different elements. The perceptions they formed provide valuable insights into the influence of this strategy as they experienced it. Their reactions to the process predominantly reflect positivity; however, their thoughts were neutral towards certain aspects of the strategy throughout their experiences. Although they faced some challenges throughout the process, they generally perceived it as a strategy that has the potential to be beneficial for future use, considering that some personally preferred adjustments are implemented. These categories are all discussed within this theme.

### **4.3.1 Positive experience**

In general, the participants gave the impression that they experienced the strategy and its implementation in a positive manner. The strategy was in many respects experienced as being thorough and effective and, furthermore, they expressed great enjoyment throughout the entire process.

#### ***4.3.1.1 Exciting and enjoyable***

All three participants expressed their enjoyment throughout the process. Participant 1 expressed her excitement while all three emphasised their positivity towards the strategy. Participant 2 explained her experience, stating: 'I really enjoyed just slowly putting all the steps together and moulding it all up until the end.'

#### ***4.3.1.2 Clear and effective approach***

Contributing to their positive experience was the fact that all three participants experienced a satisfying outcome by being able to fully memorise the given movement. This result led them to conclude that most aspects were necessary and that the strategy was effective, as they did not highlight any particular aspects that hindered or bothered them.

Participant 1 mentioned that she would not omit any aspects, except for the application of smaller units, while Participant 3 shared a similar opinion. Participant 3 made no reference to any negative attributes, as she claimed she would not change anything about Caplin's unique approach to analysis as realised in this strategy. She and Participant 1 both conveyed some neutral feelings towards certain aspects of the strategy. Participant 3 stated this: '... there wasn't anything that was very-very good or very-very bad.' When also asked about the role that dynamics and articulation might have played to facilitate their memorisation (as elements provided on the score), all three felt that it was mostly not a contributing factor. Nonetheless, Participant 3 expressed her pleasant surprise at how well this strategy turned out to be when approaching memorisation. She commented: 'I think this is a very effective strategy.'

### **4.3.2 Intention of future use**

It became clear that the participants see the potential to transfer the information and knowledge gained from this strategy to facilitating memorisation in the future. They

realised the importance of such an analytical strategy and how it can be beneficial, prompting them to strongly consider its future implementation.

#### ***4.3.2.1 Acknowledgment of the strategy's relevance and importance as an analytical tool to facilitate memorisation***

The positive effects that flow from the implementation of such an analytical strategy, as experienced by the participants themselves throughout the process, helped them to realise the potential and importance of implementing such a strategy to facilitate memorisation. Participant 1 pointed out that, in her opinion, conducting an entire analysis is important and Participant 2 referred to how structural awareness, as gained through such an analysis, contributes to connections formed in a musician's brain to facilitate memorisation. Realising the value of analysis, Participant 2 further exclaimed that all musicians should aspire to conducting such an analysis as it might contribute to a better understanding of a piece. Her opinion of the importance of the various aspects of the strategy was the following:

I think the general idea of analysing something to the degree of the structure and the smaller ideas within the structure and then of course key analysis or tonal analysis, that is extremely important, especially to a form like sonata form, so I think that it is very important and should be implemented.

#### ***4.3.2.2 Enthusiasm to implement selected elements of the strategy for future memorisation***

Following the participants' first-hand experience with the implementation of this strategy, they are eager and enthusiastic about the potential for the future implementation of this strategy. All three participants claimed that they would definitely implement the strategy, or rather selected aspects of it in the future if circumstances allow it. Participant 1 mentioned that she personally would exclude the analysis of smaller units in future applications. Participant 3 will also most likely exclude the analysis of smaller units in future applications, based on the following comment:

When I had to physically sit in front of the piano and memorise the work, the smaller units didn't work at all. I think my brain, I don't know, doesn't work fast enough for me to think 'this is the basic idea' ....

Overall, the participants conveyed excitement about the possibility of using the strategy again in the future.

### **4.3.3 Potential for improvement**

Despite their positivity, there is plenty of room for improvement regarding the formulation of the strategy and its implementation. The participants were aware of these opportunities for improvement as they realised that such enhancements might contribute to the strategy's fulfilling its full potential. In addition to access to additional information on Caplin's approach, a shorter time frame allocated for the implementation might contribute to a more efficient application of the strategy.

#### ***4.3.3.1 Implementation of the strategy over a shorter period of time***

Participant 2 shared that, under normal circumstances, she would not have spent such a long time learning and memorising such easy repertoire as a single sonatina movement. Although she expressed enjoyment at taking the time to implement the strategy step by step, she asserted that for future applications she would prefer to accelerate the process. She further expressed curiosity regarding the outcome of implementing the strategy, as done in this study, over a shorter period of time.

#### ***4.3.3.2 Availability of additional resources***

Two of the participants did not have any prior exposure to Caplin's approach, which made this implementation of the strategy more challenging for them. However, the third participant (Participant 3), who had previously been introduced to Caplin's approach, also found the application of the concepts to the sonatina movement challenging. The information provided to the participants in the strategy was limited to terms and concepts relevant to the two sonatina movements that formed part of the strategy. Participant 3 remarked that access to additional information explaining and elaborating on Caplin's approach, could have been beneficial for a fuller implementation of the strategy. She stated:

I realised, if I had the book [William Caplin's *Analyzing Classical Form: An Approach for the Classroom* (2013)] and more musical examples, it would have helped a lot more or even examples that wasn't the same as your analysis, that was something different, then I could have used it to compare and realise, 'this is the differences' [sic] or 'this is

why this is, let's say, a continuous phrase or not a continuous phrase' or something like that.

Participant 1 reported feeling the need for additional information on certain topics, such as the concepts of a 'hybrid 4'. Perhaps if more resources on the various aspects and concepts had been presented to her, it would have contributed to a more fulfilling experience of the strategy.

#### ***4.3.3.3 Implementation of the various aspects thoroughly***

In order to encounter a more fulfilled and enriched experience, leading to the best possible outcome, the effort invested by the implementer might be a contributing factor to consider. The participants mentioned that they did not fully engage with all of the aspects of the strategy (this was corroborated by their submitted analyses), which might possibly have led to a less fulfilling experience. There could be many reasons for and factors influencing the degree to which they engaged with the aspects of the strategy, ultimately reflecting the effort invested. Most likely the most important contributing factor, in my opinion, was the fact that the allocated time frame of the study was probably (and understandably) inadequate time for the participants to fully comprehend and grasp all the facets of Caplin's approach that underlie this strategy. Another factor to consider is the different aspects' coherence or non-coherence with the participants' personal learning styles and personalities. This might have influenced the quality of their interactions with the various aspects.

As they reflected on their experience, it became clear that some of the aspects included in the strategy were well excepted and embraced according to how they fitted into each participant's personal learning style. Some aspects complemented the participants' personal learning preferences and personalities. Consequently, these aspects enriched their experience. Other aspects, however, required more deliberate effort as they were not enforced instinctively or naturally.

Participant 2 emphasised that tonal and harmonic analysis forms an important role in her memorisation process under normal circumstances. Structural awareness of a piece is something that occurs naturally to her and she instinctively perceives structural elements when she plays a piece. The incorporation of those elements into

her analysis was therefore effortless. In contrast, Participant 3 does not perceive structural elements as instinctively, because she does not normally engage with analysis to facilitate memorisation. In her case, she reported that, although she still analysed all the structural elements of the piece, it did little to facilitate her memory and was therefore less impactful compared to Participant 2's experience. She commented:

When I tried to think of chords or themes, it felt like my brain couldn't remember that well. But when I had patterns or hand-positions in mind, I immediately knew what to play ..., when I memorise, I memorise with visual stuff.

However, the colour-coded system appealed to both of them. Participant 2 acknowledged the fact that her learning style is visually oriented, while Participant 3 attributed its effects to her personality type and her preference for visual learning. Participant 2 stated: 'When I play, I often see the structure on the actual page, which is very helpful. That is why it was helpful to have the example colour-coded.' Participant 3 remarked that 'I loved the colour system because of my personality, I also with my personal pieces, I work with a colour system, so the colour system really, really worked very well. That was something that I really liked, actually.'

The participants most certainly focused their attention more on the aspects of the strategy that corresponded to their personal learning styles. However, they also committed to the strategy to the best of their ability. Although some of the aspects were not favourable in their views, they still made an effort to comply with the strategy as best they could. Participant 3 mentioned that this strategy did not reflect the way she would normally proceed to memorise a piece. Despite this, she still followed the strategy, implementing the aspects the best she could and continued to memorise the piece in this manner. Participant 2 also stated that she aimed to incorporate all the aspects of the strategy:

I tried to use most, if not all the ones [aspects] that were listed in the suggestions just so I could try to be as close as possible to the guideline just as an experiment for the sake of the study.

#### **4.3.4 Areas of difficulty experienced**

The participants did not find their implementation of the strategy to be without challenges. They experienced several difficulties, which they had to overcome in order to complete the memorisation process. These challenges occurred during various stages of the process, some being reported during the analysis stage and others while in the process of practising and memorising the piece.

##### ***4.3.4.1 Adopting the principles of the strategy with the accompanied terminology and applying it to the sonatina movement***

The complexity of Caplin's approach to analysis that was at the basis of this strategy proved to be a challenge, even though the participants have the necessary prerequisite theoretical knowledge. Their lack of prior engagement with Caplin's approach, its concepts and terminology seemed to pose a challenge for two of them. For Participants 1 and 2 particularly, Caplin's framework of the sonata form did not correspond fully to their pre-existing framework of understanding the sonata form. These participants reported difficulties in grasping the relevant concepts fully and applying the specific approach to the sonatina movement. Most of the terms and concepts were unfamiliar to Participants 1 and 2 as they had previously been exposed to other pedagogies and strategies to approaching the sonata form.

Participants 1 and 2 referred to the effort it took in trying to comprehend Caplin's approach to analysis, getting used to it and then applying it themselves. Participant 1 stated that she had to do additional research on some of the concepts at hand, while Participant 2 stated that it was all new and unfamiliar to her. Participant 3 had the following to say with regard to her analysing process after revisiting concepts to Caplin's approach after several months of not being exposed to it. She commented:

The glossary helped me a lot, but because I did this work like a year ago or a while ago, the first few days was difficult for me to actually analyse it to the best of my ability, because I did it so long ago.

Flowing from their reactions, it became clear that the concepts forming part of this strategy are complex and the participants therefore needed sufficient time and effort to adapt to them in order to gain the most benefit.

#### ***4.3.4.2 Analysing and memorising the development section***

Still in the analysing stages, Participant 1 found the analysis of the development section particularly difficult. The reason for this was the numerous harmonic and tonal changes introduced in the development. Similarly, these same reasons contributed to Participant 2's struggle with memorising this particular section. Participant 1 reported the following during the process of analysing the score: 'This was a challenge as the harmony and modulations threw me off in the beginning. I think this will most likely be the most difficult section to memorise.'

#### ***4.3.4.3 Remaining focused and actively engaging with different components to memory***

During the memorisation process, while practising and learning to perform the piece, the participants voiced their struggle in resisting the urge to simply memorise through muscle memory. Both Participant 1 and 2 spoke about how they had to be attentive and consciously aware of their approaches, in order to refrain from simply falling back on muscle memory. It took vigilance to consciously and actively engage with the analytical aspects of the piece to facilitate memorisation, especially in the development section. Participant 2 mentioned: 'I struggled to stop myself practising the whole piece over and over instead of working on note mistakes.'

In her attempts to incorporate other components of memory (other than muscle memory) by applying various practising strategies, Participant 2 experienced difficulties with remaining focused. This thought was expressed in her reflection about the process, where she listened to the piece mentally, not physically playing it (this is a process known as audiation (Van Zyl 2018, p. 121).

### **4.4 THEME 3: INTEGRATION OF ADDITIONAL METHODS AND STRATEGIES**

Although the scope of this study was exclusively set on analytical procedures to facilitate memory, it was inevitable that the participants would either also consciously or subconsciously engage with other components of memory. The strategies that they incorporated to learn, practise and ultimately memorise the movement were not purely analytically based at all times. These practising strategies potentially facilitated their

memorisation along with their analysis, contributing to the strengthening of some of the other components of memory. In this theme, the strategies employed by the participants were as discussed in the different categories. These included a wide variety of methods that facilitated their memorisation, among others, in a visual, auditory and kinesthetic manner.

#### **4.4.1 Mental practice**

The participants explored mental practicing<sup>5</sup>, including several ways to practise and engage with the music away from the instrument. These strategies included engagement with their analysis away from the piano, therefore not physically playing at all times. These strategies required concentration and focus in order not to be distracted while mentally thinking about the music. In addition to audiation, they also incorporated visual cues.

##### ***4.4.1.1 Mentally playing through the piece away from the piano***

Practising does not always have to occur at the piano, physically playing the notes. The participants reported practice strategies that they applied away from the piano to facilitate with their memorisation. The mental practising strategy applied by Participants 1 and 2 basically came down to two similar actions: studying the score while looking at their analysis away from the piano and listening to the music mentally while playing it through in their head. Participant 1 explained: 'I sat with the score and analysis for a while. I played through the piece mentally and tried naming each harmony away from the piano.' Participant 2 further elaborated on such practising strategies, expressing interest in a similar strategy involving a musician visualising the concert hall or piano that will be used for a specific performance. This is achieved by means of a picture of the setting or piano while audiation occurs.

##### ***4.4.1.2 Using visual cues with mental practising methods***

Another interesting way in which Participants 1 and 2 managed to incorporate mental practising into their practice sessions was by using visual cues in combination with

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<sup>5</sup> This observation links with the field of mental practice strategies, on which several studies and literature exist. See for example, 'Mental strategies to improve playing from memory' (McKinney 2008) and 'The effect of mental practice on music memorization' (Iorio, Brattico, Larsen, Vuust & Bonetti 2022). An integration of that body of research is beyond the scope of this project.

audiation. While Participant 2 sat at the piano, only looking at the keys while playing through the piece in her head, Participant 1 took it a step further and played the notes silently on the piano while hearing the music in her head. Both used the image of their hands on the keyboard to strengthen their memory in this manner.

#### **4.4.2 Additional analytical reinforcement**

In addition to the aspects covered in the analytical strategy given to the participants, they took the initiative to incorporate other analytical procedures to further facilitate their memorisation.

##### ***4.4.2.1 Individual hand analysis and practice***

Besides studying the piece as a whole and approaching the analysis in this way, the participants mentioned how they benefited from approaching each hand separately. While Participant 3 applied this purely to the physical practising, Participant 1 also studied these individual parts with regard to their analytical features. Participant 1 stated:

I think the most effective thing I did just in my practice sessions, was doing the analysis of each individual hand when I was memorising, so by breaking it down to left hand: what are the chords, the harmony and then right hand. I just practised like that sometimes and I think that helped, I thought about it differently.

##### ***4.4.2.2 Pattern identification***

Along with all the aspects and elements included in this strategy, focused as it is on concepts related to Caplin's approach, Participant 3 found it additionally helpful to search and identify recurring patterns in the music. This method turned out to align with her personal preference for memorisation. She stated: 'I realised that I learn pieces more through patterns.'

#### **4.4.3 Visual memory strategies**

Visualisation seems to have played an important role in all three the participants' memorisation process. Visualisation occurred mainly in two distinct ways: visualisation of the score and visualisation of the typography of the instrument. These possibly

contributed to the strengthening of the visual component of their memory and is discussed below.

#### ***4.4.3.1 Visualising the score***

In some instances, the visualisation of the score can help musicians to form a mental image of the page, which has the potential to aid memorisation. This was most likely Participant 2's aim when she observed her score. She indicated that visualisation naturally forms part of her memorisation process and it was therefore instinctively incorporated. She stated: 'When I play, I often see the structure on the actual page, which is very helpful.' Whether or not Participant 1 had the same intention, she still reported looking at and studying the score was part of her analysis. She observed and studied her analysed score for several minutes, after which she attempted to recall as many of the elements as possible.

#### ***4.4.3.2 Visualising the typography of the piano***

The second way that the participants implemented and reinforced visual cues to facilitate memorisation was by visualising their hands on the piano while playing. Mentally seeing the layout of the keyboard in combination with hand positions and the movements of the hands across the notes is what greatly contributed to Participant 3's memorisation. She remarked: 'I memorise with visual stuff, not visual as looking at the sheet music, but visual as in looking at the piano at my hands and looking at how they move across the piano.'

#### **4.4.4 Listening strategies**

This category discusses the participants' use of auditory and listening methods that helped them in the analytical stage, and in the learning and memorising stage. Not only did they find it useful to listen to the piece numerous times, but variety in the performers and recordings also seem to have contributed to their memorisation. Auditory assistance in the form of selected sound clips was also included in the videos as a way of explaining the example analysis to the participants.

##### ***4.4.4.1 Listening to a recording of the piece several times***

Audio-recordings of the piece were used by Participants 1 and 3 at the beginning stages of the process in order to form an overall idea of the piece. This occurred before

they started with the memorisation. Participant 3 in particular used these recordings to facilitate the identification of the large-scale structural components and phrases before committing them to paper. This helped her to form a general idea of the structure first.

This use of audio material extended further into the memorisation process once the analytical processes were completed. Participant 3 emphasised the important role that listening to audio-recordings played in helping her to memorise the melodic sections in particular. She mentioned: ‘... the melody of the Diabelli, I think I actually learned it by listening to it, not by knowing each note harmonically, but just listening to it and figuring it out according to that.’

#### ***4.4.4.2 Listening to multiple covers***

In addition to the aid provided through hearing the piece numerous times, Participant 3 also found it helpful to listen to different musicians’ performances, hearing different interpretations of the same piece: This is what she stated in this regard: ‘Listening to different people playing it was something that I’m really glad I did because it gave me new perspectives.’

#### **4.4.5 Sight-reading**

All three participants strongly relied on their sight-reading abilities to get an overall idea of the piece before starting with the actual memorisation. Sight-reading enabled them to play through the piece, getting a general idea of the structure and elements involved. They used sight-reading at different stages throughout the process, therefore achieving different goals through it.

First, sight-reading was used as an introduction to the piece to achieve an overall idea of the piece before getting analytically involved. Participant 3 sight-read the piece at the very beginning, before conducting an analysis of the piece. This helped her to become aware of the piece and with starting to familiarise herself with the piece and its structure.

Secondly, sight-reading was employed to encourage structural awareness as a basis for memorisation. The participants used sight-reading after completion of their analysis

to start getting into the memorisation process. This step helped them to establish a general overview of the structural elements identified and connecting it to its performance by playing the piece and by reading it. Participants 1 and 2 both used sight-reading in this regard. Participant 2 made a comment in her journal notes after she completed her analysis in pencil to show her intention. She stated: 'I used this time to sight-read through the piece to get an overall idea of the structure.'

Finally, sight-reading reinforced memory once it was established. In addition to using sight-reading before memorisation as a tool to gain an overview of the structural layout, Participant 1 also returned to sight-reading after having analysed and memorised the piece. By reading through the already memorised score slowly, she possibly strengthened her memory even further by being particularly attentive and observant in her actions.

#### **4.4.6 Muscle memory strategies**

Probably the most important contributing factor in the participants' memorisation process, in addition to the analytical elements, was muscle memory. Being a very instinctive route to follow, all three of the participants stated the contribution that muscle memory made to their memorisation, especially in the development section where the structural elements were less significant, in their experience. Muscle memory was established and reinforced through various deliberate actions. However, it seems as though the establishment of muscle memory was not always the consequence of deliberate action, but instead the result of instinctive actions that led to muscle memory being formed 'naturally'.

##### ***4.4.6.1 Deliberate actions leading to the establishment of muscle memory***

In some instances, the participants employed practising strategies that actively contributed to muscle memory by challenging their kinesthetic movements. These strategies helped them to reinforce their muscle memory and to render it stronger. Participants 1 and 2 deliberately practised the left-hand Alberti-bass progressions in block chords, while Participant 1 took it a step further and also introduced varying tempi into her practice sessions. Participant 2, however, realised that this method did not contribute positively to her memorisation and therefore dismissed this strategy in

proceeding with the process. She adjusted and considered other practising strategies instead. In her journal notes, after evaluating the situation, she stated:

This sounded like a better idea as it actually turned out to be as the left-hand figurations are not written exactly the same in every section which meant it didn't help my memory of when they changed.

#### ***4.4.6.2 Establishment of muscle memory subconsciously through instinctive and natural actions***

Although some action was taken to improve and strengthen muscle memory deliberately, this component of memory seems to have been established predominantly through subconscious actions. From their accounts where they journalled their memorisation and practising processes, it became clear that they engaged in some activities that subconsciously contributed to their muscle memory. Participant 1 mentioned several accounts of frequent repetition of segments; however, she did not state her intention in doing so. Participants 1 and 2 both seemed to be aware of their muscle memory once it was already established, without necessarily showing any indication that they were aware of the processes that contribute to it. Upon resuming practice after a few days' break, Participant 2 commented: 'I could definitely remember less than what I could before I went away, but my muscle memory was surprisingly strong.'

#### **4.4.7 Video-recording as a self-assessment tool**

The participants saw the value in self-evaluation throughout the process to illuminate and amplify the areas that were not yet sufficiently memorised and that needed additional attention. They pointed to the value of self-recording to facilitate in this regard. This was specially made clear by Participant 3, who expressed interest in using self-recording, specifically for this purpose, in future endeavours. Participant 2 used the process of video-recording to her advantage as she used every failed memory as an opportunity to revisit the analysed score and to reinforce her memory. Participant 1 had a similar experience: the process of video-recording and re-recording led her to a stage where she felt confident in performing the piece, knowing that her memory was secure and that it did not fail her. Participant 3 shared the following insight, stating:

I think it might actually be a really good idea to record your piece after like a week of practice, because when you put the recording machine on, then you start making mistakes you didn't make.

In conclusion, all the data that were collected from the participants throughout the duration of this study were systematically analysed using thematic analytical procedures. The data were categorised into four themes and further discussed according to categories and sub-categories. Through my engagement with each participant, frequently communicating with each, examining their journal notes, interviewing each individually and observing their video-recordings, it became clear that their participation in this study directly reflected their individualism. All three participants had a unique experience, interacting with the strategy and approaching the process in their own unique manner. They experienced the effect and influence of the strategy on their memorisation, uniquely. Furthermore, the participants' perception of the strategy was discussed and also the ways in which they incorporated different learning and practising strategies in addition to the aspects listed in the strategy.

The data revealed some correlating reactions in some instances, pointing to the experiences perceived similarly by all three or between two of the participants. However, contrasting feelings were also reflected, highlighting the differences in the way different people perceive, process and act on information. In the following chapter all the conclusions reached are discussed.

## **CHAPTER 5: CONCLUSION**

In this final chapter, I share and discuss all the conclusions that were reached through this research study. These conclusions are based on the findings (as presented in Chapter 4) as derived from the participants' individual experiences, all the processes followed and the consequent outcomes reached in this study, as reflected through all the collected data. In addition to a brief summary of the study, these findings are placed in the context of the previous literature (as presented in Chapter 2) to ultimately reflect on the research questions and objectives of the study (as presented in Chapter 1). Based on these conclusions, the value of the study is shared and the limitations of the study are highlighted. Finally, suggestions for further research are also made.

### **5.1 SUMMARY OF STUDY**

This research study aimed to investigate and determine the influence of musical analysis as a strategic tool on undergraduate piano students' memorisation of a Classical sonatina. In order to undertake this investigation, the study essentially included two processes. First, the implementation of a predetermined analytical strategy by voluntary undergraduate piano students to facilitate their memorisation of a Classical sonatina movement. Secondly, the participants' reflections on their experience to provide insights into the influence this strategy had on their memorisation of a piece. A fully detailed account of these processes and methods was presented in Chapter 3.

In order to conduct this study, the literature review provided valuable insights in guiding the process. The process of memorisation is complex, yet intriguing (section 2.1), with each individual approaching the process uniquely. Although the focus of the study was not on tracking and identifying the participants' unique brain processes, it certainly played a role as each participant memorised the sonatina movement. The information highlighted through section 2.3 (Memorisation of music) provided valuable background to understanding the various processes and components involved in memorising music in particular. The section highlighted the potential benefits to a performer when performing from memory. The different components involved that were discussed, and the engagement of the entire body in the process, were useful to understanding and interpreting the processes that the participants followed.

Musical analysis, the various ways it can be approached, and the numerous benefits (sections 2.3.1 and 2.3.2), provided insights into the analytical processes followed by the participants and also helped to identify and compare their experiences and outcomes with other research findings. Previous literature, as discussed in section 2.3.3, emphasised how analysis is not optimally employed as a memorisation tool, especially by students. This inspired the project in facilitating and supporting students through the analytical strategy.

The sonata structure outlined in section 2.5.2.2, in the context of Caplin's theory of formal functions, played a critical role in this study as it provided the necessary concepts that were used by the participants. The application of these concepts specifically to the sonatina (section 2.7) probably provided the most important information to enable the participants to implement the strategy.

The implementation of the strategy can be briefly summarised in three stages that the participants undertook. They first had to familiarise themselves with all the different aspects of the analytical strategy in order to facilitate memorisation in the later stages. This was achieved through the study of the materials provided (presented in Annexure 1). These materials included an example analysis; a series of videos explaining the example analysis, and an extensive glossary listing all the relevant terms and concepts. It took the participants approximately one-and-a-half weeks to work through all the materials and to gain sufficient confidence in their understanding of the materials to proceed to the next stage.

After that, they were able to conduct their own analysis, attempting to follow the same procedures as demonstrated through the example analysis. The structural similarities shared between the example piece and the piece provided to them for analysis were intended to simplify this process for them (fully discussed in section 3.3.1.3). The procedures that were to be implemented by the participants included the structural analysis of the sonatina movement by means of a marked-up score, applying the principles to Caplin's theory of formal functions and also incorporating a colour-coding system. A background on Caplin's theory of formal functions, its significance and its position in the *New Formenlehre* (section 2.5) provided the context for its application in this study.

After completing their own analysis, the participants finally started with learning and memorising the sonatina movement. This process, including the analytical stage, unfolded over a period of approximately four weeks. Each participant's personality and their own personal learning styles influenced the manner in which they approached the memorisation. They used their marked-up scores in combination with various memorisation and practising strategies ultimately to memorise the piece and produce a video-recording as confirmation. Although all three participants followed this general three-stage process, they each had a unique experience, as is evident from the data collected from each of them.

Essential to this study was the consistent and frequent reflection by the participants themselves throughout the process. They constantly documented all aspects of their experience and the individual interviews conducted upon completion of the study further highlighted their perceptions. These reflections shaped the findings of the study, as discussed in Chapter 4 according to the identified themes.

The stages and procedures followed in this study were completely aimed at the participants' experience and the interpretation of it. Participation was completely voluntary and they employed their best efforts, leading to the resulting outcome. These outcomes and consequent findings were used to reflect on the research questions and objectives.

## **5.2 INTERPRETATION OF RESEARCH FINDINGS**

Each participant's marked-up score, video-recording, journalling notes and interview responses provided valuable insights into their experiences over the six-week period of the study. The findings of this study can be viewed in the light of the existing literature and findings on related topics to determine whether there are any similarities or contradictions. The data collected further provided me with all the necessary information to make the following conclusions based on the findings and to reflect further on the predetermined goals and objectives set for this study.

The findings discussed in Chapter 4 contribute to the existing literature as it strengthens existing arguments on relevant topics by presenting similar findings. The

findings of this study, especially as concluded from the participants' video-recordings, strongly suggest that they benefited directly from memorising the music. This was concluded from the general sense of comfort and confidence displayed in their video-recordings. Playing from memory can greatly enhance a performance (section 2.2.1), which is one of the benefits as also experienced by the participants in the present study. Their concentration while playing seemed heightened, they communicated the music very effectively and the artistry portrayed was exceptional (benefits mentioned by Hargest (2014)). Their performance of the piece further portrayed fluency, accuracy, confidence, good tone quality and musicality (benefits mentioned by Hargest (2014) and Walls (2007)). Moreover, the participants were completely free of the score but still highly aware of all the various aspects of the music (benefits mentioned by Klickstein (2009) and Palmer (1997)). Although the piece was not technically as challenging, the participants still played it with ease, displaying kinesthetic comfort while playing (benefits mentioned by Bernstein (2020) and McKinney (2008)). The latter was also confirmation of sensory processes being actively engaged, especially interoception and proprioception (section 2.2.3).

Furthermore, benefits specifically associated with analytical interactions to facilitate memorisation (section 2.3.2) were also observed and experienced by the participants in this study. They came to the realisation that the use of analysis in the memorisation process, was time-efficient, because they learnt and memorised the piece much faster compared to their past experiences (section 4.2.2.1). Analytical interactions led to the formation of a mental representation of the piece in the participants' minds, which strengthened their memory and therefore facilitated playing from memory (section 4.1.3 and 4.2.3). These benefits experienced by the participants were previously mentioned and observed by Chaffin (2007) and Mishra (2010) respectively (section 2.3.2).

In addition, a deeper understanding of the structure through analysis (Chang 2007), awareness of sections and themes associated with the hierarchical organisation of a piece (Chaffin et al. 2016), and the identified similarities and differences between these formal structures (Shteinberg et al. 2014), were more aspects that benefited the participants' memory (section 2.3.2 and section 2.5.2.1). All of the abovementioned aspects clearly demonstrate the similarities between the findings of this study and

those of the existing literature with regard to the potential benefits to memorisation. This study therefore strengthens these arguments that support memorisation and that further highlight the potential benefits associated with the process.

Another interesting observation was the participants' perception of the colour-coding system and how it compared to previous research, especially research by Ferrari et al. (2017) (section 2.3.1). It was found that the colour-coding system facilitated the participants' understanding of the structural components (section 4.2.1.1) of the piece, which helped to guide their own analysis but did little to facilitate the memorisation process itself. This aligns with the research from 2017, highlighting the importance of colour (a coloured graphic representation, in their case) in facilitating analytical processes and ultimately understanding form.

Continuing the discussion of the findings, I turn now to the relevance of the material discussed in section 4.3. This section highlighted the participants' experiences and perceptions of the strategy. These pointed to their positive experiences, their intention to use the strategy in future, the potential for improvement and the areas of difficulty experienced by them. The findings were significant as they provide insights into one of the sub-questions guiding this research project (section 1.2). The specific sub-question referred to was: How do undergraduate piano students experience the use of musical analysis as a strategic tool for the memorisation of a Classical sonatina? The general sentiment was that the participants had a very positive experience during the implementation of the analytical strategy (section 4.3.1). From the findings in section 4.3, the aspects discussed below shine additional light on the participants' experience.

The strategy, the process and the analytical interactions left a good impression on them, to the extent that they felt confident enough to employ selected aspects during future memorising processes (section 4.3.2.2). The aspects considered for future use varies across the participants, as reflected in their personal preferences. However, they also experienced some difficulties throughout the process, with certain aspects posing some challenges (section 4.3.4). For instance, the participants had to adapt to the processes required in this study, moving out of their comfort zones at times and employing procedures not necessarily familiar to them and therefore not part of their

normal memorising routine. Nonetheless, despite the fact that certain aspects and processes were unfamiliar and/or unfavourable by them, they still employed them to the best of their abilities (section 4.3.3.3). Furthermore, their experience also illuminated areas for possible improvements and adjustments that can be made in future use to improve on both their experience and the outcome (section 4.3.3). The participants' experience of using musical analysis was clearly pleasing, fulfilling and rewarding, leaving them intrigued and with food for thought.

This strategy was based on Caplin's theory of formal functions. Caplin instilled the concepts and principles related to his strategy, specifically to the sonata form. He also demonstrated its relevance and application to other tripartite forms, such as small ternary, as seen in his book (2013). However, Caplin never demonstrated the application of these principles to sonatina movements. Structural interpretation of any piece is already ambiguous as it is, even more so in the case of attempting to adapt and mould principles to fit a specific structure, such as a sonatina movement, as attempted in this project.

Application of the strategy to its full capacity therefore requires extensive theoretical knowledge and understanding. A lack of both may hinder a musician in fully realising the potential of this strategy. Insufficient understanding of the sonata form, in particular, can be problematic. Participant 3, for example, shared the way insufficient knowledge on her part made it more difficult to apply the strategy to its fullest extent. Furthermore, this strategy has at its core various theoretical concepts, integrating them in a unique and somewhat complex manner. It is therefore possible that the strategy becomes relevant only to individuals who already have pre-existing knowledge of these concepts. A possible solution that might have benefited the participants in this regard would be the availability of additional resources.

With all of this in mind, it became clear that, in some instances, the participants did not reach the analytical conclusions as anticipated. Their interpretations of intra-thematic functions, such as the smaller units and phrase functions specifically, were different from those expected. By studying their analyses, I conclude that they struggled at times with the application of the structural concepts to the sonatina movement.

However, as mentioned, due to the ambiguity of the strategy and the structure, this result was to be expected.

Even though the participants struggled at times to identify all the structural components, there was one key factor that helped to keep them on course through the unfamiliar terrain. This was their pre-existing knowledge of analytical concepts and, most importantly, of the sonata form. As mentioned in section 2.7, Jurkowski (2010) pointed out that certain sonatina movements' structure correlates more with the minuet form rather than the sonata form (as with the Clementi sonatina used in this study). However, none of the participants made any reference to the minuet form during any stage of the process. Instead, it was clear that they constantly referred back to, and relied on, their knowledge of the sonata form specifically to comprehend the sonatina structure. It is my belief that the participants chose the sonata form as a point of reference, instead of minuet form, as the sonata form is possibly prioritised above other formal types in music theory courses.

The last point of discussion, before reflecting back on the research objectives and aims, is on the combined methods employed by the participants to memorise the piece. The previous research findings that motivated this entire research project (section 2.3.3) included the conclusion that music students in particular often refrain from using musical analysis to facilitate their memorisation (Gerling & Dos Santos 2017). The participants found it difficult to engage actively with other forms of memory, especially analytical memory (section 4.3.4.3). It was challenging for them, it seemed, to refrain from using muscle memory primarily to memorise the piece. This implies that the participants prefer muscle memory when memorising, aligning their views with Mishra's statement (2010) with regard to musicians' reliance on conventional strategies to memorise (section 2.3.2). It is clear that the tendencies observed in the participants were similar to those observed by Mishra (1999; 2002) and Gerling and Dos Santos (2017).

As could be expected, the ways in which the participants' brains function and process information are not necessarily the same: they had different learning preferences, with certain components of memory and the associated strategies occurring more naturally (section 4.3.3.3). Therefore, knowledge of the six components of memory – visual,

auditory, kinesthetic, tactile, emotional and analytical memory – was relevant (section 2.2.2). The participants used a wide variety of practising and memorising strategies for memorising the sonatina movement in combination with their analysis. The strategies used engaged various components of memory, as briefly discussed below.

Besides their engagement with visual, auditory and kinesthetic strategies, the participants further strengthened the analytical component of memory through the addition of other analytical strategies. Mental practising strategies, the use of sight-reading during various stages of the process, and the implementation of self-recording as a method to self-evaluation also formed part of the strategies they employed (section 4.4). These strategies occurred both at and away from the piano, as advocated by Bernardi et al. (2012) (section 2.3.2). It is clear that the strategies used aligned with the participants' instinctive memory components. As asserted by Ginsborg (2019) (section 2.2.2), it is important to engage with all the components of memory in order to obtain the most secure memory. This certainly seemed to have been the case with the participants in this study (sections 4.4 and 4.2.3.1).

Upon reflection, it is my belief that the objectives and aims of this study were successfully fulfilled. First, an analytical strategy and the appropriate materials, with sufficient guidelines for its implementation, was compiled and presented to the participants. This strategy demonstrated, in detail, the implementation of the analytical principles to Caplin's theory of formal functions as applicable to a Classical sonatina movement. The use of a complementary colour-coding system was also suggested and demonstrated. The participants successfully used this analytical strategy as a tool to effectively aid their memorisation of a Classical sonatina movement.

Secondly, the specific and unique processes involved regarding the structural analysis of a Classical sonatina according to Caplin's theory of formal functions that positively contributed to the participants' memorisation (and which should therefore be considered when memorising) were successfully identified. Therefore, also highlighting one of the sub-questions to this research project, feedback and reflections from the participants were used to identify these aspects and they were presented in section 4.2.1.1. Ultimately, there were mainly two factors regarding the strategy that actively facilitated the participants' memorisation. These were the importance of large-

scale structural components and the differences between them and an understanding of the harmonic framework. The identification and analysis of inter-thematic functions played a significant role in their memorisation process, while intra-thematic functions were ultimately considered irrelevant to the process.

Thirdly, through a carefully considered research design, the research study investigated undergraduate piano students' experiences of using an analytical strategy as a strategic tool to memorise a Classical sonatina and its influence on their memorisation in an effective manner. The chosen design and methodology selected for the study aimed to investigate this matter as effectively and as efficiently as possible by considering various factors:

- the participants who had been exposed to various music theory pedagogies were included in the study;
- the time frame was sensibly allocated to allow sufficient time to support understanding and implementation to a reasonable standard;
- the participants worked individually and independently to foster the expression of their personal learning preferences, and
- the material provided included both visual and auditory demonstrations of the implementation to accommodate the participants varying learning styles.

All of these factors were carefully considered to establish a research design that would reflect on the participants' experience in an authentic and true manner in order to obtain results that are reliable and trustworthy.

Upon reflection, it became clear that the research findings and conclusions confirm the initial hypothesis and expectations shared in section 1.3. It became evident that the implementation of an analytical strategy, specifically focused on structural analysis and Caplin's theory of formal functions, indeed facilitated participants' memorisation of the given sonatina movement. The provided analytical strategy enhanced the participants' ability to remember musical elements by engaging the various components of memory.

Additionally, the participants benefited from a sensory-rich experience through hearing, sight and touch as expected. The visual and auditory elements of the experience, including visualisation of the score and perception of the sound produced by their playing, contributed to the formation of sensory memories. Furthermore, the kinesthetic awareness that they developed through the memorisation process and practicing, enhanced their performance comfort and technical execution of the piece. The participants also relied on pre-existing knowledge of music theory, analysis, and form to further facilitate the memorisation process. Overall, the use of analytical procedures influenced the participants' memorisation of the sonatina movement, as expected, leading to a comfortable and confident performance.

In conclusion, the findings reached in this research study clearly correlate with similar findings from the previous literature and qualitative studies. The literature presented in Chapter 2 was also used to contextualise the findings of the present study. Similarly to the previous literature reviewed, the findings presented in Chapter 4 point to the positive influence and effects of memorisation and serve to highlight the significant role music analysis can play in supporting memorisation. Furthermore, the processes and procedures followed in this study, and the consequent outcomes, led to the fulfilment of the research objectives and provided sufficient information to reflect on the research questions.

### **5.3 VALUE OF THE STUDY**

It is my conclusion that this study enabled and empowered the participants by providing them with an efficient and concise guide to practically implementing structural analysis in order to facilitate memorisation. The fact that the study was focused on sonatinas specifically tended to help simplify the concepts for them. In my opinion, this played a significant role in facilitating their understanding of these relevant concepts in order to implement it themselves, as their exposure to them was limited. Consequently, the participants were introduced to the concepts systematically and deliberately, without overwhelming them with all the possible information at once.

In concurrence with previous research regarding the implications of musical analysis on memorisation, this study further highlighted the various influences of analytical

procedures on the memorisation process. The conclusions reached through this study mostly correlate with previous findings on this topic, displaying similar discoveries and observations about using analysis to facilitate memorisation. Therefore, the fact that similar conclusions were reached, despite a different and unique research methodology (in Chapter 3), tends to strengthen and confirm these previous arguments.

The study served as a stepping-stone into the fascinating field of musical analysis and the potential in its application as a memorisation tool for any musician. Therefore, the value of the study lies in its potential ultimately to improve the quality of undergraduate pianists' memorisation by helping them to realise the positive effects of incorporating structural analysis into the memorisation process. One can only hope that the information and knowledge acquired through this study will serve to cultivate curiosity in both the participants and readers to explore structural analysis further, in particular the ways in which it could be applicable to various genres, formal types and stylistic periods across all instruments and repertoire.

#### **5.4 LIMITATIONS TO THE STUDY**

The analytical strategy provided to the participants and their implementation of it during this study posed some challenges. The chosen research design and methodology also created some limitations to the study, influencing the outcomes and the findings. Some of these limitations are highlighted below. They include the varying effectiveness of the strategy across different stylistic periods and the limitations associated with the small group of participants included in the study.

The strategy was strictly based on Classical sonatina movements. Although formal types vary extensively throughout the Classical repertoire, this is even more the case across the different style periods. Most aspects of the strategy are bound to Classical forms with a tripartite structure. All three participants came to this realisation and voiced this concern.

Participant 2 expressed curiosity about the outcome of applying the strategy to other forms, acknowledging that it would present drastically differently. Although the study

focused exclusively on the Classical genre, some aspects included in the strategy, such as theme and harmonic identification, may be relevant to and valuable in pieces from other style periods. While the study conducted was limited to a very specific formal type and genre, by broadening its scope, the influence of musical analysis on other musical forms could possibly also be investigated.

This study included the participation of only three undergraduate piano students, who were studying at South African universities. The participants were representative of two different institutions; therefore, the study and its methodology were introduced to students who had been exposed to different music theory pedagogies. However, this still placed a limitation on the variation in the data that were collected, which in turn influenced the findings and the conclusions. The inclusion of one or two more participants (not exceeding five, as suggested by Creswell and Poth (section 1.4 and 3.2), in addition to participants representative of a larger variety of both national and international institutions, would have greatly enriched this study. The data collected would have included a greater variety of opinions and experiences, leading to a more accurate representation of undergraduate piano students' experience with using musical analysis as a strategic tool to facilitate their memorisation of a Classical sonatina.

An aspect of the research design that possibly restricted the participants' efforts to engage with the materials provided and transfer the knowledge for their own implementation was the allocated time frame of the study. Participant 2 stated that she would have preferred to memorise the sonatina movement over a shorter period than the allocated six-weeks. However, in general the six-week period seemingly might not have been sufficient time for the participants to fully grasp all the elements and concepts related to the strategy. More time allocated to the study of the materials provided might have enabled them to implement the aspects of the strategy more efficiently.

These limitations might certainly have had an effect on the outcomes of the strategy, and also on the interpretation of the findings. However, it is my conviction that these limitations can be overcome through some adjustments. Creative solutions could help

to improve the quality of similar studies in the future. This leads me to suggestions for future studies.

## **5.5 SUGGESTIONS FOR FURTHER STUDY**

The findings and conclusions reached in this study have provided valuable insights into the factors to consider in further studies to improve the quality of related studies in the future. Suggestions include consideration of other formal types and repertoire from different stylistic periods for similar studies.

It might be valuable to examine the influence of a strategy as used in this study on the memorisation of other tripartite formal types within the Classical genre that were fully discussed by Caplin, as they might be less challenging to study participants. Also of interest would be the outcome when the critical analysis method were to be implemented on a much larger scale with works such as sonatas and even concerto movements.

Suggestions to consider for further studies that follow a similar methodology might also be to expand the implementation of such an analytical strategy beyond the Classical repertoire. Such studies could, for instance, aim to develop practical methods to analyse other formal types structurally in order to facilitate memorisation. Researchers could also consider basing such strategies on a variety of theoretical models and theories.

Shifting the focus more on memory and the functioning of the human brain during memorisation processes, it became clear from the qualitative data gathered and the analysis of the findings that sensory memory processes were primarily involved in this study. These included the visual and auditory systems (section 2.1.2), but also proprioception, exteroception and interoception (section 2.2.3.). It would be interesting, therefore, to investigate the influence of musical analysis on musicians' short- and long-term memory, as discussed in section 2.1.2. This might be achieved by experimenting with and adjusting the time frame allocated for such studies.

## **5.6 FINAL REMARKS**

With all of the above considered, it is my conclusion that the use of musical analysis as a strategic tool did indeed have a positive influence on the undergraduate piano students' memorisation of a Classical sonatina. The strategy included various aspects that were unfamiliar to the participants, although it did pose challenges occasionally. The participants' compatibility with the strategy and its various aspects varied significantly. Consequently, their opinions and experiences were also unique and diverse. However, I can confidently state that, based on my observations, interactions with the participants and analysis of all collected data, it was clear that the act of analytical engagement with the music contributed positively to the participants' memorisation of the given sonatina movement.

The level of analytical engagement varied between the participants. Furthermore, the combination of various aspects that influenced them was unique for each participant and sometimes surprisingly unexpected. It became clear that certain aspects exceeded their expectations while others left them disappointed. However, the process encouraged them to reflect on their perception of various analytical procedures, some familiar and other unfamiliar to them. Nevertheless, it was clear that these analytical interactions made an impact on all three participants, enriching their memorising experience and contributing to the effective memorisation of a piece. Overall, from all the findings and conclusions stated, it can be concluded that these analytical engagements facilitated the participants' memorisation to varying degrees.

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## ANNEXURE 1: DOCUMENT PRESENTED TO PARTICIPANTS

### ANALYTICAL STRATEGY TO PARTICIPANTS

Master of Music:

The influence of musical analysis as a strategic tool on undergraduate piano students' memorisation of a Classical sonatina

**Researcher:** Kayme du Preez  
**Student number:** 2017002011  
**Institution:** University of the Free State  
**Department:** Odeion School of Music  
**Date:** (Each participant's self-selected six-week period work noted here.)  
**Contact details:** [kaymedupreez@gmail.com](mailto:kaymedupreez@gmail.com)  
**Supervisor:** Dr Anchen Froneman  
**Co-supervisor:** Prof. Matildie Wium

**CONTENT:**

1. STEPS TO FOLLOW FOR PARTICIPATION IN THIS STUDY OVER THE NEXT SIX WEEKS
2. CLEMENTI SONATINA OP. 36, NO. 2: FIRST MOVEMENT ANALYSIS
3. CLEMENTI SONATINA OP. 36, NO. 2: FIRST MOVEMENT ANALYSIS EXPLAINED
4. SONATINA ANALYSIS GLOSSARY
5. DIABELLI'S SONATINA OP. 168, NO. 1: FIRST MOVEMENT
6. SUGGESTIONS FOR JOURNALLING

## **STEPS TO FOLLOW FOR PARTICIPATION IN THIS STUDY OVER THE NEXT SIX WEEKS**

1. In this document, you are provided with a thorough, in-depth strategically analysed first movement from Clementi's Sonatina op. 36, no. 2, to indicate and show you how analysis can be used to understand the structure of a piece in order to facilitate memorisation of a piece. The analysis is based on William Caplin's theory of formal functions. This will serve as a comprehensive example of the analytical strategy.
2. This example is thoroughly shared and explained via a series of five pre-recorded video-recordings where I, the researcher, present and explain the provided strategy and example thereof.
3. In this document, you are provided with an extensive glossary with descriptions, definitions and examples of all relevant terms and concepts to accompany the written analysis and series of videos to ensure that you are fully equipped to do your own analysis. This glossary is there to be used to familiarise yourself with Caplin's terminology as you go through the example strategy, but is also there to help guide your own analysis.
4. After going through the example analysis and watching the five videos (and using the glossary where needed), you will have the opportunity to ask questions about the provided strategy during an individual communication session.
5. In this document, you are provided with the sheet music for the first movement of Diabelli's Sonatina op. 168, no. 1. This piece shares some structural similarities to the provided example.
6. After the communication session, apply the principles of the provided analytical strategy, as provided in the example analysis. At this stage you will be required to produce a marked-up score of the Diabelli movement in a similar way as done in the example analysis.
7. After completing your own analysis of the first movement of Sonatina op. 168, no. 1, attempt to memorise the given piece by regularly spending time on it during this six-week period.

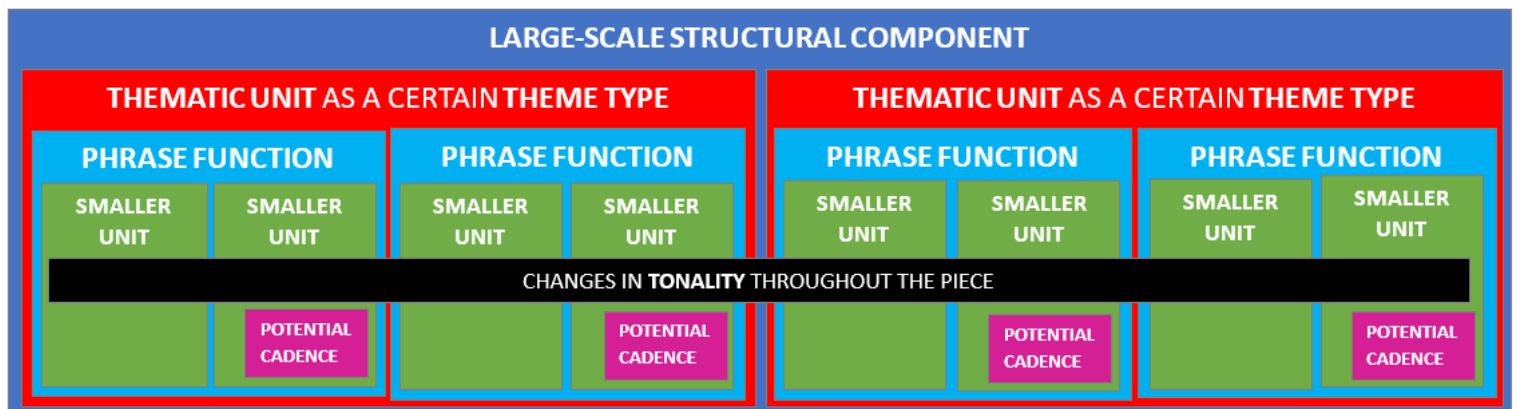
8. During this six-week period, I will have an individual communication session with you telephonically or via an online platform to assist you and to provide further guidance where needed.
9. Keep a journal, regularly noting your progress, comments on the strategy as you apply it and your general experience of applying the strategy. Use the 'suggestions to journalling' as provided in this document, to help you guide the journaling process. Along with your notes and comments, you need to provide copies of all forms of written analysis done on the score, or elsewhere, during the six-week period.
10. Take audio-recordings during your practice sessions that need to be sent to the researcher after the six weeks to be use for observation.
11. By the end of this six-week period, on the last day, make a video-recording of yourself where you attempt to play the first movement from Diabelli's sonatina op. 168, no. 1 from memory for final observation.
12. After this six-week period, the researcher will conduct an individual interview with you via an online platform or telephonically. You will be asked open-ended questions to prompt you to reflect on your experience of using the analytical strategy, whether it is positive or negative.

## CLEMENTI SONATINA OP. 36, NO. 2: FIRST MOVEMENT ANALYSIS

The analysis is based on William Caplin's theory of formal functions. This serves as a comprehensive example of the analytical strategy. Go through this example analysis first before attempting your own analysis.

It is colour coded as follows:

<b>DARK BLUE:</b>	Large-scale structural components
<b>RED:</b>	Thematic units
<b>YELLOW:</b>	Theme type
<b>LIGHT BLUE:</b>	Phrase functions
<b>GREEN:</b>	Smaller units
<b>DARK PINK:</b>	Cadences
<b>BLACK:</b>	Tonality
<b>LIGHT PINK:</b>	Structural changes
<b>ORANGE:</b>	Ornamental changes



# Sonatina Op. 36, no. 2

Clementi

**Main Theme: Hybrid 4**  
Compound basic idea

**EXPOSITION**

basic idea (b.i.)

contrasting idea (c.i.)

Chords: G: I I I (V<sup>6</sup>)

**Fusion:**  
Transition/subordinate theme  
Consequent phrase

b.i.

c.i.

Chords: I I D: ii<sup>6</sup> V(4 3)

**Subordinate Theme: Sentence**  
Presentation phrase

b.i.

∕ (exact)

Chords: I I I I

V:PAC

Continuation phrase  
cadential idea

∕ **Subordinate Theme: Sentence**  
Presentation phrase

b.i.

Chords: I ii<sup>6</sup> V I I

V:IAC

16

*cresc.* *f*

$\frac{3}{4}$  (exact)

Continuation phrase  
cadential idea

I I I ii<sup>6</sup> V

20

*p*

Closing section  
codetta

DEVELOPMENT  
Transition-like-unit  
Compound basic idea  
New idea (based on the  
main theme's basic idea)

I V I V I a: (II) vii<sup>7</sup>

V:PAC

24

*f* *p*

Contrasting idea

Continuation  
fragmentation

i V i (V<sup>6</sup>)

27

*cresc.* *f* *p*

Standing on the dominant

i (V<sup>6</sup>) i G: ii vii<sup>7</sup> I V<sup>7</sup>

31

*f*

Cadential confirmation  
of the home key

vi vii<sup>6</sup>/V V

I:HC

33

*dim.*

V V

**RECAPITULATION**  
**Main Theme:** Hybrid 4  
 Compound basic idea

35

*p*

*cresc.*

V V I

b.i.

Ornamental change  
 -melodic change  
 (movement in opposite direction) Consequent phrase

38

*f*

I (V<sup>6</sup>) I

c.i.

b.i.

Ornamental change  
 -change in accompanimental pattern  
 (movement in the opposite direction)

41

*f*

ii<sup>6</sup> V(4) (3)

c.i.

Structural change  
 -no modulation,  
 remains in the home key

**Subordinate Theme: Sentence**

Presentation phrase

b.i.

44

*p*

I

I

I

I:PAC

Continuation phrase  
cadential idea

Ornamental change  
-melodic embellishment  
(scale-like passage)  
-different scale degree used  
in descending scale passage  
(last note in bar 48)

47

*cresc.*

∕. (exact)

Ornamental change  
-rhythmic change (added notes)

Ornamental change  
-textural change

Ornamental change  
-change in accompaniment pattern  
-rhythmic change

I

ii<sup>6</sup>

V

**∕. Subordinate Theme: Sentence**

Presentation phrase

b.i.

50

*p*

movement in  
opposite direction  
(back to the same scale degree)

∕. (exact)

Ornamental change  
-different scale degrees used  
in descending scale passage

Ornamental change  
-different scale degrees used  
in descending scale passage

I

I

I

I:IAC

53

movement in opposite direction (back to the same scale degree)

Ornamental change -rhythmic change (added notes) -melodic embellishment

Ornamental change -melodic change (movement in opposite direction, scale-like passage)

Continuation phrase

Cadential idea

I I ii<sup>6</sup> V

Ornamental change -rhythmic change -change in accompanimental pattern (movement in opposite direction)

56

Closing section codetta

Ornamental change -rhythmic change (shorter note value)

Structural change -extended closing section (added bar with textural embellishment)

Ornamental change -change in accompanimental pattern -register change on first beat

Ornamental change -register change

I Cadential confirmation in the home key

I:PAC

V I V I

59

I

# **CLEMENTI SONATINA OP. 36, NO. 2: FIRST MOVEMENT ANALYSIS EXPLAINED**

## **VIDEO 1: GENERAL OVERVIEW**

LINK:

[https://drive.google.com/file/d/16eINEQpyHqDI9qD8VkJHDjlo9DbIp0fgm/view?usp=drive\\_link](https://drive.google.com/file/d/16eINEQpyHqDI9qD8VkJHDjlo9DbIp0fgm/view?usp=drive_link)

## **VIDEO 2: EXPOSITION**

LINK:

[https://drive.google.com/file/d/176iYOgJy1Ze33N-qQNAD7A-5YcOQYi0m/view?usp=drive\\_link](https://drive.google.com/file/d/176iYOgJy1Ze33N-qQNAD7A-5YcOQYi0m/view?usp=drive_link)

## **VIDEO 3: DEVELOPMENT**

LINK:

[https://drive.google.com/file/d/1Od91yu9tqpkhZEUrQMeqtEwX4sfO-eHy/view?usp=drive\\_link](https://drive.google.com/file/d/1Od91yu9tqpkhZEUrQMeqtEwX4sfO-eHy/view?usp=drive_link)

## **VIDEO 4: RECAPITULATION**

LINK 1:

[https://drive.google.com/file/d/1-o9p2DORdrDqc2zZf4EIMsJHbcweig8y/view?usp=drive\\_link](https://drive.google.com/file/d/1-o9p2DORdrDqc2zZf4EIMsJHbcweig8y/view?usp=drive_link)

LINK 2:

[https://drive.google.com/file/d/1mi8wpkJQkz96A8DeJLphFlxote-I\\_1xj/view?usp=drive\\_link](https://drive.google.com/file/d/1mi8wpkJQkz96A8DeJLphFlxote-I_1xj/view?usp=drive_link)

## SONATINA ANALYSIS GLOSSARY

### ANTECEDENT PHRASE

A four-measure long [phrase function](#) that serves an initiating function and is the first phrase within a [period](#) (Caplin 2013, p. 703). It is compiled as follows: a [basic idea](#) (two-measure [unit](#)) + a [contrasting idea](#) (two-measure [unit](#)). It ends with a weak cadence, mostly a [half-cadence](#), but can also end with an [imperfect authentic cadence](#) (Caplin 2013, p. 74).

### BASIC IDEA

Fulfills an initiating function and is the first two-measure [unit](#) within several [phrase functions](#). It is a musical idea that comprises different rhythmic or melodic motives. It forms the primary material within a [thematic unit](#) (Caplin 2013, p. 703).

### CADENCES

A cadence can be described as a harmonic progression that ends a phrase, 'perceived as a rhythmic or melodic articulation or a harmonic change or all of these; in a larger sense, a [cadence](#) may be a demarcation of a half-phrase, of a section of music, or of an entire movement' (DeVoto 2007).

The goal of a cadential progression is to confirm a tonal centre. Tonal confirmation achieved through an authentic cadence, is at its strongest, while confirmation achieved through a half-cadence, is weaker (Caplin 2013, p. 56). For all cadential progressions, it is necessary that the dominant harmony is at all times placed in root position (Caplin 2013, p. 14).

There are different types of cadences, depending on the harmonic progression and in tonal music, there are only three basic types of cadences (Caplin 2013, p. 56):

1. **Half-cadence:** A half-cadence (HC) is a cadence with a tonic-predominant-dominant progression. However, the initial tonic or pre-dominant chord may be omitted, forming an incomplete version of this cadence. This is viewed as a weak cadence (Caplin 2013, pp. 17–18 & 56). Basic examples of half-cadential progressions include: I-ii<sup>6</sup>-V, I-V, I-IV<sup>6</sup>-V and I<sup>6</sup>-vii<sup>7</sup>/V-V (Caplin 2013, p. 18).

2. **Imperfect authentic cadence:** An imperfect authentic cadence (IAC) is a cadence with a predominant-dominant-tonic progression (with the first scale degree of the tonic chord not in the melodic line, most often the third scale degree is used). This is viewed as a weaker type of cadence (Caplin 2013, p. 56).
3. **Perfect authentic cadence:** A perfect authentic cadence (PAC) is a cadence with a tonic-predominant-dominant-tonic progression (with the first scale degree of the tonic chord in the melodic line). This is viewed as a strong cadence (Caplin 2013, pp. 15 & 56). Basic examples of authentic-cadential progressions include:  $I^6-ii^6-V^{(7)}-I$  and  $I^6-IV-V-I$  (Caplin 2013, p. 15).

Throughout the [sonatina](#) movement, certain cadences are expected to occur at certain points: The [home key](#) in the [exposition](#) is confirmed by an authentic cadence. After modulation, the [subordinate key](#) is also confirmed by a strong cadence. In the [development](#), the [development key\(s\)](#) are confirmed by a half-cadence. Near the end of the [development](#) section, the [home key](#) returns and is confirmed by a half-cadence. The [home key](#) remains throughout the entire [recapitulation](#) and is reconfirmed with a perfect authentic cadence towards the end (Caplin 2013, p. 263). The presence or absence of cadences at certain points throughout the movement also influences and determines the classification of [theme types](#).

## CLOSING SECTION

A concluding [phrase function](#) that follows after a [perfect authentic cadence](#), making it post-cadential. It usually consists of a series of [codettas](#) (Caplin 2013, p. 704).

## CODETTA

A [unit](#) within a [closing section](#), fulfilling a post-cadential function after a [perfect authentic cadence](#). It consists of a tonic-prolongational progression and may vary in length (Caplin 2013, p. 704).

## COMPOUND BASIC IDEA

A four-measure long [phrase function](#) that is a hybrid between [antecedent](#) and [presentation](#) and serves an initiating function. It appears as the first [phrase function](#) within [a hybrid 4 theme type](#) among others and prolongs tonic harmony (Caplin 2013,

p. 705). It is compiled as follows: a [basic idea](#) (two measure [unit](#)) + a [contrasting idea](#) (two-measure [unit](#)). It does not end with any [cadence](#) and has no cadential closure (Caplin 2013, p. 102).

### **CONSEQUENT PHRASE**

The second [phrase function](#) of some [theme types](#) ([period](#) and [hybrid 4](#)) serving a concluding function. It is compiled as follows: a [basic idea](#) (two-measure [unit](#) which is a restatement of the [antecedent's basic idea](#)) + a [contrasting idea](#) or cadential idea (two-measure [unit](#)). It ends with a strong cadence, mostly a [perfect authentic cadence](#), but can also end with an [imperfect authentic cadence](#) (Caplin 2013, p. 705).

### **CONTINUATION PHRASE**

The second four-measure [phrase function](#) within the [sentence theme type](#). It displays [fragmentation](#) and a cadential function. It ends mostly with an [authentic cadence](#) or [half-cadence](#) (Caplin 2013, pp. 36 & 705).

### **CONTRASTING IDEA**

The second two-measure [unit](#) within several [phrase functions](#), following and contrasting the preceding [basic idea](#) (two-measure [unit](#)). It serves a concluding function (Caplin 2013, p. 705).

### **DEVELOPMENT**

The second [large-scale structural component](#) and therefore the medial section which is positioned between the [exposition](#) and [recapitulation](#). It is the most loosely organised structure within a movement (Caplin 2013, p. 706). The development section brings a high level of phrase-structural and tonal instability along with great contrast to the exposition, with an increased expression of emotion (Caplin 2013, p. 272).

The pre-core/core technique is the phrase-structural process most commonly utilised within a development section. This structure consists of a core (a four-to-eight measure large scale model), which is sequentially repeated one or more times and then fragmented into smaller units ([fragmentation](#)). It leads to a [half-cadence](#) in the [home key](#) or a [development key](#), followed by a [standing on the dominant](#). A pre-core

(a section of variable phrase structural and tonal organization) precedes the core as it occurs at the start of the development and often consists of one or more incomplete [thematic units](#). Its melodic-motivic material is often derived from prior material found in the [exposition](#) (Caplin 2013, pp. 421–422).

In some cases, the development is not structured according to the pre-core/core technique, lacking a core. In such cases, a core substitute may be used, often consisting of theme-like units such as a subordinate theme-like unit or a [transition-like unit](#), which also leads to dominant arrival or a [half-cadence](#) (Caplin 2013, pp. 451–452).

### **DEVELOPMENT KEY**

One of several tonal regions confirmed by cadential function within the [development](#) section of a [sonatina](#). In major-mode movements, II, III or VI of the [home key](#) is most commonly used (Caplin 2013, p. 706).

### **EXPOSITION**

The first [large-scale structural component](#) in a [sonatina](#) movement, which is positioned before the [development](#) and [recapitulation](#). It serves an initiating function and consists of several [thematic units](#) (Caplin 2013, p. 707).

### **FRAGMENTATION**

A decrease in the length of musical [units](#) compared to the main grouping structure. The melodic-motivic material of fragmented sections may or may not relate to prior units (Caplin 2013, p. 707).

### **HALF-CADENCE**

See [Cadences](#).

### **HOME KEY**

The main [tonality](#) of a [sonatina](#) movement. A movement starts and ends in this key and other tonal regions and keys relate to the home key (Caplin 2013, p. 708).

### **HYBRID 4**

A conventional eight-measure [theme type](#), combining [phrase functions](#) of the [sentence](#) and [period](#). It is compiled as follows: a [compound basic idea](#) (first [phrase function](#)) + a [consequent phrase](#) (second [phrase function](#)) (Caplin 2013, pp. 109 & 708).

### **IMPERFECT AUTHENTIC CADENCE**

See [Cadences](#).

### **INTER-THEMATIC FUSION**

A technique through which two formal functions are combined or merged to form a single phrase to achieve formal compression in a movement (Caplin 2013, pp. 590 & 707). Fusion between the [transition](#) and [subordinate theme](#) is most common and is a trait more commonly observed in compressed formal types rather than full-length [sonata](#) movements (Caplin & Martin 2016, pp. 26 & 29).

### **LARGE-SCALE FORMAL STRUCTURE**

[Sonata](#) form and other tripartite forms, including the [sonatina](#), consist out of three essential sections in the big overview of a movement and is the three large-scale structural components. Each of the three sections has a unique section function: the [exposition](#), [development](#) and [recapitulation](#). The [exposition](#) is usually repeated, mostly indicated with repetition signs. The [development](#) and [recapitulation](#) are placed together and are often repeated as a combined unit, again indicated with repetition signs (Caplin 2013, p. 262).

### **MAIN THEME**

The first [thematic unit](#) and function of the [exposition](#), serving an initiating function and is an eight-measure long [thematic unit](#) usually with a conventional [theme type](#). The main theme consists of two four-bar [phrase functions](#). Tight-knit [theme types](#) are most commonly used. It introduces the primary melodic-motivic material of the movement and establishes the [home key](#) (Caplin 2013, p. 709).

### **NEW IDEA**

A [unit](#) that may appear in the [development](#) section, stating material resembling the [basic idea](#) found in prior sections.

## ORNAMENTAL CHANGES

When material is restated or repeated at any stage, especially in the [recapitulation](#) where all the significant material from the [exposition](#) is being repeated, the materials and themes may undergo ornamental changes at some point.

Ornamental changes in any of the sections involve changes to:

- Dynamics
- Instrumentation
- Register
- Texture
- Accompanimental figuration
- Melodic embellishments (Caplin 2013, p. 476).

## PERFECT AUTHENTIC CADENCE

See [Cadences](#).

## PERIOD

An eight-measure conventional [theme type](#). It is compiled as follows: an [antecedent phrase](#) (four-measure [phrase function](#)) + a [consequent phrase](#) (four-measure [phrase function](#)) (Caplin 2013, p. 710).

## PHRASE FUNCTIONS

Each [theme type](#) has its own unique structure and characteristics that classify it as that specific [theme type](#). Each [theme type](#) has its own conventional group of [phrase functions](#) (Caplin 2013, p. 73). For each [theme type](#), this set of [phrase functions](#) can be viewed as smaller sections, unique to each [theme type](#), that each fulfil a certain function within the [thematic unit](#).

## PRESENTATION PHRASE

A four-measure long [phrase function](#) that serves an initiating function and is the first phrase within a [sentence theme type](#). It is compiled as follows: a [basic idea](#) (two-measure [unit](#)) + a repetition of the [basic idea](#) (two-measure [unit](#)). The presentation phrase is supported by tonic prolongation (Caplin 2013, p. 711).

## **RECAPITULATION**

The third [large-scale structural component](#) in a [sonatina](#) movement, which is positioned after the [development](#). It serves a concluding function by returning material from the [exposition](#) and consists of several [thematic units](#) (Caplin 2013, p. 711).

## **SENTENCE**

An eight-measure conventional [theme type](#). It is compiled as follows: a [presentation phrase](#) (four-measure [phrase function](#)) + a [continuation phrase](#) (four-measure [phrase function](#)) (Caplin 2013, p. 712).

## **SONATA**

A piece usually consisting of three independent sections or movements. The first movement is typically structured in sonata form: a tripartite full-movement form consisting of three [large-scale structural components](#): [exposition](#), [development](#) and [recapitulation](#) (Caplin 2013, p. 713).

## **SONATINA**

A piece typically consisting of three independent sections (similar to a sonata). The first movement of a sonatina is often constructed as a tripartite form with the same formal characteristics and elements of [sonata](#), typically of the form refined during the Classical period. It is, however, on a smaller scale, more compressed in nature and often technically less challenging (Randel 2003).

## **STANDING ON THE DOMINANT**

A post-cadential [phrase function](#) that follows after a [half-cadence](#). Material in the standing on the dominant is supported completely by dominant prolongation (Caplin 2013, p. 713).

## **STRUCTURAL CHANGES**

When all the significant material from the [exposition](#) is being repeated in the [recapitulation](#), the materials and themes may undergo structural changes at some point.

Structural changes involve the following changes:

- Harmonic-tonal organisational changes: The [recapitulation](#) remains in the [home key](#).
- Exploring flat-side tonal regions of the [home key](#), such as II and IV.
- Changes to grouping structure.
- Changes to formal functions.

### **SUBORDINATE KEY**

Typically, the second tonal region within a movement (often the dominant of the [home key](#)) and contrasts with the [home key](#). It is confirmed with a [perfect authentic cadence](#) (Caplin 2013, p. 713).

### **SUBORDINATE THEME**

A [thematic unit](#) and function in the [exposition](#). It is typically more loosely structured in its formal organisation and confirms the [subordinate key](#) (Caplin 2013, p 713).

### **THEMATIC UNIT**

Each of the three [large-scale structural components](#) consists out of a number of thematic units. These are smaller sections or themes within a [large-scale structural component](#). The [main theme](#) and [subordinate theme](#) are two examples of thematic units. Each thematic unit follows a certain structure associated with that specific type of thematic unit and fulfils certain functions within the [large-scale structural component](#) (Caplin 2013, p. 73). Some of the thematic units presented in the [exposition](#), may be repeated in the [recapitulation](#) while others are omitted. In the [development](#) section, thematic units may be presented in an incomplete manner.

### **THEME TYPE**

A [thematic unit](#) is presented as a specific theme type. There are many different types of themes, with the [sentence](#) and [period](#) being the two fundamental theme types (Caplin 2013, p. 103). Each theme type has its own unique structure and characteristics that classify it as that specific theme type. Some theme types are more conventional (Caplin 2013, p. 103), with a predetermined and specific structure, which is usually eight measures long. Others may follow a more unconventional structure,

being more loosely structured. Some [thematic units](#) are structured strictly as a specific theme type, making it tight-knit in nature. On the other hand, some [thematic units](#) are structured in a way that only resembles a specific theme type in some respects, making these [thematic units](#) more loosely-knit in their organisation (Caplin 2013, p. 33). Some theme types are used in specific contexts in order to fulfil a certain formal function (Caplin 2013, p. 73).

## **TONALITY**

Tonality refers to the different keys and tonal regions that occurs within the [sonatina](#) movement. Throughout a [sonata](#) (and [sonatina](#)) movement, a large-scale tonal structure can be identified as the tonality changes throughout the movement.

Within a [sonata](#) movement, Caplin (2013, p. 263) describes this large-scale tonal structure as “creating, and then resolving, a dramatic conflict of tonalities, namely between the [home key](#) and a closely related [subordinate key](#)”. This conflict starts in the [exposition](#), it intensifies throughout the [development](#) and resolves in the [recapitulation](#). In broad terms, the large-scale tonal structure can be identified as the [home key](#), modulating to the [subordinate key](#), exploration of the [development key\(s\)](#) in the minor mode regions and a return to the [home key](#) (Caplin 2013, p. 263).

## **TRANSITION**

A thematic function that follows after the [main theme](#). It serves to destabilise the [home key](#) and have a looser formal organisation in preparation for the establishment and confirmation of the [subordinate key](#) (Caplin 2013, p. 714).

## **TRANSITION-LIKE-UNIT**

A phrase resembling a [transition](#) by displaying its phrase-structural and tonal organisation, starting with an initiating function and followed by [standing on the dominant](#). This section may appear in the [development](#) section if a pre-core/core model is absent (Caplin 2013, p. 452).

## **UNIT**

A generalised term to describe a self-contained portion of music, with its own complete melodic, rhythmical, textural and harmonic content (Caplin 2013, p. 715). Within each

[theme type](#) and its set of [phrase functions](#), it is possible to further identify certain units of music associated with the conventional [theme types](#). A unit is not limited or unique to a specific [theme type](#), but rather, each [theme type](#) is associated with a specific and unique combination of different units. These units can be seen as smaller sections, within each [phrase function](#). Some examples of smaller units within [phrase functions](#), include a [basic idea](#) and a [contrasting idea](#) (Caplin 2013, p. 38).

## **DIABELLI'S SONATINA OP. 168, NO. 1: FIRST MOVEMENT**

1. Use the provided sheet music of the first movement from Diabelli's sonatina op. 168, no. 1, with all the above materials to guide the process, and apply the principles of the provided analytical strategy. Complete your written analysis as done in the example analysis and explained in the videos.
2. Use your analysis to facilitate the memorisation of this piece.
3. Once memorised, on the last day of the six-week period, make a video-recording of yourself playing the piece from memory.

# Sonatina in F major

Op. 168, No. 1

Diabelli

Moderato cantabile

*dolce.*

*p*

*legato*

*mf*

*cresc.*

*f*

*p*

*p*

*cresc.*

*f*

*ff*

*p*

*legato*

*cresc.*

19 *(cresc.)* *ff*

22 *p* *rallent.* *a tempo* *dolce*

25 *p* *legato*

29 *mf* *cresc. ---* *f* *p*

33 *p* *cresc. --*

36 *ff* *sf* *sf* *ff*

## SUGGESTIONS FOR JOURNALLING

- Keep track of the amount of time spend on the memorisation process over the six-week period, including time spent on analysis and practising. It is suggested that participants spend at least an hour, twice a week on the process. However, each participant should use their own discretion.
- Print and use the provided sheet music of the first movement from Diabelli's sonatina op. 168, no. 1 to conduct your analysis as done in the example provided.
- Use the provided written analysis of the first movement from Clementi's sonatina op. 36, no 2, the series of five videos explaining the analysis and the glossary with terms and definitions to guide your own analysis.
- Focus on all the different and individual aspects and components of the memorisation strategy.
- Try to make comments and notes after each practice session.
- After each practice session, note the aspects that contributed positively towards your memorisation in that session, but also document those that were less useful in that session.
- After each practice session, document the progress that you have made.
- Document what you have learned in that session.
- After each practice session, document all the areas that you struggled with.
- Reflect frequently on how you experience the process, both negative and positive aspects.
- Document all other aspects that come to mind as you go through the memorisation process.
- Always give an honest reflection during all stages of the process in order to get a true reflection of your experience.

ANNEXURE 2: DIABELLI SONATINA OP. 168, NO. 1: ANALYSIS

Sonatina in F Major  
Op. 168, No. 1

Diabelli

Main Theme: Period  
Antecedent phrase

EXPOSITION

basic idea (b.i.)

contrasting idea (c.i.)

Measures 1-3 of the exposition. Measure 1 is marked *dolce.* and *p*. Measure 2 is marked *p* and *legato*. Measure 3 is marked *p*. Chords are labeled: F: I, ii<sup>6</sup>, V<sup>7</sup>.

Fusion: Transition/subordinate theme  
Consequent phrase

Measures 4-6. Measure 4 is marked *mf*. Measure 5 is marked *mf*. Measure 6 is marked *cresc.*. Chords are labeled: I, I<sup>6</sup>, ii<sup>6</sup>, C: V<sup>6</sup>. A pink box labeled I:IAC is under measure 4. A green line above measures 5-6 is labeled b.i. and c.i.

Closing section  
codetta

Measures 7-9. Measure 7 is marked *f*. Measure 8 is marked *p*. Measure 9 is marked *p*. Chords are labeled: I, V<sup>7</sup>, I, V<sup>5</sup>, I, V<sup>3</sup>. A pink box labeled V:PAC is under measure 8.

codetta

Measures 10-12. Measure 10 is marked *p*. Measure 11 is marked *cresc.* and *f*. Measure 12 is marked *ff*. Chords are labeled: I, V<sup>5</sup>, I, V<sup>7</sup>, I.

**Transition-like-unit:**

Compound basic idea  
New idea (based on the main theme's basic idea)

Contrasting idea

**DEVELOPMENT**

Measures 13-15. Treble clef, bass clef. Dynamics: *p*, *p*. Performance markings: *legato*. Chords:  $g: (II)$ ,  $vii^7$ ,  $i$ . A pink bracket underlines measures 14-15 labeled "Continuation phrase".

Measures 16-18. Treble clef, bass clef. Dynamics: *cresc.*. Performance markings: *fragmentation*, *frag.*. Chords:  $V^7$ ,  $I^{\sharp}$ ,  $c: vii^{\sharp}$  (V). A pink bracket underlines measures 16-18 labeled "evaded cadence". A blue bracket underlines measures 17-18 labeled "Standing on the dominant".

Measures 19-21. Treble clef, bass clef. Dynamics: *(cresc.)*, *ff*. Performance markings: *frag.*. Chords:  $(iv^{\flat})$ ,  $F: vii^{\flat}/V$ ,  $V$  Dominant arrival,  $ii^7$ . A blue bracket underlines measures 19-21.

Measures 22-24. Treble clef, bass clef. Dynamics: *p*. Chords:  $V$ ,  $ii^7$ ,  $V$ .

**RECAPITULATION**

Main Theme: Period  
Antecedent phrase

Measures 25-27. Treble clef, bass clef. Dynamics: *rallent.*, *dolce*, *p*, *legato*. Performance markings: *a tempo*, *b.i.*. Chords:  $F: I$ ,  $ii^{\flat}$ .

28

*p* *mf* *f*

V<sup>7</sup> I I<sup>6</sup>

I:IAC

Consequent phrase

Ornamental change:  
-melodic embellishments  
c.i.

Ornamental change:  
-register change  
(movement in the  
opposite direction.)

Closing section  
codetta

31

*p* *f* *p*

ii<sup>6</sup> IV I<sup>4</sup> V<sup>7</sup> I V<sup>9</sup>

I:PAC

Structural change:  
-no modulation, remains in home key  
-tonic harmony no longer in root position  
-leads to cadence in the home key

Ornamental change:  
-change in accompanimental pattern  
-rhythmic change  
-textural change

34

*p* *p* *p*

I V<sup>4</sup> I V<sup>9</sup> I V<sup>7</sup>

codetta

37

*ff* *sf* *sf* *ff*

I V<sup>7</sup> I V<sup>7</sup> I

Structural change:  
-closing section extended

Cadential confirmation in the home key

## **ANNEXURE 3: INFORMED CONSENT FORM**

### **RESEARCH STUDY INFORMATION LEAFLET AND CONSENT FORM**

#### **DATE**

November 2023

#### **TITLE OF THE RESEARCH PROJECT**

The influence of musical analysis as a strategic tool on undergraduate piano students' memorisation of a Classical sonatina

#### **PRINCIPLE INVESTIGATOR/RESEARCHER(S) NAME(S) AND CONTACT NUMBER(S):**

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#### **FACULTY AND DEPARTMENT:**

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#### **STUDY LEADER(S) NAME AND CONTACT NUMBER:**

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#### **WHAT IS THE AIM/PURPOSE OF THE STUDY?**

The purpose of this study is to develop an analytical strategy to memorisation, focused on structural analysis, and sufficient guidelines for the application thereof, which can serve as a strategic tool to aid undergraduate piano students in the memorisation of a Classical sonatina. Furthermore, the research aims to describe undergraduate piano students' experience of using musical analysis as a strategic tool for the memorisation of a Classical sonatina. This will help to identify the specific and unique analytical processes involved regarding the structural analysis of a Classical sonatina according

to William Caplin's theory of formal functions that should be considered when memorising and which aspects are most and less contributing to effective memorisation.

### **WHO IS DOING THE RESEARCH?**

My name is Kayme du Preez and I will be the researcher leading this project. During my studies as a BMus student at the University of the Free State specialising in performance studies, I have come to realise the importance of memorisation. I have, however, realised that I have no sufficient knowledge on effective memorisation strategies or how to apply them properly. After some research in this regard, I found especially the analytical component to memorisation and its specific benefits very intriguing. For this reason, I have decided to further my studies by continue doing research in this regard as a Master's student, focusing specifically on analytical strategies for memorisation which can aid students in the future.

### **HAS THE STUDY RECEIVED ETHICAL APPROVAL?**

This study has received approval from the Research Ethics Committee of UFS. A copy of the approval letter can be obtained from the researcher.

**Approval number: UFS-HSD2022/0712/23**

### **WHY ARE YOU INVITED TO TAKE PART IN THIS RESEARCH PROJECT?**

The specific group of people that I require to participate in this study include second-, third- and fourth-year (senior) undergraduate piano students. Reasons for using specifically this group of people and why you are a suitable candidate, include the following:

1. The research project is designed specifically for piano students as the analytical strategy to memorisation will focus on a Classical sonatina specifically from the Classical piano repertoire and will involve strategies for pianists specifically.
2. Undergraduate students need to be in their second year of study or above (senior students) as this group of students should be familiar with crucial musical concepts regarding music theory and structural analysis that will be necessary for participation.
3. Participants need to be fluent in English as an academic language. Participants need to be English literate in order to read and understand all provided texts and

terminology used, understand and comprehend all voice and video content and be able to express themselves both vocally and in writing for the interviews and journaling.

### **WHAT IS THE NATURE OF PARTICIPATION IN THIS STUDY?**

1. Participants will be provided with a thorough, in-depth strategically analysed movement from a Classical sonatina, to indicate and show how analysis can be used to facilitate memorisation of a piece. The analysis will be based on William Caplin's theory of formal functions. Therefore, this will serve as a comprehensive example of the analytical strategy.
2. Before any data collection starts, this information will also be thoroughly shared and explained to the participants via a series of five pre-recorded videos where I, the researcher, will present and explain the provided strategy and example thereof. After watching the five videos, the participants will have the opportunity to ask questions about the provided strategy during an individual communication session via an online platform, such as Microsoft Teams.
3. The participants will also be provided with a specifically selected movement from a Classical sonatina. This piece will share some structural similarities to the provided example.
4. The participants will then be asked to apply the principles of the provided analytical strategy, as explained through the example, with some additional resources to help guide the process. This is in an attempt to memorise the given piece themselves by regularly spending time on it during a four-to-six-week period.
5. Each participant needs to select a consecutive period of six weeks that will suit them best, falling within a predetermined five-month period available for data collection (November 2023–31 March 2023). Therefore, the participants will be asked to indicate the date they would wish to start their participation in the study.
6. During the course of each participant's self-selected six-week period, I will have individual communication sessions with each participant telephonically or via Microsoft Teams to assist them and to provide further guidance where needed.
7. The participants will be asked to keep a journal, regularly noting their progress, commenting on the strategy as they apply it and their general experience of applying the strategy. Key points will be provided to help guide the journaling

process. As part of journaling, the participants will also be asked to provide copies of all forms of written analysis done on the score during the six-week period.

8. They will also be asked to audio-record their practice sessions that the researcher can use for observation. An hour-long practice session, twice a week over the four weeks is suggested as a guideline. However, each participant should use their own discretion to determine how much time is needed to memorise the movement.
9. By the end of each participant's six-week period, they will be asked to video-record themselves where they attempt to play the provided piece from memory for final observation.
10. After the six-week period, individual interviews will be conducted with the participants via Microsoft Teams or telephonically. They will be asked open-ended questions to prompt them to reflect on their experience of using the analytical memorisation strategy.
11. All communication and interview sessions will approximately take one hour.
12. The purpose of these data-collection strategies is to help the researcher form a better understanding of each participant's interpretation and implementation of the provided analytical strategy in order to ultimately determine the influence of using this strategy on the participants' memorisation of the piece.

### **CAN THE PARTICIPANT WITHDRAW FROM THE STUDY?**

Your participation in this study is completely voluntary. You are under no obligation to consent to participation. It is up to you to decide whether or not to take part in this study. If you decide to take part in this study, you will receive this information sheet to keep and be asked to sign a written consent form. After you sign the consent form, you are still free to withdraw at any time and without giving a reason. Withdrawing from this study will not affect the relationship you have, if any, with the researcher. If you withdraw from the study before data collection is completed, your data will be returned to you or destroyed.

### **WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?**

The participants will benefit directly from this study. As piano students and prospective pianists, memorisation of music is a crucial skill to acquire as professional pianists are mostly expected to perform from memory. By participating in this study, you will receive a thorough explanation of an analytical strategy to aid memorisation, sufficient guidelines in using this strategy and an in-depth example of the implementation thereof. Furthermore, by participating, you will have the opportunity to implement the strategy yourself with guidance from the researcher and state your opinion thereof. Therefore, the participants will not only learn to use an analytical approach to memorisation, but your feedback and experiences can contribute to the possibility of future research in this regard to improve on the analytical strategy, which can potentially benefit many future pianists.

### **WHAT IS THE ANTICIPATED INCONVENIENCE OF TAKING PART IN THIS STUDY?**

Owing to the nature of the study as described above, the study will require a large amount of time from the participants over a six-week period. Therefore, the pre-determined five-month period in which the participants need to select a six-week period, will extend partially over the end-of-year recess period of most universities. The participants will therefore have the opportunity to select a six-week period that extend over the recess period if they wish to do so. Not only will this provide them with more free time to work on the memorisation of the piece, but it will help to ensure that the study does not interfere with the responsibilities of their academic work during the semester.

A Classical sonatina was selected as the piece of choice for this study as it is a shorter, more compact form of a Classical sonata, but still share the same fundamental structural components as a sonata. The fact that a sonatina is shorter in length, more compact and technically less challenging, should ensure that less time is required from the participants oppose to the memorisation of a more substantial piece such as a sonata (which will be more time-consuming). This should also prevent the study from interfering with academic work by significantly reducing the amount of time required by the participants.

As mentioned above, the participants will learn a new skill in the process. This skill of memorisation can be very useful in your future career as a professional pianist and should therefore, not be seen as a waste of time, but rather as an investment in your development as a professional pianist.

The participants may feel that they are placed under pressure to apply the proposed analytical strategy successfully and within a four-to-six-week period. However, the aim of the study is not to determine the success rate of the strategy or to comment on the participants' musical performance. The aim is rather to focus on each individual participant's experience of using the proposed strategy, whether it is positive or negative, in order to make conclusions and recommendations that may help to improve such a memorisation strategy in the future.

Furthermore, although all the participants will be provided with the same strategy and asked to apply it in order to memorise the same piece, they will work on the study individually, away from each other. They will not have contact with any other participants or have access to the other participants' documentation, audio-recordings or final video-recording of the piece. They will be able to select a six-week period that is most suitable for them, fitting into their individual schedule, regardless of the other participants. This should help to ensure that each participant works at their own pace and that they do not compare their own progress with the other participants. These precautions should reduce the emotional stress felt by the participants. Furthermore, they will be encouraged to communicate with the researcher if they feel overwhelmed by the process at any stage and will receive professional help in this regard if needed.

The participants might have misconceptions about the given memorisation strategy or pre-determined ideas of how the study and their participation might unfold. However, potentially when they struggle with the implementation of the strategy, when it takes longer than anticipated, when the memorisation process is more difficult than they initially thought or when it is simply just not aligned with their personal preferences to memorisation, the participants might feel disappointed.

In order to limit the participants' disappointment and to prevent misconceptions, I aimed to explain all aspects of the strategy and the study as clearly as possible in this

information sheet so that they will be well informed and that they can have a good idea of what the study and the strategy entails before commencement of the study. To make the process easier for the participants, they will be equipped with the necessary tools to understand and apply the strategy based on the video-recording they will receive with explanations of the strategy, as mentioned earlier. The fact that the example piece and the piece given to them for memorisation share some structural similarities, should also help them to apply the strategy more easily. I emphasise the fact that the study focuses on their experience, positive and negative: It is my hope, that by knowing that their feedback (even if it might be negative) may potentially make a positive contribution to improving the memorisation strategy for future pianists, they will be more accepting of the strategy and openminded during the process.

The participants will also need to have access to internet connection in order to access all materials provided and video-recordings, and to attend the individual communication and interview sessions. They will also need to use and have access to audio- and video-recording devices, such as a smart phone or camera, to make audio-recordings from practice sessions and to make a video-recording of them playing the piece from memory at the end of the six weeks.

### **WILL WHAT I SAY BE KEPT CONFIDENTIAL?**

The confidentiality of all your information will be maintained: Your name will not be recorded, anywhere and no one will be able to connect you to the answers you give. You will be assigned a pseudonym, and you will be referred to in this way in the data, any publications, or other research reporting methods such as conference proceedings. The people who will have primary access to your data will be myself (the researcher) and my two supervisors on the project, Dr Froneman and Prof. Wium from the University of the Free State. Your answers may be reviewed by people responsible for making sure that research is done properly, including members of the Research Ethics Committee. Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records. Your anonymous data may be used for other purposes, such as research report, journal articles, conference presentation, etc. In such cases, your identity will be protected by maintaining your anonymity as mentioned above. A report of the study

may be submitted for publication, but individual participants will therefore not be identifiable in such a report.

#### **HOW WILL THE INFORMATION BE STORED AND ULTIMATELY DESTROYED?**

All forms of hard copy documentation, if any, will be stored by the researcher for a period of five years in a locked cupboard at the researcher's residence for future research or academic purposes. Electronic information will be stored on a password-protected computer. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable. Written data will be destroyed by shredding all forms for hard copy documentation, while electronic data will be permanently deleted from all saved locations.

#### **WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?**

The participants will not receive any payment or any incentives for participating in the study.

#### **HOW WILL THE PARTICIPANT BE INFORMED OF THE FINDINGS/RESULTS OF THE STUDY?**

If you would like to be informed of the final research findings, please contact Kayme du Preez on 076 400 2917 or send an email to [kaymedupreez@gmail.com](mailto:kaymedupreez@gmail.com). The findings are accessible for 24 months after conclusion of the study. Should you require any further information or want to contact the researcher about any aspect of this study, please use the provided contact information. Should you have concerns about the way in which the research has been conducted, you may contact Dr Froneman at 051 401 2526 or send an email to [FronemanA@ufs.ac.za](mailto:FronemanA@ufs.ac.za) contact Prof. Wium at 051 401 2328 or send an email to [WiumMJ@ufs.ac.za](mailto:WiumMJ@ufs.ac.za) contact Ms Vercueil at 051 401 7083 or send an email to [vercueilCC@ufs.ac.za](mailto:vercueilCC@ufs.ac.za)

**Thank you for taking the time to read this information sheet and for considering to participate in this study.**

#### **CONSENT TO PARTICIPATE IN THIS STUDY**

I, the undersigned, \_\_\_\_\_  
(*participant's full names to be included*), (the '**Participant**') confirm that I voluntarily agree to participate in the research study referred to as the '**Study**' in relation to the influence of musical analysis as a strategic tool on undergraduate piano students' memorisation of a Classical sonatina and which Study is being conducted by Kayme du Preez (the '**Researcher**').

I, the undersigned Participant, further confirm that:


1. the Researcher has explained the nature, procedure, potential benefits and anticipated inconvenience of my participation in the Study;
2. I have read (or had explained to me) and understood the Study as explained in the attached information sheet;
3. I have had sufficient opportunity to ask questions and am prepared to participate in the Study;
4. I understand that my participation in the Study is entirely voluntary and that I am free to withdraw at any time without penalty (if applicable);
5. I voluntarily provide the UFS and the Researcher with my personal information and consent to the UFS and the Researcher collecting, disclosing and processing my personal information in order to conduct the Study and any related activities in relation thereto;
6. I hereby acknowledge and confirm that I understand the purpose for which the UFS and the Researcher may collect, store, use, delete, destroy, outsource, transfer or otherwise process, as the context and circumstances may require and as contemplated in terms of POPIA, my personal information as set out herein;
7. I am aware that the findings of the Study will be anonymously processed into a research report, journal publications and/or conference proceedings and that my personal information will be aggregated and deidentified at such stage;
8. I also give the UFS permission to share, without notification, the collected data with other researchers at the UFS or other Higher Education Institutions. This permission is dependent on the same principles of ethical research practices, anonymity/confidentiality, safekeeping of information, and other issues listed above applying.

I, the Participant, agree to the recording and collection of data as described in this document, including video- and audio-recordings that will be made and used for observational purposes.

Full Name of Participant: \_\_\_\_\_

Signature of Participant: \_\_\_\_\_ Date: \_\_\_\_\_

Full Name of Researcher: Kayme du Preez

Signature of Researcher:  \_\_\_\_\_ Date: 1 November 2023

## ANNEXURE 4: PARTICIPANTS' INFORMATION FORM

Kayme du Preez

2017002011

University of the Free State

Odeion School of Music

2023

Master of Music:

The influence of musical analysis as a strategic tool on undergraduate piano students' memorisation of a Classical sonatina.

Supervisor: Dr Anchen Froneman

Co-supervisor: Prof. Matildie Wium

### PARTICIPANT'S INFORMATION:

The following questions can be completed in this word document or on a hard copy:

1. Name of participant: *(Type or write your answer)*
2. At what university are you currently studying music? *(Type or write your answer)*
3. In what year of studies are you currently? *(Type or write your answer)*
4. Indicate your desired starting date for your participation in this study (memorisation of the given piece). Your participation will be required for six consecutive weeks from the starting date you choose. This starting date can be any date between **30 November 2023 and 19 February 2023** (last day for data collection is 31 March 2023.): *(Type or write your answer)*
5. What is your preferred method of communication and interviews? Telephonic or online platforms (email and Microsoft Teams/Zoom/Skype): *(Type or write your answer)*
6. If you have written 'telephonic', please write your cell phone number: *(Type or write your answer)*
7. List all the Classical sonatinas (if any) that you have encountered or played before:

LIST OF CLASSICAL SONATINAS:
------------------------------

1. <i>(Type or write your answer)</i>
2.
3.

The participant's signature:

Date:

## **ANNEXURE 5: INTERVIEW SCHEDULE**

### **INTERVIEW SCHEDULE:**

All three participants had three individual communication sessions with me. The processes followed for all participants was the same.

#### **Purpose and Objective of Interview:**

- **Purpose:** To get feedback on participants' experiences of using an analytical strategy to memorise the given sonatina movement. To form an understanding of their thoughts and perspectives going through the process of memorisation. Furthermore, to understand all the processes they followed and how they interpreted the instructions and analysis. Ultimately, the goal was to gather enough information to make conclusion on how the use of analysis influenced their memorisation process.
- **Objective:** To gather detailed insights into the use of the analytical strategy and its effects on the participants' memorisation.

#### **Session 1: Introduction**

- **Duration:** Approximately 15 minutes.
- **Platform:** WhatsApp video call.

#### **Activities:**

- Introduction of the researcher and participant.
- Explanation of the research process.
- Review of provided materials (instructions, example analysis, videos, glossary, color-coding system, suggestions for journaling and clean score).
- Answering participant's questions.

#### **Session 2: Check-in**

- **Duration:** Approximately 5 minutes.
- **Platform:** Telephonic call.

**Activities:**

- Checking in on the participant's progress.
- Ensuring understanding of the provided analysis.
- Answering participant's questions.

**Session 3: Interview and Closure**

- **Duration:** Approximately 25 minutes.
- **Platform:** Telephonic call.

**Activities:**

- Interviewing the participant using the following pre-determined questions:
  1. Approximately how much time did you spend on this study?
  2. How did you experience the different aspects included in this memorisation strategy? Can you reflect on the different aspects?
  3. Which aspects of this memorisation strategy, if any, contributed positively towards your memorisation of the piece and, would you say, form an important component of this strategy?
  4. Which aspects of this memorisation strategy, if any, contributed negatively towards your memorisation of the piece and, would you say, should rather be excluded in this strategy?
  5. Which aspects of this memorisation strategy, if any, did not really have an impact on your memorisation of the piece at all and which did you not include in the memorisation of the piece?
  6. Is there any aspect that you think should have been included in this strategy to make it more effective?
  7. What is your opinion of this strategy for memorisation?
  8. Would you change anything about it by including or removing some aspects?
  9. How did this strategy influence your memorisation of the piece?

10. How would you describe your experience in using this analytical strategy for the memorisation of a Classical sonatina movement?
  11. Would you consider using this strategy for the memorisation of other pieces in the future? Why?
  12. Are there any other remarks regarding this strategy, your implementation of it, or your experience that you would like to add?
  13. Did you incorporate any other methods or strategies in the memorisation process of the piece that was not part of this specific strategy?
- Asking participants to reflect truthfully on all questions and not answer what they thought the researcher wanted to hear.
  - Asking for permission to record the conversation.
  - Thanking the participant for their participation.
  - Reassuring the participant about data anonymity.
  - Parting ways.

## ANNEXURE 6: EXAMPLE OF DATA ANALYSIS

### POTENTIAL THEMES AND QUOTATIONS:

#### PARTICIPANT 1'S QUOTATIONS.

#### PARTICIPANT 2'S QUOTATIONS.

#### PARTICIPANT 3'S QUOTATIONS.

### 1. Effectiveness of Different Aspects of the Memorization Strategy:

#### • Positive Contributions:

- Color-coding system:

Visual aid for analysis

from an analysis point of view, it did [help].

It definitely helped when I was looking at the example of the other sonatina

when I play, I often see the structure on the actual page

which is very helpful. That is why it was helpful to have the example colour-coded.

Facilitated memorisation:

The colour-code system] Yeah, definitely that was helpful,

- Caplin's analytical approach:

Clear structure and terminology

but I think as the structural elements got bigger, those terms helped a lot with memorisation just because they

are a little bit more intuitive (in tuned?) in terms of big structural points like the exposition, development and

then getting a smaller into the little phrase and phrase sections. So maybe not into the smallest detail, but

definitely of the bigger elements.

I thought it was very helpful just the way he defines everything.

using the definitions

Large-scale structures facilitate memory

Definitely by far the memory and then the big-big structure analysis.

I think the large-scale structural components, I have benefited a lot from the practicing and doing that, like being able to differentiate between the different sections I think looking again, you know the exposition, development and recap that help just keeping track of where I was in the memory the structural layout was valuable in the beginning and from a practicing point of view

Small-scale structures facilitate analysis

but the smaller parts, it helped when I analysed the piece. the big parts like the development and the exposition, those helped me actually [memorising] the big parts, the exposition, development and recapitulation, that helped me the most. I think that really helped me a lot and then also like you said, the first theme and the second theme and new material,

- Harmonic structure, tonality, cadences:

Impact on left hand memorization

but looking at the chords, that helped me with the left hand. Not with the right hand.

with the left hand, because the left hand mostly played the broken chords.

There, analysing the chords helped me a lot.

Contributes to memorisation

but then, going to the cadences and harmony, that helped a lot, I think the most out of everything in the memorisation

That was the biggest help or contribution by far.

I didn't think about it very much in the memory [first part of statement is about structural/ornamental changes] as focused on the harmony.

I have noticed that so far the most valuable piece of information from the analysis has been the harmonic identification.

the harmonic analysis is what has constantly helped me even now [almost at the end, later practice session].

it was definitely helpful to know what happens in terms of tonality, so I think that was definitely very relevant.

think analysing the chords helped me.

Memorisation of development

Regarding take note of the tonality and modulations] That helped me little bit, not that much. I think it only helped me if I remember correctly, the development where it gets a little bit chromatic, there it helped me and then also where it makes a modulation later on, it also helped me.

- Structural and ornamental changes:

Facilitate memorisation of exposition vs recapitulation

The most helpful thing so far was the analysed differences between the Exposition and Recapitulation. [after beginning the exposition and recap]

it was definitely helpful to know for example the changes between the exposition and the recap

but the structural changes were obviously very important when I was analysis it obviously, as I said, the difference between sections that have similar material, noticing what the changes are, so that was definitely very helpful.

and also noticing the different changes as just mentioned in the last questions between the different larger sections, that was very helpful.

Facilitate memorisation in development:

and then also, when in the development it changed a few notes, so you got like an E-flat and C-sharp, those notes, I don't know under which category that falls, but that helped a lot.

- Articulation and dynamics:

Memorising the development:

The dynamics actually yes. I realised dynamics helped me, specifically at the end of the development towards the fermata, that part specifically helped me the dynamics.

But I realise now dynamics helped me a lot

- **Less Impactful Aspects:**

- Colour-code:

Irrelevant in memorisation process

I don't think the color-coding particularly helped from a memorisation point of view. Potential for becoming a distraction I didn't put colour in my score because it would have been too distracting to read while I was learning, but I didn't end up using colour in my own analysis because it would have been difficult for me to actually pay attention to the notes and not the analysis part while I was reading.

- Structural and ornamental changes:

Varied Importance depending on piece and edition

I think because there weren't so many ornamental changes, that maybe wasn't so important in this piece

Not consciously considered during practice to aid memorisation

Not particularly, when the actual ornamental changes or structural changes came, I didn't think about it very much in the memory as focused on the harmony.

Found to not be contributing to memorisation

I think the ornamental changes didn't help me.

Influence on Expression and Interpretation

- Caplin's analytical approach:

Irrelevancy of smaller units and phrase functions on the memorisation process

phrase functions or the smaller units didn't contribute as much

I think the smaller sections, like smaller units and phrase functions didn't help as much [phrase functions and smaller units] but I didn't use it when I was actively practicing and thinking about memory.

some of the very-very small ideas like the concept of the basic idea and that kind of thing was less helpful, [did not aid in memorising], but not the smaller units. When I had to physically sit in front of the piano and memorise the work, the smaller units, it didn't work at all. I think my brain, I don't know, I doesn't work fast enough for me to think this is the basic idea and continuous whatever

That would be the smaller units, like the basic idea and those things. That didn't contribute at all.

but then like I said, the smaller unites didn't help me.

No impact on memorisation made by cadences  
the cadences didn't actually help me. It didn't help me, but it didn't bother me. But it definitely didn't help me  
I think the cadences didn't help me.

- Articulation and dynamics

Less relevant to memorisation

And then things that maybe weren't so not, not helpful, but that I didn't pay so much attention to, were maybe the articulation and dynamics which I employed to some degree, but I didn't take it as seriously as the general structure.

- **Limitations:**

- Effectiveness Varies Across Musical Periods (Applicability to Classical Pieces)

for other forms that are maybe more abstract it would be interesting to do a similar type of analysis, obviously it wouldn't be nearly the same,

I think this strategy is very effective for me personally for the Classical period of pieces, but I realise if I had like a Romantic piece or Baroque, it might not work that well for me personally, but for Classical pieces I will definitely be able to use it again. For pieces in the Romantic-period, I might only use themes or something like that. I don't think it will help if you have the exposition necessarily.

- Mostly relevant to musicians with advanced theoretical knowledge.

I think maybe if you haven't learned how to analysis the sonatina of sonata form yet, I might be quite a lot of work to actually get into that, but that's the kind of thing you should be learning in an undergrade at a university in any case, so it is definitely relevant for someone at this level

The only thing that I just thought was my lack of knowledge: sounds bad.

## 2. Impact on memorization process:

- **Optimise learning through analysis**

- Facilitation of memorisation

I think there was benefits in doing the entire analysis

I think definitely the analysis, I mean my own analysis of the piece and noticing the different sections

I think that most of the aspects were definitely necessary in terms of memorisation.

so definitely kind of forced me to take a step back and actually go into every single aspect of memorisation, not just the physical aspect also the aural and theoretical aspect, so it definitely brings all these aspects together and gives you a much stronger memory of what you are learning.

- Enhanced attention to detail

I think it's just the attention to detail that really makes it very easy to keep track of things and to be conscious of every note. Because of the attention to detail again you know, it forces you to notice things you wouldn't otherwise if you would just sight-

read, going straight into it, muscle memory, repetition, you miss things. It forces you to be thorough and really sure in what you are playing.

[in practice session where she worked on the recap] I also had to make sure to notice where it changed compared to the exposition.

I think it was a lot more in-depth I normally go myself or than I normally will sit down and you know, kind of do a pencil analysis, so I am hoping that it contributed positively, although it is hard to measure those kinds of things

- **Increased efficiency in learning and memorising**

- Easier learning and acceleration of the learning process

I learned it a lot faster than I normally learn pieces you know, just by muscle memory or repetition.

It was very quick

but it definitely did help to memorise it rather quickly,

It actually makes it much easier to learn the notes in the first places anyways if you can kind of make sense of the structure.

- Automatic and subconscious learning and memorisation of notes

phrase functions or the smaller units didn't contribute as much

but overall, when I did have to identify them and do the analysis,

I think a lot of the notes were automatically memorised doing that

I think even in just doing the analysis before I even started practice, I memorised a great deal of it

I think the cadences and the ornamental changes didn't help

me. If they did, it might have been subconsciously. They didn't

make a difference, but I don't know if subconsciously I maybe,

without noticing, used them. [she didn't physically marked

ornamental changes on the score].

- **Reassurance when playing**

- Comforting feeling

[after finishing analysis] Overall, I feel very confident in beginning the memorisation process.

it's very relaxing to have all of this information [the attention to detail] in the background when you are playing, it is very comforting and easy to play from memory.

- Enhanced memory retention

They were definitely not as easy to hold on to as doing this.

There were so many roots I could go if I were to have a memory lap to remember things

Like I said, it gave me like a road map that I could follow.

I think the biggest thing, it gave me an overall mind-map regarding the piece

Analysing the piece helped me have an overview and broad sense of the piece,

Like I said, it gave me like a road map that I could follow.

### 3. Experience and perception of the strategy:

- **Positive experience:**

- Exciting and enjoyable

I would say very positive. It is quite exciting actually. I think it is very positive and exciting.

I thoroughly enjoyed it.

I thought it was lots of fun,

I really enjoyed just slowly putting all the steps together and moulding it all up until the end.

It was a very good experience, very positive

- Effective, thorough and comprehensive approach

other than that [smaller units], I would use everything.

I won't take anything out.

So, I think this is a very effective strategy

I wouldn't say there were any that contributed negatively.

I think this is a very effective strategy

I wouldn't change anything the way he [Caplin] analysed it or even like named the different parts, I wouldn't say anything was confusing.

- **Neutral response to experience and strategy:**

- Overall neutral response to strategy

I don't think there is particularly anything that works good [of the aspects]

I won't say anything specific or anything that bothered me or anything that was difficult. I can also say there wasn't anything that was very-very good or very-very bad. My response is very neutral. [of the aspects]

but when it came to the solid memorisation of the piece, the analysis didn't help as much.

- **Consideration for future use:**

- Eager to use selected elements of the strategy again

I feel like it's going to open a lot of doors for me of the future memorisation pieces

Definitely, 100%.

think I would definitely use it again

I would definitely use this in the future.

maybe the smaller units I won't necessarily analysis but no, other than that I would use everything.

I think definitely yes.

I would definitely.

I will definitely use it in the future, but I don't think I will use all the aspects like I said

But if it is possible, if the piece is structured like that, I will definitely use it

Yes, but only for Classical piece

- Acknowledgment of the strategy's relevance and importance

I think there was benefits in doing the entire analysis

But I think the general idea of analysing something to the degree of the structure and the smaller ideas within the structure and then of course key analysis or tonal analysis that is extremely important, especially to a form like sonata form, so I think that it is very important and should be implement.

but I think for those who maybe don't pick up on certain tonal patterns and that kind of stuff should really aspire to actually analyse their pieces so that they understand them better in order to learn them.

but I think it is always go to notice structural patterns and elements that can contribute to some type of connection in your brain when you try to memorise something.

it was actually really nice for me to see that it is actually a good way to approach it.

- **Potential for improvement:**

- Curiosity about shorter timeframes for application

maybe not take so long just because I wouldn't be able to I think maybe it would be interesting to see how this could work on a smaller timeframe. That would be my only interest in seeing what the outcome would be, but otherwise

I don't often spend so long memorising such a short amount of music so it was interesting to sit with something for so long you know, we also last minute that we like kind of learn stuff, memorise it like two weeks before we have to play it you know. But it was a nice exercise to actually pin myself into doing this, but I won't say it was a negative aspect, the timeframe, but it definitely wasn't something that I would normally do in my day-to-day life just because I don't have time to really prepare stuff so long in advance for such a little bit of repertoire.

- Request for additional resources

I had to do a lot of research on some of the things, because the way I understand them are different definitions of the words and those things. I didn't know what a hybrid 4 was and had to look it up.

That's just the access to Caplin's book. Even though I know it might not be possible, but yeah.

but something I want to add, something that I wanted to add, for me personally, I realized that if you gave us access to Caplin's study guide, like the book, I know it is difficult, but if that was a possibility, that would have helped me a lot like very-very much. I realize if I had the book and more musical examples it would have helped a lot more or even examples that wasn't the same as your analysis, that was something different, then I could have used it to compare and realize this is the difference or this is why this is, let's say a continues phrase or not a continues phrase or something like that.

but I realise if I had the physical book or even just a few pages of the book, that would have helped me.

- Following out aspects more thoroughly

I guess the aspect of articulation and dynamics would maybe be one that I myself could have paid attention to more, in a more committed way,

Analysis completed in pencil on hard copy

- **Areas of difficulty experienced:**

- Staying focused and not getting distracted

[while doing the mental practicing/visualising] the only difficulty is trying not to get distracted by other thoughts while mentally listening.

- Actively engaging with other components other than conventional methods.

I am struggling to stop myself from memorising by muscle memory.

I mean if I'm honest, I would have been able to play the piece maybe from memory in the first week or something if I really tried hard, but I had to stop myself from kind of just relying on my muscle memory,

I struggled to stop myself practicing the whole piece over and over instead of working on note mistakes but managed to get myself to practice a few tricky bars slowly.

- Analysing and memorising the development
 

I struggled with the analysis of this section [exposition] as I found it contrasting to the already analysed Diabelli Sonatina [development]. This was a challenge as the harmony and modulations threw me off in the beginning. I think this will most likely be the most difficult section to memorise.

I struggled a bit in the Development

Worked on development and attempted to play from memory but struggled (perhaps a little early to try?) The ambiguity of the section's structure definitely contributed to this.
- Adopting and applying Caplin's approach and terminology
 

I had to do a lot of research on some of the things, because the way I understand them are different definitions of the words and those things. I didn't know what a hybrid 4 was and had to look it up.

That I think was new to me, but I did find it very concise and I didn't find any problem with it. I think it was just getting used to his terminology

the glossary helped me a lot, but because I did this work like a year ago or a while ago, the first few days it was difficult for me to actually analyse it to the best of my ability, because I did it so long ago

#### 4. Integration of additional methods or strategies:

- **Mental practice:**
  - Imagining performance in concert setting
 

The actually sat with a picture of the concert hall and imagined himself playing the whole piece, so he ran through the whole piece in his head while he was looking at the picture of the piano that he was going to play on, so I thought that might be a good idea just as an experiment. I am not sure if it actually did anything, but it was still interesting to incorporate that I think that was definitely an interesting strategy I have never used before.

- Mentally playing through the piece away from the piano  
I guess I did sit just practicing the music in my head. I didn't always sit at the piano and practice physically I sat with the score and analysis for a while. I played through the piece mentally and tried naming each harmony away from the piano.  
Today's practice session was a complete experiment. I started by studying my analysis of the score and then reading through the music while playing it in my head.
- Utilising visual memory for recall  
I did play thought the notes without making them sound on the keyboard, just playing through and seeing how that works from memory.  
I then practiced playing the piece without making the notes sound, just looking at my hands on the keys  
I am sure that having already looked through the piece and listened to it multiple times will set me up well for the start of the memorisation process.  
I then went to the piano and imagined playing it while looking at the keyboard. [used by] performers to simulate memory recall in the concert hall environment. I've actually done this in the past and it had been incredibly helpful... I tried not to touch the piano at all
- **Addition analytical reinforcement:**
  - Individual hand analysis and practice:  
I think the most effective thing I did just in my practice sessions, was doing the analysis of each individual hand when I was memorising so by breaking it down to left hand what are the chords, the harmony and then right hand. I just practiced like that sometimes and I think that helped, I thought about it differently.  
I tried looking at the harmonic analysis of these bars from 13-24 [development] and then applied what I could see to the individual hands

I tried playing through from memory hands separately. This helped tremendously from a memory point of view. The Alberti bass felt much more confident when I memorised it away from the melody.

I played through hands separately from memory [last practice session]

One thing that I added was that I focused more on playing my left- and right hand separately.

- Pattern identification

Patterns: [during second week] Search and looked for patterns that repeat.

with the melody, that I actually, I think I memorised that according to patterns and how it felt.

I realised that I learn pieces more through patterns,

- **Visual memory strategies:**

- Visualising the score

I looked through the analysis for about 10 minutes and then put the music away. I tried to see how much of the harmonic and structural layout I could remember.

when I play, I often see the structure on the actual page which is very helpful.

Today's practice session was a complete experiment. I started by studying my analysis of the score and then reading through the music while playing it in my head.

I think, you know, I paid attention to that, but obviously when one is using lots of different editions what I guess we didn't do in this study, it

can always change, so for me that wasn't as important in this memorisation process as it could have been, but when I normally practice to perform a piece, I take it into serious consideration, but then again, if I do something like a Beethoven or something like that, I really try to find the best edition that I can so that all of those markings are really accurate.

- Visualising the typography of the piano

Like I said for me, when I memorise, I memorise with visual stuff, not visual as looking at the sheet music, but visual as in looking at the piano at my hands and looking at how they move across the piano

I realised that I learn pieces more through visual appearance of positions and notes on the piano

When I tried to think of chords or themes, it felt like my brain couldn't remember that well. But when I had patterns or hand-positions in mind, I immediately knew what to play.

- **Auditory memory strategies:**

- Listening to a recording multiple times

I am sure that having already looked through the piece and listened to it multiple times will set me up well for the start of the memorisation process.

with the melody, that I actually, I think I memorised that according to how it sounded, patterns and how it felt. memorising the melody] and also listening to it. Like I said, the melody of the Diabelli, I think I actually learned it by listening to it, not by knowing each note harmonically, but just listening to it and figuring it out according to that [during the second week of strating with analysis and practice]

Active listening to phrasing

then after I sight-read the piece, I also listened to it multiple times and tried to get the overall structure in my head

Listening to it on youtube or spotify a few times.

- Listening to multiple covers

I went back to listening to recordings of the piece a few times.

Listening to different people playing it, was something that I'm really glad I did because it gave me new perspectives.

- **Use of recording for self-assessment:**

It only took me a couple of tries to get a recording. There weren't any memory lapses and I felt confident in the exercise!

Practiced recording the piece with many fails.

[while recording] Whenever I stopped or couldn't remember, I went and marked their places in the score.

A last thing that I just can add, when I had to record the video for you, I had to do it like four or five times because I made the worst mistakes. So, I realized that can be added or I don't know, maybe I will just do it in my personal musical walk, I think it might actually be a really good idea to record your piece after like a week of practice, because when you put the recording machine on, then you start making mistakes you didn't make.

- **Sight reading**

I started by sight-reading through the piece a number of times

I started by reading through the score slowly [one of the later sessions, after score already analysed].

I used this time to sight-read through the piece to get an overall idea of the structure [after analysis was done in pencil]

I started by sight-reading the piece first before analysing anything

- **Muscle memory strategies:**

- Repetition

I played through the piece without the score a couple of times to ensure there were no uncertain sections.

I then played through the piece a number of times and then attempted to play from memory

From the development onwards there was a lot of fingering memorisation and muscle memory being used.

I started off [one of the later practice sessions] by playing the piece without the music a couple of times. I didn't have any memory lapses but a few sections were definitely held together by muscle memory

[after returning from a five day trip] I could definitely remember less than what I could before I went away, but my muscle memory was surprisingly strong.

- Varying tempi:

I played through at varying tempi to make sure nothing was held together by muscle memory

- Practicing in block chords:  
 after sight-reading] then [I was] looking at each bar in block chords and the harmony together with this.  
 [a few days in after being through all sections] I then continued practicing block chords  
 LH in block chords in order to help harmonic memory while keeping RH melody as written. This sounded like a better idea as it actually turned out to be as the LH figurations are not written exactly the same in every section which meant it didn't help my memory of when they changed. I did find that my RH improved as I had more brain power to focus on the individual notes.

## 5. Application and personalisation of the strategy:

- **Comprehending all aspects of the strategy:**

- Role of example analysis:

### Facilitation of understanding

that helped a lot in understanding how to analyse my own Diabelli sonatina

[looking at example:] and how you looked at the different sections going down.

think that all of the aspects are covered quite clearly in the suggestions.

I would say I think Caplin explains it very well

### Comparison with personal analysis

I think that definitely helped in the analysis of the other Diabelli just because a lot of it was quite similar, being written by the same composer and all and the same form idea of the first movement of the sonatina. So that was definitely very helpful and he uses a lot of similar devices, so I defiantly used that a lot when I was doing my own analysis of the other sonatina.

### Preference for written material

I actually spent more time just looking at the analysis itself and not really the videos.

Mostly used the document, the written analysis.

So, I would say, using just a general idea of the analysis so using the example

- Videos:

Clarification of analytical concepts.

Those helped a lot, especially in the bigger analysis things.

I watched the videos sent to help with the understanding of the piece.

Yeah, that also helped a lot just to go through each section in a kind of all detailed way

Your videos helped the most and I really sat with the video while analysing it so it helped a lot,

The videos that you sent us, explaining everything was very good, I understood everything.

- Glossary:

Assistance with terminology

I hadn't heard a lot of things in the analysis or the words or terms used. So that was very helpful and beneficial

That was also very helpful just along with the analysing of the piece because when I learned analysis of sonata form and that kind of thing, at UCT we used some kind of different terms, they weren't exactly the same, so it was nice to refer back to the glossary and make sure I was getting everything a 100% correct, all the little details so that was definitely very helpful.

the glossary helped me a lot.

- **Conducting their own analysis of the Diabelli sonatina prior to memorising**

- Order of sections analysed: the exposition, recapitulation and lastly development.

Completed the assignment section by section starting with the Exposition: I feel I have a good understanding of these bars from a harmonic stand point.

I then went on to analyse the Recapitulation as I felt it would be a good idea to see the contrasting modifications between the sections

Lastly, I looked at the Development section.

I did the exposition [first]

[then after exposition] the recap

and then development [after the exposition and recap].

I did the exposition

[then after the exposition]the recap

and then development [after the exposition and recap].

- Process of analysing within the sections:

While listening to it, I tried to identify the three main parts (exposition, development and recapitulation).

After that, I spent most of my time identifying the smaller parts such as themes, chords etc.

- Participants' analysis.

Similarities.

Differences.

- **Mememorisng the sonatina movement:**

- Sequences of memorisation observed:

Sequence based on similarity: EXPOSITION, RECAP, DEVELOPMENT:

I have already begun to memorise these two sections [exposition and recap].

[2 days later]. I started with the Development section.

Memorising in chronological order: EXPOSITION, DEVELOPMENT, RECAP

I worked only on the exposition [first]

[After exposition] Worked on development

I tackled the recap [last]

I started to memorise each section separately: firstly, the exposition, then the development and lastly the recapitulation.

Memorisation within each section: from small to large:

[when memorising the exposition] from the smallest unit of structure at a time to the largest. [not first practice session] This has definitely been the best method yet so I will apply it to the development section in practice sessions to come

- Point at which playing from memory started:

[three days after being through all sections] I started by playing the piece without looking at the music to first see how much I could remember from Monday.

I then played through the piece a number of times and then attempted to play from memory.

Worked on development and attempted to play from memory but struggled (perhaps a little early to try?) The ambiguity of the section's structure definitely contributed to this.

- Importance of structural understanding:

Significance of major structural components

I think looking again, you know the exposition, development and recap that help just keeping track of where I was in the memory

while working on memorising the piece] I looked through the analysis for about 10 minutes and then put the music away. I tried to see how much of the harmonic and structural layout I could remember.

The opening section was the easiest to play through as I understand the structural layout of the music well

the big parts like the development and the exposition, those helped me actually [memorising]

the big parts, the exposition, development and recapitulation, that helped me the most. I think that really helped me a lot

[thematic units like main theme] That actually helped me, because in the recap when the main theme comes back, it helped me to know this is what I need to play and the change where it occurred.

[during the second week of starting with analysis and practice] Active listening to phrasing

I also listened to it multiple times and tried to get the overall structure in my head

NOT ALWAYS HELPFUL? I think I actually learned it by listening to it, not by knowing each note harmonically, but just listening to it and figuring it out according to that

Awareness of structural changes and differences between large-scale-components

reading through the score slowly, identifying all the structural changes [later practice session].

I think the large-scale structural components, I have benefited a lot from the practicing and doing that, like being able to differentiate between the different sections I tackled the recap which was much easier to remember as it is obviously really similar to the exposition

Importance of harmonic framework

but then, going to the cadences and harmony, that helped a lot, I think the most out of everything in the memorisation

When I have a memory lapse its almost always in the sections where the harmony is unclear to me.

I tried looking at the harmonic analysis of these bars from 13-24 [in practice session after already starting to memorise all three sections]

[while working on memorising the piece] I looked through the analysis for about 10 minutes and then

put the music away. I tried to see how much of the harmonic and structural layout I could remember. I sat with the score and analysis for a while. I played through the piece mentally and tried naming each harmony away from the piano. [according to participant this was the most effective thing she did to aid memorisation] when I was memorising so by breaking it down to left hand what are the chords, the harmony and then right hand. I tried looking at the harmonic analysis of these bars from 13-24 [development] and then applied what I could see to the individual hands [after sight-reading] then [I was] looking at each bar in block chords and the harmony together with this. Yeah, that was also helpful because as that also reflects kind of trends in compositions in sonatina and sonata form, think analysing the chords helped me.

- **Customisation to individual preferences:**

- Consideration of personal learning style and influence of personality

[articulation and dynamics] think they kind of just come naturally, I didn't focus on that in the memory.

I often try to analysis a lot of my sonatas and the tonality and stuff just because it's almost impossible to learn something and to be able to play it without an idea of what is actually happening,

but I think from a pianist point of view, it is something that normally happens more intuitively than actually academically for most people [analysing and getting an idea of the structure, tonality etc]

when I play, I often see the structure on the actual page which is very helpful. That is why it was helpful to have the example colour-coded.

Actually no [it didn't help with the memorisation]. I don't know if it is just my personality type and my way of memorising that it didn't work for me.

I loved the colour system because of my personality, I also with my personal pieces, I work with a colour system, so the colour system really, really worked very well. That was something that I really liked actually.

I realised that I learn pieces more through listening to the work.

I realised that I learn pieces more through patterns,

I think I might also depend on the personality type of the person [effectiveness of the strategy]

- Adherence to aspects of the strategy despite personal preferences to memorisation

I can't think of any that I didn't use, I tried to use most, if not all the ones that were listed in the suggestions just so I could try to be as close as possible to the guideline just as an experiment for the sake of the study. So, I don't think that I left anything out which means that nothing would be irrelevant to my memorisation. It was also very

interesting because I never approach a piece for memorisation like this.

- Consideration of own interpretations

I think in overall, I looked at the sonatina from my own perspective and followed your colour-coding system and understanding of how I should write it.

I think I found that my analysis was very different.

## ANNEXURE 7: ETHICAL CLEARANCE LETTER



### GENERAL/HUMAN RESEARCH ETHICS COMMITTEE (GHREC)

19-Apr-2023

Dear Ms Kayme du Preez

#### **Application Approved**

Research Project Title:

**The influence of musical analysis as a strategic tool on undergraduate piano students' memorisation of a Classical sonatina.**

Ethical Clearance number:

**UFS-HSD2022/0712/23**

We are pleased to inform you that your application for ethical clearance has been approved. Your ethical clearance is valid for twelve (12) months from the date of issue. We request that any changes that may take place during the course of your study/research project be submitted to the ethics office to ensure ethical transparency. Furthermore, you are requested to submit the final report of your study/research project to the ethics office. Should you require more time to complete this research, please apply for an extension. Thank you for submitting your proposal for ethical clearance; we wish you the best of luck and success with your research.

Yours sincerely

**Dr Adri Du Plessis**

**Chairperson: General/Human Research Ethics Committee**

**Adri  
Du  
Plessis** Digitally  
signed by Adri  
Du Plessis  
Date:  
2023.04.19  
18:22:15  
+02'00'

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South Africa [duplessisA@ufs.ac.za](mailto:duplessisA@ufs.ac.za)  
[www.ufs.ac.za](http://www.ufs.ac.za)



**GENERAL/HUMAN RESEARCH ETHICS COMMITTEE (GHREC)**

04-Mar-2024

Dear Ms Kayme Du Preez

**Continuation/Report Approved**

Research Project Title:

**The influence of musical analysis as a strategic tool on undergraduate piano students' memorisation of a Classical sonatina.**

We are pleased to inform you that the application to extend your ethical clearance has been approved. Your ethical clearance is valid for twelve (12) months from the date of issue. We request that any changes that may take place during the course of your study/research project be submitted to the ethics office to ensure ethical transparency. Furthermore, you are requested to submit the final report of your study/research project to the ethics office. Should you require more time to complete this research, please apply for an extension. Thank you for submitting your proposal for ethical clearance; we wish you the best of luck and success with your research.

Yours sincerely

**Dr Adri Du Plessis**

**Chairperson: General/Human Research Ethics Committee**

**Adri  
Du  
Plessis** Digitally  
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Du Plessis  
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## ANNEXURE 8: GATEKEEPER'S APPROVAL LETTER 1

UNIVERSITY OF THE  
FREE STATE  
UNIVERSITEIT VAN DIE  
VRYSTAAT  
YUNIVESITHI YA  
FREISTATA



Office of the Vice-Rector: Research and Internationalisation  
Kantoor van die Viserektor: Navorsing en Internasionalisering

01-Feb-2023

Dear Ms Kayme du Preez

### **UFS AUTHORITIES APPROVAL**

Research Project Title:

**The influence of musical analysis as a strategic tool on undergraduate piano students' memorisation of a Classical sonatina.**

This letter serves as confirmation that your request to collect data from students and/or staff members at the University of the Free State for your research project has been approved **provided that you also have ethical clearance for the research from the ethics committee at the University of the Free State.**

**Please make sure that you also obtain your ethics clearance letter containing your reference number from the ethics committee after you have received this letter before you conduct your research.**

Kind Regards

A handwritten signature in black ink, appearing to read 'RC Witthuhn'.

**PROF RC WITTHUHN  
VICE-RECTOR: RESEARCH & INTERNATIONALISATION  
CHAIR: SENATE RESEARCH ETHICS COMMITTEE**

206 Nelson Mandela Drive/Ryalaan  
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## ANNEXURE 9: GATEKEEPER'S APPROVAL LETTER 2



### Humanities Postgraduate and Research Office University of Cape Town

Humanities Faculty Ethics in Research Committee

Room 115,  
Level 1, Beattie  
Building Private  
Bag X3  
Rondebosch  
7701 Tel: +27  
(0) 21 650  
5194  
E-mail: [zandile.tennyson@uct.ac.za](mailto:zandile.tennyson@uct.ac.za)

01 August 2023

**Ref. NO: HUMREC202307-01**

Dear Ms Du Preez

**RE: Ethical Clearance for Research Project**

I am pleased to inform you that ethical clearance has been granted by an Ethics Review Committee of the Faculty of Humanities for your Masters project entitled: ***The influence of musical analysis as a strategic tool on undergraduate piano students' memorisation of a Classical sonatina.***

I wish you all the best with your study.

Yours sincerely,

A handwritten signature in black ink, appearing to be 'C. Ouma'.

Associate Professor Christopher Ouma  
**Chair, Humanities Faculty Research Ethics Committee**

## ANNEXURE 10: GATEKEEPER'S APPROVAL LETTER 3



UNIVERSITEIT • STELLENBOSCH • UNIVERSITY  
jou kennisvennoot • your knowledge partner

### INSTITUTIONAL PERMISSION:

### AGREEMENT ON USE OF PERSONAL INFORMATION IN RESEARCH

**Name of Researcher:** Kayme du Preez

**Name of Research Project:** The influence of musical analysis as a strategic tool on undergraduate piano students' memorisation of a Classical sonatina

**Service Desk ID:** IG - 3999

**Date of Issue:** 16 February 2023

The researcher has received institutional permission to proceed with this project as stipulated in the institutional permission application and within the conditions set out in this agreement.

<b>1 WHAT THIS AGREEMENT IS ABOUT</b>	
What is POPI?	<p>1.1 POPI is the Protection of Personal Information Act 4 of 2013.</p> <p>1.2 POPI regulates the entire information life cycle from collection, through use and storage and even the destruction of personal information.</p>
Why is this important to us?	<p>1.3 Even though POPI is important, it is not the primary motivation for this agreement. The privacy of our students and employees are important to us. We want to ensure that no research project poses any risks to their privacy.</p> <p>1.4 However, you are required to familiarise yourself with, and comply with POPI in its entirety.</p>

<p>What is considered to be personal information?</p>	<p>1.5 'Personal information' means information relating to an identifiable, living, individual or company, including, but not limited to:</p> <p>1.5.1 information relating to the race, gender, sex, pregnancy, marital status, national, ethnic or social origin, colour, sexual orientation, age, physical or mental health, well-being, disability, religion, conscience, belief, culture, language and birth of the person;</p> <p>1.5.2 information relating to the education or the medical, financial, criminal or employment history of the person;</p>
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	<p>1.5.3 any identifying number, symbol, e-mail address, physical address, telephone number, location information, online identifier or other particular assignment to the person;</p> <p>1.5.4 the biometric information of the person;</p> <p>1.5.5 the personal opinions, views or preferences of the person;</p> <p>1.5.6 correspondence sent by the person that is implicitly or explicitly of a private or confidential nature or further correspondence that would reveal the contents of the original correspondence;</p> <p>1.5.7 the views or opinions of another individual about the person; and</p> <p>1.5.8 the name of the person if it appears with other personal information relating to the person or if the disclosure of the name itself would reveal information about the person.</p>
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Some personal information is more sensitive.	1.6	Some personal information is considered to be sensitive either because:
	1.6.1	POPI has classified it as sensitive;
	1.6.2	if the information is disclosed it can be used to defraud someone; or
	1.6.3	the disclosure of the information will be embarrassing for the research subject.
	1.7	The following personal information is considered particularly sensitive:
	1.7.1	Religious or philosophical beliefs;
	1.7.2	race or ethnic origin;
	1.7.3	trade union membership;
	1.7.4	political persuasion;
	1.7.5	health and health related documentation such as medical scheme documentation;
	1.7.6	sex life;
	1.7.7	biometric information;
	1.7.8	criminal behaviour;
1.7.9	personal information of children under the age of 18;	
1.7.10	financial information such as banking details, details relating to financial products such as insurance, pension funds or other investments.	

	1.8	You may make use of this type of information, but must take extra care to ensure that you comply with the rest of the rules in this document.
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## **2 COMMITMENT TO ETHICAL AND LEGAL RESEARCH PRACTICES**

You must commit to the use of ethical and legal research practices.	2.1	You must obtain ethical clearance before commencing with this study.
	2.2	You commit to only employing ethical and legal research practices.

You must protect the privacy of your research subjects.	2.3	You undertake to protect the privacy of the research subjects throughout the project.
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## **3 RESEARCH SUBJECT PARTICIPATION**

<p>Personal information of identifiable research subjects must not be used without their consent.</p>	<p>3.1 Unless you have obtained a specific exemption for your research project, consent must be obtained in writing from the research subject, before their personal information is gathered.</p>
<p>Research subjects must be able to withdraw from the research project.</p>	<p>3.2 Research subjects must always be able to withdraw from the research project (without any negative consequences) and to insist that you destroy their personal information.</p>
<p>Consent must be specific and informed.</p>	<p>3.3 Unless you have obtained a specific exemption for your research project, the consent must be specific and informed. Before giving consent, the research subject must be informed in writing of:</p> <ul style="list-style-type: none"> <li>3.3.1 The purpose of the research,</li> <li>3.3.2 what personal information about them will be collected (particularly sensitive personal information),</li> <li>3.3.3 how the personal information will be collected (if not directly from them),</li> <li>3.3.4 the specific purposes for which the personal information will be used,</li> <li>3.3.5 what participation will entail (i.e. what the research subject will have to do),</li> <li>3.3.6 whether the supply of the personal information is voluntary or mandatory for purposes of the research project,</li> <li>3.3.7 who the personal information will be shared with,</li> </ul>
	<ul style="list-style-type: none"> <li>3.3.8 how the personal information will be published,</li> <li>3.3.9 the risks to participation (if any),</li> <li>3.3.10 their rights to access, correct or object to the use of their personal information,</li> <li>3.3.11 their right to withdraw from the research project, and</li> <li>3.3.12 how these rights can be exercised.</li> </ul>
<p>Consent must be voluntary.</p>	<p>3.4 Participation in the research project must always be voluntary. You must never pressure or coerce research subjects into participating and persons who choose not to participate must not be penalised.</p>

Using the personal information of children?	<p>3.5 A child is anybody under the age of 18.</p> <p>3.6 Unless you have obtained a specific exemption in writing for your research project, you must obtain</p> <p>3.6.1 the consent of the child’s parent or guardian, and</p> <p>3.6.2 if the child is over the age of 7, the assent of the child, before collecting the child’s information.</p>
Research subjects have a right to access.	<p>3.7 Research subjects have the right to access their personal information, obtain confirmation of what information is in your possession and who had access to the information. It is strongly recommended that you keep detailed records of access to the information.</p>
Research subjects have a right to object.	<p>3.8 Research subjects have the right to object to the use of their personal information.</p> <p>3.9 Once they have objected, you are not permitted to use the personal information until the dispute has been resolved.</p>

**4 COLLECTING PERSONAL INFORMATION**

Only collect what is necessary.	<p>4.1 You must not collect unnecessary or irrelevant personal information from research subjects.</p>
Only collect accurate personal information.	<p>4.2 You have an obligation to ensure that the personal information you collect is accurate. Particularly when you are collecting it from a source other than the research subject.</p> <p>4.3 If you have any reason to doubt the quality of the personal information you must</p>

	verify or validate the personal information before you use it.
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**5 USING PERSONAL INFORMATION**

Only use the personal information for the purpose for which you collected it.	<p>5.1 Only use the personal information for the purpose for which you collected it.</p> <p>5.2 If your research project requires you to use the personal information for a materially different purpose than the one communicated to the research subject, you must inform the research subjects and Stellenbosch University of this and give participants the option to withdraw from the research project.</p>
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Be careful when you share personal information.	<p>5.3 Never share personal information with third parties without making sure that they will also follow these rules.</p> <p>5.4 Always conclude a non-disclosure agreement with the third parties.</p> <p>5.5 Ensure that you transfer the personal information securely.</p>
Personal information must be anonymous whenever possible.	<p>5.6 If the research subject's identity is not relevant for the aims of the research project, the personal information must not be identifiable. In other words, the personal information must be anonymous (de-identified).</p>
Pseudonyms must be used whenever possible.	<p>5.7 If the research subject's identity is relevant for the aims of the research project or is required to co-ordinate, for example, interviews, names and other identifiers such as ID or student numbers must be collected and stored separately from the rest of the research data and research publications. In other words, only you must be able to identify the research subject.</p>
Publication of research	<p>5.8 The identity of your research subjects should not be revealed in any publication.</p> <p>5.9 In the event that your research project requires that the identity of your research subjects must be revealed, you must apply for an exemption from this rule.</p>
<b>6 SECURING PERSONAL INFORMATION</b>	
You are responsible for the confidentiality and security of the personal information	<p>6.1 Information must always be handled in the strictest confidence.</p> <p>6.2 You must ensure the integrity and security of the information in your possession or under your control by taking appropriate and reasonable technical and organisational measures to prevent:</p> <p>6.2.1 Loss of, damage to or unauthorised destruction of information; and</p>

	<p>6.2.2 unlawful access to or processing of information.</p> <p>6.3 This means that you must take reasonable measures to:</p> <p>6.3.1 Identify all reasonably foreseeable internal and external risks to personal information in your possession or under your control;</p> <p>6.3.2 establish and maintain appropriate safeguards against the risks identified;</p> <p>6.3.3 regularly verify that the safeguards are effectively implemented; and</p> <p>6.3.4 ensure that the safeguards are continually updated in response to new risks or deficiencies in previously implemented safeguards.</p>
Sensitive personal information requires extra care.	6.4 You will be expected to implement additional controls in order to secure sensitive personal information.
Are you sending any personal information overseas?	<p>6.5 If you are sending personal information overseas, you have to make sure that:</p> <p>6.5.1 The information will be protected by the laws of that country;</p> <p>6.5.2 the company or institution to who you are sending have agreed to keep the information confidential, secure and to not use it for any other purpose; or</p> <p>6.5.3 get the specific and informed consent of the research subject to send the information to a country which does not have data protection laws.</p>
Be careful when you use cloud storage.	<p>6.6 Be careful when storing personal information in a cloud. Many clouds are hosted on servers outside of South Africa in countries that do not protect personal information to the same extent as South Africa. The primary example of this is the United States.</p> <p>6.7 It is strongly recommended that you use hosting companies who house their servers in South Africa.</p> <p>6.8 If this is not possible, you must ensure that the hosting company agrees to protect the personal information to the same extent as South Africa.</p>
<b>7 RETENTION AND DESTRUCTION OF PERSONAL INFORMATION</b>	
You are not entitled to retain personal information when you no longer need it for the purposes of the research project.	7.1 Personal information must not be retained beyond the purpose of the research project, unless you have a legal or other justification for retaining the information.

<p>If personal information is retained, you must make sure it remains confidential.</p>	<p>7.2 If you do need to retain the personal information, you must assess whether:</p> <p>7.2.1 The records can be de-identified; and/or whether</p> <p>7.2.2 you have to keep all the personal information.</p> <p>7.3 You must ensure that the personal information which you retain remains confidential, secure and is only used for the purposes for which it was collected.</p>
<h2>8 INFORMATION BREACH PROCEDURE</h2>	
<p>In the event of an information breach you must notify us immediately.</p>	<p>8.1 If there are reasonable grounds to believe that the personal information in your possession or under your control has been accessed by any unauthorised person or has been disclosed, you must notify us immediately.</p> <p>8.2 We will notify the research subjects in order to enable them to take measures to contain the impact of the breach.</p>
<p>This is the procedure you must follow.</p>	<p>8.3 You must follow the following procedure:</p> <p>8.3.1 Contact the Division for Institutional Research and Planning at 021 808 9385 and <a href="mailto:permission@sun.ac.za">permission@sun.ac.za</a>;</p> <p>8.3.2 you will then be required to complete the information breach report form which is attached as Annexure A.</p> <p>8.4 You are required to inform us of a information breach within 24 hours. Ensure that you have access to the required information.</p>
<h2>9 MONITORING</h2>	
<p>You may be audited.</p>	<p>9.1 We reserve the right to audit your research practices to assess whether you are complying with this agreement.</p> <p>9.2 You are required to give your full co-operation during the auditing process.</p> <p>9.3 We may also request to review:</p> <p>9.3.1 Forms (or other information gathering methods) and notifications to research subjects, as referred to in clause 3;</p> <p>9.3.2 non-disclosure agreements with third parties with whom the personal information is being shared, as referred to in clause 5.4;</p> <p>9.3.3 agreements with foreign companies or institutes with whom the personal</p>

	information is being shared, as referred to in clause 6.5.
<b>10 CHANGES TO RESEARCH</b>	
You need to notify us if any aspect of your collection or use of personal information changes.	<p>10.1 You must notify us in writing if any aspect of your collection or use of personal information changes (e.g. such as your research methodology, recruitment strategy or the purpose for which you use the research).</p> <p>10.2 We may review and require amendments to the proposed changes to ensure compliance with this agreement.</p> <p>10.3 The notification must be sent to <a href="mailto:permission@sun.ac.za">permission@sun.ac.za</a>.</p>
<b>11 CONSEQUENCES OF BREACH</b>	
What are the consequences of breaching this agreement?	<p>11.1 If you do not comply with this agreement, we may take disciplinary action or report such a breach to your home institute.</p> <p>11.2 You may be found guilty of research misconduct and may be censured in accordance with Stellenbosch University or your home institute's disciplinary code.</p>
You may have to compensate us in the event of any legal action.	<p>11.3 Non-compliance with this agreement could also lead to claims against Stellenbosch University in terms of POPI and/or other laws.</p> <p>11.4 Unless you are employed by or studying at Stellenbosch University, you indemnify Stellenbosch University against any claims (including all legal fees) from research subjects or any regulatory authority which are the result of your research project. You may also be held liable for the harm to our reputation should there be an information breach as a result of your non-compliance with this agreement.</p>
<b>12 CONTACT US</b>	
Please contact us if you have any questions.	Should you have any questions relating to this agreement you should contact <a href="mailto:permission@sun.ac.za">permission@sun.ac.za</a> .

## **ANNEXURE 'A'**

### **Instruction:**

Please send this Notice to [permission@sun.ac.za](mailto:permission@sun.ac.za). If you have any difficulty completing the Notice, please contact the Division for Institutional Research and Planning at 021 808 9385. You must confirm that the Notice

### **NOTIFICATION OF INFORMATION BREACH**

Name of Researcher: \_\_\_\_\_

Name of Research Project: \_\_\_\_\_

Service Desk ID: \_\_\_\_\_

A security breach happens when you know (or you **reasonably believe**) that there has been:

- (a) loss of Personal Information ("PI")
- (b) damage to PI
- (c) unauthorised destruction of PI
- (d) unauthorised access to PI
- (e) unauthorised processing of PI

Date and time of security breach:	
Brief description of the security breach (what was lost and how). Please identify the equipment, software and/or physical premises and whether it is by hacking, lost device, public disclosure (email), theft or other means:	
Name of the person/s responsible for the security breach (if known):	
Is the security breach ongoing?	
Describe the steps taken to contain the security breach:	
What steps are being taken to investigate the cause of breach?	

## ANNEXURE 11: GATEKEEPER'S APPROVAL LETTER 4



Private Bag X6001, Potchefstroom  
South Africa 2520

Tel: +2718 299-1111/2222

Web: <http://www.nwu.ac.za>

**Research Data Gatekeeper Committee**

### NWU RDGC PERMISSION GRANTED LETTER

Based on the documentation provided by the researcher specified below, on **04-April 2023** the North-West University (NWU) Research Data Gatekeeper Committee (NWU-RDGC) hereby **grants permission** for the specific project (as indicated below) to be conducted at the NWU:

**Project title:** The influence of musical analysis as a strategic tool on undergraduate piano students' memorisation of a Classical sonatina.

**Project leader:** Dr Anchen Froneman

**Researcher/Project Team:** Ms Kayme du Preez

**Ethics reference no:**

**NWU RDGC reference no:** NWU-GK-23-117

**Approval date:** 04 April 2023

**Expiry date:** 05-April 2024


#### General Conditions of Approval:

- The NWU-RDGC will not take the responsibility to recruit research participants or to gather data on behalf of the researcher. This committee can therefore not guarantee the participation of our relevant stakeholders.
- Any changes to the research protocol within the permission period (for a maximum of 1 year) must be communicated to the NWU-RDGC. Failure to do so will lead to withdrawal of the permission.
- The NWU-RDGC should be provided with a report or document in which the results of said project are disseminated.
- Due to the COVID-19 pandemics the Committee would like to advise the researcher to practice the necessary caution and adhere to the National Covid-19 Guidelines when conducting research with participants.

Please note that under no circumstances will any personal information of possible research subjects be provided to the researcher by the NWU RDGC. The NWU complies with the Promotion of Access to Information Act 2 of 2000 (PAIA) as well as the Protection of Personal Information Act 4 of 2013 (POPI). For an application to access such information please contact Ms Annamarie De Kock (018 285 2771) for the relevant enquiry form or more information on how the NWU complies with PAIA and POPI.

The NWU RDGC would like to remain at your service as scientist and researcher and wishes you well with your project. Please do not hesitate to contact the NWU RDGC for any further enquiries or requests for assistance.

Prof Jeffrey Mphahlele

A handwritten signature in black ink, appearing to read 'J. Mphahlele', with a long horizontal stroke extending to the right.

Chairperson NWU Research Data Gatekeeper Committee

Original details: (22351930)

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November 2018

Current details: (22351930) M:\DSS1\8533\Monitoring and Reporting Cluster\Ethics\Applications RDGC\Updated RDGC

Permission Letter.docm 15 November 2018

File reference: 1.1.4.3