

**CONNECTIONS BETWEEN MULTIPLE INTELLIGENCES USED IN THE PERFORMANCE
AND TEACHING OF CONTEMPORARY ART MUSIC**

Seminar Thesis

Spring 2020

Teacher's Pedagogical Studies

Tampere University

Manca Dornik

Sibelius Academy of the

University of the Arts Helsinki

Department of Piano, Accordion, Guitar
and Kantele / Written Thesis

Abstract

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| Title: Connections between multiple intelligences used in the performance and teaching of contemporary art music | |
| Number of pages: total of 70 pages, divided as follows: 5+62+3 | |
| Author's name | Semester |
| Manca Dornik | Spring 2020 |
| Department Department of Piano, Accordion, Guitar and Kantele | |
| <p>Learning and performing contemporary art music is considered among many students and teachers as a music, which is demanding, complex to understand and easily brings out the extremes of the learning and performing ways of processing information, but also bringing out also wide possibilities of co-creating art with another artists and diverse usage of new technologies, practices and multi disciplinary projects. Awareness of diverse inputs from always changing and developing contemporary music culture, evokes in nowadays artists an extensive spectrum of diverse formations for navigating throughout learning, teaching, performing and thinking processes.</p> <p>Being <i>mindful contemporary artist</i> brings out all above, with usage of own perception and understanding of arts, leading to the usage of several intelligences, either consciously or unconsciously, towards the holistic approaches and diverse ways for contemporary art music practices - an area that should be investigated with help of neuroscience in the future. Leading on The Theory of Multiple Intelligences developed by Howard Gardner, this seminar thesis conducted in Finland, at the Sibelius Academy of The University of the Arts Helsinki, is a qualitative research about the connections among the intelligences on how the four experienced teachers, performers and professors (Ph.D. Mieko Kanno, DMA Veli Kujala, DMA Mika Väyrynen and DMA Juho Laitinen) describe their teaching, performing experiences and understandings of contemporary art music. Their valuable experiences within this field of music are understood throughout Gardner's multiple intelligence theory, describing what intelligences do certain occasions raise in them, including sharing their experiences about how several inputs from their own lives are contributing to the perception and broadening aspect of contemporary art music.</p> <p>The findings suggest that considering only musical intelligence as an only possible intelligence for musicians, is not the case for any kind of music, whereas especially inside the contemporary art music, the 'mindful contemporary artist' should possess, or be aware between all of the possible intellects. This paper concludes with a realization (with the support from both literature and the qualitative research semi-structured interviews) that mindful contemporary artist also possesses, either on subconscious or conscious levels, the visual-spatial intelligence, the linguistic intelligence, the logical-mathematical intelligence, the bodily-kinesthetic intelligence, the intrapersonal and the interpersonal intelligences and the naturalistic intelligence, with leaving open suggestions for reader and his/her own interest to 'digest' and start thinking and forming own personal conclusions about this subject of research.</p> | |
| Keywords: contemporary art music, multiple intelligence, teaching/learning/performing contemporary art music, understanding contemporary art music, connective learning/teaching | |
| Supervisor's name: Dr. Danielle Shannon Treacy | |
| The thesis has been checked for originality using a plagiarism prevention service: 15.6.2020 | |

Acknowledgements

This research paper is dependent on the practical expertise and support from many people and an institution, where I have had the privilege to be part of whole community during the last five years with receiving valuable knowledge about arts.

The completion of this research took a big amount of time, dedication and made me more aware of who I want to become as future mindful and dedicated educator and performer, specialized inside contemporary art music. This qualitative research wouldn't be possible with the help of my teachers, who are apart from being excellent educators also admirable performers and inspiring persons in the field of music – Ph.D. Mieko Kanno, DMA Mika Väyrynen, DMA Veli Kujala and DMA Juho Laitinen. Their agreeing to be part of this research was only a beginning of a long journey of explorations how their experiences shaped their lives, leaving their valuable thoughts open to read for any reader of this research paper. Their dedication and responsibility of being part to this paper was taking a lot of their own time for them with having interviews with me, checking the transcripts of interviews and reading the whole work before submitting it to the supervisor and publishing service. I am deeply grateful for their professional approach, their invested time and profound trust to agreeing to be an important part of this research, and as well challenging me in own thinking and opening new spheres of ideas with inspiring me for the future in the educating and performing new music.

I would like to extend my gratitude to my supervisor, Dr. Danielle Shannon Treacy, who has been a valuable guidance and support during whole last year, creating a trusting atmosphere also in our class with the rest of the classmates. Being a supervisor, always available and helpful for all of our research projects, she has created also an exciting beginning for me personally towards researching practices within music and evoke certain curiosity about new themes or possible connections within our topics. The gratitude goes as well to all the classmates, who formed nice and friendly atmosphere of sharing thoughts about own projects, the strategies and the ways of developing the paper and conducting interviews. Creating friendly and learning atmosphere was essential success to cope with that demanding amount of work, aside from being already a full-time student, active freelancer and teacher of accordion.

At the end, I must express also sincere gratitude for the endless support I have received from family and the closest circle of friends, who supported me with sharing own experiences and opinions about this work. Especially to my parents, who have been listening my ups and downs as being first time researcher, even when we were separated from Slovenia to Finland, leading through challenging personal difficulties of “being a young artist” in the beginning of the year 2020, who have been giving me with their full heart strength to go over any possible obstacles in the future.

Manca Dornik

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1. Introduction

During my studies at music high-school Conservatory of Music and Ballet Ljubljana and after four years of studies at University of Arts Helsinki, Sibelius Academy, I have come across interesting, curious and thought-provoking ideas on learning and performing aspects of music, particularly within the contemporary music.

I started to actively perform contemporary music from music high school on, playing many times as accordionist of variety of ensembles, music festivals, different chamber music groups and having different influences from several professors, composers and conductors on this journey. It fascinates me every day that contemporary music has no limits in perception of it for performer itself and as well audience, so therefore I feel strong connection to write my Master thesis about it. Playing music is demanding by itself and especially in contemporary art music, where it is often extremely demanding for performers to understand and play it, is in my opinion using only musical intelligence unfortunately not enough for successful and profound performance. For successful interpretation and performance of contemporary music one needs to be able to connect several aspects from variety of music subjects, as well as influences from other worlds, such as mathematical, structural, existential, personal and many others.

Howard Gardner has developed in 1989 through cognitive research a theory of multiple intelligences where

we are all able to know the world through language, logical-mathematical analysis, spatial representation, musical thinking, the use of the body to solve problems or to make things, an understanding of other individuals, and an understanding of ourselves. Where individuals differ is in the strength of these intelligences - the so-called profile of intelligences -and in the ways in which such intelligences are invoked and combined to carry out different tasks, solve diverse problems, and progress in various domains. (Gardner, 1989/1993)

In research I will focus on connections between intelligences he described, with focusing on aspects of learning process and performing of contemporary music, with support of four experienced teachers and performers of contemporary art music.

1.1 Research aim and questions

The overarching aim of my research is focused towards the development and enhancing the usage of all intelligences in order to better understand and perform contemporary art music, as well explore how might making possible connections between multiple intelligences and the teaching of contemporary music are significant for contemporary art music.

The research questions that will address this aim of research are:

- How do experienced teachers and performers of contemporary art music describe their teaching, performing experiences and understandings of contemporary music?

- How can these teachings and understandings be understood through multiple intelligence theory?
- What connections do experiences teachers and performers of contemporary art music make between their teaching and understandings of contemporary music and multiple intelligences?
- How does connective learning of diverse music subjects reflect and contributes to the perception and broadening aspect of contemporary art music?

Contemporary music is demanding and perplexing subject matter in music world. Hopefully this research will be an enlightening educational research document for all students and teachers, who are focusing on aspects of perception of contemporary art music in the process of learning and performing, as well as opening further thoughts on how to develop techniques for approach to connective knowledge.

1.2. Context of the study

The context of the research and study is to show the existing intelligences and their implication to music, specifically in the area of contemporary music. The research is qualitative research, where the experts in field of contemporary art music were interviewed about their areas of thinking when performing and teaching contemporary art music. The personal encounters led by “passion” for contemporary art music will after reading this research, hopefully evoke in the readers possible formations of interplays within existing intelligences.

1.3. Outline of the research

This research is organized into six chapters, where the reader will explore the work. The *Introduction* chapter serves reader to get acquainted with the theme of the research and the overarching aim and the research questions of this research. In the following chapters, the reader will explore the deeper layers of this research, starting from the *Literature review*, which server a reader an overview of findings of already existing articles and dissertation, connected to the topic of theory of multiple intelligences and music. In the following chapter, titled *Theoretical framework*, reader will get acquainted with Howard Gardner’s Theory of Multiple intelligences. The chapter is describing as well what intelligence according to him is, what frames the intelligence, and will find every intelligence described in detail. The formulations of intelligences of Gardner will be following the chapter about the *Methods*, where the reader will get acquainted with four experienced teachers and performers of contemporary music and see the process of methodology and qualitative research process. The next chapter, the *Results*, are representing a core of information and thoughts from the four participants of the research and a valuable source of gathered data to show interconnections among intelligences for contemporary art music. The following chapter *Discussion* focuses on the findings and results of this research in relation to the literature review and the theory, creating dialogue between results, findings and connections made after processing entire research. The *Conclusion* chapter is summing up the work and gives an input for a reader to think about on own further possible aspects.

2. Literature review

The essence of long learning processes within music field has led many scholars or music professionals to explore further the diverse connections of music and other fields. The literature review showed that there were done significant amounts of experimental studies based on Gardner's theory of multiple intelligence, with goals to show further implications for music education, as well doctoral dissertations about the musicianship, which implied awareness of multiple intelligences to the instrument rehearsals. The review also showed that there has been a lot of implication of idea of multiple intelligent features in many studies, however all of them were orientated towards music as a general whole and not focusing only on contemporary music performing and teaching aspects. The contemporary music, known among many people as more complex to understand and perform is in my opinion a subject, which should be researched as well, perhaps even more in details, for the further thinking and education of future educators, and as well to raise consciousness of generations of mindful humans and musicians" Nevertheless, the gathered data from literature review is representing essential and crucial foundation for my research, which will later influence the results and discussion sections.

2.1 The "intelligence"

The term "intelligence" by itself caused me some problems to understand why Gardner specifically used this term, which is commonly known as the ability of being "smart" among many people. Many well-known and respected scientists and philosophers aimed throughout history to capture meaning of intelligence. Albert Einstein said that "the true sign of intelligence is not knowledge but imagination." Greek philosopher Socrates said, "I know that I am intelligent, because I know that I know nothing." For many upcoming centuries, philosophers have tried to capture the true measure of intelligence and the frames of intelligence. Leading the scientific perspectives, in recent years the neurologists have also begin the debate, searching for answers about intelligence from scientific findings and neurology. In the 20th century the humanity produced three major theories on intelligence. Charles Spearman has in 1904 acknowledged that there are different types of intelligence but argued that they are all connected. Spearman argued for a general intelligence factor called "g," what is still remaining controversial idea of existence of this factor nowadays. Howard Gardner revised this idea of Spearman with his *Theory of Multiple Intelligences*, which set eight distinct types of intelligence. Gardner was sure that there need be no correlation among them; a person could possess strong emotional intelligence without being gifted analytically. Later Robert Sternberg put forward his Triarchic Theory of Intelligence, which argued that previous definitions of intelligence are too narrow because they are based solely on intelligences that can be assessed in IQ test. Instead, Sternberg believes types of intelligence are broken down into three subsets: analytic, creative, and practical.

Howard Gardner set the standards for term intelligence in the book *Frames of mind: the theory of multiple intelligences* (1989/1993), following the detailed descriptions of each of the intelligences, leading to a scholar work for further implications of understanding the human minds for upcoming educators. Gardner started with adding frames of meaning of intelligence.

To my mind, a human intellectual competence must entail a set of skills of problem solving – enabling the individual to *resolve genuine problems or difficulties* that he or she encounters and, when appropriate, to create an effective product – and must also entail the potential for *finding or creating problems* – thereby laying the groundwork for the acquisition of new knowledge. (Gardner, 1989/1993, p.61)

Howard Gardner has written in 2000 another book, where he put in the details “updated” term of what is intelligence, introducing three more additional intelligences. In his book, *Intelligence reframed: multiple intelligences for the 21st century* (2000), he sets another conceptualization of intelligence “as a biopsychological potential to process information that can be activated in cultural setting to solve problems or create products that are of value in culture.” (Gardner, 2000, p.33-34)

As he began in the past to understand the intelligence as »the ability to solve problems or to create products that are of value in culture« (Gardner, 2000, p.33-34), he has reached another kind of possible tight connections between the existing intelligences, which are even more dependent on each other as he thought before.

Yet each intelligence does not have to be independent of the others, and it may turn out empirically that certain intelligence is more closely tied together than are others, at least in particular culture. (Gardner, 2000, p.102)

The literature review of Gardner's both books showed great source of the material, which will be discussed in later chapters of this document, as well representing a theoretical framework and the core foundation for my research about the connections between multiple intelligences used in performing and teaching contemporary art music.

2.2 Contemporary (classical) art music

The contemporary art music is also commonly understood among many scholars as contemporary classical music. The contemporary classical music is relative to the present day, whereas at the beginning of the 21st century it was commonly referred to modern forms of post-tonal music (after the death of Anthon Webern) and included several sub-divisions of movements among itself. Experimental music, minimalist music, spectral music, new complexity, post-minimalism, serial music, electronic music and polystylism are few examples of those movements, which were pushing boundaries and genre definitions into creating new music.

Nicole V. Gagné has described in book *Historical Dictionary of Modern and Contemporary Classical Music* (2012) the contemporary scene as the music, which

embodies a uniquely broad spectrum of activity, which has grown and changed down to the present hour, with new talents emerging and different technologies developing in the coming years of the 21st century ... being certain that the inspiration and originality that make music live will continue to bring awe, delight, fascination, and beauty to the people who listen to it. (Gagné, 2012, p.1)

Musique concrete, which utilizes recorded sounds as raw material, started in 1945 with French composer and theoretician Pierre Schaeffer with taking wider phases of his work *Tendances de la musique concrete* (1957) the distinction of concrete music to following tendencies within concrete music: “expressive” concrete music, “abstract” concrete music, “musical” concrete music, and “exemplary” concrete music. Composers such as Karlheinz Stockhausen, Pierre Henry, Pierre Boulez and Iannis Xenakis are some of well-known contemporary classical composers who are known for their work in electronic music and for musical spatialization. Experimental music is considered as a part of contemporary music, which pushes the existing boundaries and the pre-existing definitions of genres. John Cage, one of the most influential composers of the 20th century, has been with his perception of silence and composing the indeterminacy in music with non-standard use of musical instruments, one of the most influential persons for upcoming generations of contemporary classical composers. His perception on silence and time has been a debate and critique points for many composers, born after him.

There is no such thing as an empty space or an empty time. There is always something to see, something to hear. In fact, try as we may to make a silence, we cannot. (Cage, 1961, p. 58)

After 1980s the new complexity has taken a mainstream of compositional style, where complex, multi-layered compositional material has become significant to incorporate diverse extended techniques, textures, microtonality, complex rhythms, melodic contours and immediate changes in textures. Morton Feldman, Brian Ferneyhough, Magnus Lindberg, Rebecca Saunders, Heinz Holliger, Helmut Lachenmann and Matthias Pintscher are some composers, where in many cases, the new specific notation was discovered as a way to capture precise movements of particular sound on each instrument, creating new ways of unique notations to achieve results composer wants in performance.

What can a specific notation, under favourable conditions, hope to achieve? Perhaps simply this: a dialogue with the composition of which it is a token such that realm of non-equivalence separating the two (where, perhaps, the 'work' might be said to be ultimately located?) be sounded out, articulating the inchoate, outlining the way from the conceptual to the experiential and back. (Ferneyhough, 1995, p. 253).

This very short explanation of literature review of what is contemporary classical art music represents a base for a reader of this research to understand the term »contemporary art music«, and as well to consider for own future research all those diverse, but still related movements within contemporary classical music, and to suggest some of the names to explore the diverse shades of contemporary composers to search on reader's own interest.

2.3 The musicianship of “intelligent” comprehensive musician

The doctoral dissertation *Developing musicianship from the podium: Adapting the Theory of Multiple Intelligences to the instrumental rehearsal* (2012), written by Christopher Herbert Fashun, is representing a wide-spectrum of deep research for implementation of Gardner's theory of multiple intelligences, focusing particularly on a conducting class, starting from pedagogical aspect of treating

and reflecting students and their understanding of music, into gaining several rehearsal strategies for ensemble.

The purpose of Fashun's study is

to build upon student-centered rehearsal techniques that address multiple learning styles throughout the music-making process” with having in mind the final goal of the research to develop “rehearsal strategies that incorporate various ways of knowing creates a platform for students to connect with the music based on their learning styles which can lead more directly to expressive music-making through intrinsic connections. (Fashun, 2012, p.1)

These resources of his study are later explained in his study deeply in the theoretical framework of theory of multiple intelligence and musicianship. Fashun pays attention to what is musicianship and expressivity, what kind of patterns are still existing from old rehearsal processes, which can cause several barriers to musicianship and expression in ensemble and orchestra settings - such as lack of preparation, curricula, rehearsals by themselves, conductor being a boss of whole setting etc. The need for awareness of understanding and implementation of multiple intellect to the educational settings, Fashun has conducted qualitative research with two surveys; one for students and another ones for conductors. The results are showing the amounts of intelligences, which led him to emphasize the pedagogical foundations and validating the need for more than only rehearsing music. Further in the dissertation, Fashun applied each of the intelligences and the interaction among them, through various rehearsal techniques in categories of their name.

The strongest point was for me was that Fashun found “an explanation for the chasm between the strongest MI’s of instrumental students (interpersonal, bodily-kinesthetic, visual- spatial, and intrapersonal) and the lowest MI’s for the conductors who contributed to (his) survey (bodily-kinesthetic, interpersonal, and visual-spatial). “ (Fashun, 2012, p.117)

The inclusion of multiple intelligences to the rehearsals of ensembles or orchestras can be according to Fashun from awareness of responsibility of the conductor and a music educator, who both have the to promote and enhance a deeper understanding in music, where we can unfortunately still notice limited approach from educators in ensemble settings primary and secondary levels.

2.4 Educating awareness of mindful comprehensive musician

Further research about existing literature within music and theory of multiple intelligences led me to an article *Principal Themes: Gardner's Theory of Multiple Intelligences and its Implications for Music Education* (2005) written by André Louis Heywood, where he focused on how to employ and develop all the intelligences with an idea of creating a comprehensive musician. The author focused particularly on Gardner's intelligences and how the coordination and working together with multiple intellects can contribute to becoming a mindful comprehensive musician.

Thirdly, and probably the most intriguing, is that musical study tends to involve all the intelligences. While writing a poem involves only linguistic intelligence, musical study employs all seven of the intelligences. (Heywood, 2005, p.18)

After realizing that his thoughts about the idea that musicians having all seven intelligences when dealing with music, I have somehow got even more sure in own personal thinking about the higher amounts of intellects interplays when dealing with contemporary art music. His article gave me an inspiration for further thoughts. Heywood focused and described also the neurologycal findings, which are significant to pay attention as well between the synapses of diverse processes within brains when dealing with music, causing effect on acitivity of brains.

The strength (and, therefore, ability) of brain synapses is dependent upon how often they are used. Involvement in music employs synapses used in sensory, perceptual and cognitive systems as well as the processes of coordination, evaluation and memorization (Weinberger, 2001). If music exercises all these synapses, and use of the synapses improves their function, then it can be concluded that music has an indirect effect on brain activity. This also supports Gardner's claim that music is an organizer of cognitive ability. (Heywood, 2005, p.18)

Music is according to Heywood a vast area and it also covers many other areas, where it become somehow natural and easy to incorporate all the intelligences into a musical lessons. Heywood emphasized the findings of R.L.Mallonee, how the music classroom settings can in practice utilize also student's non-musical facilities, leading them to becoming comprehensive thoughtful humans and musicians.

To employ students` linguistic intelligence, spend time with text and observe its musical setting. Logical-mathematical intelligence can be exercised by sight-singing using solfeggio or by using numbers to represent dynamics. Spatial intelligence can be utilized by associating a painting with a piece of music to help the students focus on the mood of the work. Bodily-kinesthetic intelligence can be exercised by tapping, clapping, conducting, and even dancing. Students have a chance to use their interpersonal intelligence when performing in a group, having to give special attention to blend, balance and intonation. Intrapersonally, students stand to benefit by determine what they need to do to make them a better performer. (Heywood, 2005, p.22)

Another study, showing the idea of what means mindful musician was presented in the article *Mindful voice - Gardner's theory of multiple intelligences: Musical intelligence* (2010), written by Linn Holding and published in Journal of Singing. This article brings in front also the subject and essence of the links between left and right hemispheres of the brain, and the importance of the educating mindful musicians, which in the article focused particularly on singers. She is underlying the fact that musical abilities are situated in the right hemisphere of the brain, whereas logical-mathematical intelligence is situated in left hemisphere, where the main factor of the transmissions between both hemispheres is called *corpus callosum*, "the major neural connection area between the left and right hemispheres of the brain), which is essential for mastering Western classical music." (Holding, 2010, p.326) She emphasized also fact and supportive studies, which show that the more musical training person has, the left hemisphere is more used for processing the musical information. Additional studies have been found also by Dr. Gottfried Schlaug, which revealed that musicians have more asymmetrical brains – "musicians with perfect pitch have a larger asymmetry of the *planum temporale* (an area associated with auditory processing) on the left side of the brains." (Holding, 2010, p.326) All those scientific findings are, according to Holding, showing connections of music

intelligence to the other intelligences, creating mindful comprehensive musician with wide array of skills and capabilities.

2.5 'Variables' of musical intelligence

The further deep research of literature review showed great deal of literature sources orientated towards music teaching ways generally, focusing on teaching methods how to boost pedagogical approaches with knowing from Gardner's ground-breaking book. The factors, which are affecting particularly the musical intelligence were found with an article titled *An experimental study on factors influencing the musical intelligence of young adolescents* (2019) by Sumit Sheoran, Sudha Chikara, and Sheela Sangwan. According to authors of the research and article, the musical intelligence is perceived "how skillfully an individual is performing, composing, and appreciating music and musical patterns to assist in learning" (Sheoran, Chikara, Sangwan, 2019, p.96) with help of boosting "their musical intelligence by means of using various arts (music, art, theatre & dance) in order to develop student's skills and understanding within and across disciplines will be very much helpful."

The study was orientated towards determination of the variables and identify multiple intelligences with assessing the diverse effects of various human ecological factors.

(...) it can be concluded that fathers' education and occupation, residence of location and relationship with the peers of the young adolescents were significantly associated with musical intelligence of the respondents. Other variables, such as mother's education and occupation, family income per month and frequency of visit to relatives/friends had no significant association with the musical intelligence. (Sheoran, Chikara, Sangwan, 2019, p.98).

According to the authors of the article and study, the most important after all was in long learning process awareness of students weak and strong points in requisites of learning practices more than the origin of the musical intelligence. Developing various opportunities to discover the ways of teaching music, which compensate for their weaknesses and at same *time* building the strengths and formulations among them, is as well according to the authors developing the self-confidence, positivity towards learning settings and self-regulation.

2.6 Conclusion of the literature review

All of the gathered data and studies gave a lot of significant and valuable concepts and presented already discovered data for identification of the musical intelligence and its application to diverse musical cultural settings, with emphasis about synopses of other intelligences as well when focusing on music. The meeting points between theory and practices of all researches have been clear and helpful to give inspiration for the orientation to focus particularly on contemporary art music sphere, however, there hasn't been yet in focus particularly the field of contemporary art music.

3. Theoretical framework

The theoretical framework for this research draws upon the conceptualization of The Theory of Multiple Intelligences, developed by Howard Gardner, serving as well the core base of entire research and processing of gathered data. In order to explore the usage of intelligences within contemporary music field, it is utmost relevance to be well acquainted with the theoretical framework. The connection of music within all other subjects, and its relevance, was presented in the literature review throughout many other scholars in several settings within music, serving as a starting point of possible and already known connections.

3.1 Howard Gardner and The Theory of Multiple Intelligences

Howard Gardner, an American cognitive psychologist and author of several scholar works, has published in 1983 one of his major written book *Frames of Mind: The Theory of Multiple Intelligences*, which happened to be subject of many other scholarly works, theories, researches, perceptions, ideas, and had as well significant impact in history of education processes throughout the world. Claiming that intelligence is complex set of diverse processes of understanding, relations and perceptions in the human mind and does not arise from single unit in quality within minds, Gardner implies that different kinds of intelligences are produced inside human brains and within its mental energy, allowing each person to fully operate and live in this world. Gardner described intelligence with considerations of several settings within cultural and developmental fields.

In the heyday of the psychometric and behaviorist eras, it was generally believed that intelligence was a single entity that was inherited; and that human beings – initially a blank slate – could be trained to learn anything, provided that it was presented in an appropriate way. Nowadays an increasing number of researchers believe precisely the opposite: that there exists a multitude of intelligences, quite independent of each other; that each intelligence has its own strengths and constraints; that the mind is far from unencumbered at birth; and that it is unexpectedly difficult to teach things that go against early ‘naïve’ theories or that challenge the natural lines of force within intelligence and its matching domains. (Gardner, 1983/1993, p. xix)

This particular knowledge of knowing about each of intelligences by Gardner, are relevant for my work and research for awareness about existence of them and about the quality of knowing the essence of what they are. In the following sub-chapters of this chapter, the knowledge of ‘framing’ and ‘formulating’ the intelligences are presented according to Gardner’s theory. This knowledge is acting like a core of my entire research, which will show that musical intelligence, especially in field of contemporary art music performing and teaching processes, is connecting all the gained knowledge and experiences with usage of all intelligences.

3.1.1 'Framing' the Intelligence

"An intelligence is the ability to solve problems, or to create products, that are valued within one or more cultural setting (Gardner, 1983/1993, p. x)".

The conceptualization of term intelligence was according to Gardner formulated with certain working experiences from his life, such as experiences with people with lack of certain cognitive abilities to outstanding degrees, even in absence of others, which are very basic abilities. According to Gardner (Gardner, 1983/1993), fulfilment of intelligence as term must carry out following signs:

- "*Potential isolation by brain damage*" - Relying on evidence from neuropsychology to the extent of finding the certain regions within brains, which has suffered damage through injury or disease.
- "*The existence of idiots savants, prodigies, and other exceptional individuals*" – Existence of this population, showing the individuals, which are exceptionally smart or ahead of age in their understanding in one or more areas of human capabilities. *Idiot savants*, including autistic children and along with other retarded or exceptional individuals, allows us to observe specific human intelligence in isolations, against all other possible negative domains. Conditions of prodigies or idiot savant could be linked with genetic structures, which could see one intelligence emphasized more as others, whereas the lack of certain intellect could provide the borders of framing other kinds of intellects.
- "*An identifiable core operation or set of operations*" – Information-processing operations, which are in human minds, and can be activated with specific kind of inputs. With identification of those core operations, such as sensitivity to pitch relations as one of the cores within musical intelligence, it proves their existence or even develop to various degrees with usage of them within specific intellect of human brains.
- "*A distinctive developmental history, along with a definable set of experts "end-state" performances*" – The intelligence cannot develop in isolation, therefore it is relevant to focus on environments, where the usage of intelligence is enhanced. Possibility to enhance the particular level of expertise within fields and its development, from its beginnings and to passing on processes of knowledge, summing in high levels of particular competence to individuals with possessing unusual talent or special kinds of training processes. The development history of intelligence, along with analysis of possible changes in process, and training processes represents valuable material for generation of data for educators.
- "*An evolutionary history and evolutionary plausibility*" – The evolutionary process of species with their growing abilities, and its history path represent essential base for determining specific abilities of individual's perceptions.
- "Support from experimental psychological tasks" – Connections between methods of the cognitive psychologist (for example studies of certain tasks, focusing using only one kind of

input) can show bonds with another intelligences, transferring same context of experimental data output and information, resulting in interaction between executions of complex tasks.

- “Support from psychometric findings” – Using IQ tests as a way of showing particularly tested intelligence. Gardner noticed the problem of them, sometimes not testing what they should, however implying that variety of tasks can be figured out using a variety of other means.
- “Susceptibility to encoding in a symbol system” – Awareness of surrounding environment, focused on symbol systems, which are relevant part of the world, such as language, picturing and mathematics. Human intelligence is by nature orientated towards embodiment in the cultural system of diverse symbol systems.

According to Gardner (1983/1993), this is a criteria by which a candidate for intelligence can be judged, resulting in a so-called core intelligences. They are not meant as evaluation terms, but rather as possible existing parts in our minds, with possibility of reducing most general capacities, in order to examine intelligences enough sufficiently. Since intelligences are framed mostly by studies of skills and abilities, it is relevant to have a line between executional knowledge and propositional knowledge. This relation between *know-how* and *know-that* is for Gardner more orientated towards understanding of intelligences as bigger *sets of know-how*. Having criteria of what intelligences are, those signals unfolded this theory of multiple intelligences in eight kinds of intelligences.

To know the framings of intelligence as its term for Gardner, represents a valuable information, how he gathered the data and used it in definitions of intelligences to better understand them for future research on his theory.

3.1.2. ‘Formulating’ the Intelligences

1. Linguistic Intelligence

Linguistic intelligence is responsible for language production, either in spoken or written forms, where the sensitivity and response for learning several different languages and owning the capacity to use language (or several languages) to accomplish certain goals.

According to Gardner, the linguistic intelligence is for the core operation of a human. It is also most widely and democratically shared among people, where wide spectrum of human possesses:

- »*Rhetorical aspect of language*« - the ability to use language to convince others for some particular thing or action. Seen in highest degrees among politic leaders, legal experts and lawyers.
- »*Mnemonic potential of language*« - capacity to use this tool to help remembering the information, shaping directions for finding several ways for further processes operations.
- »*Role in explanation*« - the teaching and learning are mainly happening through language (teacher’s oral explanations, written learning material and learning books), by the words in its written or spoken roles. Gardner is paying attention also to logical-mathematical aspects

of understanding the teaching material, however the language will always remain the optimal mean for conveying basic concepts in books. The teaching environment, with explanation and by teacher's eagerness towards discussion of materials (included other settings of discussions), has been proven as crucial for launching and for explaining new scientific developments.

- »Potential of language to explain own activities«

The criteria for linguistic language is for Gardner the area where the

“syntax and phonology lie close to the core of linguistic intelligence, while semantics and pragmatics include inputs from other intelligences (such as logical-mathematical and personal intelligences) (Gardner, 1983/1993, p.81)”

The last ones mentioned by Gardner are in higher usage for general human information processing ways and are less in connection to language as an “organ” or a tool for expression.

The development of linguistic skills starts in childhood, where a child learns by imitating and listening what surrounds him/her, which are roots for spoken language. After few years, the child is able to connect language with his/her imaginations, resulting in describing stories, inventing own characters, altering their speech according to who they are playing/imitating/speaking to (adult, speaking frog, their peers, fairies etc.). After all, all children and people can learn language - either in spoken, written or as in sign language.

Gardner emphasizes in the chapter about linguistic intelligence the writer and starts focusing towards a writer as a person, who posses highest amounts of linguistic intelligence. He takes into account Jean Paul Sartre, who was a main person with whom started the process of understanding the writers and their profession. The practice is according to Sartre is the *sine qua non* of eventual success - musicians and writers both share the idea, that this skill is a muscle, which must be practiced on daily basis. Central aspects of linguistic intelligence is seenable in poetry and poet's struggles when capturing certain things - such as struggle over wording of line or stanza, or diverse shades of meaning of words. As well the particular word must be used, which fit according to poet the context the best, in order to not clash with entire picture or particular setting (as for background or atmosphere of the work, and also as the other words, especially in following lines/sentences). Meanings of words are in poet's work quite often reinterpreted, or find another connections of diverse meanings. Semantics, phonology and syntax are central elements for mastering the language, where the passion, love, determination and eagerness are essential as well for poets. Those are framing the core operations and technical abilities, where the linguistic intelligence is in its highest rates/amounts of sensitivity towards words, such as sounds, rhythms, metres and meanings of words.

2. Logical-Mathematical Intelligence

The logical-mathematical intelligence is the capacity to analyse problems logically with processing information through logic and reasons. This intellect is according to Gardner also orientated towards investigating issues scientifically and owning the ability to carry out mathematical operations. The intelligence is also seen through owning the ability to detect patterns, reason deductively and logical thinking, where the result is carried out with quantitative methods of observing ability as well. Facts and numerical data, with accuracy and precision in learning and working settings and processes, the minds of mathematicians and scientists are complex sets of understanding the facts and ideas, which carry out diverse models, measurements, abstraction and complex logics.

Gardner is describing the development of logical-mathematical intelligence based on findings of Piaget's theory of cognitive development. Most fundamental and initiate knowledge is acquired already in childhood, where the child is confronted with the world of objects - ordering, reordering and assessing quantity of those objects. In development time, the child proceeds from objects to statements, where actions are becoming taken over by relations among actions. Leaving sensory-motor skills and entering the field of pure abstraction of objective actions. According to the Piaget, the child reached the level of fundamental logical-mathematical young thinker by age of 7. From fact of knowing the object towards getting a class of set of specific things (numbers, letters etc.), where after certain time actions among sets or classes become internalized.

Gardner is stressing the thought that Piaget's development stages of logical-mathematical domain is "less regular, lock-step and stagelike heterogeneous" (Gardner, 1989/1993, p.134). Bernhard Russell, British philosopher and mathematician, was moving the base of this intellect towards idea that an individual, possessing higher amounts of logical-mathematical intellect, has the abstract formal systems, where the interconnections between them become logic rather than empirical observation.

The highest amount of logical-mathematical intelligence is seen in scientists and matematicians, where the memory and attentional powers are essential fundamental skills. The last two skills are in combination with reasoning and relationships of connections to use abstract symbolic thought, bringing the mathematician inductive and deductive thinking and processing patterns.

"The mathematician must be absolutely rigorous and perennially skeptical; no fact can be accepted unless it has been proven rigorously by steps that are derived from universally accepted first principles. Mathematics allows great speculative freedom - one can create and kind of system that one wants, but in the end, every mathematical theory must be relevant to physical reality ..." (Gardner, 1989/1993, p.138-139)".

The ability to handle skilfully chains of reasoning is essential in intellect of mathematical, where finding an analogy between kinds of analogies and paradoxes are the drive for mathematicians. The scientists are having as one of central aspects of their practice to discuss themes, highlighting rigorous, systematicity and objectivity, forming final analysis by believing strongly in own methods and themes. The examples for scientists, with strong intellect of logical-mathematical thinking are Albert Einstein and Isaac Newton, where also the conviction of their themes and believes lead them even towards cosmic questions, forming diverse aspects of philosophical issues, mysticism, metaphysic and cosmology.

For most of people would be the linguistic intelligence and also the logical-mathematical one of most "basic" intelligence, also setting the core and being the centre of all other intelligences. However Gardner sees this intellect more developed in last century in the history in the West, and to consider this skill as one among set of intelligences. "There is indeed logic to language and a logic to music; but these logics operate according to own rules, and even the strongest dosage of mathematical logic

into these areas will not change the ways in which their endogenous "logic" work (p.168)." He can still see various links between logical-mathematical intellect and other ones, which I will further examine later in the discussion chapter.

3. Musical Intelligence

Musical intelligence is connecting several skills of music in the performance, composition and appreciation of patterns within music. It is the capacity to recognize and compose music pitches, tones, and rhythms. According to Howard Gardner musical intelligence runs in an almost structural parallel with linguistic, logical-mathematic and spatial intelligences, what will be discussed later in Results chapter of this work. This intellect is most recognizable among composers, musicians, conductors and sensitive listeners.

According to Gardner (1989/1993), the composing start represents the flow of ideas within minds, which begin to "crystallise and to assume a significant shape (p.101)". Going from rhythmic, melodic or harmonic fragments to bigger settings and forming diverse ideas of music material. Alongside with this imagination, the organisation of these ideas of music material starts to shape the piece of music. The ideas might be contrasting or complementary with each other, being always in some sort of relationships among them, with awareness of composer about what kind of elements belong to the elaboration of specific ideas and which perhaps not. Proportion of those elements and the initial ideas with working out them in terms of rhythms, forms, harmonies, different variations and movements, each composer then decide how those parameters will affect and finalise his conception on the final material of composition. The composer also takes ideas from the world, or is affected by them, where it represents normalcy to compose every day as to the basics of living and eating. (For example: for Copland is the theme considered as gift from heaven, for Sanit-Saens is like being an apple tree producing apples etc.). The concepts of what is music and what is not music are still under debate among many composers, musicians and people.

However for the composer such as Igor Stravinsky, the composing is doing and not thinking, which occurs as a thought or will and is accomplished naturally. For an American composer Harold Shapero, the composing is more as a process of diverse mechanisms and inputs, what Gardner underlined in his work.

"The musical mind is concerned predominantly with the mechanisms of tonal memory. Before it has absorbed a considerable variety of tonal experiences, it cannot begin to function in creative way... The musical memory, where its physiological functions are intact, functions indiscriminately; a great percentage of what is heard becomes submerged in the unconscious and is subject to literal recall (Gardner, 1989/1993, p.102)."

The composers and also musicians minds are complex sets of diverse inputs from life, which are brought to life by the components of musical intelligence. Most central ones are pitch (melody) and rhythm (controlled movement of music in time), where pitch is somehow more central in certain cultures (Oriental societies with small quarter-note intervals, Indian music with own specific rhythms). The timbre (tone colour or quality of tone) is as well essential and represents one of those three central elements of music. For many composers and musicians, music is controlled movement of sound in time. As well, music can grow, mimic or communicate certain emotions - it can capture the forms of those feelings. Stravinsky said that "Music is powerless to express

anything”, whereas he saw another line other time by saying “Music expresses itself... A composer works in the embodiment of his feelings and, of course, it may be considered as expressing or symbolising them.” (Gardner, 1989/1993, p.106). The relationships within keys and modes of music, musical counter, scales as series of tones with a definite structure, cadences and many other components of music are “frames” for musical language on certain levels in order to make whole musical sense.

The musical competences are one of the frames to have the musical intelligence, which starts at very early age of several infants. With fact that people have voice, singing is a starting point of with every child when facing music for first time. With singing children songs, those sounds are processed in minds and could be remembered as certain patterns, organised by pitch, loudness and melodic contour. Having those songs in their memory, singing or playing few lines of them, it grow into composing own little melodies and by the age of 6 having ability to sing reasonably accurate tunes and songs around them. The further development is acquired among many of them in music schools or other music educational institutions, where they choose instrument, the musical repertoire gradually expands, increasing knowledge about music in several ways, comment critically performances, perform, play with other players etc. Memory, musical ear, skills, effort and practicing are the necessities for every musician. There are several prodigies among musicians, such as Arthur Rubinstein, where the settings of their musical enthusiasm were the family settings are not orientated towards music, however the drive and talent for music was seen among family members. As all children, also the prodigies can face several crises in their lives, such as motivation, Gardner described in his book the Rubinstein's memory from childhood.

Half in fun, half in earnest, I learned to know the keys by their names and with my back to piano I would call the notes of any chord, even the most dissonate ones. From then on it became mere “child’s play” to master the intricacies of the keyboard, and I was soon able to play first with one hand, later with both, any tune that caught my ear... By the time I was three and a half years old, my fixation was so obvious that my family decided to do something about this talent. (Gardner, 1989/1993, p.113)

Gardner is emphasising the scientific researches of evolutionary and neurological sides within music intellect, which happen in our both hemispheres. The left hemisphere is responsible for analytical, verbal, order, reading, writing, sequencing, logic, mathematic, thinking in words etc. The right hemisphere is responsible for creativity, imagination, intuition, arts, feelings, rhythm etc. When performing music, the information of the music is crossing the corpus callosum between left and right hemispheres of brains. Gardner still sees the main centre of music based in right hemisphere of the brain. With constant music training, the right hemisphere operations gradually are transmitted on natural level to the processes of left hemisphere: “The more musical training individual has, the more likely he will draw at least partially upon the left hemisphere mechanisms in solving a task that the novice tackles primarily through the use of right hemisphere (p.119).”

Because those connections are so unique and based on each individual, Gardner is leaving open space for later development of neurologists to investigate about the corpus callosum and other spheres of relationships among intelligences of highly trained musicians and unusual musical talents.

4. *Spatial Intelligence*

The spatial intelligence is according to Gardner a potential to recognise and use patterns of space and particular areas. Key sensory base of this intelligence is sense of sight and as well the ability to form images and pictures within minds. People with higher amounts of spatial intelligence are architects, visual artists (painters and sculpturers), graphic artists, cartographers, inventors.

Central capabilities of spatial intelligence are the skills to precisely see and understand the visual world, as well also to perform transformations and adjustments upon own perception of visual world, and the ability to re-create one's visual image, even in the absence of physical world (for example "from memory"). Spatial intelligence emerges as an amalgam or mixture of several other abilities - the visual spatial realm is in case of non-visually impaired people always connection to visually seeing the world, in order for other intelligences to work. Spatial intelligence is ability, which is able to manipulate space or objects, such as "mentally rotate" complex forms of objects through any number of twists and turns. The connection between visual picture and picture in the head is among people with high amounts of spatial intelligence an ability, which works at same time with higher amounts of logical-mathematical thinking. All the operations, happening with transformation of elements, sense of spaces and imagining image mentally and then transform this physically, always occur together in either abstract or physical spaces.

Gardner ties the development of spatial intelligence with Jean Piaget's studies of development of children spatial understanding. In the early years children develop ability to form own mental images, where after some time those images can develop to capability of more active manipulation of objects in spatial world (decentration, geometry, proportions of subjects etc.). After certain time and active usage of spatial intellect, the adolescent is able to put together logical-mathematical and spatial intelligences into a single geometric of scientific systems. The expression of spatial intellect is usually supported by visual arts throughout the educational systems.

The spatial intelligence within disability can be also very high, especially among visually impaired individuals. Starting with simple orientation in room, connected with sensitive senses of musical intelligences, can be transmitted for visually impaired people to see the world differently - they still see, but in different ways, transmitted through several other non-disabled senses. Many of them are also using the sense and own awareness of motion for expressing as visually impaired artists by using the power of imagery. Within autism we can also encounter several cases, where the spatial intelligence was being as single intelligence at its highest rates, with other array of other kinds of abilities.

Spatial intelligence is also a tool for serving the scientific ends as a way of capturing information, formulating problems and at the end also for solving problems. The physical sciences are mostly relied on spatial intellect than to traditional biological or social sciences. Leonardo da Vinci was one of those individuals with special gifts in this realm - he didn't use spatial knowledge only across spectrum of arts, but he linked it as well towards engineering and inventing various of things. The visual-spatial arts are self-evident form to consider, when talking about spatial intellect. The sensitivity to visual world and ability to recreate or invent particular idea or work of art, is highly seen among the painters and sculpturers. The skills of fine motor movements and strong memory are just helping the minds of spatial intellect; according to Vasari, Michelangelo had very accurate visual recall, which he was able without effort realize and re-create all prior images. But artistic achievement cannot end here - world of personal experiences are as relevant as world of abstract thoughts of art, forming unique final »composition«.

5. *Bodily-Kinesthetic Intelligence*

The bodily – kinesthetic intelligence Gardner describes as an ability of usage of diverse mental abilities to coordinate body movements. The characteristic of this intelligence is skill “to use one’s body in highly differentiated and skilled ways, for expressive as well goal-directed purposes (Gardner, 1983/1993, p.206).” This skill of usage of body both for functional and expressive purposes are tight with skill in manipulation of objects. The core of the bodily-kinesthetic intelligence is for Gardner the “control of one’s body motions and capacity to handle objects skillfully (Gardner, 1983/1993, p.206).” Within the highest forms in body functional intelligence are dancers and athletes, as well instrumentalists and artisans, who developed this intelligence to outstanding amounts.

With emphasizing the history of development of this intelligence, which was encountered and highly appreciated by the Greeks in the ancient world, Gardner pays attention to development and particular cultural settings of the process of understanding this intelligence. The Greeks were masters in usage of body with their artistic and athletic activities, they were particularly fond of the idea of a harmony between mind and body, creating a bond between the trained mind to use the body properly, and vice versa. Later on, the motor activity has been considered by neuropsychologists as a high cortical function, including that most of the parts of the body and nervous system participate together in the executions of motor actions. This sense in connections with nervous system, large portion of cerebral cortex and its connections, is contributing from execution towards and action of specific muscular movements. A close link between the use of the body and connections of other cognitive functions and its performances include an excellent sense of timing, where movements fits into elegant and smooth patterns. Over years this highly skilled performed person has developed sets of translating the intentions into actions. Adding the ability to elaboration of fine movements, such as the ones in hand and fingers, carrying delicate movements with precision in control of them. Specifically, this is emphasized in team sports players, musicians and surgeons, for example. Learning by doing in education process, with becoming automated part in our lives, such as driving a bicycle and car, rollers taking etc., is as well relevant part of every-day life, however most of the people are probably not even aware of it anymore after certain amount of time.

Gardner is highlighting the fields, where this intelligence is developed in highest forms in its details, such as dancing, acting, sports and the invention. The dance is one of most developed forms of bodily expression, which can even justify social organization, used for secular or religious expression, represent statement in arts as aesthetic value, used as educational purpose, etc. Despite many factors, the artistic dance in its highest form is particularly directed into perfection of executions of dance movement precisely in its shape, time and space, with bringing out emotions. The acting is as well requiring performing prerequisites and sense of body, with additional emphasize on ability to become and embody the character of the play or the movie, bringing out the need to have as well highly developed personal intelligences. The athletes have different kind of bodily-kinesthetic intelligence, focused primarily on experience of analytic power, skillful observations of specific patterns, possessing muscle memory and having the capacity to develop sense of timing with sense of precise coordination. Gardner emphasized also the inventors as a mature forms of body expression, being aware of the connections of fine motor intelligence with combination of spatial capacities, resulting in creating a new product.

6. *The Personal Intelligences: Intrapersonal Intelligence and Interpersonal Intelligence*

According to Gardner, there are also personal intelligences, defining them as the interpersonal intelligence and the intrapersonal intelligence. One focuses on outwards feelings towards the individual, whereas another one focuses on own feelings from individual towards the society. Howard Gardner included them among the intelligences due to fact that knowing oneself and knowing others are as inalienable a part of human condition and therefore this awareness of “sense of self” deserves to be investigated equally to the other forms of intelligences above.

a. The Interpersonal Intelligence

Interpersonal intelligence is “concerned with the capacity to understand the intentions, motivations and desires of other people – it allows people to work effectively with others” (Gardner, 1989/1993, p.240). Educators, salespeople, religious and political leaders and counsellors all need a well-developed interpersonal intelligence.

The core capacity of this intelligence is “the ability to notice and make distinctions among other individuals and, in particular, among their moods temperaments, motivations, and intentions” (Gardner, 1989/1993, p.239). The most easy setting to encounter this intelligence is when a child is able to sense individuals around him/her and to detect their moods, whereas the advancing form of interpersonal intelligence allows an adult to read hidden desires and intentions and reflect upon this knowledge. This skilled adult can for example also influence group of individuals to behave with desired and particular lines of the document or setting, such as in political and religious leaders (for example Mahatma Gandhi), skilled teachers and parents, therapists, counsellors and even in shamans.

b. The Intrapersonal Intelligence

Intrapersonal intelligence entails the capacity to understand oneself, to appreciate one’s feelings, fears and motivations. In Howard Gardner’s view it involves having an effective working model of ourselves, and to be able to use such information to regulate our lives. The core process of this intelligence is the “access to one’s own feeling life” (p.239), bringing in person wide range of emotions and ability to sense the differences and nuances of those feelings with eventual labelling them, and ability to understand those subjective feelings and emotions still with objective lenses. At most complex forms of interpersonal intelligence is the synthesis of those symbolisation of complex and different sets of feelings.

This intelligence is highly developed in novelists (for example Proust), where the writer reflects in his/her works introspectively about feelings and emotions. The therapist is another example of highly developed interpersonal intellect, where he/she advise own deep knowledge of his/her own feelings and situations with emotions in life of inner experiences.

7. *Naturalistic Intelligence - one among additional 3 intelligences*

Gardner claims that the naturalistic intelligence is connected with senses of patterns in and then making various connections to natural elements. Experts in recognition and classification of either or both, the flora and the fauna, or about his/her environment. People, who have strong naturalistic

intelligence may find themselves in profession, which is connected to nature (geology, botany, biology, ecology, astronomy, zoology, palaeontology, agriculture etc.).

Core capacities of naturalistic intelligence are

to recognise instances as members of group (more formally, a species); to distinguish among members of species; to recognise the existence of other, neighbouring species; and to chart out the relations, formally or informally, among several species. (Gardner, 2000, p.46)

The development of naturalistic intellect has been perhaps one of the longest and oldest intellect to consider in revolution of world and species on them. Charles Darwin was one among first who said that he was “born a naturalist”, following the E.O.Wilson writing autobiography in 1994 titled *Naturalist*. The children, who are considered as “nature smarts” humans, are often very conscious of their surroundings and also about the changes in their environments, where different changes can happen any time or at subtle levels. This awareness is due to their highly-developed levels of sensory perception, where the senses may help them notice similarities, differences, and changes in their cultural or environmental settings more rapidly than other children do. Those “nature smarts” children may be able to categorize things quite easily, as they are very fond of collecting, classifying and reading about things from the nature. Using this same intelligence, children possessing enhanced levels of “nature smarts” may be very interested in human behaviors, or the behaviors, habits, or habitats of other species. They may have a strong affinity to the outside world or to specific animals, and these interests often begin at an early age. The development of expertise in naturalistic intelligence is also connected with linguistic and logical-mathematical intelligences

3.1.3 Existence of other intelligences

Alongside with naturalistic intelligence, Gardner later in 1990's began also to take in account two additional intelligences – the spiritual intelligence and the moral intelligence. In *Intelligence Reframed*, written in 2000, Gardner emphasizes existence of three more intelligences, which were needed to become separate intellect. He added the naturalistic intelligence, as mentioned before, and as well the spiritual intelligence and the moral intelligence. Further he emphasized the fact that the pure concept of intelligence should be wider, but not in an absurd way, which would include every human value and virtue. He describes provocative ideas about creativity, morality and leadership, with opening the question of connections between multiple intelligence and the world in the future. Music and understanding of it is already extremely personal and unique processes of thinking, performing and teaching contemporary music. It might be interesting for further development to take in account also spiritual and moral intelligence, however I decided to take in account those above, since they are very concrete based and by their framings somehow less subjective than spiritual and moral intelligences.

4. Methods

The process of the implication of the theory of multiple intelligences within contemporary music, I have chosen to conduct a qualitative research interviews with four experts and teachers of contemporary music. The upcoming sub-chapters are describing the methodology, data generation methods for this research, short description of participants and their beginnings in the spheres of performing contemporary music, how I analyzed gathered data, researcher position and ethics of gathering data.

4.1 Methodology

My research aim between connections of multiple intelligences used in field of contemporary music is open-ended, individual and responsive area of interpretation of complexity of situations within contemporary music understanding knowledges of gathering and using information for profound understanding, teaching and interpretation of contemporary art music. Therefore, my study will be orientated on qualitative research interviews with music professionals, who are strongly connected to contemporary music and are as well multi instrumentalists, composers and highly respected teachers.

According to Kvale (1996, p.30), qualitative research interview is an open-ended process of gathering qualitative experiences of individuals and capturing uniqueness of qualitative research interviews. He sets out the key characteristics of those interviews: life world, meaning, qualitative, descriptive, specificity, deliberate naivete, focused, ambiguity, change, sensitivity, interpersonal relations and positive experience. Interviewees in my research are focused specifically on area of contemporary music life world, as well have great deal of interpersonal relations and positive experiences in field of music. Information from all of them will be gained in qualitative knowledge with possibility of opening new insights and awareness of meaning of learning and performing aspects of contemporary art music in their every-day life situations. Since topic is relevant and based on interviewees personal experiences in vast field of contemporary music performance, my interviewees agreed to be mentioned and transparent to share their personal experiences, as well personality, with readers of this research.

4.2 Data generation methods

The type of interview, used as research tools in process of gathering data, is the semi-structured interview type with possibility of flexibility for interviewees to freedom of sharing their experiences. According to Kvale & Brinkmann the semi-structured interviews include also possibilities of open-ended questions, so it becomes “up to the subject to bring forth the dimensions he or she finds important in the theme of inquiry” (Kvale and Brinkmann, 2009, p.34). Their description of the semi-structured interview brings us a clear understanding of this interview in their book *InterViews* (2009), presenting last one as:

A semi-structured life world interview attempts to understand themes of the lived everyday world from the subjects' own perspectives. This kind of interview seeks to obtain descriptions of the interviewees' lived world with respect to interpretation of the meaning of the described phenomena. It comes close to an everyday conversation, but as a professional interview it has a purpose and involves a specific approach and technique; it is semi-structured – it is neither an open everyday conversation nor a closed questionnaire. It is conducted according to an interview guide that focuses on certain themes and that may include suggested questions. (Kvale and Brinkmann, 2009, p. 31-32)

The design of interview has been divided to two parts, in total of 17 questions. First part of the interview was aiming to find the usage of diverse processes the performing and teaching aspects of contemporary art music, without mentioning the word intelligence. In this part of interview, it was also relevant the personal connections of interviewees with the topic and the life encounters, which are connected with contemporary music (for example the personal path towards contemporary music sphere). The second part of the interview focused particularly on intelligence aim to navigate more concretely the interviewee's encounters in life to form possible connections between intelligences, described by Howard Gardner.

For the participants of this research, I have chosen four music experts of performing and teaching contemporary music, who are all also teachers or professors at The University of Arts Helsinki, The Sibelius Academy, with having various main instruments and as well profiles of their backgrounds and outputs from musical world. They have all decided to be disclosed and mentioned by their names in research about multiple intelligences in contemporary art music.

Interviewees, who agreed to take part in research are:

- Prof. Ph.D. Mieko Kanno
- DMA Juho Laitinen
- DMA Mika Väyrynen
- DMA Veli Kujala

Data was generated with having a recorded semi-structured qualitative interview, each one being approximately two hours long. The recordings of the interviews were recorded with my phone and as well Ipad, due to safety of gathering the data not to get lost, as well having good quality from two different sources. Selected participants were asked to participate in an interview, because of their broad aspect and dedication for contemporary music area, their multi-layered backgrounds in music, and as well playing diverse instruments; Mrs. Kanno and Mr. Laitinen are both string players, and Mr. Väyrynen and Mr. Kujala are both classical accordionists. In addition, I have chosen them, because I have been studying also at some points with them in Sibelius Academy in their classes, where I encountered their dedication and deep profoundness for specialization within contemporary music.

4.2.1 *Participants short profile and beginnings of their starting points towards contemporary music*

Participant's short profiles are presented in this paper with help of internet sources of their official web pages and as well from the interview, where one of questions was to tell briefly about their starting paths towards contemporary music practice.

Prof. Ph.D. Mieko Kanno is a Japanese violinist, Professor in Artistic Doctoral Studies at Sibelius Academy, director of Centre for Artistic Research at Uniarts Helsinki and Honorary Senior Research Fellow at Royal Conservatoire of Scotland. She is specialized in performance of contemporary music and dedication of her work for contemporary arts music both – as acclaimed performer and as respected scholar, who is fully dedicating to the development of a new practice in music. Specialized in microtonality and complex notation, she is highly respected for performing Violectra electric violin with electronics and working on new commissions with composers for it, as well as holding long project on John Cage's Freeman Etudes. Throughout her career, she has given outstanding amount of world and country premieres of new works by living composers, recorded several CDs, written dozens of articles in referred journals and chapters in several important books for developing contemporary art music performance approaches. Her path for passion towards performing contemporary music started in York University during her studies, when she was 23 years old, when many of composer's friends of her wished to collaborate with, reflecting in life-long path of never-ending explorations of field within contemporary art music.

DMA Juho Laitinen is a Finnish cellist, teacher at Sibelius Academy, multi-instrumentalist, composer, conductor and founder and director of Tulkinnanvaraista concert series of new and experimental music. The concept of his approach of music work as holistic process was researched for his doctorate degree titled *Manifesto of Sounding*, where technical, philosophical and aesthetic aspects of music blend together into a psychological-physical-spiritual whole. During his early studies, it was significant for him to become familiarized with scores by Christian Wolff and later also meeting same composer in person during summer seminar in Czech Republic, alongside with other experimental American living composers. According to Juho, those chance encounters directed his energy to do that music and he had already within self "a natural liking towards that kind of artistic practice, where what you do and the results, when you start to work, are not known and then you accept the mystery of that" (from interview with Juho).

DMA Mika Väyrynen is a Finnish accordionist, one of the leading international accordion figures, one of the most respected accordion artists in the world today and highly respected teacher at Sibelius Academy and at the Tampere University of Applied Sciences. He graduated from Sibelius Academy in 1992 and went to complete doctorate in 1997 – he was one of the first and the youngest classical accordionists, who completed doctorate degree, by specializing in *Technical principles of accordion playing*. Since then, he has actively collaborated with several world-respected contemporary composers, such as Jouni Kaipainen, Aulis Sallinen, Erkki-Sven Tüür, Pehr-Henrik Nordgren, Paavo Korpijaakko etc. He has given numerous world premieres of several new works, dedicated to him, and performed all over the world – Europe, Japan, Russia, USA and China, to name a few. Mika has

performed as soloist with almost every major Finnish orchestras, Copenhagen Philharmonic, Estonian State Philharmonic, and as well has performed many concertos with renowned conductors, such as Sakari Oramo, Ralf Gothoni, Olari Elts, etc. Mika is in addition to prominent accordion soloist, who has performed in every important accordion festival in the world, also sought as chamber musician, who has performed with highly respected instrumentalists. He has recorded more than 20 CD albums, including solo repertoire dedicated to him, concertos and chamber music on respected labels. According to Mika and his conversations with Jouni Kaipainen - to be a musician, who composer write for and is inspired by, requires great amount of unlimited skills, immense inspiration with deep and profound dedication to work, resulting in works for accordion, which leaves foot prints for next generations also by finding the traditional beauty in contemporary music (from interview with Mika).

DMA Veli Kujala is a Finnish accordionist, outstanding interpreter of contemporary art music for accordion and quartertone accordion in the world, active in jazz and improvised music, respected composer and highly respected teacher at Sibelius Academy. In 2010 he completed his doctoral degree with distinction, focusing on creating new repertoire with several composers. The compositional outputs of Kujala are covering the several genres, ranging from orchestral works to electro-acoustic ones, where the excellency of the composition has been recognized across the several musicians, orchestras and competitions. The 'Hyperorganism', composer's portrait CD album, released by Alba Records, has been nominated for the best Finnish classical album in the year 2016. As an accordionist he performed as soloist with Avanti! Chamber Orchestra, Helsinki Philharmonic Orchestra, Insomnia, Tapiola Sinfonietta and many other orchestras, where he collaborated with conductors, such as Hannu Lintu, Susanna Mälkki, Dmitri Slobodeniouk and many others, also premiering accordion concertos by Jukka Tiensuu, Olli Virtaperko and Sampo Haapamäki among others, where many of them were written for quarter-tone accordion. The last one was developed by Kujala and Haapamäki. Veli has been also active and recognized as excellent performer in the field of jazz and improvised music, leading him to be a member of several bands, such as Pipoka and Gourmet sextet. One among most important points in his early years was being a student of Vesa Valkama, who introduced him to the world of tight connections between jazz and contemporary music theories, what gave him an input for the passion for becoming a composer and working with composers.

Interviews with Mieko Kanno, Juho Laitinen and Veli Kujala were held in different coffee places in Helsinki, where I wanted to create a nice and comfortable environment for them during the process of the interviews, which one lasted around two hours. Due to the CoronaVirus (covid-19) outbreak in Europe in spring of 2020, the possibility to have Mika Väyrynen's interview in a coffee place the same way as the other participants, was unfortunately not possible, however our interview was held through software of an online platform called Skype. Since I promised in the consent forms for all participants some small gifts from Slovenia, I will hand in the gift for Mika Väyrynen later during the following study semester.

4.3 Data analysis methods

The interviews were audio recorded and then saved in locked files in my personal computer, and then the precise transcriptions of all interviews have been done, in total of 40 427 words on 57 pages, and send back to interviewees to check them, and as well opening possibility if anything else they would like to add or has come to their mind, they can always contact me. According to the document about *The ethical principles of research with human participants and ethical review in the human sciences in Finland* (2019), written by Finnish National Board on Research Integrity TENK, to let open possibility for further thoughts of human participants of the research is respectful towards them, for a meaningful and protective qualitative research study.

The researcher respects dignity and autonomy of human research participants. The rights laid down in the Finnish Constitution (1999/731, Sections 6-23) are held by everybody. These include the right to life, personal liberty and integrity, freedom of movement, freedom of religion and conscience, freedom of expression, protection of property and the right to privacy. (TENK, 2019, p. 50)

Due to ethic of interviewees disclosed in this research, I have promised to hand in them firstly the research before handing it further, so that they can check and agree, disagree or change anything written, prior to handing to the supervisor and the publishing service. According to TENK (2019), it is ethically for participants to read before handing and publishing the paper, giving them space to agree or disagree towards their thoughts, with right to suggest changes.

When evaluating whether to publish people's names, the copyright of people who have taken part in the research must be respected. In addition, with the consent of people who have provided information or been interviewed, a research publication may include their names and other background information when the research is based on, for example, personal interviews or oral history. (TENK, 2019, p. 57)

The collected transcription data was compared or supported mainly by theory of Howard Gardner, including also other academic papers and articles, resulting in further chapters of this research paper.

4.4 Researcher position

I am 24 years old Master student at Sibelius Academy, holding a bachelor's degree from same university, studying as main instrument classical accordion and writing this research as final paper for Teacher's Pedagogical program in total worth of 60 credits. Since concert accordion repertoire is mainly focusing on contemporary works, I have been playing actively contemporary music as soloist or in diverse chamber music groups or ensembles for already 10 years. In addition, working with composers has been important part of my life and career, and generally contemporary music is a subject, which I am passionate about within music.

Prior to this research study, the participants and I were already acquainted with each other. All four have been my teachers at some points at the University of Arts Helsinki, Sibelius Academy. With Mieko Kanno I have studied Analysis, Theory, Performance class in spring semester in year 2020, with Juho Laitinen I took a class Performance of Contemporary Music for two years in row. Both accordionists, Veli Kujala and Mika Väyrynen has been teaching me chamber music in several groups, such as duo with viola and accordion, duo with flute and accordion and duo with guitar and accordion. In addition, Veli Kujala was my teacher for Free Accompaniment 1 and 2, and Mika Väyrynen was also teaching me Prima vista class and Tuning of Accordion class. The position in relation to participants of study has been before study was held, at some point during my studies, a teacher-student relation, reflecting always in nice collaborative atmosphere. Therefore, having interviews with all of participants were bringing safe environment of knowing me from before for them and vice versa.

4.5 Ethics

The researcher is always responsible for the ethical and moral solutions in the research and submitting the research for ethical review never transfers this responsibility to the ethics committee. (TENK, 2019, p.59)

I will conducted this research ethically, focusing on guidelines published by Kvale & Birnkann and TENK, with having in mind possible ethical issues, such as power positionality, language barriers, disclosure of their opinions from interviews etc. Aware that a “researcher is always responsible for ensuring that their research is ethical, and the data controller for the research is responsible for decisions regarding data protection“ (TENK, 2019, p.59) I aimed to conduct this qualitative research responsible and bringing out intendent scientific value of this research. The treatment and the rights towards research participants were a fundamental starting point for ethical approach towards participants, as all the participants agreed to be disclosed in this research, emphasizing throughout many stages that they have several rights, described in the Appendences, such as following

to participate voluntarily but also to refuse to participate. It is particularly important to ensure that participation is voluntary if the research participant is in a customer, employee, service or student relationship or in another dependent relationship with the research organisation, or if a person other than the participant decides on their behalf on their participation in the research. The research participant must not feel that participation is compulsory or feel afraid of negative consequences if they refuse to participate in the research. The researcher documents the participant’s consent to participate in the research, either orally, in writing, electronically or by other means. (TENK, 2019, p.51)

to receive information on the content of the research, the processing of personal data and how the research will be conducted in practice, such as what participation in the research actually means, and what kind of lifespan has been envisaged for processing and preserving the research data. Whenever possible, information is given in a language that the participant understands, in writing or in electronic form. The research participant must be given sufficient time to consider their decision whether or not to participate, and any questions they have regarding the research must be answered. (TENK, 2019, p.52)

The interviewees are well-respected teachers, even both composers and teachers, who I aimed to treat respectfully with terms of their knowledge and previous experiences within the field of music. The power relations might have been as between teachers and student authority, however during interviews it has been due to familiarity with all of participants very safe environment with nice and friendly atmosphere. With this power relations in mind, I aimed with interview questions and careful listening of participants towards creating a collaborative space with knowledge and appreciation of participant's work in music field. Another power relation, which could be possible, were also difference between nationalities and as well age difference. I tried to conduct this research ethically by sharing same interest and knowledge about music and having healthy collaborative safe environment, regardless of any possible power relations. According to TENK the participants have been aware that

(...) they are participating in research, especially in situations in which the researcher is in a role other than that of a researcher in relation to the participant, for example the participant's superior or teacher. The researcher also informs the research participant of other affiliations relevant to the research. (TENK, 2019, p.52)

All gathered data from the interviews is safely stored in my personal computer, in a locked file. According to the consent form, which participants of this research signed (See Appendix X), the collected recorded material will be erased from my computer within a year after publication of this research paper.

As a rule, personal data must be removed from research data when it is no longer necessary in order to carry out the research (e.g. the addresses or personal identity numbers of research participants, when these are no longer needed to link the data). If personal data is to be stored solely in order to link the data, the identifiers and information needed to link the data must be stored so that they are protected and separate from the data to be analysed. Only people who have a legitimate basis for processing the research data should be permitted to access it. (TENK, 2019, p.56)

The exact transcript of interviews access is granted only to the researcher of this paper, and therefore not disclosed in the appendices. The exact transcript was sent to interviewees within three months since interviews were held, in order for them to revise it or perhaps add something, which can contribute to the research aim and questions. According to TENK (2019) and their guidelines about forming the usage of their thoughts from the interviews for the Results section, I have been cautious about the obligation to inform all of the four participants about anything they have mentioned and is used in this research paper, starting from letting them know I will use some thoughts towards sending prior to the supervisor, leaving them enough time to review and potentially agree, disagree or change anything used in this research.

When informing research participants about processing of personal data, it is essential that the participant is informed at the right time. When personal data is obtained directly from a research participant, the participant must be informed no later than the point at which the data is obtained. Different time limits apply to data obtained other than directly from the research participant. In some cases, complying with the principle of transparency of personal data may also require other information. This may include, for example, informing the participant of the risks associated with processing of the data. (TENK, 2019, p.68)

5. Results

The following chapter is entirely focused on the interesting ideas, thoughts and diverse ways among all participants of this research – Mieko Kanno, Veli Kujala, Mika Väyrynen and Juho Laitinen. All shared thoughts from each of them in this chapter represent a valuable collection of data on their experiences within practices of contemporary music learning and teaching. The design of this chapter follows the design of the interview questions, which can be seen in last part of this research, in the Appendices section. The narrativity of this chapter has been put together as a progressive system on diverse thoughts from the interviews, and diverse parts in the interviews, where the theoretical reading analysis towards interviews was taken into account. The chapter was checked by participants, giving them possibility to agree, disagree, change or put away from this document. The entire process of interviews, gathering the results and analyzing them has been for me an inspiring journey towards understanding their aspects about music and their knowledge on even deeper and more profound levels, which hopefully will be same case for readers of this research.

5.1. Studying aspect of contemporary music

All of the participants in the research agreed that there are perhaps *not that many differences between studying one kind of music and another, expect some main key differences*, which makes contemporary music harder to understand or longer process of studying time than other genres of music.

(...) perhaps one key difference could be that if the notation is very different from what you have already learnt as a child; you need to take it back to understand it, take somehow step back and figure out what there is to understand and what you need to know to play it, like graphic notation. (Laitinen)

To start reading the notes, many of the people need to activate sight as one of the senses for approaching the scores. *The visual intelligence can be seen and is directly connected to music as one among the intelligences, used as a first and most basic thing* towards rest of the connections. Mieko Kanno connected this idea in developing that she can as well, when facing the physical scores, ‘read’ the composer and frame some possible connections, before the actual practicing process.

Some of ideas come out of seeing PDF files of composer’s scores. In a way you can ‘smell’ it. Firstly, is this score written out using Sibelius or Finale, is it handwritten. Then you kind of start smelling this ‘style issues’ for this person, he is writing for. Then for example, you can see that Brian Ferneyhough has this particular sign, which he calls it rhomboid – and then for example you can see that this composer is somebody, who spent hours looking at Lachenmann’s score, or is this person his fan or enthusiast. Also, the page size – is it A4 or B4, you can somehow figure out from which part of the world this composer is. There are a lot of cultural references then too. So, to sum up,

there is a lot you can tell from seeing the score, and then this is also how I start with a piece. (Kanno)

This continuation of many used intellects among visual-spatial and logical-mathematical ways when seeing a score, and the strategies that are mostly orientated towards directness in performance, are for Veli Kujala also part of process, where *he is focusing on finding the essence and characters of music by examining the score*. He noticed that nowadays there is some different process of contrasting approaches towards studying pieces.

Firstly, I analyze which are the difficult parts. I have been developing the system of my fingerings now for 20 years, so that I hardly ever need to write and spend much time on them. I can see instantly which are the best and the less optimal positions of the hands. After that I try to explore the borders of the music. If the composer wrote any indications, I ask myself what it is meant by them, are they characters or perhaps even intonations of the whole piece, or are they just metronome markings, which are still meant for character indications. That is something what I give a lot of thought nowadays - how to cope with contemporary music, and how to find character – even if perhaps sometimes compositions are lacking strong characters. (Kujala)

He continued that in the progress of studying contemporary music, there is another aspect, which is for him very important, and sometimes tend to be forgotten from performers and educators to give more attention and dedication towards it – the dramaturgy.

Later on, I really try to find the dramaturgy of the piece or at least different dramatical possibilities. Contemporary music can be boring to some people, and sometimes the dramaturgy is the main thing, which should be given thought by the performer. (Kujala)

Loyalty to the score is for many musicians one of most important things, and especially in contemporary music, the exactness of reading scores is needed. For Kujala, this is very important at the beginning of the learning process, and later during learning process, the inner dialogue between interpreter and score is one among possible variable things, which he encountered also from being a composer, not only an interpreter.

Later on, I try to be more or less performer. Of course, I learn my part on accordion well, whether playing solo, being ensemble member, or soloist of concerto – I learn my 'role' and then bring it out, interpret it in my own way. The composer's optimal idea about the piece might not necessarily be my main goal – if the composer would himself be the interpreter, his idea could work for him, but it might not work for me. I am aware of this, when somebody plays my music and wants to hear my opinion of his interpretation. Usually I reply that they are interpreters and I can just say if one is doing in my opinion completely wrong things, or that I don't like some ideas. The score is the property of composer, but the interpretation is the property of interpreter. However, the performance should still somehow resemble the written score and we should not try to bring our own ego too much into the game. (Kujala)

To acquire technical aspects, it takes especially in new music a *lot of patience and dedication* towards own work. Another major difference, which makes contemporary music longer process to study and understand it, is according to Kanno and Väyrynen, the patience towards practicing it for longer periods of time and devotion.

The reading time in contemporary music is much longer. It is a long process of reading period and digesting period before beginning something. I can play something of this work, but it is perhaps still inside me and I wait. It comes after some time after the inner voice says to me that 'now' is the time. Subconscious level is also important, and I let somehow my intuition to guide me a bit. Preparation time is in contemporary music longer and different by finding cores and essences inside pieces. (Väyrynen)

The *approach of hand automatizations towards extremely hard places* within contemporary music has been for Kujala one of the effective ways for coping with hard compositions or specific phrases within accordion repertoire.

In some really difficult pieces, or just places in them, where one hand is much more difficult than the another one, I use the idea of automatization of the easier hand. Of course, I start by learning the difficult one alone, but very soon I just try to automatize the easier hand, so that I don't think any more about it anymore. It becomes so independent that I could even speak with other people at same time. When you can play the difficult hand alone and you don't have anymore to think of the easier one, you can also play them together. (Kujala)

The essence of understanding contemporary work is also a long-term process and cannot happen over few days, but it *requires longer time* of processing information and letting subconsciousness affect the deeper understanding and perception on the music. Those learning periods are according to Väyrynen the point, where music "starts to get more taste, more flavors, when the performer let it come, only with 'low' fire approach, having in minds you cannot make those processes quicker".

When I play now some of the works, I played ten years ago, and when I return to them now, I play completely different. Back then I would have said that I reached with those works peak in those pieces. But that is not the truth. I play them now perhaps deeper and freer – there is just more freedom in minds and in the hands. (Väyrynen)

Longer processing time is also important for Veli Kujala, in order to get more awareness of different characters within music, what *turns after longer time period into more deep performance and understanding the essence* of the contemporary music work. He had interesting example with work on a piece for accordion by Magnus Lindberg, *Jeux d'anches*, where he emphasized the necessity of time development of performer's understanding processes within the piece.

I had started to play this work three weeks before concert – but I had been developing the strategies how to learn pieces quickly, and that performance was very good. However, I didn't capture the 'essence' – I played what was written on the score but didn't really understand the piece and its structure. After that concert, I have had opportunities to learn this piece many times, and every time I took it from scratch,

what I really like to do. Of course, every time the learning process was much faster, but analyzing things each time a little bit from different perspectives reflected into fresher and better performance than before. Also, when I teach this piece nowadays, I am much more aware of the character changes, how the piece builds up, different energy peaks and releases – I think those aspects are really important. Otherwise it is quite simple piece. (Kujala)

All participants agreed that their own processes of studying new music are also strongly *connected to other things, which happen in their lives, emerging into the topics that inspire them for future research practices of particular theme, which connect them to the work from outer world also in philosophical ways.*

But then all the time, during the work, the research process also continue – you read books, you go to see visual art in galleries, perhaps read a poetry, talk with lot of people, try to understand dynamics of the society, communications, why do you want to play and why do we want to share... (Laitinen)

If it starts from nothing, you can then start talking about everything I want to understand. To be certain about sonority in themes, perhaps the composition is based on this older composition. You can do that in also other cases, such as playing with ensemble or electronics. You also need to know how to use electronic equipment. (Kanno)

The connection with the outer world is in the studying process the essential and utmost important connection to become a *“mindful musician”, who is growing all the time.* Some of them emphasized the connection between arts, which influenced them for own expression skills too.

I think that musician has to also (or should try at least) to be a poet, the painter, the writer, also philosopher and thinker... That takes lot of time and happens gradually, and it is wonderful process and the dialogue with own self. (Laitinen)

Väyrynen emphasized the *neurological findings* on the studies about the relation between the brains and the music. The musicians are in constant development of their fine motoric skills too, which eventually over time of several hour practice, bring them the freedom of technicality.

Biologically we all have an area end of our skull in the back of head, which grow up, when we do activities like playing. Musicians have this area much thicker than ordinary person – with this our motoric instinct is in constant development. When we are playing this part is activating, even we are not aware of it, and then one day fifth finger feels like second one. And it is not because of finger, but because brain realized this channel to the hand is getting free. This kind of development happens biologically all the time – we just don't realize them. This then effect our interpretation, where things become easier. (Väyrynen)

We can observe that studying process of contemporary music is for all of the participants *a personal and very self-reflective work*, where they use a lot of both personal intelligences, the interpersonal and the intrapersonal intelligences.

You develop a sort of “big muscle” that you work on, apart from technical abilities as musician, also the connection with the information you have gotten yesterday, last week and last year. There is mass understanding behind you personally and behind the whole community You feel connected with other people, mentors, teachers and colleagues, that you can freely discuss ideas about music. And then inside that mass of information, own personal work starts to happen. (Laitinen)

The whole process of becoming artist is hard work and gaining lots of skills. Nowadays world is shaping musicians as mindful people with those skills and being open for any topics to discuss within their field of art. Art is different than ability of playing instrument. Playing instrument can be use into artistic practice, what happens to be case with most musicians.

I think that if one wants to be good artist or good musician, then it is question of discipline. To be also prepared to keep asking those questions and also to accept that sometimes there is no answer, and you have to keep working on it, have to accept your whole self as a fundamental building block of your work. (Laitinen)

Music is craft orientated, but to be an artist, it is really beautiful thing. Art is in my mind pretty free and you have to be able to do pretty much what you want if you are artist. Following a lot of conventions, expectations about the people, it is probably not in my mind artistic practice. Art is separate from the ability to become skilled in playing an instrument. (Laitinen)

Mieko Kanno mentioned in our conversation that perhaps sometimes also nothing special happens when studying contemporary music, just as with any other music genre or things you do in life. However according to Kanno, when this element of “magic” happens, it brings pleasure to play.

5.2 Teaching aspect of contemporary music

Many of the participants said that teaching contemporary art music is an important part of their lives. Engaging students within it, when they haven't been thinking before about the expression and meanings of contemporary music, tends to be among all the participants, the core base and fundamentals of the pedagogy itself - how to *help student to find own voice*. *Engaging students with other world*, and giving them input about this, can contribute to student's own development of thinking about this aspect. Not to disturb but help them on this journey.

I try to think of it as invitation. At the end, I don't and can't have much responsibility of how grown-up people live in their lives, whether choosing to engage into music in a deep way or not. I can try to point at some metamusical phenomenas inside music and see and try to use that as a path to a more thorough understanding of what music is

about – trying to establish those connections too, between perhaps well-known contemporary repertoire pieces and other music in the world, where the inspiration might have come from the composer. (Laitinen)

Teaching is inspiring work, however first of all you must teach students how to read. To read precisely and play precisely. Then it is a moment when I sense that it is time to stop, and if I might continue, I am just disturbing. As educators, we need to learn to give up when we realized that now the student is growing up by itself. We tend to converse more or I point out questions, whether particular choice is logical according to the context of work. After all, the most important work of teaching is to make yourself unnecessary – it is the moment when you have succeeded with student. (Väyrynen)

The dialogue between student and teacher is important and fruitful source of exchanging various ideas and creating an encouraging learning atmosphere for sharing opinions and ideas for both, teacher and student. It is also the setting, where the linguistic, intrapersonal and musical skills are enhanced. Similar as Laitinen and Väyrynen, Veli Kujala also points students towards this direction by *giving them few suggestions*, what each student can later on his/her own think more, after looking inside dramaturgy of the works.

I say many times on the lessons that this is only a suggestion, you don't need to perform in exactly same way, you can even oppose. Many times, we analyze the overall dramaturgy and discuss about certain things; for example, if there is a general pause – why it is there? Perhaps there are four or five different ways of 'playing' it... What kind of atmosphere does it create: does it build up tension or does it have a peaceful atmosphere? Sometimes I try not to say too many things to students, so that I would not destroy their joy of discovering stuff. (Kujala)

The contemporary *music is generally shaping the limits of technicality and its difficulties* before the actual enjoyment of playing this music among many musicians. As well, also in the rest of music field, the skills are important to bring out the excellent performance. However still many of students usually face problems and frustrations of technicality and lacking skills. According to Väyrynen, to become a virtuoso, a “person who has unlimited access to music” gives you the freedom towards any kind of technical problems.

When I teach, I approach firstly to what I call the 'skeleton' – the skeleton in skills. It might not be wise to teach in the beginning too much emotion or expressional things. Firstly, it is precision. Logic and to analyze music so well that you understand what happens. We need two things: what and how. Skill is interpretation, freedom, and when this freedom is there, it is easy to play. And for that we need very strong psyche. With enough repetition, you are not afraid anymore of music. (Väyrynen)

Veli Kujala has been approaching towards teaching own students, in a similar way as Väyrynen, whereas Kujala focuses firstly on the most difficult parts within contemporary pieces and pays lot of attention in teaching aspect into logical choosing of *analytical approach towards the manual of accordion*. It has been known that there are a lot of possibilities; but which one is the most optimal

and the most logical and economical at same time – that can be sometimes quite a grey and problematic area for accordionists.

I am a very analytical person. I tend to go into hard parts quite straight and that I also do with my students. I want to teach them also how to use the manuals of the accordion in the most economical way, so that they have the maximum amount of opportunities at their disposal and that they can skip quickly over the nonsense. On our instrument, there are a lot of possibilities one can do with fingerings. You should instantly start to see the most optimal solutions and start picking from them on. Those technical things in this sense are important and then comes the context. And learning processes for memorizing, analyzing the structure, finding possible sequence of structures or motivic works. (Kujala)

Finding *holistic approach towards teaching contemporary music* showed, according to Laitinen, a way of helping students to think out of box and embody particular ways of playing. Necessity to accept as teacher that students have different backgrounds, can help teacher to establish a line between music and other activities, what students were doing in their lives (for example karate, wrestling etc.). Creating dialogue about knowledge and experiences from other fields by talking, and also perhaps doing some parts of particular activity, can be helpful and beneficial for connecting diverse fields and practices into the music. According to Laitinen, the importance of teacher is also to “encourage students to talk about those other fields and different aspects and how they can help in music”. If there is blockage between the body and the instrument, then it is also beneficial to do exercises without instrument.

I was teaching a cellist and she had difficulties in having enough “weight” in playing at one moment – she was sitting upright in a traditional pose whole time. Mentioning famous Russian cellist, who sits like Buddha, completely grounded, deeper and comfortable, I suggested this student to think about that and to try to go deeper down. *Embodiment* of music is essential and that is example how music can become even more embodied – you don’t think only about the weight, but you have to create weight with your body, creating somehow an illusion. (Laitinen)

Kujala sees these holistic ways of teaching the interpretation also by having means of communication for helping the *student to become independent ‘deep’ interpreter of contemporary music*, where a good interpretation of contemporary music comes from deepness with own-self, and by using body in diverse ways.

Reaching that awareness – that level, where good interpretation of contemporary music is well and deep inside – it can take a lot of time to teach. It is easy to teach somebody to play in some way, but that is not yet an interpretation. I try to teach my students also this kinesthetic way and how to use the body. They have to be aware of the physical tension, which should be separated from the tension within the music. If the student is too early too concentrated on the interpretation, the tension inside of the body will never go away. It can be hard to get it out of the system, so that should be achieved firstly and after that, we can start to speak about deep and good performance. (Kujala)

All the participants of this research are teaching a lot of contemporary music almost on daily basis. All of them agreed that communication and dialogue between students and teacher is important for student's progression to become independent. Väyrynen's previously mentioned goal of each teacher for "making yourself unnecessary" for student, is for many teachers the 'victory'. However, there are ways how to reach this final goal. All participants are fond of pointing students on this way with diverse means. Mieko Kanno shares her teaching of holistic approach towards students with pointing the right questions for them to digest and think by themselves – with the linguistic intelligence, intra- and interpersonal intelligences and musical intelligence together when teaching.

My role and idea are that I ask questions they need to think about. And by doing so, they can think – they don't need to articulate in words. Then they can play it, compose it, think about it. So, my role is to navigate them the substance and the topic to start to take particular shape that the person, either the composer or performer, needs to go through. My job is to help and navigate them in this process. (Kanno)

Both Mieko Kanno and Mika Väyrynen emphasized that it is important *when a musician is "ready" to enter* the world of studying contemporary music. Seeing and approaching contemporary music as progressive system is important for mastering the skills and develop certain analytical views towards music, before entering field of perhaps more complex or harder to understand spheres of contemporary music. The timing for delivering information to students is always very important, and Kanno emphasized that due to uniqueness of each student, it can be for teacher "quite hard to sense this timing of some particular information for students".

Later I realized that nobody should in my opinion jump into contemporary music directly without proper training in traditional forms and its virtuosity. We cannot pass the history of music; one need an understanding of this 'tree of life'. (Väyrynen)

This necessity of *correct timing*, when to introduce a student to the new music is for Kanno important also for *developing certain kinds of skills of intrapersonal and interpersonal intelligences*, in order to grow and be confident musician for acquiring new skills within contemporary music.

I am very careful when I am teaching about not introducing new music too early. Firstly, I work with my students by means of technique to acquire skills and self-confidence. I think it is important for musician to have self-respect for what they do, because the rest of the world doesn't give you that much self-respectiveness. And I really want to make sure that they still find things, in which they have self-respect for what they are doing. (Kanno)

5.3 'Things' that make contemporary music different

All of the participants agreed that *notation* is one of the elements, which can be different in the contemporary music. This can narrow to the performance and the levels of transcription between the score, the performer and the audience.

If the interpretation is subjective, then it is interesting performance. So usually I tend not to ask composers for their opinion, because they should provide everything written on sheet music. It is like as Busoni said that the score composer writes, it is already interpretation of the ideas that the composer has. And then the next level of transcription is, when the performer takes the score. And then there is a listener, who also makes an interpretation. So, there really doesn't exist one or two, or perfect or true version of the piece – and that's beautiful and wonderful thing. It is open and it goes through many persons. That quality we should keep. (Laitinen)

The *struggle of exactness in the notation* of the contemporary music caused, according to Mieko Kanno and Juho Laitinen, a lot of tendencies of problems of perceptions and understandings the material of the pieces, physicality and as well the perceptions of time.

Stravinsky said: I wrote it, you play it. The idea, and then later those new complexities composers lead to quite extremes. But you could understand this in an opposite way too. There is so much information in Ferneyhough score, and you really try to learn everything exactly what is on the page, but then perhaps at the end, you have to accept that there might be also physical limitations of what you can do and what you can't understand. So that it is almost like a ritualistic thing, engaged in hyper-complex score like that. Also, some Xenakis can be so difficult that you learn it, play it and hope for the best at the concert. You don't really have time to adjust your playing during its happening. And I think that can be also really nice feeling at the end. (Laitinen)

Being in constant development is very important when being part of contemporary music society and music scene. Mieko Kanno emphasized that being acknowledged with latest playing techniques of instrument is one among many relevant development streams.

What makes new music different from the old music is the range of technique – special technical requirements. Particularly for the woodwinds there is a lot of this – it forms in a way 'special language'. Whereas for string players it is less so – the basic technique isn't that different. But for example, for the accordion, which has been developed more in last 15 years, probably playing new music means playing a contemporary instrument and being on top of the development of the instrument. Same is with the marimba players; they have this mallet technique, how you told and use them, which has changed a lot in last 20 years. So contemporary music means that you have to be on top of the latest techniques. (Kanno)

For Kanno, constant development is as well the “conscious understanding of what world is and how to position yourself.” Continuing her thoughts, Väyrynen summed up that constant development is also part of the meaning within contemporary music.

Contemporary music means that you are in constant development and constantly studying something – all your life. With lot of determination. (Väyrynen)

5.4 Connective learning processes of other acquired knowledge while dealing with contemporary music

5.4.1 In direct relation with musical knowledge

All of the participants agreed that they use all the acquired musical knowledge in various settings, in contemporary music and as well in other genres or eras of music. It makes them ‘whole’ person. To some of them, it is not as much as connective learning, but rather a fusion of what happens to them on daily basis.

I don’t think about connective learning, but rather I think about inspiration and I try to be open to that. Perhaps I have met an interesting person recently, or I have seen an interesting painting or read about something in the newspaper. Then I try to invite all those things to interact in my mind, so that nothing is excluded. Usually mind works in your favor... just by letting it interact with all the other information in your mind.” (Laitinen)

Veli Kujala and Juho Laitinen are both multi-instrumentalists and composers, in addition to be an accordionist and cellist. Both of them have encountered as well, how their minds starts to *work more connectively when considering the possible compositional material.*

Originally the composing was for me the desire to express something, but then in recent years I started somehow not to believe anymore in self-expression. My concept of music and art is freer and more subjective, so that if I do compose in a way to put notes in particular order, it would seem a bit strange for me. Because why it wouldn’t need to be different order, different sounds, why would I want melody to go up instead of down, why there has to be a melody. This has to do much with the connection of my encountering of Buddhist philosophy that things are connected anyways. (Laitinen)

Kujala noticed that composition *also enhanced his analytical skills and enrich the relations* between hearing and ways of analyzing the music – either being performer of contemporary music or composer.

Composing has been important for me. When you compose, I would say that you pay more attention also for the music you play and for the structures within it. You will

also pay more attention to what you listen and hear, and then also kind of sub-consciously start to analyze on the spot diverse structures within it. This probably might have even more impact than I am aware of. (Kujala)

One of the most important aspects of musical skills for him, either being a performer or composer of contemporary art music, is the knowledge about *the history of the music*, especially the history of Western music.

One of the most essential skills for performing, when speaking about the Western contemporary music, is the necessity of knowing really well the history of Western music. Knowing really well every epoch and to know how it is connected before – if you don't, then perhaps you cannot play really well contemporary art music. It is always reaction, or in relation to what has happened before. Almost every time. Also, I am not aware of any composer, who has been able to make a cut between past, presence and future, and the relations between them. In my own compositions it might sometimes be more important for the performer to know some jazz or fusion rock, when speaking about timing and phrasing. But then on the other hand for example my violin concerto is in some ways quite close to even a romantic violin concerto. (Kujala)

Inspiration and voice of when composing become larger picture of particular events of components, depending on what you define as component of composition, is according to Laitinen also composition. Sub-consciously many artists, producers etc. might find themselves in composing events.

Composition is putting together components. When I present concerts, they are compositions as well, then when I run the ensemble, it is itself a composition. So, I compose in that kind of way and realm too, where the components of composition are rather space, time, people and situation. (Laitinen)

Conducting is one of the fields, where a musician can develop a sense of time. Veli Kujala can see conducting as a point of connective learning for a student to use in the helping the development of time and thoughts in contemporary music. However, for developing the time feeling, he said that it is more effective to play percussion instruments, since percussionists have several methods for developing the sense of time, whereas conducting brings better understanding the aspect of getting sense of time.

Conducting is useful for interpretation more than for developing time feeling. Not just to wave the hand, but also to consider the way of thought and the musical lines. For example, for rubato to become a musical rubato, you need to have the sense within it. Sense and means of motion. Conducting can also give players idea of general atmosphere, creates it and shows where the tension and relaxation points are. Also, you learn with conducting that you need to think ahead – you just have to know where the music will go. (Kujala)

Väyrynen emphasized that everything relates to the beginning of studying within music. Gaining knowledge via educational system is important for gaining quality knowledge and as well become aware of other music skills and knowledges within it.

5.4.2 *Not in direct connection with musical knowledge*

Many of teachers find themselves connecting on daily basis the knowledge, which relate to world outside music. Many of them are also doing sports, which affected their teaching and performing practices within music.

The importance of right repetition. I don't believe in this ten thousand repetition rule; for us sometimes five hundred is just enough. Then there is determination. You have to tolerate and be able to repeat something until it is there. This 'never to give up' attitude – it also comes from outside. If one wants to learn difficult things, one has to remember and accept that. Then physical actions of humans; whether one does sport or plays accordion, there are certain rules that can be used in accordion playing.
(Väyrynen)

Veli Kujala brings out important aspect of having *a bit different personality on the stage*, where he thinks that there are somehow two personalities essential for performers - one for the stage and another being just simply who you are. The aspects of learning theatre skills can be helpful to acquire this field of mastering the performance in smoother and less nervous ways, which connects the musical performance with intrapersonal and interpersonal skills.

Theatre skills are something, we should perhaps learn much more. Just starting from simple things – if you know how to act little bit, you are maybe not that nervous anymore. This is also one of the topics I discuss with my students, when considering performing and nervousness. Last one comes, because we forget that we are performers. Being on the stage is different, also how you behave on the stage, how do you come to the stage etc. It is good to somehow separate a part of your personality when being on the stage – I don't mean that you have to act like somebody who is not you at all or have forced expressions – you are still you, but only this stage personality is there, so you are not really the same, but a slightly elevated version of yourself.
(Kujala)

For Mieko Kanno, what is interesting non-musical skill and can also reflects in her music practice, is the *digital world*, which is shaping the future of living and also being a musician of the future.

The new generation of composers is mainly focusing about the artificial intelligence and other things, which are becoming more and more relevant in field of music. This in a way introduces me to new world, which on my own probably wouldn't do it – so through my own work with performing with electronics, I get to know something from this digital world. (Kanno)

She continued in our conversation that apart from digital knowing, what interests her is also the mathematics and the general political things and topics. The last ones are according to her more and more popular for the topic of composition material for nowadays composers.

General political things are quite relevant those days. Sort of global communication, where the border line between the real and unreal is becoming really blurred in artificial intelligence and then in augmented reality. Also, the environmental issue and fact that we still think many things in a very human centered way. But to work away from those standard ways of human centers and ways of thinking about the world, thinking also about those latest stages of feminism, theory and then thinking about the poetry through the animals and plants for example, who live in that forest etc. Those things can be in some ways picked up from new music or captured in music by topics through compositions. Also, how we are with instruments and then philosophical understandings. (Kanno)

5.5 Music is not just about pitches

Contemporary music is a vast area of diverse styles within it. Many of them are 'suggesting' us that music isn't just about pitches, what creates wide borders of understanding and perception on what music actually is. Is music really defined by tones? What is musical statement and how does it connect to awareness and interplay of other intellects? According to Gardner, defining musical intelligence is having sense of rhythm, recognizing pitches and musical lines. Is this really so within contemporary music too?

Not all of music have pitches ... a lot of art I deal with, questions certainty in which people speak about works, things like music and art. There are movements of Dadaism for example that pose this question – what is art, what is music? Or Cage's famous question: is it more musical when a truck passes a music school than a factory? Truck can be musical. That can be a very beautiful sound, and now there are composers who compose with this sound ... (*listening tram*) I don't hear it much, but I see it and I hear the music here (in café) and it seems to create a really nice urban dimension and space, and the intention between this world. (Laitinen)

5.6 Logical-mathematical thinking within contemporary music

All of the interviewees strongly underlined that contemporary music is tightly connected with the logical-mathematical intelligence. Juho Laitinen emphasized that *logical thinking happens most of the time in any setting within music*. However, he strongly agrees that creativity, which is one of the utmost importance for artist, and the logic, might not go hand-in-hand together.

Part of our work is analytical, but at the end it isn't if you want to engage in artistic practice – art is mainly about creativity and the logic is somehow something else... There is also a music which is based on logic, like Tom Johnson's pieces. Looking only those written numbers on page don't really bring artistic dimension. This one is established when you start doing them – when you do them as a person, as a musician, you engage all of these other categories of intellects. (Laitinen)

Veli Kujala supports the thought that *analytical skills have important role* for performers and especially for composers nowadays. For him, the highest points where analytical skills can be reflected, are in the musical dramaturgy and also in the performance, which suggests the direction towards interpersonal skills.

Analytical skills are important – in everything. There are not so many contemporary techniques of composing – almost everything is related to early music, techniques of imitation, augmentation and other things – so there are not that many differences. Ways of playing are definitely different. Also, this learning process I mentioned before about learning the musical dramaturgy, you can also transform into performance dramaturgy. And analyzing the energy levels of the piece or the moments. (Kujala)

The logical-mathematical intelligence is *one of the strongest and most used intellects, especially in performing and learning contemporary music*. According to Väyrynen, what makes mathematical-logical intelligence in contemporary music in higher amounts of usage is that the pieces are much more “logical and mathematical by itself, and they are based different too.” Veli Kujala supported with a thought that music is directly related to mathematical intelligence, where he realized that it didn’t come in our interview on his mind any good musician, who is not mathematical intelligent as well.

With it you learn also the rhythm, which in some way of organizes your system of your brain, so it stimulates your brain activity. Learning musical skills develops your logical-mathematical intelligence, and vice-versa. Maybe if you are logical-intelligent person, it is easier for you to learn musical skills, and then you have this chain reaction effect that the more you learn those, the more it affects your logical-mathematical skills, and vice-versa. (Kujala)

The mathematical aspect of memorizing music is, according to Juho Laitinen, also a method - some people might use it as memory path of connections between math and music, resulting in holistic approach towards music.

If you have to learn something by heart, you should try to make it as holistic as possible by learning how to use your body and analytical skills – like the method of trying to remember really long numbers, such as decimals of number pi. Those people, who know thousands of those decimals, they follow memory path with various other objects in their lives. You establish connection between something that is physical and something that is abstract. (Laitinen)

Studying mathematics, as part of interest, has been to Mieko Kanno enjoyable and important aspect in terms to connect it with music. Partly also to better understand computer language and coding principles, understanding of time perception and the dimensional articulations.

The whole area of mathematics and logic, it really interests me. If I know about mathematics and the principles used in understanding computer language and coding for instance, I can see how object works in programming environment. Also, how to

transform something to something else then – why this something works for music in programming and why not. It is also part of my project in music I am doing, where computer is understanding the limit in behaviors – you generate something forever, so as the time progresses, what happens next, although it has unpredictability built in it. This unpredictability can be weighted in such a way that the likelihood of developing the direction can be perceptible. Then also geometry and geometrical thinking, which is sort of art. Mathematics also articulates the time dimension quite well, what is for music important. Also, time perception, duration and the shapes of the durations. (Kanno)

Using mathematical formulas, inspiration from mathematics and the ideas within it, are for contemporary composers also a relevant *source of compositional concepts*. Veli Kujala has used the mathematics as part of composing techniques - we can encounter using this particular intelligence in his work for solo quarter tone accordion.

With composing I have used sometimes some strict mathematical formulas in my pieces. I have a piece for quarter tone accordion, where the first movement is thought completely in this way. It has two formulas, the infinity series for defining the groupings of two or three notes... And then it has also the Fibonacci series backwards (starting from 81 or something around there) for defining the shifting points between normal tuning and the quartertone-shifted tuning. (Kujala)

5.7 *The necessity of personal intelligences within contemporary music*

5.7.1 *Inside musicians*

As we are aware that *contemporary music requires much more tolerance*, we can draw a line that intrapersonal intelligence is important, when dealing with *determination* and tolerance of going through own obstacles within self. There are many ups and downs when practicing for every musician, when he/she is facing some hard works of contemporary music. Frustrations can be seen among many people when facing the battles within themselves and practicing those work. Having strong psyche for tolerance, and just simple acceptance of those is, according to Väyrynen, 'everything'.

Determination, capability and tolerating are everything. Also having this in minds on the days, when you feel that there isn't any progression; just wait and repeat until the day, when it comes again that something is again happening. (Väyrynen)

Interestingly, he pointed out that perhaps there is reason within changes in generations among societies. The society and the time, in which you were part when being a child, can play important role within the focusing the mindset and tolerating the thought that one must find within own self the determination to finish and master the hard piece of music.

In the 1970^{ts} was poor being here for many families and somehow we learnt not to give up. This was somehow related to everything. When you learn something, the

loosing was not even an option. Even a piece of music, you cannot be beaten by it. Mindset that I don't give it a chance until I learn it. It is not arrogance, but it is rather making sure that when you start, you need to end, and giving up is not a solution. When you study that work, there is nothing comfortable. You are comfortable only after, when certain time pass. (Väyrynen)

Not only determination, but *also having patience, confidence and honesty the skills of personal intelligences* important for Mieko Kanno. Musicians should have them especially when working with composers.

Definitely patience. And confidence. You do what you do - you might not be perfect, but you are good enough to do required job, which might not be a perfection. And honesty to tell that this is the best I can do. Also, when working with composers, being able to tell them that I see what you have written, but I can't play it and there are maybe other violinists, who can play it. Or simply saying that from my point of view, I cannot play it – and if I cannot play it, then majority of violinists also won't be able to play it and perhaps you might still meet somebody, who can play it. It is about general guidance and not emphasizing that I am very good, or saying I am very bad. But reality is that those trained violinists will have problem with it. (Kanno)

The intrapersonal intelligence, together with the imagination, is for performer and as well for composer, one of most important intellects to use.

It is like making a thought out of the music. Firstly, you have to think how lines, materials and phrases are shaped and colored. What kind of shape, what kind of size it is? What kind of material, what kind of 'fire' we are going to use? You need to think about it, and some things like this can take quite some time to grow. As well, the music by itself and relaxation with comfortability within it. (Kanno)

This intrapersonal intelligence is, according to Kanno, more enhanced than other intelligences, when *one is working alone and self-reflecting.*

This intelligence is more enhanced when you are working alone – planning things for example. Also finding own vision as musician. Things like what you have, what you don't have, what you can improve and then in which way you can learn a piece this time. So more reflective things. (Kanno)

For Laitinen, the connection of self-reflecting might also start *when speaking with other people, by using interpersonal skills and transmitting them towards intrapersonal intellect.*

I see this is my work all the time that I talk to an inspiring person, usually some other person, and then we talk, and I find something inspirational and I can see here is something that I could really learn from. To use that somehow to develop myself – and that's wonderful that you don't ever have to think that this is the complete me. (Laitinen)

For performer and composer Veli Kujala, the aspects in both, intrapersonal and interpersonal intelligences, were important into the formation of the person he is. As a performer and a composer, both of them have influenced him inside his work, where those things were gradually building within him inside, leading towards making own reflections and conclusions within music.

I am grasping a lot of thing from outside – in composing and playing. Everything builds up on the history of the music on – also on your personal history of music and what you have been playing and hearing. It is building up gradually everything. Also your way of seeing things then reflects on how you use them and what you have outside yourself too – it can be a bit hard for some composers, when they think they invented something new, but in fact that never happens; it is really seldom to come up with something completely new. I try to make my own conclusions and own interpretations too, but perhaps I wouldn't do those conclusions without the intrapersonal things and influences. It is somehow hard to see them both as two different things – it happens naturally that you just connect both of them. (Kujala)

5.7.2 *Growing from inside outside to others*

The norm for musicians in general is also to collaborate with other people, when we must be able to work on musical ideas together with the means of linguistic intelligence and both personal intelligences. With some instruments perhaps this aspect of working together with other musicians, artists or people, is more common and necessary than perhaps for some others. Mieko Kanno pointed in this direction that “this sense of community is an important thing in music”, where a musician must also have skills and intellects for the intrapersonal and interpersonal shades of intelligences, in order to create healthy working collaborative environment.

Being a violin player, working with people is always a norm for us. If you are string player, your skills should be also being able to work with other people. It is not a question whether one is right or wrong, it is whether you are able to play and work together with people and musicians. Some people are not able at all, also due to own personality. (Kanno)

When collaborating with other people, one must also be *careful with the ways how to communicate with rest of the people, when working or performing in group*. Often happens that one instrument might have leading role, which can navigate ensemble or chamber music. According to Kanno, carefulness of communication is also one of the things, what many of musicians should be aware when working together.

Sometimes, we are in charge of particular lines within music. Particularly being the first violin, we need to be careful not to create fight with being in charge of whole ensemble or have any kind of authority or authoritative ways. It can become some sort of intrapersonal skills then. (Kanno)

She continued that just being aware of what is happening in also other parts of the ensemble, is forming a professional approach towards performance of new music, forming a sense of “*commitment*” and responsibility to perform and as well *being part of this group*.

We should check things in order to function properly in this professional community – do your own part and practice it carefully, and then also to check complete score. The last one isn’t always a priority and you must function also if you don’t know what others are playing. Being part of group to perform is a big commitment, where you have to do certain things in order to function properly. (Kanno)

5.8 Linguistic aspects of intelligence for working with other people

Working and collaborating with composers is for all participants of this research one of their specializations. Many of them pointed out that for *working with composers on their new pieces, it requires a lot of linguistic aspects of intellect*, in order to have dialogue between them, to perform and express many times composer’s ideas of particular sounds. According to Kanno, communication is not only a basis of linguistic intelligence, but also one of the strongest aspects for musician to have as well.

Well, I ask composers several questions. For example, what kind of fire are you thinking about – are you talking of imagining here an Australian bush fire, which is a tiny little thing, or are you perhaps thinking about this celestial fire from somewhere. Since this fire must be something metaphoric – I can’t cause actual fire to play the violin. What kind of imagination it is that is doing this metaphor, or are you looking just those technical elements of how to find fire, are you talking about specific political or environmental side of fire...? So, by asking questions them, it would help consolidate ideas – and that is also something I do with my students. (Kanno)

Many times, performers find themselves discussing the works with *composers*, where the necessity of healthy communication to discuss performance is essential. *Sometimes particular things cannot work for one performer*, where Kanno thinks that ability to express confidence in front of other people plays important role with the honesty and words.

One should have this ability to express their confidence in front of others, including composers. They can be perhaps sometimes bit aggressive in some ways in what they want inside their imagination and the actual ability for musicians to play. Sometimes one has to negotiate – what you can manage, what affect character of the piece, or sometimes is just particular tempo and nothing else or bigger issue. (Kanno)

From the composer’s and performer’s points of view, Veli Kujala has interesting opinion about linguistic aspects for *composer to speak about own music and ideas*, where we might not find anything new, or it can perhaps even limit in advance performer’s own thoughts and the audience’s thoughts. For Kujala, more interesting than composer speaking about own piece is, what the interpreter has to say and what the audience gets from the performance.

Speaking about compositional techniques are maybe interesting, but I think they are the least interesting parts. One learns them and then uses them in any way he/she wants, but if I am interested in how other composers used them, I can see that in their works. Speaking about the piece in general is another thing. I am somehow very close to Jukka Tiensuu's mentality – it is not so interesting what composer thought when composing a piece, but it is much more interesting what the listener gets, or what the interpreter gets from this music. (Kujala)

He also pointed out that this intelligence is *connected directly with teaching*, and also connected with interpersonal and intrapersonal intelligences. To be coherent and clear with words and descriptions is for him also an important skill within this intelligence for musician.

Linguistic-verbal intelligence is used a lot in teaching. It is actually interesting one, since the ability to say what the piece is about in one or two sentences, actually helps. It connects with intrapersonal and interpersonal one. If you can verbalize briefly what the contemporary piece is about, it is wonderful, and you probably know a lot about this piece. (Kujala)

5.9 Bodily-kinesthetic aspects with practice of music

I really try also to embody the music and maybe walk in the rhythm, do a lot of movements with my hands – like the Steiner theory, however I know that in this pedagogy there is pure mix when you move along your body with the music, so it is like form of a dance, but without the choreography. When you make musical phrase, you also do something with it and that probably helps. That you engage as many senses as possible. As many intellects. (Laitinen)

Embodiment of feeling the music with own body and to feel certain sensations, when performing particular phrase in music to get sense of overall feeling inside moments, is also one of important aspect to consider. Väyrynen describes this connection between the sensation of music and the transmission ways of it as one of the 'embodiments' with the body, slightly pointing towards the connection between bodily-kinesthetics intelligence and the personal intelligences.

Music is inside body. To play certain kind of touch in the pieces require steps and certain kind of sensation. To find feeling inside passages, for example those fast passages is Vento (*solo accordion work by Jouni Kaipainen*) – figuring out this sensation of your body, when it comes out with certain kind of touch. How you are in deep with yourself in something, it can be quite physical too, and you cannot see it outside, but everything is deep down inside you. Music is combination of sensations. (Väyrynen)

The bodily-kinesthetic intelligence is, also according Kujala, one of the non-musical skills, which is a lot connected to the relaxation and finding the ways how to use own body to get feeling of

relaxation. The different kinds of physiological and physical energies can be seen through the findings about bodily-kinesthetic intellect of Väyrynen's energies inside pieces.

I think this bodily-kinesthetic intelligence is one of non-musical skills, which is perhaps the most essential for musician. Also bringing up that what I always say: the less tension there is in your body, the better it is. And you need to learn how to use your body in most economical way, so that it doesn't somehow disturb your thinking. When your thinking is clear, you can focus entirely on musical things like the tension of the music. Those things are really important in music. (Kujala)

I use bodily-kinesthetics intellect very much. Also, different kinds of physiological and physical energies. You need to have also certain kind of energy inside to be able to play, and then you need to have methods to give away and manipulate this energy; even to find it, if you don't have it. Sometimes softness and perhaps sometimes elasticity. (Väyrynen)

Artists like to speak about the *performing space - the stage where the magic* of performance happens, and for Kanno, this is one of the aspects within bodily-kinesthetic intelligence, which has important interplay of implications between intrapersonal and interpersonal intelligences as well.

I like to be on the stage – so having space around me to do things and then you know what kind of emotions and things you do with introducing and sharing through playing music to people, who perhaps might not think about artist's experiences without me playing for them. Listening to contemporary music is not what everybody might encounter every day in this world, so I hope I am bringing something to them, what they might not encounter in their lives - without hearing this moment when I play for them. (Kanno)

Mieko Kanno has a lot of experiences in her musical path with performing the electric violin and electronics. She has mentioned in our conversation that once you start using the electronics this *"idea of live presence becomes questioned"*. She has had an interesting experience with a piece performed in the past, which started to raise her this question of being bodily present on the stage.

I played a piece for electric violin and electronics one day in the past. With this piece I thought that it is better if I was recorded before, and then for the performance the video of recording was projected on the screen rather than me coming to the stage. My function was just a sound file; however, it was quite expensive sound file – somebody had to pay me to be there. (Kanno)

This experience raised inside her an important question for the *performance and actual presence on the concert* – is perhaps presence being bodily there or does the multimedia world change the positionality and existence of a person within the space. According to the Cambridge Dictionary of what is 'presence', it is described as "the fact that someone or something is in place". Is this field of music perhaps questioning the meaning of presence?

Electric violin raises this question: what is the purpose of me being there on the stage, compared to if I were not. I still haven't solved this issue by myself. In some ways it is

not only this bodily-kinesthetic aspect, but it ties together with sort of questioning actual presence – do I need to be there? With electronics I came to this experience and feelings that perhaps I don't need to be there anymore nowadays. (Kanno)

She came to conclusion that we should be perhaps more aware of the purpose of live performance, where bodily-kinesthetic, visual-spatial and music intelligence relates to this question nowadays. Kanno has as well *collaborated with dancers* on creating the performance together, where bodily-kinesthetic intellect met the music and its spatial dispositions and perception of the pulse - one of the most essential elements within this collaboration.

I have played music also together with dancers. For them the pulse of expression means a lot – not only to have a pulse, but also to embody it. Sometimes they cannot hear me well or pay attention, because they are thinking in pulses the music quite often. So, the sound within them and me makes spatial disposition for music differently. Not in the way musician might hear it, but they have some sort of own perception, where this pulse means a lot. They are sensing things differently. In the end, you have with dancers still this sense of sharing performing art, where the time is important. (Kanno)

5.10 Visual-spatial world meets musical intelligence

The visual-spatial domain is one among the intelligences, which is close to many people. Visual world is usually captured by sight as a mean of processing information between objects and brains, whereas in case of the visual impaired people, the domain of touch and other senses are the way of capturing objects or information of the world. Many people might not consider visual intelligence as intelligence, since it is one among abilities, we all just simply might have. The written score is a visual object for musician, and it is one of the first ways to process this symbol information there, as well the interfaces between what we hear and see as musicians.

Obviously, when reading the piece, you are seeing it when playing it. It might have some impact by having visible or photographic memory, which can help you learning the piece, but I am not sure whether this particular thing can be considered as intelligence, or only an ability that you have. You can of course develop it in many ways, but it is something what is there or isn't. (Kujala)

In any art music, it has some pulse and it is written as score, which is visual objects. We are in some ways much more 'in tune' and aware of this translation interface between what we see and what we hear. (Kanno)

Both Juho Laitinen and Veli Kujala find connections between the diverse arts – sharing the thoughts to students and find it as an inspirational *connection of visual art world and musical world*. Connecting with techniques of the visual artists, this can contribute to intrapersonal intelligence for musician, and find other furthering thoughts within music.

If there would be a piece of music, which connects to some other forms of art (for example visual), I would absolutely present and emphasize these connections to students. Whatever comes to my mind. (Laitinen)

There are for example painters, whose technique of painting I like very much. It is interesting to notice many times that the music has a direct relation to the paintings. For example, I think Monet is really interesting – you can see the painting from distance, and when you come closer to painting you don't necessary recognize things anymore and see it totally in a different light. When going further away, you begin to see clearly, but less blurred. A little bit like zooming in and out to an orchestral score. I find generally lot of inspiration in paintings. (Kujala)

As Mieko Kanno collaborated with dancers, Laitinen and Kujala share experience on *creating the art together with visual artists (painters)*, leading to awareness of strong visual-spatial intellect with bodily-kinesthetics and having reactions between artists in terms of communication or result of collective work.

I have practiced for about a month in painter's studio, where he made series of drawings and paintings, which had to do with kinesthetic qualities of music playing – situations capturing what playing looks like. Hearing the sound, especially the charcoal on paper while playing is a beautiful sound. Knowing that was made by somebody who is skilled - those exquisite draws start to sound different, because this person knows what he is doing. (Laitinen)

I have worked in other way, so that the artist was painting, and I was playing. It was not meant to be so that I would see what she was doing, but she was just drawing, and I continued playing without real interaction. I have done several times this kind of collaboration. It would be interesting also to try to react to what the painter does. (Kujala)

The *visual-spatial intellect is used also in connection with logical-mathematical intelligence* - it is a path of information process with eyesight and as well in *connection to photographic memory* in some individuals, what Väyrynen has noticed on his music path of performance and teaching.

Everyone has own different ways, it depends on the individual. Somebody is more visual type, and I can really use that in some ways. When I played Goldberg Variations for example, I played it from heart, but in reality, I played mostly by score. The score was not visible, but it was here, inside my head. Some students of mine had incredible ears and even a mathematical memory. Somebody has played so that they studied written fingerings, and then remembered completely. Everybody needs some kind of intellectual skill to match with the piece. (Väyrynen)

Mieko Kanno mentioned an interesting idea that when *seeing a score and connecting it to music, we can also 'see' the composer through the written score*. Internal connection between visual-spatial intelligence, imagination and partly both personal intelligences are required to sense those understanding.

Do you also have some feeling that when you learn to play music, we usually take for granted some things. Music is all written down and it is there, notes and rhythm need to follow. Also, part of this is that composer is somehow always present. You see him portrayed in his music score. (Kanno)

Kanno continues with the thought into a sphere of *seeing visually things as whole when performing*, and certain feelings she has, when studying or performing new music. Digitalization led people to see partly only one part of score, a page on iPad for example, and not have any more on music stands the complete overview of the entire piece.

I like to have overview of a whole piece, so I can see the whole piece. Also, I find myself thinking how to see it, even if I don't eventually read from paper score. I like to have it for example on the floor or on the wall, so that I can have this overview – in a way special picture of it. Sometimes when reading for example e-books, you can't really see whether you are reaching half of the book or going towards the end. I grew up reading paper books, so this physical feeling of knowing you are about halfway through something, means something to me. And the joy of last few pages. (Kanno)

She has mentioned the idea that there are *also other types within visual-spatial perceptions*, what she has encountered many times in her career as active performer. Many of musicians, and also audiences, can relate to the idea that some concert had as well so-called particular *atmosphere*, which was created by musicians in some ways.

There are also other types of visual-spatial perceptions, more getting towards kinesthetic ones – you can also see a color and hear the sounds at same time for example. Then there is also sensing the atmosphere, or setting up the atmosphere, which is also important aspect of the performance. You can't explain exactly what it does to you or to anybody else, but it is not purely musical skill – it is combination of many things. (Kanno)

Another different perception within the contemporary art music is also *the difference, when one sees the score and when one listens to it without seeing the score*. She has emphasized this relation of difference of perceptions.

Also, if you don't show the score, the perception is already different. It has been known that for example with music of Brian Ferneyhough, that if you don't show the score, no one has any problems. You can just hear it. And the structure is quite clear and transparent, you can really enjoy it. The problem only starts when you show the scores. The process of information is different. (Kanno)

Analyzing the score is for Veli Kujala also an important aspect to consider, when being part of ensemble; especially for knowing also what other members of the ensemble are doing and what are relations among the dynamics in the work, which brings musical, logical-mathematical and visual-spatial intelligence together with awareness and intrapersonal and interpersonal ways of thinking.

If you study chamber music, you need to analyze the score to see what if your position in the ensemble. It doesn't help a lot if you get an information from your part that you should play piano or mezzo forte – it is rather important to know your dynamics in relation to the other members of ensemble. To know what the piano or the mezzo forte dynamic of this particular ensemble is. (Kujala)

5.11 Is naturalistic intelligence connected to music?

When considering ways, how the naturalistic intelligence can meet the music world, it has been quite hard to find some common grounds, being one of the intelligences, which don't have direct or just obvious connections for many musicians. Väyrynen established the thought that it is commonly known and inside us, but we might think about it – however, for him the “less complex something is, more natural it is.”

According to Juho Laitinen, speaking about naturalistic intelligence, and to consider it as intelligence at all, is difficult, since “our culture it is suppressed that we, especially in music education, don't talk about those things that much.”

When hearing naturalistic intelligence, I can think of two things which are very natural and can perhaps connect with music in general: sex and dying. Whole artistic practice could be one way of interpreting both of them – especially if you compose in a larger sense, if you make concerts. You deal something with life, which could be interpreted as trying not to think about dying. Making something with your presence, with your word to counter act the inevitable death. (Laitinen)

Many of educators speak to students about natural position or what is natural something for playing instrument. When discussing with Mika Väyrynen about naturalistic intelligence in connection to music, he pointed out interesting and many times forgotten view that he always come to conclusion that it is also important to be “*like a child*” in some ways.

We have to reach the natural way of being. Natural simplicities are also a key to many other things. Physical things we can use - but only when we become child again, then the body is completely soft again and completely natural. (Väyrynen)

5.12 All intelligences work together when performing music

All of the participants in this research came to the conclusion that many intelligences work together when performing music – however some of them and their connections are more perhaps ‘relevant’ or seen in contemporary music. Accepting the intelligences and letting the information flow between them, is very personal and unique for each musician.

My understanding is that those intelligences exist, but if you really want to make meaningful music and art, then perhaps would be worth to try to engage them as a package – a package as a whole thing and not separate endings. (Laitinen)

There are so many skills that I can't look what is outside and what is inside music. When we are young, we don't realize importance of intellects. We believe in talent, but we don't understand that intellect is component of that. Without intellects, it is like driving car without gasoline. How to wake up intellects and music? Knowledge is another thing, which is artificially outside music, but it is true that the more you know, the more you can. Everything we study and we do can be related to music. Walking, sitting, using your body, different kinds of breath when you make music, be aware that you cannot even make music without breathing. Then tolerating the stress. So, when everything is there. And for musician, when you are aware of this, then you can say you are musician. (Väyrynen)

Most of instrumentalists firstly analyze physical actions, when facing some obstacles. In the main work of a mature person and musician is to eliminate or try to eliminate barriers between those, by accepting those eight categories of intelligences – more towards not to think about those categories of intelligences but let the information flow between them freely. It is a very psychological thing and we all know human psyche is complex and complicated. (Laitinen)

The development of senses, which forms intelligences, are according to Väyrynen one of the important aspects in development of perception of deeper understanding the music. Most of them can happen naturally just by playing. He particularly emphasized the sense of sound and time, which suggest us the possible connections between logical-mathematical intelligence and bodily-kinesthetic aspect of intellect. Sense of dynamics is for him also important, what we are as musicians continuously learning.

Sense of sound and time develops all the time, especially the sense of time. For example, the person cannot be nervous, but how to use time can be nervous – it can be just one micromillimeter too fast, and overall, we get the feeling of nervousness. This micro understanding becomes better after years of playing. (Väyrynen)

Music requires according to Kanno and Väyrynen a lot of internal understandings, which can be many times found in the intelligences described by Howard Gardner. The aspects of connections are framing particular internal understandings and the means with the relation to the other world

For some of the musical work or how we organize things in it, we need logical skills. And then to speak about those things, we need verbal and socializing aspects of it. (Kanno)

There is intellectual relation of internal understandings. When there is connection, physical, intellectual and educational connections, but there are no rules among them. This relation is very individual. (Väyrynen)

All the knowledge and diverse interplays of intellects are, according to Väyrynen, an element of 'something', which forms a musician as whole and complete person. He compares this element of 'something' as a magnet, which attracts all the inputs from whole life.

It is like magnet – you have it there and little by little pulls together all those things, so everything comes to you. In the beginning is just this one little magnet, and later on it grows and attracts many things, and in the end build together a musician. (Väyrynen)

All participants concluded that one uses the logical-mathematical intelligence, the visual-spatial intelligence, the bodily-kinesthetics intelligence, the naturalistic intelligence, the linguistic intelligence and intrapersonal and interpersonal intelligences in connection to musical intelligence. However, some also said that *one can use all intellects to anything you are doing*. Those intellects form a whole human being, who has all wide spectra of diverse knowledge, which can form connections in perceiving and understanding.

Those aspects of intelligences can be manipulating among themselves in something or being vice-versa too. To be the whole thing, both in music learning and playing, it is very big range of many things that there exist. In my opinion, you should use everything possible, the whole spectra of intelligences. And to have also the big picture of living – why I am here, why they are doing that etc. To really use what is called time. (Väyrynen)

Väyrynen *pointed few particular intelligences, he would use or be more aware* when focusing on contemporary music, than any other kinds of music. The logical-mathematical, bodily-kinesthetic and the visual ones are among the musical intelligence very important for him when dealing with contemporary music.

Mathematical and visual ones are perhaps in more dominating positions among intelligences, as per say playing something else than contemporary music. Or at least when learning. Some works by Paavo Heininen you need to approach really mathematical. Even the numeral architecture might exist in many pieces. Contemporary music can be so hard that when you approach it physically, it might be more intensive that you might have to use different kind of logic or approach with your body too. (Väyrynen)

He continued with fact that *contemporary music requires certain skills. Not only, skills, but also inspiration*, what composer Jouni Kaipainen told him. Both, skills and inspiration, means for performers and composers a lot, being certain kind of "golden cup". The processes and learning of contemporary music can be "more effective and fact – by using and being aware of those intelligences." (Väyrynen) For Väyrynen, there is also possible existence of other aspects inside contemporary music.

There is also some moralistic and futuristic aspect also in learning contemporary music. Every human leave footprint on this planet in some way. For example, when we commission new pieces, we leave something for others, future generations. And even in our careers as musician. (Väyrynen)

Kujala has emphasized that *whatever we have experienced* in our lives, forms us in several ways – not only personally, but also on musical level and other levels of living.

There are many things, which forms artist. I think that everything we experience; we can use for anything. If you have some really bad experiences, you know how to deal with them in the performances. Speaking about great artists and their struggles in lives, which for sure affected their art. Maybe their art wouldn't be good as it is without those struggles. (Kujala)

Mieko Kanno summed up that part of us is also awareness of the whole time, where all experiences in our lives, whether inside or outside the music, are having some sort on impact on musicians. Those experiences are all connected, even on sub-conscious levels of musicians.

Part of the job is to make connections to things that you experience. Those not so obvious connections, but somehow makes sense to your connections. And that makes your work so much rich and thoughtful than before. They contribute to vision and the context as well. (Kanno)

She continued that especially within new music, there are endless possibilities of discoveries, what gives her enjoyment towards performing and teaching the music, with giving inspiration for being an artist in constant exciting development.

What I enjoy in performing and teaching is that through my work I discover things I don't know. They come to me, those things I have never thought about. Perhaps I have seen them somewhere, but not in the way I have thought about them – so those different ways. This discovery of new ways of looking at things, thinking, perceiving and then doing – this makes my work really interesting and I think I am lucky that I can do that. All those new things influence me a lot. Being able to connect them, accept them and then develop them in other things. (Kanno)

5. Discussion

The previous chapter and the thoughts from the participants have already highlighted some of the connections between the usage of various intelligences, when dealing with music. According to participants, some of them are used in music in general, and some of them are used especially more in contemporary art music. We can see that all of the participants showed variety of examples, in what situations they have used those intelligence, and how the internal connections among many intelligences are there – perhaps much more than we can all think about immediately. Many times, I have been quite surprised what participants have connected, and haven't even thought about possible connections before having interviews with them. The following chapter will present the findings of this research in relation to the literature review and the theory – the dialogue between them. It will be organized by themes according to study structure of this research, covering all the intelligences how Gardner recognized them and how participants connected them together

6.1 Linguistic intelligence is essential together with personal intelligences

All of the participants noted that this is one of the most basic intelligences and most people have it. The knowing that this intelligence is essential in settings of interpersonal intelligence, the linguistic one is a main key for communication, discussion and expression. Participants have also found themselves using this particular intelligence when teaching, where this intelligence was tightly connected with both of personal intelligences. They have also noted that with finding the 'correct' words in teaching settings is important skill to have – not to limit too much student in advance or give 'good' inputs of sentences about music for student to leave space for own self-reflecting intrapersonal thoughts. Many of them have also noticed that linguistic intelligence is used when performing with other people, being member of chamber music or ensemble, they need to have dialogue with other people – either verbally or on deeper level, the bodily-kinesthetically with showing signs or moving alongside with music or characters within it when playing together. These social settings of linguistic intelligence are, according to participants, essential and needed to have, when performing together and working with people. Gardner (1989/1993) noted that among skills for communication there is not just oral aspect, but also a communication from nonlinguistic sources, such as gestures, tone of voice and the surrounding situations, what brings musician's work when performing into creating an 'atmosphere' either with group working together, or in the settings of performance, where the bodily-kinesthetic intelligence contributes to create sort of communication on another level. He describes the linguistic intelligence as a manifest in various forms of personal intelligences. Gardner claims that language is conveyed through gesture and with the writing settings, the main core product of this intelligence is a vocal and a message human ear can recognize. As noticed before, we can come to conclusion that in settings of ensemble or chamber music collaboration it serves as tool to express own thoughts. One of the participants mentioned in our interview that for a singer, this linguistic intelligence is most important connection with musical intelligence. Holding (2010) noticed that this connection between language and music for singers, and specifically the regions of the brain where each is processed, is essential for performer to bring out intrapersonal emotions and to become the character of the music, connected with the need to use diverse intellects for performance. Singers usually find themselves inside different characters, where they must fully use as well interpersonal skills. The participants of this study are not singers, however many of them have performed at some points with singers, where they have noticed this aspect. Gardner (1989/1993) noted the need of linguistic intelligence for communicative and expressive purposes, however in case of musicians, the linguistic form of intellects reaches the level where the language within music reach another level for expression. Participants have found linguistic intelligence many times, when collaborating with composers. They have noticed using lots of personal skills at same time, where they needed sometimes to ask certain questions to understand what composer wished to be performed – what kind of sound, meaning of some movement or phrase etc.

Being a musician and having self-reflection is important when considering field of contemporary art music. Gardner (1989/1993) sees the interpersonal intelligence in direct connection for musicians, where we become able to experience our environment through a rich structure of objects and events. Both personal knowledges are considered to be also the "knowledge" of self and others, where the intrapersonal intelligence is also in control with other intelligences on sub-conscious levels. The personal experiences also form an artist, which is important to be open towards them from all of the participants. Some of them have agreed that they have been very important in their lives, together with the linguistic intelligence. Surprisingly, Gardner mentioned that in the Western culture the sense of individual self has become aspect of existence and in a way "glorification of the

self" (Gardner, 1989/1993, p.275). We can see this aspect in arts a lot but can be sensed among contemporary art music especially among composers. Finding own voice, own language and compositional style has been in contemporary classical music important aspect of evoking new techniques of playing and shaking the foundations from the music before. This interplay inside contemporary music and existence of one's own person, existence of other persons the culture's presentations and interpretations have been higher or even more noticed inside the field. Music forms sort of own language, where those interplays are existing, and the communication within them is most important – covering all the aspects of being a musician with "mindful" voices (Helding, 2010).

6.2 Bodily-kinesthetic and visual-spatial intelligences happen all the time when playing

Many of participants have found themselves using a lot of bodily-kinesthetic intelligence, what makes it one of the most used intelligence, especially in contemporary music. There are few settings, where bodily-kinesthetic intelligence happens – firstly, it can be used as deep feeling or sensations of music, bringing out characters even more strongly in contemporary music, and secondly, as a communication and atmosphere creating point, what was discussed already above.

Some of them have also used in in tight connection with other artists, such as dancers, where the bodily-kinesthetic part of the performance has been in tight connections with music. The expressivity, from the dancer and from musician, are transmitted from thought from the inner self to the body. Those collaborations have also brought in front the importance of time and space, what is relevant for dancers and musicians. Not only for them, but as well for composers, however in their case is more how to position thoughts inside the time and settings. Some of the participants mentioned the embodiment of music, which bring us important aspect of the fact that musician's body is in a way sounding as a whole complex set of diverse intelligences. According to Fashun (2012) this important aspect of embodiment of music and the movements has been also different throughout the history of practice – how we are holding some particular instrument changed over the history of music. He also discussed important aspect in ensemble setting of body awareness and proximity to instruments how does affect the execution of sound quality. This has been noted too for few participants in this research as an energy, connected tightly with both personal intelligences among performers. According to Helding and Gardner, body by itself is a manifestation of thought, what also leads the participants of this study to the idea of embodiment of music, creating energies and atmospheres. Gardner emphasized that fine motoric body skills are for musician extremely important aspect for musician, what our participants brings further that those can also create the particular sensations of energies within contemporary music lines or parts of the scores. The exercise of body has been for many of them important aspect of knowledge, which helped them to understand the tensions and relaxation points within music, by bringing out of body towards the sound field these energies. In my opinion, Gardner didn't paid lot of attention towards these possibilities inside music, which are extremely essential parts of performance. Therefore, I think that those aspects, which participants brought them in focus of the bodily-kinesthetic intelligence are valuable source of information, which will hopefully open and bring further thoughts to each reader of this research.

Visual-spatial domain is for some of the participants in tight connection to bodily-kinesthetic intelligence and musical intelligence. In relation towards bodily-kinesthetic, some of the participants have had experienced this with visual artists on collaborating the art together. The movements of

painter's strokes, the sensitivity of their touch and movements, have led many of the participants to get some certain and unique experiences in creating this are together. Their own intrapersonal skills have helped them also to reflect and contribute this to their own practices or new aspects towards performing and teaching music. According to Gardner, those gifts and ability to connect visual-spatial intelligence with other intelligences, are especially seen in artists, throughout their talents. Visual-spatial intelligence brings out together with bodily-kinesthetic the realm of spatial understandings and perceptions, where the performers of contemporary music can use it together with orientation inside music. Gardner brings in focus that visual-spatial intelligence invokes the capacities for recognition of objects and scenes – either in two dimensional or three-dimensional spaces. Some of the participants noticed they can connect many things, when seeing a score. Not only 'seeing' the composers through own lenses as performer, but also 'smelling' what composer wished to express – they can see with their visual-spatial intellect the information written on score, which can further with help of logical-mathematical intellect merge into finding solutions or other possible connections of acquired knowledge in later phases. Some of participants also noted, as Gardner brings in focus, that visual-spatial intelligence is important for ability of photographic memory. They have found themselves as well in positions, where they have seen scores as images of pages, when playing, and using it for performing. Gardner noticed that as a fine ability of the painters to recreate scenes or information from the outer world. What has been interesting was also that musicians can form inside their performances many 'images' of the sounds, what some of the participants noted, when they were having conversations with composers, bringing in front personal intelligences as well. To capture inside contemporary music those images, the performer must have an imagination of this image of the composer – in some cases the composer's suggestion of images is not that relevant, since the transmission of images of imagination of music brings to performer and the audience own, unique images, what also some of the participants emphasized. Music can evoke also with visual intellect the shapes and colors – either by hearing them or seeing them, what also Gardner partly noticed in his book, however the participants gave it even more importance of those possibilities of visual intellect towards contemporary music. Both Gardner and participants of this research has come to the conclusion that as getting older, one's work has started to gain even more meaning, which are connected with actual human experience and world inside artists themselves.

6.3 Logical-mathematical intelligence is the most important intelligence for contemporary art music

The various settings of logical-mathematical intelligence are seen on daily basis throughout almost anything we use in our lives. Last was noted in many other works by Fashun, Holding, Heywood and Sheoran, Chikara & Sangwan, however in different ways transmitted towards music – those skills have been according to them contribute to form the knowledge about music analysis and the abilities to use logical intellect in process of making connections for learning skills. The participants noticed that this is the strongest intelligence when dealing with contemporary music. This kind of music can be as a compositional material based on mathematical world, whereas the ability to understand the contemporary music is usually many times connected with analytical skills of logical sense of this intelligence. Some of participants have immediately seen the connection towards forming different formations of patterns and better understanding of overall analytical structures within music. For a participant, who is also a composer, this aspect was used in his composition, which gave him the overall structure of the piece based on Fibonacci series and many other

mathematical equations – the source of composition towards having overall structure, brings the aspect of composing with mathematics.

Gardner tightly connects the logical-mathematical intelligence, however, see that the mathematical aspect may not contribute to expressive means within music. He brings forward that the mathematician's *raison d'être* can be helpful tool, what our participants noticed with their own learning processes of contemporary music. The patterns, regularities, and time are according to participants of this research some of the important situations of features inside the contemporary music pieces, which evoke in them to find several possibilities connected with other kinds of intelligences towards a deep, thoughtful and embodied performance.

Another interesting aspect, which made to many participants the contemporary music in tight connection with logical-mathematical intelligence is also the aspects within time and metrum. The rhythms, which happen to be in many times complication of putting together polyrhythmic material, has been a strong stream of specific notation within contemporary music. Many of participants told experiences and ways how they cope with those – as practicing by themselves or in instrumental settings. The perception of time in the contemporary music might become bit different and not that obvious anymore, as opposed to other genres of the music, what also many of the participants emphasized. Surprisingly, there are also memory aspects, which can be connected to logical-mathematical intelligence, which was described by one participant in the result section of this research. Also, Gardner has described same example of special ability to remember certain numbers for memorizing the music. This particular aspect of mathematical skills can be contributing towards understanding the digital world and the computer language, as noted from one of the participants – forming futuristic aspect for contemporary musician and technology.

6.4 Naturalistic intelligence and contemporary music?

The controversial thought of connection between naturalistic intelligence and musical intelligence has been not only among the participants difficult to see, or not even existing, but also according to many other scholars and researchers of multiple intelligence, this connection doesn't exist. Gardner agrees that there isn't this establishment of obvious connection among them, whereas the personal intelligences can be connected with natural intelligence, and visual-spatial domain of intellect. However, two participants made some conclusions about possible connections of this intellect with musical ones, which surprised me a lot – thinking from existence point of human being and his life towards the fact that things can be simple, if we are children again. This shows the thigh connection towards the intrapersonal skills, which can be perhaps then connected to music, towards the relation: musical intelligence -> intrapersonal intelligence -> naturalistic intelligence. This sensitivity of relation is very personal for each person, and many times not even aware that might be there. Anyways, this could evoke more towards the development of other possible intelligence too, such as moral intelligence, religious intelligence etc.

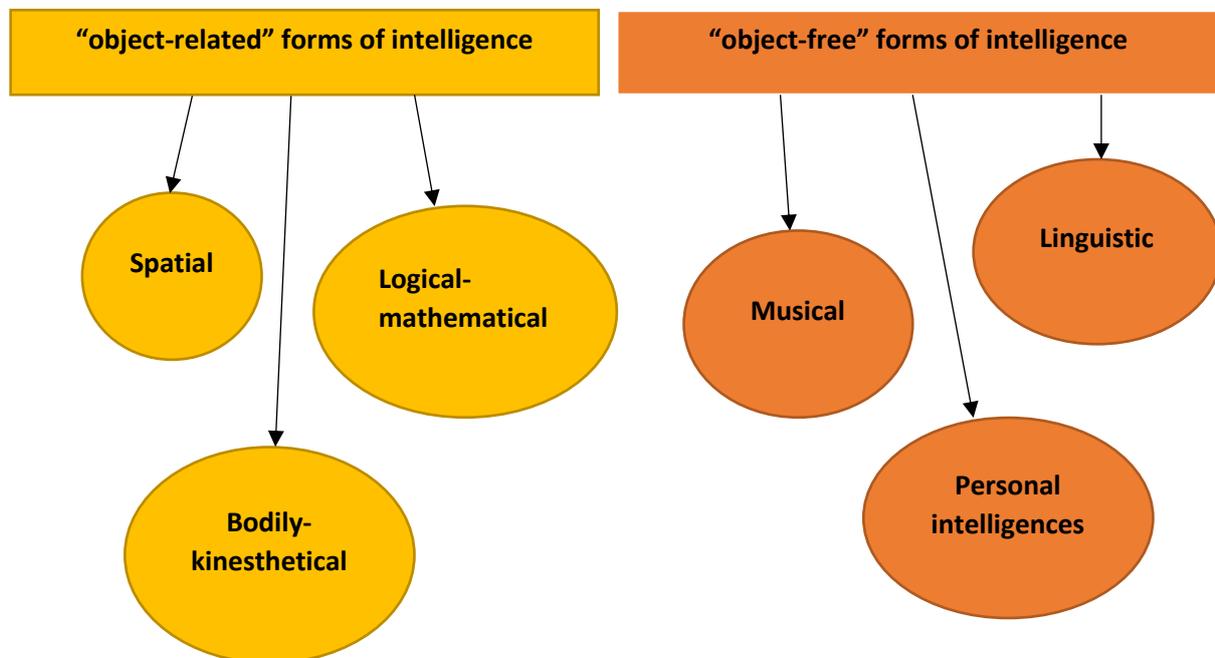
6.5 Music is not just musical intelligence – it is everything

Gardner begins with setting the frames towards the musical intelligence as a musical talent, what musicians might disagree – there is of course important this talent and sense about music, however

what makes musician is a lot of dedication, determinacy and tolerance towards practicing. Many of the participants emphasized, that especially in the spheres of contemporary music, this persistence and ability to tolerate complex and hard playing techniques and scores. This gives us a thought, that musicians, who play a lot of contemporary music, might have even stronger intrapersonal skills, since the inner motivation and strong ability to tolerate those things come from there. The findings from Gardner and findings from results of the participants thoughts, we can see that mathematical and analytical aspects of logical-mathematical intellects are in some cases the fundamentals of contemporary music.

We have noted how the visual-spatial domain and bodily-kinesthetic intelligence has been important for our participants to experience – not only to perform with other artists of those fields, but as well come and form own conclusions towards music, sense of time, understanding and perception of the pieces and music.

Gardner has put those intelligences in two main bigger groups, forming them towards relation towards object, as showed on following mind-map:



His idea of grouping those intelligences in two bigger groups in my opinion don't work for neither musician nor another artist. The process of creating art is according to all of participants the fusion of many things – what artists experience inside, outside, the connections with means of expression. For musician, who is orientated towards contemporary music is in my opinion this relation even more fluid and merge together several intelligences on deeper levels. The education of contemporary music is getting more and more attention towards several holistic approaches, what all of the participants of this research come to the conclusion. Their own experiences with coping throughout their lives with contemporary music in several settings, gave them inspiration for educating younger generations and leaving footprints for other generations throughout their developments of instruments and collaborations with composers.

Musician becomes an artist, when there are completed all technical aspects, but we all know, that we are learning entire life. Mindful musician has always in minds that learning is never-ending process, engaging several intelligences and diverse interplays amongst them.

6. Conclusion

During the process of the data generation periods, we came across with some of the interviewees that we are on a conscious level not paying the attention to those intelligences when dealing with not only playing contemporary music, but all the music. The contribution of findings those possible relations have been together with participants of this research an interesting and inspiring journey, whose experiences and thoughts about this subject of research, have brought me personally lot of rich knowledge and future ideas to consider as future educator and performer of contemporary music. Future research will be hopefully done, perhaps going into really precise sphere of evaluating the intelligences in particular contemporary art music work. I hope that also readers of this research might gain new thoughts and enrich their knowledge within music.

I have decided that rather as forming precise and heavy conclusions, I am rather inviting the reader of this research to 'digest' on own towards thinking and forming own personal conclusions about this subject of research.

I would like to conclude this research with beautiful, short statement of Mieko Kanno, leaving thought to process on reader's own:

"A lot of things, if not all, are connected in the end." (Kanno)

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Appendices

Appendix 1: Interview questions

Questions for interviews

(feel free to establish any thoughts/experience/ideas with any question asked below)

PART 1 – About you

1. Please tell your experiences and personal path with contemporary music. Feel free to openly speak about anything – studies, performing experiences, why you dedicate most of time to contemporary music, how did it come so that contemporary music plays important role in your life etc.
2. How do you study and perform contemporary music? What is your process?
3. What kind of learning processes do you use when learning? When teaching? /How do you learn... How do you teach... Have you encountered while dealing with teaching and as well performing contemporary music that you use connective learning processes? If so – please establish more what kind etc.
4. What exactly happens when you study contemporary music pieces?
5. What kinds of musical skills and knowledge (competencies) are important when you deal with contemporary music?
6. What kinds of non-musical skills would you use when studying and performing contemporary music?
7. How important has XXXXX been in your learning? Teaching?
8. Some people think that XXX and XXX are related? Do you have any opinions/experience with this...? Did you also encounter this...?

PART 2 – More deeply about intelligences

9. Have you ever found some specific intelligences to be important?

10. There are 8 types of intelligences: visual-spatial, linguistic-verbal, logical-mathematical, bodily-kinesthetic, musical, interpersonal, intrapersonal and naturalistic intelligence ... Which ones are in your point of view used when dealing with contemporary music?
11. Why those? How do you better perceive and understand music with each of them?
12. Do you connect musical intelligence with other intelligences when dealing with learning/teaching/performing of contemporary music?
13. How do you think they are significant for wiser and more thoughtful performance of contemporary music?
14. Does in your opinion connections between all of gained knowledge contributes to performing and teaching aspect in music?
15. How do you understand and perform contemporary music work?
16. How do you teach your students contemporary music work?
17. Feel free to speak about anything that comes to your mind (open discussion).



Illustration of eight types of intelligences, according to Howard Gardner

Appendix 2: Consent form

- This is example of consent form, what participants of this research has undersigned. For the purpose of protection of personal information, such as mobile phone and emails, those have been excluded from this appendix.
- Since there were four participants, in the section of introduction in the consent to participate in a research chapter, the second bullet point was adapted to each of the participant. In this example, I will add all of the descriptions.

Consent to Participate in a Research Study

Title of Study: *Connections between multiple intelligences used in the teaching and performance of contemporary music*

Investigators:

Name: Manca Dornik Dept: Classical department, Pimu (accordion) Phone: _____

Introduction

- You are being asked to be in a research study of investigating connections between multiple intelligences used in the teaching and performance of contemporary music.
- You were selected as a possible participant because of your background in education of music, your experiences with contemporary music, understanding of music, teaching accordion and improvisation classes at Sibelius Academy and as well being both, respected concert accordionist and composer. (OR) You were selected as a possible participant because of your background in education of music, your experiences with contemporary music, understanding of music, teaching classes and being supervisor and professor at Sibelius Academy, and as well being violinist with specialization in performing contemporary music. (OR) You were selected as a possible participant because of your background in education of music, your experiences with contemporary music, understanding of music, teaching classes and being teacher of several classes at Sibelius Academy, and as well being accordionist with specialization in performing contemporary music. (OR) You were selected as a possible participant because of your background in education of music, your experiences with contemporary music, understanding of music, teaching class Performance of contemporary music at Sibelius Academy and as well being multi-instrumentalist, composer and conductor.
- We ask that you read this form and ask any questions that you may have before agreeing to be in the study.

Purpose of Study

- The purpose of the study is to get to understand better that usage of multiple intelligences is needed when dealing with contemporary music in learning process and a well in performance

process. Also, if connective learning of diverse music subjects reflects and contributes to the perception and broadening aspect of contemporary music. Another significant purpose of the study is to share your experiences with other people on how to develop and enhance usage of multiple intelligences in order to better understand and as well perform contemporary music. I will ask you also about your music background and ideas on performing and teaching contemporary music, as well ask you about which intelligences do you use in process of teaching, understanding and performing contemporary music.

- My overarching research aim is to prove that for dealing specifically with contemporary music as musician or teacher, one needs to use all of the intelligences and not only music one, hopefully reflecting to the book to future teachers and as well musicians on perception of contemporary music teaching and performance.
- Ultimately, this research may be written as masters level thesis, published as part of book available at Sibelius Academy Library (at least one copy) and online, as well handed to my supervisor and teacher of course Danielle Treacy (a doctoral candidate and research associate at the Sibelius Academy, University of the Arts Helsinki, Finland) and to Helka Kymäläinen (Doctor of Music and University Lecturer at the Sibelius Academy, University of the Arts Helsinki, Finland).

Description of the Study Procedures

- If you agree to be in this study, you will be asked to do the following things:
 1. meet for one interview for approximately two hours long, where you will be interviewed about your own learning and understanding process on contemporary music performance, your encounters with contemporary music performance and teaching during your music career.
 2. check research paper before publishing – due to ethics

Risks/Discomforts of Being in this Study

The study has the following risks. First, there are not that many students, but people will know your thoughts on this matter.

Benefits of Being in the Study

The benefits of participation are your experience of teacher might be seen able in future process of teaching and understanding of contemporary music, as well raising awareness of how to understand better, teach and perform successfully and meaningfully contemporary music.

Confidentiality

Your identity will be disclosed in the material that is published. However, you will be given the opportunity to review and approve any material that is published about you at any time. Research records will be kept in a locked file on my personal computer, and all electronic information will be coded and secured using a password protected file. I will make audio recording of interview, which will be kept on my personal computer in locked file for me to access them, when writing thesis, and to be deleted at least within a year time, from when the interview will be hold.

Payments

You will receive the following payment/reimbursement: since I am student and this is my Master thesis, I unfortunately cannot any payment for participating in it. However, I will buy you some coffee or small lunch, depending on agreed interviewing place, which would suit you the best. And having small gift for you from Slovenia.

Right to Refuse or Withdraw

The decision to participate in this study is entirely up to you. You may refuse to take part in the study *at any time* without affecting your relationship with the investigators of this study or Sibelius Academy, University of the Arts Helsinki, Finland. Your decision will not result in any loss or benefits to which you are otherwise entitled. You have the right not to answer any single question, as well as to withdraw completely from the interview at any point during the process; additionally, you have the right to request that the interviewer not use any of your interview material.

Right to Ask Questions and Report Concerns

You have the right to ask questions about this research study and to have those questions answered by me before, during or after the research. If you have any further questions about the study, at any time feel free to contact me, by email at X or by telephone at X. If you like, a summary of the results of the study will be sent to you.

If you have any other concerns about your rights as a research participant that have not been answered by the investigators, you may contact Danielle Treacy, Seminar and Written Work instructor, Sibelius Academy, University of the Arts Helsinki at danielle.treacy@uniarts.fi.

If you have any problems or concerns that occur as a result of your participation, you can report them to Danielle Treacy at the e-mail address above.

Consent

Your signature below indicates that you have decided to volunteer as a research participant for this study, and that you have read and understood the information provided above. You will be given a signed and dated copy of this form to keep, along with any other printed materials deemed necessary by the study investigators.

Subject's Name (print): _____

Subject's Signature: _____

Date: _____

Investigator's Signature: _____

Date: _____