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Improvisation in music education: empirical evidence, classroom practice, and teacher preparation

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1. General introduction

1.1. Introduction

Musical creativity is central to music, while improvisation is one of its most immediate and dynamic forms. The essence of music is not simply about making sounds or performing precomposed pieces but about creating and articulating new ideas through sound. This generative aspect distinguishes music from many other fields of learning and places creativity at the core of contemporary music education. Creativity, as one of the key 21st-century skills (Trilling & Fadel, 2009), is increasingly emphasized. Creativity has been described as “the driving force that moves civilization forward” (Jauk et al., 2013, p. 213). Improvisation and composition are important forms of musical creative activities. In contrast to composition and performing pre-composed pieces, improvisation requires musicians to generate novel musical ideas on the spot and to interact with others in real time.

Creation is a key part of music education because it gives musicians opportunities for individual self-expression and the development of their own musical ideas. In this context, improvisation is widely recognized as an effective teaching method that supports multiple dimensions of students’ personal and musical development. Empirical studies show that engagement in improvisation has positive effects on the development of fundamental musical skills, including aural skills, rhythmic awareness, and musical expression (Chandler, 2018; Varvarigou, 2017a). When students spontaneously create and manipulate sound, they cultivate the skills to listen, respond musically, and express their musical ideas in real time. Improvisation not only enhances musical abilities but is also associated with overall cognitive and creative development. Studies indicate that improvisation has beneficial outcomes in problem-solving, higher-order thinking, creativity, and self-efficacy (de Bruin, 2018b; Navarro Ramón & Chacón-López, 2021; Wing et al., 2014; Yao & Qin, 2024). By engaging in open-ended musical contexts, students are encouraged to explore possibilities, take risks, and make independent musical decisions. Improvisation fosters socio-emotional development by enhancing self-confidence, collaboration, emotional expression, and empathy through interactive and exploratory musical creation experiences (Black, 2017; Cuervo & Campayo, 2024). Additionally, improvisational activities

are strongly associated with enjoyment and flow experiences, highlighting their potential to enhance pleasant learning experiences (Pellegrino et al., 2019; Verneert et al., 2024). Given the numerous benefits, improvisation has also been increasingly advocated by researchers and music educators and has been included in curriculum standards globally.

Despite the widely recognized value of improvisation, a gap persists between its acknowledged importance and its actual implementation in teaching practice. In other words, although improvisation has been considered a core element of music, it remains underutilized in classroom practice in many regions. Survey data indicate that 66% of elementary school music specialists gave “no” (16%) or “minor” (50%) emphasis on improvisation (U.S. Department of Education, 2002), suggesting that improvisation is often overlooked in elementary music teaching. Even in countries like Finland and Germany, which explicitly incorporate creativity into their national curricula, implementation remains “scarce” or “rare” (Treß et al., 2022). This practical dilemma stems from several teacher-related challenges. For example, Piazza and Talbot (2021) found that while pre-service music teachers considered improvisation “important” or “very important” (87.7%), they reported low confidence and felt unprepared to incorporate improvisation into their classes. The previous study suggests that only about 10 percent of music teachers felt that their higher education training was sufficient to support their inclusion of improvisation activities in class (Brophy, 2002). Other factors, such as limited instructional time, large class sizes, a lack of teaching resources, and classroom discipline, also hinder the inclusion of improvisation (Bogojević & Pance, 2022; Koutsoupidou, 2005). The long-term disconnection between theory and practice carries significant consequences. Students may have limited opportunities to express their own musical ideas and develop creativity. This situation highlights an urgent need to bridge the gap between theoretical and policy calls and practical implementation. Otherwise, it would be hard to achieve the core creative and transformative goals in music education.

There is a growing body of research investigating the engagement with improvisation activities in music education, examining pedagogical benefits, instructional strategies, and students’ learning outcomes (e.g., Chandler, 2018; Edmund & Keller, 2020; Hickey, 2015; Kratus, 1995). However, as Larsson and Georgii-Hemming (2019) pointed out, this field is still an “undeveloped” category, lacking an empirical synthesis that maps the

types of improvisation activities and related learning outcomes. Although many studies focus on theoretical benefits or student experiences, research attention to actual teaching behavior in the real classroom environments is very limited (Koutsoupidou, 2005). It would be crucial to understand how teachers understand improvisation and the barriers they encounter when engaging in improvisation activities with students. In addition, the challenge of teacher readiness has not been fully explored. Many teachers reported avoiding improvisation activities because they feel less confident, are less familiar with the concept, and have had limited experience with it during their professional education (Bernhard, 2013; Piazza & Talbot, 2021). Although Piazza and Talbot's (2021) survey results show that pre-service teachers highly recognize the value of improvisation, it remains unclear how teachers' attitudes, efficacy beliefs, and motivations shape their intention to implement improvisation.

Through a comprehensive, multi-study investigation, this PhD dissertation aims to address these identified research gaps and systematically examine improvisation activities across empirical evidence, classroom practice, teachers' perceptions, and teacher preparation. At the theoretical framework level, this dissertation is rooted in the Theory of Self-efficacy (Bandura, 1997), the Theory of Planned Behavior (Ajzen, 1991), and the Integrative Model of Behavior Prediction (Kreijns et al., 2013). By integrating multiple theoretical perspectives and applying a variety of research methods, this dissertation provides a holistic understanding of the gap between theory and practice in improvisation activities in music education. Together with empirically grounded suggestions for improvement and insights to inform the reform of music teacher education.

1.2. Understanding improvisation in music education

1.2.1. Defining improvisation

Improvisation is broadly defined as the spontaneous creation of music in real time (Pressing, 1988). Immediacy and creativity are two central features of this definition. Immediacy highlights that the generation, selection, and realization of musical ideas occur almost simultaneously with the production of sound. Creativity emphasizes the need for performers to generate and organize the music material on the spot and to translate emerging ideas into auditory reality. In contrast to composition, which typically allows

planning, revision, and refinement over time, improvisation requires performers to make decisions under time pressure. Improvisers must balance novelty with coherence, choosing solutions that work in the moment rather than searching for the “best” option (Pressing, 1988). Although improvisation has different forms across cultures and genres, such as jazz soloing, Indian classical music, Baroque ornamentation, or the real-time realization of figured bass, the real-time creative decision-making under constraints is still its common essence.

In the context of music education, improvisation serves multiple functions. It is not merely a learning activity but also a teaching tool for developing musical understanding, creativity, and performance skills, as well as an important means of personal musical expression (Ho, 2022). Improvisation activities can be broadly categorized into the following types: (a) Free improvisation: a completely open exploration without preset rules or frameworks, emphasizing musical communication, flexibility, and freedom among improvisers. (b) Structured or bounded improvisation: creating within boundaries (such as pentatonic scales, blues scale, or fixed rhythmic patterns) and providing students with the necessary sense of security by balancing freedom and constraints in a safe space. Furthermore, the formats of improvisation activities show diversity. For example, in collective and individual forms (emphasizing social interaction and shared intention); in vocal and instrumental modes (covering singing, melody, and rhythm creation); and in interdisciplinary approaches (combined with dancing, painting, or drama). The comprehensive mapping of these rich and diverse forms will be presented in Chapter 2. This chapter presents improvisation activities and learning outcomes reported over the past decade, through a systematic literature review.

This dissertation defines improvisation as the spontaneous creation and performance of music, with or without a preset structure, and as a learning activity in the context of music education. The definition includes individual and collective improvisation, vocal and instrumental improvisation, and free and structured improvisation. It also covers the interdisciplinary integration of improvisation with other art forms, such as visual arts, movement, and story. Under the definition, this dissertation excludes composition (i.e., a non-real-time creative process) and the pure performance of notated music (i.e., reproduction without creative input). Although the boundary between improvisation and

composition has been noted to be hazy (Burnard, 2000), this definition is intended to be both inclusive and clearly bounded, enabling us to span the four studies and analyze the diversity of improvisation within this dissertation.

1.2.2. From pedagogical approaches to curriculum standards: Improvisation as classroom practice

Since the 20th century, a series of influential teaching approaches have been developed consciously in the field of music education, shaping music teachers' professional identities and often serving as practical guidelines for classroom teaching and teacher education (Juntunen & Westerlund, 2011). These methods give music teachers a chance to get their students involved in improvisation activities in music classrooms. Émile Jaques-Dalcroze developed Dalcroze Eurhythmics in the early 1900s, while he pioneered an approach to learning music through bodily rhythm and movement in the early 1900s (Odom, 2016). In Dalcroze-inspired instruction, students learn about music through purposeful movements and physical experience, and improvisation is often a part of the process (Iddings, 2024). Later, in the middle of the 20th century, Orff's teaching method highlighted the core concept of deriving meaning from music making through performing, creating, and responding (Edmund & Keller, 2020). The Kodály method generally focuses on musicianship and musical literacy through singing, while it can also use improvisation as a tool for students to explore rhythm and pitch in a scaffolded framework (Lukács et al., 2022). Gordon also highlights the importance of improvisation in music class and provides a series of practical suggestions for engaging improvisation in class (Gordon, 2003).

Creating music is a vital focus in music education, as consistently highlighted. Improvisation is a common form of music creation. Improvisation has been incorporated into policies and professional standards across multiple contexts. For example, in the United States, the National Standards for Arts Education (1994) talked about "improvising melodies, variations, and accompaniments," and the National Core Arts Standards (2014), supported by NAfME, include improvisation within the "Creating" strand across grade levels. Similar curriculum emphases are also present in national curriculum documents across Europe. According to the National Curriculum (England, 2021) for Music, improvisation is a mandatory requirement for primary teachers in music lessons. In Key Stage 2, students

learn how to develop rhythm and melody improvisation during performance (Koutsoupidou, 2005). In the Netherlands, although there is no national curriculum, recommendations for music lessons emphasize creating music to express and communicate (SLO, n.d.). In East Asia, the curriculum standards of China have consistently highlighted improvisation activities across primary to higher school in the past decades (Ministry of Education, PRC, 2001, 2011, 2017, 2022). Furthermore, in a broader educational agenda, the OECD's education 2030 framework emphasizes the need for students to develop key abilities such as "creative thinking" (Vincent-Lancrin et al., 2019). Improvisation as a direct and situated form of creative learning in music education has unique educational value. Even though the specific requirements related to improvisation vary from country to country, many music education systems around the world increasingly recognize improvisation as an important aspect of music education.

1.3. General aims of the dissertation

As established in the previous sections, improvisation is a valuable component of music and has been widely advocated by researchers, educators, and national policies across various situations. Nevertheless, the limited classroom use of improvisation has been noted in music education (Wang, 2024; Whitcomb, 2013). Gruenhagen and Whitcomb (2014) surveyed 1174 primary music teachers and found that improvisation is usually seen as important and necessary by teachers. However, they also found that improvisation is not given a high priority in lesson time allocation. Teachers face many challenges when they try to include improvisation in their lessons. For example, due to limited instructional time, teachers' limited personal experience with improvisation, a lack of preparation for creative activities in teacher education, and concerns about classroom discipline and uncertainty, improvisation often receives lower priority in music lessons (e.g., Bogojević & Pance, 2022; Koutsoupidou, 2005). Students may lose opportunities for exploration and creative expression, and the potential to translate curriculum standards and teacher education investments into classroom learning benefits is also limited.

The theory-practice gap remains to be investigated. Especially regarding classroom practice and the factors that hinder music teachers from engaging students in improvisation. It is necessary to conduct a systematic and multi-level investigation in order to understand

and bridge this gap. First, the current empirical evidence about classroom improvisation remains fragmented. Various improvisation activities have been documented across studies, differing in forms and learning outcomes. There is a need to map these activities and integrate the evidence into a coherent picture. Second, a previous literature review noted that *“No studies available are based on qualitative interviews with teachers as to their views and experiences of improvisation in general music education.”* (Larsson & Georgii-Hemming, 2019, p. 62). This highlights an urgent need to investigate the implementation and teachers’ perspectives on improvisation in actual classroom practice. Third, improvisation implementation depends not only on external conditions but also on internal factors. For example, teachers’ attitudes and efficacy beliefs about improvisation, especially among pre-service teachers. The pre-service phase is critical, as teachers’ efficacy beliefs tend to become more stable over time (Hoy & Spero, 2005). Fourth, understanding the formation of intention to include improvisation is crucial because it is likely to shape whether teachers’ will continue to include improvisation in their teaching. Such factors may change across teachers’ professional careers (Tschannen-Moran & Hoy, 2007). Therefore, comparing pre-service and in-service music teachers can provide more targeted and useful suggestions for teacher education and professional development.

This dissertation aims to provide a comprehensive and evidence-based understanding of improvisation in music education. By extending the research field from theoretical investigations and empirical evidence to classroom practice. This dissertation also further examines teachers’ challenges, readiness, and the formation of intention to implement improvisation. To obtain a holistic view, multiple perspectives and methodologies in different contexts are integrated. The studies in this dissertation seek to illuminate the theory-practice gap in music improvisation and identify the pathways for strengthening teacher preparation. This dissertation is guided by the following objectives:

- (1) To systematically categorize and summarize improvisation activities and their learning outcomes.
- (2) To explore classroom practice to identify the current situation and teachers’ evaluation of implementing improvisation.

- (3) To examine pre-service music teachers' attitudes and efficacy beliefs towards improvisation, and how related factors shape their willingness and ability to use improvisation.
- (4) To identify the multiple pathways underlying teachers' intention formation to implement improvisation and test whether there are differences between in-service and pre-service music teachers.

In the next sections, the specific details of these objectives will be discussed.

1.3.1. Mapping the evidence: A systematic review of improvisation (Chapter 2)

While improvisation's benefits are widely recognized, the empirical evidence is still fragmented and lacks integration. There are various forms of improvisation activities, from free exploration to within-boundaries improvisation, and from vocal to instrumental performance. Improvisation activities have been linked to diverse learning outcomes, including the development of musicianship, creativity, and collaboration skills. Yet there is still a lack of a systematic framework to coherently categorize the activities and learning outcomes coherently. Therefore, the first objective of this dissertation is to systematically categorize and summarize improvisation activities and identify their learning outcomes. Providing an integrated picture of improvisation activities and their learning outcomes, which supports teachers and curriculum designers in selecting, designing, and justifying classroom improvisation tasks. Furthermore, this study follows PRISMA guidelines (Moher et al., 2009; Page et al., 2021). Through combining an inductive approach to classify activity types and a deductive approach to code learning outcomes, this review develops a structured classification of classroom improvisation. By synthesizing the evidence, the review clarifies the learning outcomes of different improvisation activities in different classroom situations. As well as identify research gaps and future research directions accordingly, and provide evidence for subsequent empirical research, for example, on classroom practice, teacher readiness, and teachers' intentions.

1.3.2. Exploring classroom practice: current situation and implementation challenges (Chapter 3)

While empirical evidence described in the music education literature is limited, an investigation into what is happening in the real classroom becomes crucial. As Shulman (1986) pointed out, there is often a gap between theoretical knowledge and practical knowledge; therefore, bridging this gap through an in-depth investigation of the current situation of classrooms becomes important. In music education, despite the importance of improvisation and its endorsement by policies, improvisation activities appear to remain limited in real classrooms (Whitcomb, 2013). Moreover, current evidence provides only limited insight into how teachers understand improvisation, what kinds of improvisation activities they use, and what challenges they face in practice (Larsson & Georgii-Hemming, 2019). Teachers play a crucial role in students' creative development, as they are not only role models and mentors but also spend a considerable amount of time with students (Kampylis et al., 2009). Teachers also serve as primary drivers of curriculum implementation, and their practices are strongly influenced by their knowledge and prior experience (Oleson & Hora, 2014).

Therefore, the second objective of this PhD dissertation is to explore classroom practice to identify the current situation and challenges in improvisation implementation. Understanding teachers' improvisation is essential. In addition, it is also necessary to understand how teachers conceptualize improvisation, how they implement it, and how they provide feedback on students' improvisation. This exploration seeks to move beyond theoretical and empirical evidence from prior studies. The study will further examine how in-service music teachers perceive improvisation as a learning activity, and what factors promote or hinder their engagement with improvisation in class.

1.3.3. Pre-service teacher preparation: attitudes and efficacy beliefs to implement improvisation (Chapter 4)

Understanding in-service teachers' practice and perceptions on improvisation is necessary. However, it is insufficient to explain why improvisation remains difficult to implement consistently. Prior findings show that many pre-service and in-service teachers value improvisation, yet report being underprepared and lack confidence to implement it

(Bernhard, 2013; Piazza & Talbot, 2021). This makes teacher education a key point of change for addressing the theory-practice gap. Teachers who include improvisation often tend to report greater personal experience with improvisation in their own musical backgrounds (Koutsoupidou, 2005). This suggests that preparedness is closely linked to prior opportunities to learn and practice improvisation.

To examine readiness more precisely, this dissertation focuses on two core constructs: attitudes and efficacy beliefs. Attitude represents the individual's evaluative orientations of a goal, which shapes their willingness to engage in specific practices (Fishbein & Ajzen, 1975b). In current research on music education, there are limited studies into music teachers' attitudes toward improvisation. The concept of self-efficacy is suggested by Bandura in the social cognitive theory. It refers to the belief that an individual believes that they have the ability to complete a specific action, in order to achieve specific actions to achieve specific objectives (Bandura, 1997). Self-efficacy is usually shaped by mastery experiences, vicarious experiences, social persuasion, and emotional states (Bandura, 1997). When individuals perceive higher self-efficacy, they are more likely to put greater effort, persistence, and willingness to participate in challenging tasks, including improvisation activities. As Tschannen-Moran and Hoy (2001, p. 783) noted, "Efficacy beliefs influence teachers' persistence when things do not go smoothly and their resilience in the face of setbacks."

The pre-service phase in teacher development is a particular formative period because attitudes and efficacy beliefs develop during preparation and early teaching experiences, and these would shape subsequent instructional choices (Hoy & Spero, 2005; Pajares, 1992). The third objective of this dissertation is to examine the preparation of pre-service teachers, their attitudes and efficacy beliefs, and how these factors shape their willingness and ability to use improvisation. A focused exploration of pre-service teachers' attitudes toward improvisation (i.e., studying, teaching, and including improvisation) and their efficacy beliefs (i.e., self-efficacy and teacher efficacy for improvisation) can clarify what contributes to teachers' readiness to include improvisation in classroom practice. This focus helps to clarify which aspects of teachers' training can enhance pre-service teachers' readiness to implement improvisation in teaching as a classroom practice.

1.3.4. Multiple pathways of intention formation: comparing in-service and pre-service teachers (Chapter 5)

Improvisation and its implementation in the classroom have been reported as limited, despite continued advocacy from educators and music education researchers. When teachers face constraints such as insufficient confidence, limited pedagogical materials or repertoire, and concerns about lesson feasibility, their willingness to implement improvisation can be reduced (Bogojević & Pance, 2022; Koutsoupidou, 2005). Drawing on the Integrated Model of Behavior Prediction (IMBP; Kreijns et al., 2013), teachers' willingness to engage in a particular activity is typically determined by proximal factors such as attitude, subjective norms, and efficacy beliefs. Variables such as motivation and emotion often shape intentions indirectly by influencing these proximal constructs. Therefore, this dissertation proposes that the formation of teachers' intentions to use improvisation in class is best understood as multiple pathways rather than a single linear route. Importantly, these pathways are also likely to differ between pre-service and in-service teachers. For example, evidence suggests that contextual factors (e.g., available teaching resources and interpersonal support) are more likely to influence teachers who are at the beginning of their career, their self-efficacy beliefs are more likely to be influenced easily by teaching resources and support from others, while in-service teachers are less influenced less by these contextual factors (Tschannen-Moran & Hoy, 2007). This makes it important to do a comparison between different teacher groups. In addition, the Control-Value Theory highlights the key role of teacher emotions in achievement and learning settings (Pekrun, 2006), suggesting that teachers' emotions may influence intention indirectly and may also manifest differently across career stages.

The fourth objective of this dissertation is to identify the multiple pathways underlying teachers' intention formation to implement improvisation and test whether there are differences between in-service and pre-service music teachers. Further investigates how distal factors (e.g., emotions, motivations) influence intention through proximal factors (e.g., attitude, subjective norm). Based on the differentiated pathway patterns, targeted recommendations are proposed for pre-service preparation and in-service professional development. Therefore, it helps to bridge the gap between the widely acknowledged value of improvisation and its consistent classroom implementation.

1.4. Outline of this Dissertation

This dissertation aims to provide a comprehensive overview of improvisation in music education, which consists of an investigation into theoretical and practical processes. Six chapters are included in this dissertation. The overview of this dissertation is presented in Figure 1.1, showing how the four studies and their corresponding variables, as reported in **Chapters 3, 4, and 5**, interconnect.

Chapter 1 (the current section) introduces the overall aim of this dissertation by describing the research background, theoretical framework, aim, and the theoretical and practical implications. This provides an overview of the coherence of the research project.

Two research questions are addressed in Chapter 2: (1) What improvisation activities are applied in music education? and (2) What are the learning outcomes of improvisation activities in music education? To provide an answer to these questions, this dissertation conducted a systematic literature review by following the Preferred Reporting Items of Systematic Reviews and Meta-Analyses (PRISMA) statement (Moher et al., 2009; Page et al., 2021). A total of 63 related empirical articles published between 2015 and 2025 were analyzed. Following the PRISMA, the coding process combined both inductive and deductive approaches. It presents the five key forms and components of improvisation activity and four domains of learning outcomes (i.e., affective, behavioral, cognitive, and social learning outcomes), providing a theoretical foundation and classification framework for this project, by confirming the improvisation in the existing research.

In **Chapter 3**, a qualitative research study is presented that aims to provide a deep understanding of how improvisation activities are implemented in real classrooms and how teachers perceive these creative activities. The guiding research questions are: (1) *How do teachers implement improvisation activities in class?* and (2) *How do teachers evaluate these improvisation activities in class?* To derive an answer to these two questions, the study employed a data collection design comprising semi-structured interviews, classroom observations, and field notes with eight primary school teachers. All of them were teaching music and had professional musical backgrounds. The coding and analysis followed an inductive thematic analysis (Braun & Clarke, 2006), with the classroom observations and field notes providing in-depth descriptions that were triangulated with the interview data. The results are organized around the two research questions, giving a descriptive overview

of how teachers implement improvisation (i.e., forms of improvisation activities, perceived effectiveness of improvisation activities, and feedback), as well as how teachers evaluate improvisation (i.e., benefits, challenges, and reflections).

From the teacher education context, **Chapter 4** presents a mixed-method study to gain insight into the readiness to implement improvisation activities among pre-service music teachers. The research developed a conceptual model examining how attitude toward studying improvisation (AS), attitude toward teaching improvisation (AT), and attitude toward including improvisation (AI) function as predicting variables, with self-efficacy for improvisation (SEI) operating as a mediating construct, and self-efficacy for teaching improvisation (SETI) as the outcome variable. A total of 123 pre-service music teachers participated in the research, and 10 follow-up semi-structured interviews were conducted to further illustrate the quantitative questionnaire survey results. Participants were bachelor students who were enrolled in music teacher bachelor programs across 10 conservatoires and universities of applied science during the academic year 2023–2024 in the Netherlands. The data were analyzed by using one-way ANOVA and T-tests for group differences, and the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach.

To investigate the intention to implement improvisation activities in the broader context, **Chapter 5** of this dissertation presents a mixed-method study comparing the formation of intentions between pre-service and in-service music teachers. This study aimed to answer the following research questions: (1) *How do emotions (joy, anxiety, and anger) influence teachers' intentions to guide improvisation activities in teaching through attitude, self-efficacy, teacher-efficacy, motivations (intrinsic motivation, extrinsic motivation, and amotivation), and subjective norms?* (2) *To what extent do attitude, self-efficacy, teacher-efficacy, motivation (intrinsic motivation, extrinsic motivation, and amotivation), and subjective norm directly predict teachers' intentions to implement improvisation activities in teaching?* and (3) *Is there a significant difference between the pathways of pre-service and in-service music teachers?* **Chapter 5** addresses these research questions through an explanatory sequential mixed-methods design. In total, 605 questionnaires were completed by 378 pre-service music teachers and 227 in-service music teachers. Following the survey, 45–60-minute interviews were conducted with 12

participants, comprising six teachers from each of the teacher groups with diverse teaching experience and backgrounds, to obtain a holistic picture of teachers' intention formation based on emotions, motivations, efficacy beliefs, attitudes, and subjective norms for improvisation activities.

Finally, Chapter 6 integrates the main findings from all chapters, together with the theoretical and practical implications, reflects on the limitations, and proposes future research directions and recommendations for music teacher education.

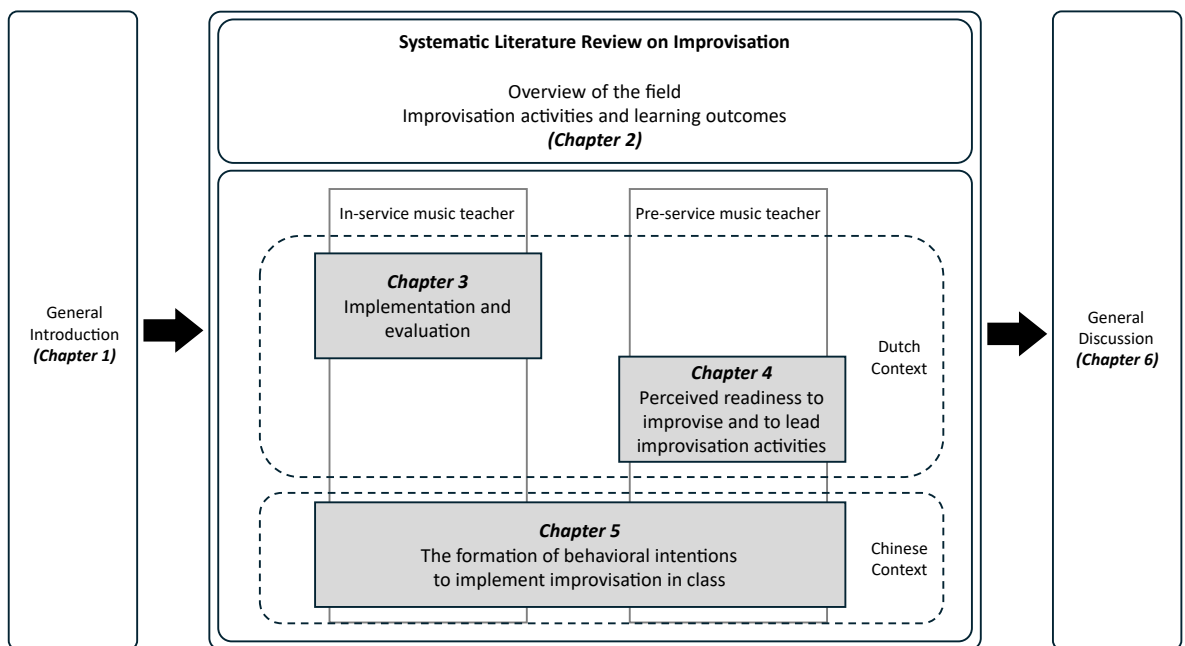


Figure 1.1 Overview of this dissertation

