

음악과 미디어 융합선택과목내용 개선 방향 탐색 연구

The Exploration of Instructional Content and Improvement on Music Media Elective Course

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Abstract The purpose of this study is to provide a suggestion that implications for improving instructional content and expanding music media learning content by exploring music media courses. The method of this study is a literature review that analyzes the achievement standard statements of the Music and Media subject. Moreover it is comparing the Music and Media Art subjects in the curriculum with the results of the content analysis of the curriculum documents, drawing similarities and differences. In this regard, it is suggested that instructional perspective and improvement were achieved by exploring and comparing the overview, goals, and achievement standards of the Music and Media elective course presented in the 2022 revised National Korea Curriculum. This study is meaningful in suggesting instructional perspective and improvements for all students to learn digital music.

Key words: music, media, digital, music subject curriculum, music learning, elective course

초록 본 연구의 목적은 음악 미디어 과목 내용을 탐색하여 음악 미디어 학습 내용을 개선하고 학습의 범위를 확장하기 위한 시사점을 제안함에 있다. 연구의 목적에 따라 2022 개정 교육과정에 제시된 <음악과 미디어> 융합 선택과목의 성격과 목표, 성취기준 진술내용과 캘리포니아 주 2019년 에 신설된 Media Art 과목 내용을 탐색하고 비교하여 개선점을 도출하였다. 그리고 교육과정 문서들을 내용 분석한 결과를 토대로 2022 개정 음악과 교과과정 융합선택과목 <음악과 미디어>의 교수학습 방향과 과목 내용의 개선점을 제안하였다. 팬데믹 이후 학생들이 음악미디어를 활용하여 음악을 배우고 디지털 리터러시를 함양할 수 있는 디지털 음악학습 내용과 활동 방향을 제시하는데 연구의 의의가 있다.

주제어: 음악, 미디어, 디지털, 음악과교육과정, 음악학습, 선택과목

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I . Introduction

This paper discusses the vision for future education and learning music through music media both in and out of class. Music education in the future will depend on whether it can create a digital music education environment, providing instructional perspective and direction for students to learn how to adapt their own learning. Since the COVID-19 crisis, as we face an era of un-tact (meaning less physical contact), students have made learning outside the classroom more accessible. As a result, the scope of digital learning, which includes learning about music media both in and outside the classroom, as well as the global virtual world, is expanding. In particular, the virtual mode of music made naturally in a virtual environment, such as the metaverse, further expands the scope of learning to the untact world of music digital media.

Kwon and Kim (2011) viewed instruction based on digital social media as a digital environment and called the competencies required of learners in this environment “digital literacy.” In this virtual internet and global digital environment, the role of school education is to create a digital environment and provide opportunities where anyone can access media art, create it themselves, and share it with anyone inside and outside the school. However, unlike the efforts of school education, in the digital environment, students become consumers as well as suppliers themselves. At this point, it is necessary to diagnose whether the contents of the Music Media Elective Course, which can connect the inside and outside of the school and ensure the quality of music education, are suitable for the field.

In November 2021, the Ministry of Education announced key points in the general discussion of the “2022 revised National Korea Curriculum”(Ministry of Education, 2021). As a major revision direction, we are focused on digital literacy, which is one of the key competencies along with literacy and numeracy. This includes education on AI and software, in order to develop the competencies required by future society. Accordingly, by suggesting the establishment of an instruction and evaluation system suitable for the digital literacy and AI education environment, research on future instructional methods and evaluation systems in line with the expansion of untact distance education. And also, changes in the educational environment are actively underway. In this way, it is urgent to prioritize “curriculum innovation to respond to future changes” as a major task for promotion. This includes establishing convergence subjects that can cultivate basic knowledge, such as digital literacy, which serves as the foundation for learning various subjects. At this time, in the case of the music curriculum, the Music Media Elective Course was reopened in the 2022 revised National Korea Curriculum, enabling it to focus on

strengthening digital literacy.

International digital/media education trends are as follows. The European Union announced the “Digital Education Action Plan 2021-2027” for inclusive and accessible quality digital education in Europe. And the “European Digital Competence Framework” supports the development of digital competency training materials through the European Commission(European Commission, 2020). UNESCO presents “44.2% of young people and adults who have achieved the minimum level of digital literacy” as an indicator to monitor and evaluate the implementation of the Sustainable Development Goal (SDG) 4 - Education 2030 target on education indicators. And developed a digital literacy global framework for this purpose(UNESCO, 2018).

Prior to the 2022 revision in Korea, the California state curriculum in the United States was also announced on January 9, 2019, by the California State Board of Education. <Media Arts> was newly opened and added to the arts subject group, composed of subject matters. According to the approval and announcement of the framework in May 2020, the goal of the media art curriculum, or its educational direction, in elementary, middle, and high schools is to develop learners' artistic literacy for media art. In the current situation, where the digital environment has become essential due to the COVID-19 crisis, the enjoyment of creative media art has become a priority for learners. As a result, a new subject has been created. Accordingly, the “Music and Media” subject, which is an opening course in the 2022 revised National Korea Curriculum, covers digital literacy, media literacy, art literacy, music digital literacy, etc. It will be able to contribute to the cultivation of future music literacy by preparing a content system of subjects that can be integrated with media literacy and enhancing artistic literacy as a whole.

It is also necessary to reconceptualize the meaning of music literacy in the scope of digital literacy as competencies that offer new opportunities in the digital environment for future generations. The purpose of this study is to provide a suggestion that can be effectively implemented to target instruction for future music literacy, including digital literacy. And also for improving instructional content, expanding and extending categories of music media learning, and digital learning. Furthermore, it is intended to create an environment where people can experience various music cultures in digital music learning for all children in national education policy and strategies. So that students can learn how to adapt to unfamiliar environments on their own in the future.

II. Literature Review

1. The Concept of Literacy

The essential purpose of the Media and Music course is to cultivate digital literacy, gaining insight into how to learn music as a sound art in life through digital media and technology. If you can do that, it can be more sensitively adapted to a changing society, maintaining one's mental health, leading a well-being life, and students can enjoy music culture in a natural atmosphere of school culture and environment. For those seeking insight into how to learn music, adapt to a changing society, lead a well-being life, and enjoy music culture, it is necessary to set the goal of cultivating digital literacy as a key component of future music education, including art literacy and digital literacy. As the goal of future music education, which includes art literacy and digital literacy, it aims to cultivate digital music literacy and reconstruct the concept of digital music literacy in the context of future music education. This paper first reconstructs the concept of literacy through media technology in the context of future music education. In addition, the concept of literacy in the learning process for enhancing digital music literacy in the context of future music education is as follows. For that, first of all, this paper reconstructs the concept of literacy with media technology.

The dictionary meaning of literacy is the ability to read and write(Noh, Shin, Lee, & Jung, 2018, p. 78)). As an extended concept in the cultural aspect, literacy utilizes a broad background of knowledge as a practical tool that emphasizes the possibility of effective verbal communication. If students can learn a method, it might help them gain insight into music as a sound art in their lives through digital media and technology. Students can more sensitively adapt to the changing society, maintain their mental health, lead a well-being life, and enjoy the culture in a digital music educational environment.

According to this classification, literacy refers to the product of artistic expression or creativity in an expanded sense. The concept and scope of inclusive music instruction for enhancing digital literacy are explored in the curriculum literature in Canada and Australia. Literacy is classified into three categories: humanistic culture, extended culture, and culture as a means of communication(Kwon & Kim, 2011).

As an example, in the Ontario Department of Education in Canada, music literacy is defined as follows:

Musical literacy, The ability to understand and use the variety of ways in which meaning is communicated through music, including use of the elements, aural skills in listening and performing, reading and writing skills that uses of notation, symbols, terminology, and interpretative performance skills.(Note: Ontario Ministry of Education, 2010, p.234)

As implied by literacy(Lee, 2022, pp.104-106) in the California State of USA, music subject-matters curriculum, this states that music literacy can be transferred from media literacy to digital literacy or digital literacy to music literacy can be transferred. In this paper, the concept of music digital literacy is as a connecting ability in this paper. And scope and meaning of the Literacy as a capability in Austrailia curriculum document(Victorian Curriculum and Assessment Authority, 2019) is defined as follows.

Literacy encompasses the knowledge and skills students need to access, understand, analyses and evaluate information, make meaning, express thoughts and emotions, present ideas and opinions, interacts with others and participate in activities at school and in their lives beyond school. Enhancing literate, it is not simply about knowledge and skills. Certain behaviours and dispositions assist students to become effective learners who are confident and motivated to use their literacy skills broadly.(Note: Victorian Curriculum and Assessment Authority, 2019, p.2)

Many of these behaviors and dispositions are also identified and supported in other general capabilities. They include students managing their own learning to be self-sufficient, working harmoniously with others, being open to ideas, opinions, and texts from and about diverse cultures, returning to tasks to improve and enhance their work, and being prepared to question the meanings and assumptions. In other words, the learning experience of understanding and appreciating music stems from an understanding of language, the arts, and the social sciences as a whole. It includes “inclusive art and literacy,” as well as ways of life, values, cultural traditions, and spiritual beliefs shared by individuals in society. It is defined as the basic ability to have an aesthetic experience in literature, social phenomena, and lifestyle. According to this classification, literacy refers to the product of artistic expression or creativity in an expanded sense. That's why the meaning of literacy includes social, physical, economic, and political elements.

2. The Social and Political Aspects in Digital Literacy

In the interpretation or statement of measurement results, the term “literacy” has been used

as a criterion for key competency(Organisation for Economic Co-operation and Development, 2005, p.2). In addition, it is the ability expected within the scope and level of the subject, which means having a lower level of competency in the subject matter curriculum. The meaning of competencies in this paper's context is included with expectations for the scope and level of the subject. For example, the Irish School Digital Learning Strategy (2015-2020, 2021-2017) defines it as digital competence and digital skills, rather than digital literacy(Irish Department of Education, 2022). In consulting on digital technology or implementing digital competency for all instructions, we urge all learners to have a correct understanding of digital technology and learning. The Digital Learning Framework (DLF) describes digital competencies for teachers that promote innovative pedagogy involving the use of digital technologies, along with providing a common reference and tool to use in this process. Therefore, the terms “digital competency” and “digital technology” are used interchangeably throughout the consulting process.

According to *the Irish Schools Digital Learning Strategies Fundamentals Report*(Irish Department of Education, 2022), digital literacy refers to the ability to explore, develop and negotiate clear and unambiguous understandings, plan, and coherently negotiate through procedures. Digital is the development of digital skills and capabilities, two strategies are 44% of EU citizens do not have a sufficient level of digital skills, and Ireland is slightly above the EU average at 46%, indicating that adults and young people need support for digital competence. The digital learning strategy aims to enable all young people to graduate with digital technology skills. It will complement and support the development of literacy, numeracy and digital literacy strategies for all learners in primary and secondary schools. Irish Schools Digital Learning Strategies Fundamentals Report(Irish Department of Education, 2022).

Necessary for daily living and further research, in addition to this, the European Commission's Educators Digital Competency Framework (European Commission, 2020) explains what it means for educators to have digital competencies and how they can influence DLF development. Implemented a general action plan to support the development of digital competencies for educators in Europe. Digital Competence for Teachers (DigCompEdu) is accessible, shared, and taught to all students from primary school to higher and adult education, including general and vocational education and training, special needs education, and non-formal learning situations. For example, the “School Digital Strategy 2021-2027” (Irish Department of Education, 2022) plans to include technology development in all curricula and subjects so that all primary school, middle school, and high school students can be competitive with digital technology. Across the system, teachers are at different levels of digital competency, but all teachers should have the

knowledge and skills necessary to effectively integrate and include digital technology in their practice, using the support and resources available. It is recognized that the use of digital technologies in the lives of learners and educators is constantly evolving and ubiquitous. With the continual evolution of technology, the creative tools of media arts have become increasingly powerful, versatile, and easier to use. It is therefore important for teachers to develop their competencies in this field in line with emerging trends and requirements, along with the support they need to fully realize the potential of digital technologies to support teaching, learning, and assessment practices.

<Table 1> The concept of digital literacy

References	The concept of digital literacy/competence)	Categories (area/component)
Ireland, (Irish Department of Education, 2022)	-Promote innovative pedagogy involving the use of digital technologies -Along with providing a common reference and tool to use	-Critical thinking, problem solving, collaboration and creativity: for enhancing information and data literacy -Communication and collaboration -Digital content creation: including programming -Safety: including digital wellbeing and competences related to cyber security
Korea, (Ministry of Education, 2022)	-Based on an understanding of digital knowledge and technology and a sense of ethics -The ability to collect, analyze, and critically understand and evaluate information to generate and utilize new information and knowledge	-Information and data generation, -Problem solving, -Collaboration, communication
USA, California Department of Education (2019a)	-Technology-based creative production and design -Convey competencies for artistic literacy in media arts. -Develop capacities needed to thrive in the modern digitally centered environment	-Creating/producing: conceive, develop, construct, integrate, practice, present -Responding: perceive, interpret -Connecting: synthesize, relate

The concepts of digital literacy (refer to Table 1) are digital learning, connecting with technology, digital literacy, and digital competitiveness. These are the goals of the music and media subjects presented in Chapter IV. And problem-solving, collaboration, and communication are among the categories of components of the artistic process. It is connected by common area components and strands, such as digital literacy, as competencies.

3. The Music Curriculum and Digital Learning

Due to COVID-19, learning has rapidly expanded digitally, and school and classroom classes continue to be virtual reality, further enhancing students' self-agency capability in learning. In order to enhance students' self-agency and encourage independent exploration, this presentation will focus on expanding their music digital literacy skills. This is looking at it in the context of setting the direction of education that can design a better future. This allows students to design a better future for themselves by exploring information on their own in the global level of learning that goes beyond schools, regions, and national curriculum. In particular, 21st century learning based on the OECD Learning Compass 2030 is approaching the detailed abilities of digital literacy in various ways, such as information literacy, media literacy, and information and communication literacy, according to this trend and various concepts of 4Cs. In the case of the Finnish National Core Curriculum for General Upper Secondary Education(Finnish National Agency for Education, 2019), it is shown that the competencies consist of the knowledge, skills, values, attitudes, and will needed to acquire solid general knowledge and capability. And to grow into a good human being, to build a sustainable future, and to obtain capabilities for further studies, working life, and internationalization(Finnish National Agency for Education, 2019, p.67).

Therefore, digital literacy in the scope of learning in the 21st century means the capability to use tools that all elementary and middle school students should have in exploring their personal life, learning, and career in accordance with changes in the digital environment. Digital literacy, a concept expanded from the idea of basic literacy, refers to the ability to solve problems and discover the latest computing technologies and principles, such as AI. It refers to the capability to use digital technology and information with a sense of ethics, enhancing the ability to communicate effectively and collaborate in a digital environment. To have ethical awareness for music media functions and information use, and to utilize digital technology. So, in the future, the scope of music learning will focus on improving digital literacy in music, so-called digital music literacy.

In the case of Korea, digital literacy is included as a basic competency in the 2022 revised curriculum. In this study, literacy refers to a range of skills and attitudes that cover the necessary basics and the capacity to develop competency. In order to cultivate students' developmental stages and align with learning content standards based on their school level, the curriculum document is developed and presented. On a note revealed in this way, the background of the general discussion related to the music education curriculum and the focus of the curriculum

composition for the development of future music talent training education, which can respond sensitively to future environmental changes, are as follows.

With the development of artificial intelligence technology, social uncertainties such as digital transformation, epidemics of infectious diseases, climate and ecological changes, and demographic changes are increasing. The focus is placed on the composition of the curriculum content so that students can develop the ability and literacy to actively respond to the uncertainty of the future society due to digital transformation and the initiative for their learning and life.(Note: Ministry of Education, 2021, pp.1, 3)

The first issue in the major revision direction of the 2022 revised curriculum, it is the cultivation of competencies required by the future society(Ministry of Education, 2021, p.3). Among the details of this are “emphasis on in-depth learning and inquiry skills related to life, strengthening of digital literacy, ecological transformation, and democratic citizenship education.” Therefore, it is necessary to consider to what extent digital learning contents can be covered in the music subject and what kind of musical capability and digital literacy can be connected to the “digital knowledge” in the music subject matter.

III. Method

This chapter briefly explains the procedure and method of the study. For the purpose of this study, we propose a suggestion to improve instructional content and expand music media learning and instructional categories&areas by exploring music media courses.

The method of this study is a literature review that the contents and the achievement standard statements of Music common subject and Music Media elective subject are content analyzing and literature comparing with Documents in California and Korea Curriculum, drawing commonalities and differences with literature review(Corbin, Juliet, Strauss, & Anselm, 2008; Creswell, 2017, p.147). In another words, those are uses of content analyzing with words cloud, and describing characteristics of a document, namely the care and nurture of a document(Creswell, 2017, pp.82-97; Locke, 1987, pp.103, 104). The study is conducted the procedure in the following way.

The first, exploring of theoretical background related to music media, which curriculum documents are searched and analyzed by describing characteristics of the design(Creswell, 2017,

p.147), about enhancing digital literacy of music media. Second, the career, nurture of documents (Locke, 1987, pp.103, 104; Creswell, 2017, pp.82-97)that are the literature review and comparing method(Corbin, Juliet, Strauss, & Anselm, 2008, p.65). The third, it suggest that digital music learning for all children on national projects of political strategies. Forth, request review and supplement as needed, and propose suggestions.

One of the procedure and method of the study, it is that the learning contents and achievement standards of music that media-related subjects are analyzed through literature review(Locke, 1987, pp.103, 104; Creswell, 2017, pp.82-97). The contents of the achievement standard statements of <Music and Media> subjects are presented in the California state curriculum in the United States(California Department of Education, 2019a: 2019b) and the 2022 revised National Korea Curriculum(Ministry of Education, 2022) that are analyzed with the documents. And as well be analyzing the literature, comparing the contents with <Music> <Music and Media> subject matters the 2022 revised National Music curriculum and <Music> <Media Art> subject matters of the California state curriculum in the United States(California Department of Education, 2019a: 2019b), comparing the contents of <Music> and <Media Art> in California, USA.

Those are objects to comparison(Corbin, Juliet, Strauss, & Anselm, 2008, p.65) and nurture of a document approach(Creswell, 2017, p.147). Based on these, the curriculum documents were compared to components of music and media according to the criteria shown in the following <Table 2>.

<Table 2> The criteria for comparing components of music media

The Criteria (Strands/area of process component)		
Artistic process area	Creating/producing	Conceive, develop, construct, integrate, practice, present
	Responding	Perceive, interpret
	Connecting	Synthesize, relate

IV. Instruction and Content in Music Media

The fact that future music education can be continued was discussed in Chapter IV. So, in Chapter IV, it explores the achievement criteria for the implementation of the 2022 Revised Music Curriculum. It discusses a way that can continue after the pandemic in music learning.

1. Digital Strategies¹⁾ and e-Learning Process²⁾

The content area of ‘Creating, Responding, and Understanding’ of the California Music curriculum in USA and ‘Creating, Responding, and Connecting’ of <Music Technology> are linked, and ‘Understanding’ is connected. The achievement standards for the <Music and Media> subject, which is a high school course, can be realistically applied only when the contents of the subject are improved in detail in the direction of connecting with the learning contents for the cultivation of music digital literacy in the music subject of elementary and secondary schools.

<Table 3> The comparing components of learning

Refer of matters	Music Media (Ministry of Education, 2022)	Music (California Department of Education (2019b)	Media Arts (California Department of Education, 2019a, 2019c)(2021)	E-Learning theory (2001)	E-Learning theory (2006)	Digital strategy for School (2021)
Process Components						
Artistic process area	Practical connecting	Responding	Responding (Perceive, Interpret, Evaluate)	Experience	Recognize Identified	Non-formal Learning Contexts (Learner Centered Approach & Inclusion)
			Connecting (Synthesize)	Extended	Read Connect	
	Expressive activities	Understanding	Creating (Conceive, Develop, Construct)	Expanded	Create	
		Creating	Producing (Integrate, Practice)		Product	

Ireland's digital strategy for schools until 2027, which is linked to the curriculum, includes incorporating digital technologies into all Irish curricula and subjects, taking into account non-formal learning contexts. This is based on a learner-centered approach and the “School Digital Strategy 2021~2027”, digital technologies will be integrated into activities, learning, and assessment, as well as the digital learning system for teaching and learning. This will ensure that all elementary and secondary school students are equipped with digital technology skills and competitiveness. The policy of digital education is planned and implemented. With this policy, the learner-centered approach comprehensively requires self-agency, using digital technologies, problem-solving, critical

1) *Digital Strategy for Schools to 2027* <https://www.gov.ie/en/publication>

2) *E-learning strategies for delivering knowledge in the digital age*(Mark J. Rosenberg, 2001)

thinking, inclusion, collaboration, and communication.

2. The Goals of <Music and Media>

If student can get a instructional method, it allows students to gain insight into music as sound art in your life through digital media using technology. You can more sensitively adapt to the changing society, maintaining one's mental health, leading a well-being life, and students can learn the culture in digital-music educational environment. In the context of future music education goals, the concept of literacy of Music subject in the 2022 revision document, is as follows.

In a changing society and various contexts, the role and value of music is extending its influence beyond the existing aspects of art, culture, and society to new industries, science, and the environment. ... In addition, through music activities that utilize various media and digital technologies, it promotes the cultivation of digital literacy and the development of a future digital-based society.(Ministry of Education, 2022, p.82)

In the context of future music education goals, the concept of literacy <Music and Media>, which was reopened in the 2022 revision, is as follows.

The development of information and communication technologies, such as digital and artificial intelligence, further increases the expressive power of music and expands the scope of its value and influence. ... Media-related music activities lead the development of a future digital-based society by strengthening connection and convergence between other areas with enhancing media literacy and digital literacy.(Note: Ministry of Education, 2022. p.1)

In the context of future music education goals, the concept of literacy <Music> subject of the CA curriculum, specially introduction to music section is as follows.

Music education in California public schools enriches students' lives, while providing challenging, engaging, personally fulfilling, and creative learning that develops lifelong creative and artistically literate individuals.(Note: California Department of Education, 2019b, p.1)

Another music education goals, the concept of literacy Media Art Course of CA curriculum, is as follows.

Media arts is defined as technology-based creative production and design. The media arts standards convey competencies for artistic literacy in media arts. Media arts functions as a discrete arts discipline for all students as they develop capacities needed to thrive in the modern digitally centered environment. With the continual evolution of technology, the creative tools of media arts have become increasingly powerful and versatile, and easier to use. (Note: California Department of Education, 2019a, p.1)

As such, it can be seen that the ultimate goal is to cultivate digital literacy in California, USA (California Department of Education, 2019a). The detailed goals of the <Media Art> subject are as follows.

The first step is through media art for multimedia communication. Students autonomously cooperate to produce and share works that express and deliver their ideas. They also analyze and interpret other people's media art works. Second, media art can be used to express creativity and develop students' abilities to create, produce, and respond to media art works. Third, to connect culture and history, students not only critically review media artworks from various cultures and histories, but also understand and utilize the relationship between other arts and studies and culture as a whole. Fourth, through media art, students can enjoy a high quality of life. They pursue a quality life by gaining inspiration, receiving intellectual stimulation, and experiencing various experiences in the virtual world and the space of complex mutual communication and connection. Fifth, through media art for community engagement, students can participate in local, national, and international communities. Sixth, through vocational education in media arts, students can learn the value of media arts as a profession and gain personal experience in the field.

The primary goal of the California Department of Music is to foster the artistic literacy of all California students, to create and perform work that expresses and communicates their ideas. The first step is to create and perform music, continuously and actively responding and participating. Second, respond to the artistic communication of others. Third, experience sustainable music by actively seeking out and appreciating music of various forms and genres. Fourth, comprehensively understand the relationship between the arts and cultivate the habit of finding and identifying the relationship between the style of music and the knowledge of other subjects. Fifth, improve one's life with joy, inspiration, peace, intellectual stimulation, and meaning through participation in music. Sixth, it provides opportunities to experience valuable music from local, state, national, and global communities. Seventh, cultivate artistic knowledge about music (California Department of Education, 2019b). For the purpose of exploring the above, the goals and key contents of

the 2022 revised National Korea Curriculum were compared to those of and in California, USA, as shown in below.

<Table 4> The music subject goal and key contents of music media & media arts

The concept of literacy in the goal and content	
Music subject (Ministry of Education, 2022, p.35)	Music media elective course (Ministry of Education, 2022, p.79)
In a changing society and various contexts, the role and value of music is extending its influence beyond the existing aspects of art, culture, and society to new industries, science, and the environment. ..In addition, through music activities that utilize various media and digital technologies, it promotes the cultivation of digital literacy and the development of a future digital-based society. ...	The development of information and communication technologies, such as digital and artificial intelligence, further increases the expressive power of music and expands the scope of its value and influence....Media-related music activities lead the development of a future digital-based society by strengthening connection and convergence between other areas with enhancing media literacy and digital literacy.
Music subject (California Department of Education, 2019a, p.1)	Media Arts (California Department of Education, 2019b, p.1)
Music education in California public schools enriches students' lives, while providing challenging, engaging, personally fulfilling, and creative learning that develops lifelong creative and artistically literate individuals.	Media arts is defined as technology-based creative production and design. The media arts standards convey competencies for artistic literacy in media arts. Media arts functions as a discrete arts discipline for all students as they develop capacities needed to thrive in the modern digitally centered environment. With the continual evolution of technology, the creative tools of media arts have become increasingly powerful and versatile, and easier to use.(Ministry of Education, 2019b. p.1)

*Note: Music Media(Ministry of Education, 2022) & Media Arts curriculum(California Department of Education, 2019a, 2019b)

As explored above, it was found that the concept of music digital literacy is a connecting ability that can transfer from music literacy and media literacy to digital literacy, or from digital literacy to music literacy. If you can gain insight into how to learn music as a sound art in your life through digital media using technology, you can more sensitively adapt to a changing society, maintain your mental health, lead a well-being life, and enjoy music culture in a natural atmosphere of school culture and environment. So, as the goal of future music education, which includes art literacy and digital literacy, we aim to cultivate digital music literacy and reconstruct the concept of it in the context of future music education. Therefore, as the goal of music education, including art literacy and digital literacy, it aims to cultivate digital music literacy.

3. Achievement Standards

1) 1997~2015 Music Curriculum

In the contents of the 2022 revision of music subject and convergence elective course, <Music and Media>, which is currently being revised in the 7th curriculum in Korea(Ministry of Education, 1997), this chapter provides a way to connect and enhance changes in technology media and music digital literacy. So, the scope of exploring the course content in curriculum documents(Ministry of Education, 1997; Ministry of Education and Human Resources Development, 2007; The content area (Ministry of Education, Science and Technology, 2011; Ministry of Education, 2015b) was explored.

As a tool for exploring the reconsidered media-related elements in music and curriculum documents. And also, changes in music education and media technology are being explored accordingly. Combining the results of exploring the content areas of the music subject curriculum, related to music literacy and technological changes in music class, key terms are being derived as related keywords. For example, in the content area of the curriculum, they were searching for keywords such as computer, ICT, information, multimedia, and electronic musical instruments within documents(Ministry of Education, 1997; Ministry of Education and Human Resources Development, 2007; Ministry of Education, Science and Technology, 2011; Ministry of Education, 2015b). From the 7th revised National Korea Curriculum to the 2007 revision, the 2011 revision, the 2015 revision, and the currently revised 2022 revision. In particular, it is worth noting that the subject of <Music and Media> was newly added in the 2011 revision. In other words, the subject for <Music and Media>, which was presented in the 2009 curriculum, was removed from the 2015 revised curriculum. In the 2022 revision, the Music Media Elective Course is opened again.

At first, in the 7th music curriculum, related terms were found for “audiovisual materials, various media, and new media.” It is noteworthy that the newly revised “Music and Media” subject, which was presented in the 2009 curriculum, was introduced in 2011. However, the subject of “Journalism and Media” was deleted from the revised National Korean Curriculum in 2015. In the 2015 revised National Korean Curriculum, music literacy was defined as the ability to develop sensitivity to the cultural diversity of music through experiencing, performing, and expressing it within the cultural context of future society. Music literacy, implied by cultural competence, includes not only acquiring knowledge but also appreciation of art. As a result of examining technological changes in music, the public document on music education, and the

curriculum in response to changes in the digital convergence education environment, terms related to music and digital media could be derived. In particular, it is noteworthy that the “Language and Media” subject was newly added in the 2011 revision. In other words, “Media and Society,” which was included in the 2009 revised National Korea Curriculum, was removed in the 2015 revised version(Ministry of Education, 2015a). However, it will be reintroduced as an elective convergence course in the 2022 revised National Korean Curriculum. Therefore, in this paper, the approach using various instructional technology tools related to the cultivation of digital literacy from the 7th music curriculum is to rethink the media-related elements in music and curriculum documents, and to change the music education and media technology accordingly in computer software development. This paper explores the changes in documents that have been transformed into artificial intelligence for sound media.

By combining the results of exploring the content areas of the music curriculum, music literacy-related and technical changes in music classes, certain terms were identified as key words.

2) 2022 revised Music Curriculum³⁾

In the 2022 revised National Korea Curriculum, the cultivation of music digital literacy pursued in the music and media subjects of the 12th grade, which is linked to the use of music media in 4, 6, and 9 grades, is as follows, if we reconsider in the context of the transition of technology utilization in the content system of the music curriculum. Specially the 2022 revision, the dictionary meaning of ‘medium’ focuses on the role of means of information instruction, and the scope of ‘media’ in the development plan is extended to instruments, listening tools, musical expression tools, digital media, and various other media. The use of classroom instruction is presented in a range of media related to music. The scope of “media” in the development plan is extended to include musical instruments, listening tools, musical expression tools, digital media, and various other digital sound media. The use of classroom instruction is presented in a range of media related to music, including digital technology and AI as soft as.

For example, [4 music03-04], ‘I am enjoying for listening music in daily life with feelings and curiosity’, it is suggested to use various methods such as singing, playing an instrument, drawing or video, or writing is suggested for use.

Being related to this in the case of [6 music01-04], ‘Prepare a simple type of performance and participate in music activities in daily life’. The middle school achievement standards with

3) Comprehensively quoted from (Ministry of Education, 2022, pp.85-89)

these connecting are as follows. The domain of expressive activities using media is as follow these. [9 music01-03], Recognizing the interaction of sounds based on the characteristics of harmony created by gathering various sounds using digital instruments, etc.' To have an attitude of cooperating together through music in a community. [4music03-04] [6music01-04] [9music01-03] In the achievement standard statements such as [9music01-03], the following <Music and Media> achievement standards. For example, [4music03-04], 'I am enjoying for listening music in daily life with feelings and curiosity', it is suggested to use various methods such as singing, playing an instrument, drawing or video, or writing is suggested for utilizing.

<Table 5> Achievement standards connection in music & music media

Process component	Achievement standards	
Media expressive activities	[4 music03-04] →	[12 music&media01-02]
	[6 music01-04] →	[12 music&media01-03]
Practical connecting	[6 music02-04] →	[12 music&media02-02]
	[9 music01-03] →	[12 music&media02-03]

*Note: Examples of achievement standards(Ministry of Education, 2022)

Being related to this in the case of [6music01-04], 'Prepare a simple type of performance and participate in music activities in daily life'. The middle school achievement standards with these connecting are as follows.

The domain of expressive activities using media is as follow these. [9 music01-03] (Ministry of Education, 2022, p.50) Recognizing the interaction of sounds based on the characteristics of harmony created by gathering various sounds using digital instruments, etc.' To have an attitude of cooperating together through music in a community. These achievement standard statements, [4music03-04] [6music01-04] [9music01-03], are connected with the following <Music and Media> achievement standards in high school level. Others[4music01-04],[4music02-02],[4music02-03], [4music02-04],[6music01-02] [6music01-03],[6music02-03],[6music02-04],[6music03-01],[6music03-02] [6music03-03],[6music03-04],[9music01-02],[9music01-04],[9music02-02],[9 music02-03],[9music02-04], [9music02-05],[9music03-01],[9music03-02],[9music03-03],[9music03-04]...etc.,achievement standards are related to the cultivation of digital literacy in high school level about music media. In the exploring activities of media, such as investigating, inquiring and identifying, understanding, discussing about media utilities, appreciating and critiquing, recognizing value and critical analysis are stated, according to statement of [12music&media01-01]~[12music&media01-04] achievement standards as follow.

Interpreting the types and characteristics of media used in music, and identifying changes and developmental processes. Interpreting the relationship between music and media, and discussing about the meaning and role of media utilities in music. Perceiving and critiquing music media, and recognizing the value of media used in music. Critically synthesize the influence of media on the music industry and take a balancing of view.’ In the practical connecting are about exploring the interaction, expressing, connecting, being in ethical aware, performing and creating activities are stated, according to [12music&media02-01]~[12music&media02-04] as follow. Exploring the interaction between sound instrument ideas and media, and expressing them by applying them to various situations. To be plan and developing creative works by connecting between music media and other fields. Individually perform or create by using media used in music independently. Developing the usage patterns and practices of media in music-related industries and environments, and critique them with a balanced perspective. It plan creative music works that be connected and converged with various fields using media. Have the right ethical awareness for the musical use of various media and digital technologies.

Above all, the achievement standard statements that were analyzed quantitatively were insufficient. Therefore, the key words such as connecting, creating, conceiving, developing, constructing, producing, integrating, practicing, etc. were visually interpreted with a word cloud as follows.



*Note: the 2022 Korean High School Music Curriculum and California Music Curriculum (California Department of Education, 2019a, 2019b, 2019c; Ministry of Education, 2022)

[Figure 1] Key-word clouds with digital literacy in archievement standard

The detailed statements were visually interpreted using a word cloud for the key verbs. Based on the keywords related to digital literacy and connected to [Figure 1], the curriculum documents

were compared to components of music and media according to the criteria shown in the following <Table 6>.

<Table 6> The criteria for comparing components of music media

Process-component	Key-verb	Related - Achievement standard statement	
Creating producing	Conceive develop construct integrate practice present	The 2022 Korean High school Music curriculum& Music Media	-Plan, develop creative works by connecting between music media and other fields. Individually perform or create by using media used in music independently. -Developing the usage patterns and practices of media in music-related industries and environments. -Plan creative music works that be connected and converged with various fields using media.
		California Music Curriculum & Media Art	-Use identified generative methods to formulate multiple ideas, develop artistic goals, -Plan, organize, develop creative ideas, models into process structures that can effectively realize the artistic idea -Integrate various forms and contents do develop complex, unified artworks
Responding	Perceive interpret	The 2022 Korean High school Music curriculum& Music Media	Critique them with a balanced perspective.
		California Music Curriculum & Media Art	-Interpretation and appreciation require consideration of the intent, form, and context of the media and music -Problem solve in media arts creation processes.
Connecting	Synthesize relate	The 2022 Korean High school Music curriculum& Music Media	The right ethical awareness for the musical use of various media and digital technologies
		California Music Curriculum & Media Art	-Music and artworks synthesize meaning and form cultural experience, ideas, works, and processes are shaped by the imagination, creative processes, and by experiences, both within and outside of the arts.

The process-components and related-achievement standard statements classified and compared in <Table 6> were briefly compared, focus on process-components in <Table 7>. See the <Table 7> as follow.

<Table 7> Process components in music subject & music media elective course

Music Media Elective Course (Ministry of Education, 2022)		Media Arts (California Department of Education, 2019a, 2019b, 2019c)	
Process Components	Achievement standards	Process components	Achievement standards
Expressive activities	[12music&art01-02]	Creating(Conceive, Develop, Construct)	[Prof.MU:T.Cn10] [Acc.MU:T.Cn10] [Adv.MU:T.Cn10]
	[12music&art01-03]	Producting(Integrate, Practice)	
Practical connecting	[12music&art02-02]	Responding(Perceive, Interpret, Evaluate)	
	[12music&art02-03]	Connecting(Synthesize)	

*Note: Process Components of Digital Literacy(California Department of Education, 2019a, 2019b; Ministry of Education, 2022)

It will be that the role of music education according to the change of media learning, in which a student becomes a media producer and consumer according to the change of the times, and the relationship between the contents of <Media Art> and <Music Technology> related to music media in the California curriculum. The possibility of connection was confirmed.

V. Conclusion

1. Discussion

As focused on comparing the goals and achievement standards for each subject in the educational content system, it aim to enhance digital literacy and provide educational materials for enhancing it(Lee, 2022). In this paper, it is suggested that technology can be effectively applied to classroom instruction and proposes to improve the systematic issues in and Media, which was reopened in the 2022 revision in Korea. In this purpose, the focus has been on exploring and comparing the Overview of General Curriculum(Ministry of Education, 2022, p.4), the subject matter of which was reopened in the 2022 revision(Ministry of Education, 2022), and the subject matter curriculum in California, USA(California Department of Education, 2019a). As a result of exploring and comparing the goals of the curricula for those subjects (Ministry of Education, 2019b, p. 4) the following commonalities were found as follows.

The first goal, stated as the key word of the music subject, is literacy as a capability. Second, it emphasizes the use of digital media and utilizes technology for digital learning. Third, in

connection with that, the focus is on adapting its value to the current instructional environment as a tool that utilizes digital media for art and music learning. Another result of exploring and comparing with the achievement standards of the curriculum found the following commonalities. In the case of the CA curriculum, digital literacy can be enhanced in music class. And for the purpose of reaching the goals that are guided by the media art curriculum. Items of process components related to content areas include multimedia communication, expression of creativity, connection between culture and history, high quality of life, community participation, and vocational education.

In this point of improvement for courses, it could be that the content areas are connected as follows. The first is the rescue of “Expressing,” which can connect “Understanding” and “Connecting,” as well as “Creating and Responding,” which are common areas of music, music technology, and media art. It should be supplemented by statements that provide specific direction. Second, above all, the characteristics of our music culture should be linked with the goal of the elementary and middle school music curriculum, which aims to cultivate basic knowledge of digital music with the ultimate goal of connecting culture and history and expressing creativity. Should be visible on the target. Third, it is necessary to emphasize its contribution to the development of various cultural industries. Accordingly, as a result of searching for and comparing the achievement standard statements of Music and Media in Korea, the following commonalities were found.

The first thing students can learn is how to apply and understand music using media by integrating, exploring, practicing, connecting, and synthesizing. Second, music literacy can be cultivated by communicating and cooperating in a virtual space through various activities, for example, communication, sharing, critique, response, and perception. Third, students can reconstruct music through imaging, planning, composition, production, integration, and practice with digital sounds. Fourth, expressive activities can enhance performance, creativity, conception, development, and construction. Fifth. Have ethical awareness in the use of digital technology and information. Ethics involve investigating, interpreting, and evaluating. Others will be more included, such as connecting activities and transversal competencies, as key components of CA Media Arts subject matters.

2. Conclusion

In the case of the “Music Technology” achievement standards and attainment targets, goals are established only at the proficiency level of the high school music department curriculum

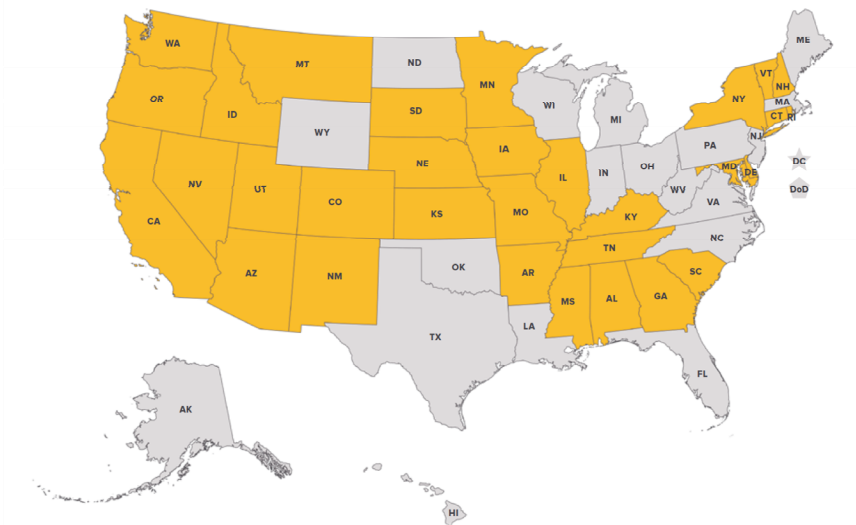
in California, USA. The four other detailed goals are related and can be connected to the goal of improving students' music literacy. For example, the achievement standards for the detailed goal of "multimedia communication and expression of creativity" are connected to the achievement standards for composition and theory of music general electives, as well as music technology. This is because artistic literacy, which includes music literacy as the ability to creatively enjoy media art, requires ICT instrumental literacy as a basic literacy in music. And the achievement standards of composition, theory, or music technology are connected to teaching and learning goals. Among other goals, the achievement standard that aims to connect culture, history, and a high quality of life is related to the achievement standard of ensemble or keyboard instrument practice, which students who want to study music in depth can choose. In the content area of ensemble or keyboard instrument practice, for example as Ensembles, Harmonizing Instrument, it includes band, orchestra, choir, guitar, piano, contemporary music composition and ensembles such as Mariachi, Bluegrass, Barbershop, Jazz activities. The achievement standard for the Harmonizing Instruments and Ensembles subject is composed of five scales, 'Novice, Intermediate, Proficient, Accomplished, and Advanced'.

The goals of the Music Media Elective Course presented in the 2022 revised National Korea Curriculum do not specifically aim to improve music literacy. However, they do aim to cultivate sensibility and creativity, which can be linked to sub-goal A. related to enhancing convergence thinking skills that can solve issues or problems related to music media and lead to innovation in future society. However, there is a high possibility that the achievement level scale, to be developed based on the achievement standard after it is confirmed, will be treated as a level 3 or pass subject.

In summary, the content areas of "Creating, Responding, and Understanding" in Music, California, USA and "Creating, Responding, and Connecting" in Music Technology can be connected through common content. Understanding and connecting activities between subjects is possible by considering the hierarchy of 'connecting'. Accordingly, improvements are needed for the content connection system between the Music Media Elective Course' matters in accordance with the Korean 2022 revision. And, in addition to commonalities, the points of improvement for the attainment target can be reconstructed according to the specific characteristics of Music Media Elective Course. These are suggested that the points of improvement among those, which the achievement standards stated, according to the attainment target of the subject, are as follows.

The first. the attainment target and the content system needs to be reconstructed with a detailed connection system between the Music subject and Music Media Elective Course. Second. After

the achievement standard is confirmed, the achievement level scale to be developed based on it should be composed of the same five levels as the core subjects. Third. In order to improve No. 1 and No. 2, if the three subjects of music, art, and drama are tied together in the art/subject group-common subject general high school credit allocation standard, a total of 12 credit are required credits +4 credits that must be secured. Fourth. This is because the course of completion can be designed by connecting the music subject matters and elective subjects of the 1st and 2nd year of high school with the music career of the student who chose music. Only when the credits for the music subject can be allocated, as in case 3. As follow in [Figure 2], about 31 out of 50 states in the United States offer media art courses to enhance digital literacy.



Note: (National Core Arts Standards, 2019, p.14)

[Figure 2] American States with media arts standards or competencies

The content area of “Creating, Responding, and Understanding” in music subject matters in California, USA, and “Creating, Responding, and Connecting” in Music Technology are interconnected. Understanding and ‘Understanding and Connecting’ between these subjects is possible by considering the hierarchy of ‘connecting’. Accordingly, the improvements needed for the content connecting and improving systematical between the Music subject and the Music Media Elective Course are included in the 2022 revised National Korea Curriculum.

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