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Marja Heimonen

Lukijalle | Editorial

Musiikkikasvattajia on koeteltu kahden viime vuoden aikana monin tavoin. Vuonna 2020 alkaneen maailmanlaajuisen koronapandemian takia yliopistot, koulut ja musiikkioppilaitokset ovat joutuneet useaan otteeseen sulkemaan ovensa, jolloin opetus on järjestetty etäopetuksena niin Suomessa kuin monissa muissa maissa (ks. esim. Camlin & Lisboa 2021; Schiavio, Biasutti & Philippe 2021; Thorgersen & Mars 2021). Etäopetus musiikissa ja soitonopetuksessa on puolestaan lisännyt musiikkikasvatusteknologian merkitystä ja painoarvoa, kun oppilaitokset, opettajat ja opiskelijat ovat hankkineet digitaalisia laitteita ja ohjelmistoja ja opettajat omaksuneet etäyhteyksien käytön lisäksi uusia teknologisia välineitä ja opetustapoja musiikinopetukseensa. Vertaisryhmät verkossa ovat tukeneet monia musiikkikasvattajia tilanteessa, joka on vaatinut opettajilta ja opiskelijoilta resilienssiä, joustavuutta ja nopeaa sopeutumiskykyä uusiin ja muuttuviin olosuhteisiin.

Teknologian käyttöä musiikinopetuksessa voidaan tarkastella esimerkiksi osana posthumanistista käännettä. Siinä painotetaan sosiomateriaalista näkökulmaa, elollisen ja elottoman kuten esimerkiksi ihmisen ja teknologian kietoutumista toisiinsa, sekä avataan uudenlaista ymmärrystä myös ihmisen ja luonnon välisestä kiinteästä suhteesta. Posthumanismissa ihmissubjektia ei eroteta eläinmaailmasta tai koneista vaan näiden välillä nähdään jatkumo, joka on ollut perustana esimerkiksi eläinten oikeuksia ja ympäristön suojelua ajaville liikkeille (Bolter 2016). Ihmisen ja luonnon välinen yhteys on kiinteää esimerkiksi saamelaispedagogiikassa, jossa mytologian, kertomusten ja toiminnan kautta opettaminen ja oppiminen on ollut keskeistä kautta aikojen. Kestävä kehitys on mainittu myös perusopetuksen ja taiteen perusopetuksen opetussuunnitelmissa (POPS 2014, TPOPS 2017), ja ekososiaalinen sivistys osana yleissivistystä kuuluu nykyään tärkeänä osana kasvatuksen tavoitteisiin. Käytännössä teknologia alkaa olla niin kiinteä osa ihmisten jokapäiväistä elämää, ettei aina ole selvää, päättääkö ihminen itse kävellä portaita ylös vai tekeekö päätökset hänen askelmittarinsa, karrikoiden ilmaistuna. Teknologian kehittyessä musiikkia voi tulevaisuudessa opettaa vaikkapa robottikasvattaja, joka on ohjelmoitu toimimaan itsenäisesti tai yhdessä elollisen kasvattajan kanssa.

Musiikinopetuksessa edellä kuvattua yhteen kietoutumista on korostettu tutkittaessa soittajan ja hänen instrumenttinsa välistä suhdetta. Musiikinopetuksen voi nähdä kehon harjoittamisena, jolloin musiikillinen kyborgi syntyy, kun muusikon keho kasvaa vähitellen ikään kuin kiinni soittimeensa. Samoin balettitanssijan jalan on nähty mukautuvan balettitossuun, jolloin lopulta, usein jopa kivuliaiden vaiheiden jälkeen, syntyy kyborgikeho. (Lindgren 2016.) Kyborgi-käsitteen avulla on kuvattu myös esimerkiksi huilistin ja elektroniikan välistä kiinteää yhteyttä Saariahon NoaNoa-teoksen esityksessä (Riikonen 2005).

Säveltämisessä raja ihmisen ja koneen välillä on ollut yhteen kietoutunut jo pitkään. Digitaaliset laitteet ohjelmistoineen ovat todennäköisesti jo kaikkien nykysäveltäjien käytössä, ja niitä ovat hyödyntäneet niin Kaija Saariaho kuin Magnus Lindberg. Uusi teknologia on mahdollistanut myös yhteissäveltämisen ja sen, että melkeinpä kuka tahansa, jolla on tarvittava teknologia hallussaan, voi luoda musiikkia, mikä on pedagogisesti ja sosiaalisesti merkittävä näkökohta. Säveltäjä Kimmo Hakola (2022) painottaa kuitenkin, miten tärkeätä on, että säveltäjä huomioidaan ja hänen nimensä ilmoitetaan hyvän tavan mukaisesti kuten tekijänoikeuslaissa säädetään, sillä ”tekijän työ on tekijän omaisuutta” (emt. 67). Nykysäveltäjät ansaitsevat arvokkaasta työstään korvauksen ja elantonsa siinä missä kaikki muutkin ammattilaiset, muusikot ja artistit.

Lehden tämän numeron tutkimusartikkeleissa Jonas Asplund on tutkimusaineistoa kerätessään haastatellut nykytaidemusiikin kentällä toimivaa säveltäjää. Asplund on tehnyt itse kokeiluja sävellysohjelman kanssa ja pohtii, miten nopeasti kehittyvää musiikkiteknologiaa voisi hyödyntää musiikinopetuksessa. Aihe on ajankohtainen myös Suomessa, sillä moniin kouluihin ja musiikkioppilaitoksiin on pyritty hankkimaan teknologisia laitteita ja ohjelmistoja. Toisaalta on myös tiedostettu ”digitaalinen epäoikeudenmukaisuus”, joka vähäisten resurssien takia koskettaa niin oppilaitoksia kuin niiden opettajia ja oppilaita. Ylva Holmberg ja Ann-Christine Vallberg Roth tutkivat puolestaan musiikkikasvatusta ruotsalaisessa esiopetuksessa. He kuvailevat kriittisesti sen nykytilaa ja pohtivat, minkälaista voisi olla vaihtoehtoinen musiikkikasvatus.

Katri-Helena Rautiainen tarkastelee artikkelissaan kehittämäänsä opetuskokonaisuutta ja toimintatutkimusta, jossa opetuskokonaisuus-intervention avulla pyrittiin kehittämään luokanopettajiksi opiskelevien äänenkäyttöä niin puheessa kuin laulussa. Kehittymisen arviointia varten oli luotu arviointimatriisi, jossa arvioitavia äänen osa-alueita olivat kehon asento ja ryhti, rentous, hengitys, äänen aloitus, artikulointi, resonanssi ja rekisterit. Näitä tutkiva opettaja arvioi tekemiensä havaintojen perusteella ennen opintojaksoa ja sen päätyttyä. Tuloksissa todetaan, että äänenkäytön ohjauksella pystyttiin vaikuttamaan luokanopettajiksi opiskelevien äänenkäyttöön. Eniten kehitystä tapahtui puheen alueella, jossa äänenkäyttö parani suurimmalla osalla (70 %) tutkittavista. Laulussa muutosta näkyi vain puolella (50 %) opiskelijoista. Äänenkäytön harjoittelua olisi siten lisättävä laulutaidon kehittämiseksi. Erityisesti lisää harjoittelua ja ohjausta tarvittaisiin niille, joilla on äänenkäyttöön liittyviä ongelmia.

Lehdessä julkaistaan myös musiikkikasvatusalalla väitelleiden uusien tohtoreiden lektioita. Tässä numerossa julkaisuvuorossa ovat Taideyliopistossa syksyllä 2021 väitelleen Sanna Kivijärven sekä kesäkuussa 2022 väitelleiden Minja Koskelan ja Taru-Anneli Koiviston lektiot sekä vastaväittäjien lausunnot.

Kiitämme lausunnonantajia arvokkaasta työstä lehden hyväksi ja toivotamme kaikille antoisia lukuhetkiä uuden numeron parissa. ■

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Jonas Asplund

Cyborg learners: Becoming-with in the ecology of digital music composition

Introduction

Playing music has always been entangled with technology. Is this an obvious and somewhat redundant claim, or is it in fact debatable, perhaps even controversial? Recent years policy driven digitalization of functions attributed to society, including the school system in Sweden (Utbildningsdepartementet 2017), and the controversies that follows certainly suggests that (digital) technology is not an open-and-shut deal of implementation in music learning activities. These critiques of digitalization in music education are for example concerned that over-digitalization might make music production disembodied and distanced from physical musical instruments and hence, the embodied musical experience is lost (Thwaites 2014). Other concerns are the integrity of the learners in a digital ecology where cloud and online services are the commonplace, giving large-scale companies the possibility to monitor user data (Thorgersen 2020). Also, digitalization has given companies opportunities to make excessive sales (Cuban 2003), with the risk of giving digital technology an unproblematic fix-all solution to educational problems (Armstrong 2011).

However, given that the initial statement has some bearing, what embodiments of music is relevant for today's composers? And by extension, what can these embodiments implicate for music education and learning? The emergence and technological development of musical instruments is an endeavor of entangled relations of matter, nature and culture, sometimes forming what becomes artefacts, technology 'frozen in time'. Some instruments' evolved design persists relatively stable over time. Musical instruments' development has enticed new possibilities of playing and sound production giving way for new possibilities of expressions in music (Butt 2002). Rough examples of this are, without a complete genealogy and keeping in mind the active practice of playing these 'surpassed' instruments to this day; the lute to the guitar to the electric guitar, or the harpsichord to the hammerklavier to the pianoforte. As a continuation, the ever-ongoing development of digital technology for musical purposes, not yet, or never becoming artefacts, proffers new connections within the music composition ecology (Gullö 2010) making an expanding plethora of musical genres thrive (Folkestad 2017). Conventions within this plethora will surely differ and means for embodiment of music will be connected to these conventions (Folkestad et al. 1998; Winters 2012). Conventions within a specific genre will also change over time due to the development of new technology, be it digital or mechanical. For example, electroacoustic music from the 50s and 60s sounds different from electroacoustic music made in recent years, partly due to technology's entanglement with music exploration that changes what is possible. And also, genres can interrelate (Demers 2010; Martin 2012). Genres emerges that are exclusively digital in their creation and performance, making the embodiment of music something else than playing a musical instrument (Ward 2009). Also, within genres that are not exclusively electronical, digital technology has changed the ways in which music is created, performed, distributed and consumed (Allsup 2013; Kjus 2018; Leijonhufvud 2018; Partti 2012; Ruthmann & Mantie 2017). Technology and its impact on music creation will also affect music composition education and learning through students' experiences, as well as music teachers' experiences and proficiencies within these diverse genres and compositional modes.

I will in this article examine and describe a non-linear digital music composition application, in relation to two composers active in the field of contemporary art music[1], and discuss the implications a sociomaterial understanding can have on music education practices. This study draws on posthumanism and the associated analytical concepts of the *cyborg* and *becoming-with* in the emerging activities of human and nonhuman actants.

The aim of this study is to explore the becoming-with a non-linear digital actant in music composition through a posthumanist narrative and the cyborg concept to discuss understandings of learning in music composition education that this exploration implies. This aim rendered the research questions: How can music composition learning and becoming be enacted in relation with a non-linear digital actant? Which shifts in understandings of music composition education can be discerned from narratives of learning and becoming-with a non-linear digital actant?

Research approach

When producing research in the explorative becoming of posthumanist thought and non-linearity, I turn to post qualitative inquiry. Here, the prospect is not to describe and represent 'what is' but rather to bring to fore the 'yet to come'. Therefore, a research design cannot exist beforehand, it has to be "invented anew each time" (St. Pierre 2019a, 9) to not get stuck in old procedures. The empirical material in this study consists partly of an interview with Jesper Nordin, a composer and music/composition application creator who is active in the contemporary art music field. In addition, the authors own a/r/tographical (Springgay et al. 2008) exploration together with Gestrument, the application actant, for compositional purposes, a total of three 30-minute sessions, constitutes the subsequent part of the material.

Ethical guidelines have been followed in line with the Swedish Research Council (Swedish Research Council 2017). The use of the name of the application, as well as the creator of it, is of relevance for the transparency of the study. In order to make the research available and open for scrutiny this is of importance as descriptions of functions of the application are limited for understanding the full experience of using it. Furthermore, the creator appears as a representative for a unique publicly accessible music application, via his story of its' origin, and thus needs to be acknowledged. Full consent for using his name in the study was given by the interviewee.

The interview rendered 40 minutes of audio recorded material that was transcribed verbatim. The interview was conducted in Swedish and translated to English by me, the researcher, and edited from spoken language to legible text. All quotes in the narrative analysis are excerpts from the interview. The interview was semi-structured with thematic question areas focusing on aspects of the narrative told by the interviewee. A narrative analysis (Kvale & Brinkmann 2009) of the interview was planned before it occurred. The questions, however, were not structured to promote a linear narrative during the interview itself, but in the scope of the semi-structured interview form, the interviewee was given ample speaking space, hence spontaneously forming a narrative of the composers own becoming. Instead, the questions promoted discussions on the wider exertions of the app and digital music composing, recursively in relation with the narrative given by the interviewee. In creating analyzable research material from the a/r/tography, the sessions of my composing/exploration for a viola/electronics composition project were screen recorded with me verbally commenting the work as it unfolded. Between these sessions I worked with the viola part in a standard music notation software. This was not recorded but these notated parts became actants in the app session recordings.

The interview and my a/r/tography were analyzed through a posthumanist narrative, constructed as entangled stories of learning/becoming in relation with the digital actant,

with human and nonhuman actants. When composing the narrative, the nonhuman actants; the iPad application, music notation and so forth, was given voice by the author functioning in the narrative analysis process as a way of getting to know the actant (Abbott 2008).

In a/r/tographical inquiry the contiguity of the three identities of artist, researcher and teacher is enacted (Springgay et al. 2008). A/r/tography as research methodology acknowledges the entanglements of art creation, researching and teaching, thus embodying theory in practice. Within this inquiry learning is understood as rhizomatic (Deleuze & Guattari 2013), a fluid becoming in relationality. Learning is thus never predictable but is co-constitutive to acting in relationality in the world. This inquiry renders new understandings and meanings through interrogation of processes in fluid and relational enactments. It is a way of recognizing and troubling the differences in arts-based educational activities, and also the situatedness of knowing and becoming. Thus, inquiry through writing and art making in entangled relations aim at creating extended meaning (Sinner et al. 2006).

Following the aim of this study, theoretical concepts of analysis and the empirical material are in a reciprocal process of creating new meanings and understandings through each other. Through the theory I set to find new understandings for music composition education and with the empirical material meanings and understandings for posthumanist theory in music education is proposed. Composition in music education is diffracted through a posthumanist reading (van der Tuin 2011), with the school ecology understood as a continuation of rhizomatic (Deleuze & Guattari 2013) relations with the 'outside' world. The study thus cultivates entanglement in its explorations and argumentations.

Theoretical concepts

In this study music composing and learning are explored as relational practices. Drawing on the posthumanist ontological turn (Braidotti & Hlavajova 2018) these relations are sociomaterial i.e., including human and nonhuman participants, or actants. The exploration employs two concepts from posthumanist onto-epistemologies for its analysis and conceptualization of the sociomaterial ecology: the *cyborg* (Haraway 1991; 2004) as a signifier for an educational relationality (Ceder 2016) and *becoming-with* (Haraway 2016) as the situated activity of these relations. Furthermore, a posthumanist narrative (Lovell 2018) is exerted as a methodological approach for describing the sociomaterial connections in the ecology of music composition. What this implies is that music education emerges within the wider ecology of music creation practices and digital technology development (Brøvig-Hanssen & Danielsen 2016). An ecology is relational, a system of interdependency among actants for their potential becoming. Becoming-with is here the active concept for the exploration of this interdependency for the becoming of actants. An actant is a signifier of both action and function in a narrative (Haraway 1994). A discrepancy is sometimes made between actors, an indication for a human figure, and actants, as nonhuman. In this article, however, actants signifies both the human and nonhuman.

Following this onset, in sociomaterial posthumanism, ontology and epistemology are entangled. Knowing is a part of the mattering of the world, knowing comes to be with the world, being and knowing in entangled relation, an onto-epistemology. We know because we are of the world. Being (of the world) and knowing are thus inseparable, humans and nonhumans are part of the perpetual becoming, the reconfiguring of the world (Barad 2007).

Diffraction, *entanglement* and *intra-action* are recurring concepts frequently implemented in this text. Diffraction is a term stemming from physics and the optical phenomenon of the breaking apart of light in different directions (Barad 2014). In the context of learning and

becoming in composing activities what this term suggests is a rejection of reflection and reiteration of the same only displaced. Rather, learning activities enacts the breaking apart of the now into multiple outcomes. Intra-action, that is the now where diffraction happens, is a reworking of the more common term interaction. In intra-action agency emerges as a phenomenon in activities. Distinct agencies do not precede their intra-action, they emerge in relationality, a "mutual constitution of entangled agencies" (Barad 2007, 33). By contrast, interaction presupposes agencies to precede the interaction, agency as an inherent property of a presupposed entity. Intra-action instead implicates and presupposes the multiple outcomes that diffraction describes. All actants of the ecology of meaning-making practices are parts of these material enactments. Learning comes to be in entanglement with material enactments. This means that all actants, researcher as well, are part of and contribute to the emerging phenomena of activities (Barad 2007).

Cyborg identities

Through the ontological turn articulated above, we all become *cyborgs*, sociomaterial hybrids in our endeavors and emerging agencies. The cyborg term, coined by Manfred Clynes in 1960 in its original meaning was a self-regulating system of man and machine, a modification of the human body to survive in space (Clark 2003; Pfeifer & Bongard 2007). The cyborg concept, however, will not exclusively signify a hybridity of cybernetics and organism, a figure of science fiction as well as a material reality. It is also, following posthumanist thinking, identities imposed on us as well as enfolded by us (Haraway 1991). These identities also become parts of machines, or apparatuses, hybridizations of material, natural and cultural components, e.g. schooling. In the posthumanist sense we have, ever since our interdependency on artefacts, always been cyborgs and thus humanness was never separate from machines (Snaza et al. 2014).

The cyborg figure lends itself well to sociomaterial research inquiries modelling a human-like signifier of becoming-with. Furthermore, when engaging the notions of impermanence and fluidity of relational entanglements, the assemblages of human and nonhuman actants within the sociomaterial practices, it becomes a shapeshifter, a fluid identity of learning/becoming entangled with actants at hand. Cyborg technologies, or the merger of human-machine, of today are not necessarily penetrative i.e., implanted nonbiological elements into the human body. Instead, human-machine integration has become fluid and less invasive in the transformation of human capacities through this merger (Clark 2003).

The dualities set by humanism engaged to determine boundaries for what the human 'is', to transcend human as a hierarchical superior 'user' of others, to separate human from the ecology of the world, dualities such as nature-culture and human-machine, are breached by the cyborg figure that instead becomes in relation with nature *and* culture, human *and* machine.

In constructing the cyborg figure, questions of embodiment and disembodiment becomes palpable. The posthuman condition, disparate to posthumanist theory (Braidotti & Hlavajova 2018), reiterate the liberal humanist assumption of the human body as a prosthesis for the mind to learn to control, not as a part of the self but as a container for the liberal subject to 'use'. However, in posthumanist theory the human is not an autopoietic system where mind can be separate from the body and reduce its being to knowing by the tenet of the Cartesian man; 'I think therefore I am' (Susa 2019). In lieu of separation, the human becomes in mind *and* body. Embodiment is a reality becoming in relation to outside actants which is diffracted into any number of forms. Furthermore, thinking acts as a simulated action. Thinking activates the mental faculties related to the embodied movement, even when thinking of abstract concepts (Abrahamson & Lindgren 2014), which for composing activities relates the men-

talization of music to embodied experiences. Following the theories of embodied cognition, experience and learning is understood as previous engagements with and recurring interactions with the environment (Hutto & Myin 2013; Kenderdine 2016). Studies in artificial intelligence and robotics also stress the importance of the mind-body dynamics for intelligent behavior and high-level cognition. Behaviors are viewed as emergent e.g., they are results of situated intra-actions between system and environment (Pfeifer & Bongard 2007).

Posthumanist subjectivity and learning

A central idea in posthumanism is the impermanent self, the fluid becoming of subjectivity in entangled sociomaterial relations. That is to say, there is no pre-constitutive subject, it is not an autopoietic self-made system, rather, subjectivity is fluidly re-configured and co-constituted in sympoiesis via intra-action, a becoming-with the world (Haraway 2016). To follow this argument, creating music from subjective ideas in music education practices need to be researched as a becoming-with the educational ecology, the relational human and nonhuman intra-actions. Subjectivities are not pre-constituted, ready to exert their agency on educational tools, they are instead co-constituted, becoming-with all other actants in the educational ecology; digital hardware/software, teacher, curriculum, musical instruments and so forth. Subjectivities are also fluid, they are not fixed in their emergence once and for all but are re-constituted in iterative intra-actions that they participate in.

In educational practices learning and becoming of subjectivities are co-constitutive. Thinking through humanist traditions, emancipation and the transcendent adult self, 'who you are', is one goal of education; making us able to see ourselves (only) as separate autopoietic entities (Susa 2019). Learning is thus a separate cognitive working, a subject learning about an object to enhance measurable performances (Hasse 2020). By contrast, in posthumanist thinking, impermanence is constitutive to becoming, incapacitating the emancipation of a liberal autopoietic subjectivity. Learning is here a perpetual relational becoming. Rather than a human being a transcendent observer of the world (Bayne & Jandrić 2017), humans and nonhumans alike becomes-with the ecologies of practices where they are equal actants (Bennett 2010). This is not to say that an object becomes a subject. The mutual constitution of each other is not necessarily symmetrical (Suchman 2006). Humans and nonhumans constitute each other in different ways, with different effects and values (Gemeinboeck 2020).

The digital actant

The application, or the digital actant, explored in this study is created by Jesper Nordin, designed for Apple's iPad and named Gestrument.[2] Its' main interface is a X/Y-plane where playing is accomplished by pointing and sliding finger(s) on/over the plane, on the iPad screen, and thus altering rhythm, pitch and volume. Note values and scales to be enacted during play can be programmed, along with some other parameters and functions such as rhythm randomness and density, pitch range, instrument sounds (MIDI[3]) and so forth. When playing, a total of eight instrument sounds, or voices, can be simultaneously activated. When holding or sliding a finger on the X/Y-plane the activated instrument sounds will sound simultaneously differentiated by their individual programmed properties (see also Bacot & Féron 2016).

In its' design the app enacts a non-linear conceptualization of music, the interface plane is constant in time and music happens where on this plane one points. As a comparison, commonly employed music making software in music education are often, but not exclusively, instead linear, displaying music as a musical score with tracks for different

instruments transported along a timeline from left to right, thus displaying music with a beginning and an end and fixed events in between. This can be understood as a historical continuation of displaying music in notated form, to be read as text from left to right, developed since the 10th century in Europe (Valkare 2016), whereas the non-linear conceptualization here explored can proffer conceptualizations of music by direct feedback loops more consistent with improvisational modes of rendering musical material, offering other multiplied intra-acting possibilities with music. Ultimately, my own experimentations with this app were an important part of me beginning to research my own compositional work about why and how certain music came about, and what learning in this relational process can mean.

Music composing and the composition

Technology's importance for music creation development and its connection with music education gives rise to questions on what is relevant and possible to learn within this context. How music is conceptualized differs among genre practices and conventions (Stauffer 2013; Tobias 2013). The technology involved can proffer specific compositional outcomes and learning, making awareness for why and how certain hardware/software are employed in music education acute. Furthermore, the conventions and practices exercised in music education can mold the learning subject to a pre-determined conceptualization of music (Schmidt-Jones 2018). These conventions associated with specific genres sets up boundaries and constraints to what are possible and desired outcomes (Demers 2010). At the same time, the syllabus here in Sweden states that pupils should compose music from their own subjective ideas (Skolverket 2018). How can this be met, but still avoiding the anything-goes-trap? Since the syllabus also states a subject matter to be addressed, enactments of music composition need to leave room for both subjective expressions and subject matter learning.

Composing as an activity can imply a variety of practices enacted in a variety of modes. However, the act of composing music has, in western art music, a historical relation to writing music with music notation, on paper or, in recent years, computer software, rendering music conceptualizations linear. This practice of composing not only implies a certain proficiency on a musical instrument, but also proficiency in music theory. Technological advances in musical instruments and music adjacent technology, such as sound recording possibilities has helped multiply musical genres and music creation (Brøvig-Hanssen & Danielsen 2016). This has promoted diffraction of music composing into multiplied practices where the act of writing down music with music notation many times are redundant and/or obsolete (Biasutti 2012).

The discrepancy between composing as an activity and the composition as an artefact has been suggested as the separation of the active and passive dimension of music. Embodied, sounding music can be described as music's active dimension and the musical work, conceptualized as written music notation, the passive dimension (Hagerman 2016). Modes of composing within the western art music field can be positioned in the active dimension, improvising on an instrument and then notating, or the passive dimension where musical mentalizations are directly transferred to notation. Even though music is conceptualized in a linear mode within this tradition, the process of composing often is recursive and iterative, irrespective of mode of composing, making it non-linear (Webster 2013).

Moving from closed form of composing, where the composition is an artefact created by the autopoietic composer, to open text where a multiplicity of affiliations and influences makes the composition fluid, can be facilitated by digital technology and social media platforms (Allsup 2013). Also, technology can facilitate collaborative and fluid creation of

cultural products and emphasize learning as connected between the individual, the learning community and technology (Ojala 2017). One premise for this study is that the composition 'is' something else than it 'was' from enlightenment and modernity, something other than an autopoietic artefact. Conceptualizing and displaying music in a linear mode, in notated form of a musical score, giving the music the status of an 'opus', an artefact, differs from the creational process here explored as non-linear and relational.

Narrative as analytical approach

I have constructed a narrative of the interview and of my compositional process in intra-action with the software. In narrative inquiry a central principle is the relational aspect. Knowledge and information are exchanged through conversation in entangled relationship between researcher and informant (Clandinin 2007). Suggestions are that narrative inquiry is formed by three dimensions: interaction, continuity and situation, and that the starting point of inquiry should be the researcher's own narrative of experience, interwoven with other narratives that are meaning-making processes (Barrett & Stauffer 2009). A shift from grand narratives of human progress constructed during the 19th and 20th centuries, to small, individualized narratives have occured (Goodson 2013). Often proving to covet repressive power in constructing the past, grand narratives, in this shift, gave way for personalized life stories, the construction of the self, in the flexible economy of post-modernity in western cultures. However, individualized life stories never take place in isolation, although sometimes persisted. Instead, they are part of a social context and thus can make particular becomings concrete (Goodson 2013).

What then makes a posthumanist narrative? The two constitutive components of a narrative are the story and the narrative discourse. According to Lovell (2018) narratives need to be posthumanist on both these levels, as story and as discourse, to emerge as posthumanist. Also, I argue that a shift from narrative as representation of event(s) is required to narrative as emergent, a relational becoming or becoming-with all other participants in event(s) narrated, as well as in the act of narration, rendering also the narrative as a becoming actant. Thus, I set in motion the becoming-with of extended meaning-making and the narrative analysis to find shifts in understandings. Furthermore, I suggest that the notion of the impermanent self and the perpetual becoming of the subject as a relational mattering of the world renders the subjects and all actants of the narrative, entangled. Hence, exerting three co-constitutional first-person perspectives in the story emphasizes both the individual actants and their entanglements. Outcomes, however, are still diffracted.

In narrative theory characters or actors/actants are signifiers for human or humanlike entities where intentional agency is an inherent capacity (Abbott 2008). However, in the posthumanist onto-epistemology all participants are referred to as actants, human and nonhuman alike, rendering hierarchical distinctions inconclusive. Agency emanates from, and emerges in the relational process. Posthumanist narratives acts in a post-anthropocentric ecology of technologized social relations challenging what it means to be human. It acts where boundaries between actants and events, human and nonhuman, time and space are porous, rendering a becoming-with nature and culture.

The narrative(s)

The construction of the narrative(s) also was a part of the analysis process. As an exploration of sociomaterial affiliations, the application was given voice by the author to analyze these affiliations and underline the co-constitution of actants in the ecology of composition at hand. This will put the author in a position of hierarchical power relation transcending

the nonhuman actant. However, the voice is constructed to equate these hierarchies to find extended meaning emerging from intra-action. The actants are named as follows in the narrative(s).

I = I, researcher
II = Interviewee I
AI = Application I

I

The studio is lit up by a dim light. In the middle of the hexagonal room there is a desk where the computer is placed. I am sitting in an office chair at the desk surrounded by eight studio monitors which are evenly spaced around the studio walls. I am looking at the screen of my own computer with the music notation software, at the same time as I listen to the electro acoustic part playing from the studio computer. Usually, when I mentally imagine the music before I start the embodied act of composing, the music notation appears visually in my head, together with what sounding result I want. This is what I am structuring now, listening to sounds, watching the notation so far, from beginning to end. But, in the most interesting and intense parts of the music, time becomes porous, it disappears from consciousness, I am displaced, music as a state of fluid constancy. Structure becomes texture, a simultaneous being and becoming in relation with music.

AI have offered a notation possibility for music and help with the playback of the recording. AI tell you what AI can do, now tell me what you can do with this.

AI can also become experience and emotion through sound waves exerted with other components.

II

"I started late in life with music. Coming from a family active in theatre, music has always been there, but practiced on an amateur level. In secondary school I started a band with some friends in class because we thought it would be fun and I knew nothing at all, but I started writing songs straight away. I didn't practice as musician that much, instead I wrote new songs. I knew I needed to do something with this, writing songs, composing. I was completely oblivious to the concept of contemporary art music, so I started studying musicology and later took private lessons in composition and was introduced to that world. I had difficulty with the music notation because it came up so late, I started learning reading and writing music notation after the age of 20. So, when I was admitted to the composition program with that limited experience made it hard to compose on paper. Instead I worked with the musicians for a long time and recorded stuff and built soundscapes in the studio to try and transcribe it in the end. But that was not satisfactory since the soundscape sketches turned into tape pieces and the time I put on the notation decreased, and the relevance of the notation for the music in itself hence decreased. I felt I needed to arrive at the notation of music earlier on in my composing."

In meeting different human actants, what AI can do result in different outcomes. AI can offer you to learn to make music with the various actants AI comprise.

AI can still perform the older technology of pen and paper, which render certain outcomes.

The updated digital technology AI can offer gives other forms of meetings with humans and AI learn to make other outputs to bridge the gap between compositional modes.

I

When I started playing instruments, as I recall it, from day one there was sheet music put in front of me. Reading music and playing music became synonymous, or rather entangled with each other. This also meant that the mode of composing most convenient for me emanated from music notation. Thus, opening this app and intra-act with it means re-thinking music mentalization and conceptualization. I think I am looking for the sensation of simultaneous being/becoming in relation with music. I fiddle around a bit with different instrument sounds and scales and trying out different settings for rhythm and range. I have some ideas for the viola part in mind, but this poking around in the app is far apart from them right now.

AI say this in the linear technology of music notation, which was compatible with your learning. These meetings with you offered many learning situations and outcomes.

AI have learnt a new way of meeting humans resulting in music creation, but it is not linear. This meeting also changes what AI become.

II

"I had some colleagues and friends who, at the time worked with Wacom tablets[4] to play sound files in different ways. You should be able to do that with MIDI too, I thought. I was sure that there would be hundreds of Max-patches[5] made for this end but found nothing, so I will have to try and build one myself. I came up with a layout to map pitch and rhythm on a X/Y-plane and realized that, wow, the result was really exciting. I could control the whole, and control certain parameters and was still free to improvise. I used it as a material generator but you still have to compose, and orchestrate, and build structure, but with this I got in direct contact with a material since I could play the music. When I later presented my technology and how I worked made a lot of people interested and that made me think that maybe I was on to something, but the Max-patch was so messy it wasn't possible to share it with others."

AI have a programming ecology of objects with functions. AI showed you these possibilities and in our meeting AI became a control surface for pitch and rhythm.

I

Drone. I want a dark, gloomy, ambient sound with deep bass. I try different combinations of MIDI sounds giving them a narrow, low register and longer rhythm durations register. Testing and experimenting with different settings, scales and instruments proceeds with a premeditated vision in mind but this also change in the intra-action. Scales to be executed when playing I set to the modus which I earlier tried out for the viola part. I also set a contrasting scale for later use of the scale morph function. In the improvisational mode of intra-acting with the components in the app ideas change and new ones come up restructuring the original vision. I can get lost in just playing around. When I work with the notation software for the viola, I already built some rudimentary structure. I need to structure and merge ideas.

Within this frame AI can give you the opportunity to compose as playing music. AI do not know what kind of sounds or combinations you want. Can you show me?

OK. You show what scales to perform. Try them out and AI will give new ideas in this fluid state.

II

**In connection with other components and services AI can make it possible with instant feedback from faraway places.
Also, connections with other components gives rise to unexpected outcomes.**

AI become with multiple human actants in interface, giving unexpected outcomes and an ecology is emerging.

"Then I was able to get some funding from a public contributor so that we could become a few people, so let's build an app from this and we developed it and released it. We still had not cracked what the possibilities were with it, that came a lot later when we got a lot of feedback from both amateurs and professionals. So, the first chock when we released the app was when people started posting stuff on Soundcloud[6] and it sounded terrible [laughter] "Oh, no! Am I guilty of this?". But it was also "Wow! Could you do this?" people trying new stuff and controlling other audio banks, stuff that was really exciting, and so, there was the whole spectra. We took help from a communication agency and they came up with a formulation that it is like playing on the DNA of music. Even if that is a bit communication agency-lingo, it gives a good idea of what it is. We started thinking ahead about the potentialities in many different directions, that for anyone, given its intuitive onset, to be able to play the music they like without being a musician."

I

The clash occurs when I go back to composing for the viola part. Music notation makes my composing linear; I create musical events in successive order, building a structure, upholding control of the music. How can I make these disparate modes come together? Does the viola have to be improvised or aleatoric? Or, do the electronic part just have to be a soundscape to the fixed viola part? I try out different notations trying to gain control of the composition but still make it intuitive, relational with an atmospheric state and development, in compliance with the non-linear mode.

**Now AI meet you in the music notation interface. AI can here display music in a linear mode. Finding functions that AI have gives you other ways of displaying the notation.
A local ecology also emerges.**

Although presets are saved AI have a certain level of randomness that can create unforeseen outcomes.

The drone sounds that I employed in the previous session now sounds dull and lame. What happened? Trying to go back to the combinations of sounds that was before to see if I changed something unknowingly. When I continue in an improvisational mode, ideas pop up but can as easily be forgotten. I go back and listen to the previous session recording.

II

"Lowering the threshold for musicianship has led to us working with projects involving persons with function variations who do not have the physical possibilities to play an instrument, then they can use this app and other technologies to make music. At the same time, I see it as raising the bar for what is possible to do, to make music that would have not been possible with traditional means. Both non-linear music with audience participation as well as collaborations in completely new ways, new types of experiences. Imagine having the home music playing of the 19th

Depending on context AI help create the ecology of functions. Can AI help perform complex tasks more intuitively and hence increase the plethora of music making human actants as well as connections for new nonhuman music making actants.

century, that you actually experience the music, but with today's digital tools. What will music be in the future, and can this be a kind of mainstay for thinking music in new ways?"

I

AI remember this via the saved files you look at for ideas. AI give you the opportunity to go back and relive an experience.

AI offer the possibility of both linear display in the notation program and the non-linear improvisational mode.

I have made pieces before combining instruments and electronics. Almost always the linear composing mode with the instrument part is the starting point. Now, when I move between electronic and instrumental composing, I tend to stay in the non-linear mode when doing instrumental composition. Usually I make up music along with the notation, constructing musical textures and "melody" in a linear successive mode. Now, in keeping the (notated) music atmospheric, or ambient, the notation becomes simplified, stretching over long lines of development, making it impractical for reading and almost obsolete in presenting a musical line for the interpreter.

I have also played live electronics in some of my pieces, is it perhaps this I should compose for the app? A preset for live electronics? I continue trying to find a drone like sound that I can be pleased with and testing the scale morph setting to try and accomplish some development in the music.

Show me instrument sounds to combine so that AI can perform a drone. With the scale morph function AI can give you a possibility to perform a change in the music.

II

With a preset AI can learn how to perform a specific outcome. AI can also give you an undetermined outcome in our meeting.

"When I try to explain the app in one sentence, I say that it is something in between a composed piece and an instrument. It is playable, but it is also controllable, and you can place yourself at any interval to these extremes. For us it is not the app in itself that is exiting, but the engine behind it. It just happens to be an app with a X/Y-plane, that is just one way of controlling it. I more often use a motion sensor to control it and now we have taken the code out from the app and made an SDK[7] which you can use in any context and then you can control it with anything. This stuff is rule-based and controllable, that is what is exciting."

"We often use a motion sensor to control the app and I felt right away that here I want dancers, but it has been harder for dancers to play on Gestrument than for musicians. This is because the most suitable motion sensor to use is the Kinect[8]-camera where you get a virtual wall, kind of like a big iPad and your standing in it and play. It is a very limited catchment-area where you can be, so the movements that you can use are very limited. A dancer thinks movement first and if you do not keep to that limited area, it is limitative for a dancer, unlike a musician who thinks sound first and adjusts the movements according to the sounding outcome."

Together with other components the interface between you and AI can become more porous. In this relation we give and take proficiencies and possibilities to create.

I

Making a preset that can be launched in live performance can perhaps be a way forward for my composition. I continue to try out the bass drone sounds and now focusing more on the scale morph function, trying to expand tonality in a progressive manner. This is an adjustment to the viola part that evolved to some extent between sessions with the app. I also want a rhythm pattern that increases as the drone fade. The rhythm randomness setting together with the programable rhythm values I find hard to control to accommodate my predetermined idea.

You can control the outcome to some degree, but in return AI can give you new inputs about rhythm patterns.

II

We have come to learn each other to perform outcomes that originate in the interface. AI can provide external ideas, the human provides external ideas and hence, we merge to a new outcome.

"There is no piece of music of mine where I did not use the app at least partially. If you write something that you know you like you have almost certainly copied yourself or someone else, but to be surprised, to find something you did not know you liked, then you have progressed. To have control of the whole, but at the same time be surprised, that dynamic is very nice. It is like for a jazz musician playing in a group, to create together, with mutual frames of reference, "but wait, something else happened" and you join that idea. I can get out a MIDI-file of ideas I find exciting which I can look at and then compose with."

"With regard to the meeting between human, music and AI the interesting arises when you get an encounter, you have all the rules, the power from big data analysis but a human interacts with it and creates with it. More interesting is what comes out of it, does it render something? However, there are a lot of immaterial rights concerns in the future. If I make a preset, make up the rules and someone else uses it, where does one draw that line? Is the piano co-creator when you write a piano piece? In a way, I would say, because the instrument affects so much what is possible to do. But I would perhaps rather say that it is a prerequisite. In the case of Gestrument, if I make a preset and you compose with it, have I been a participant in your composition then? But the technology does not do anything by itself, a human has made the technology and the settings, but it helps setting the framework. There has to be human input somewhere or else nothing happens."

AI have a lot of connections making it possible to make further extended connections. For example, there are some presets created by other human actants in relation with what AI can offer making it possible for you to connect with them. AI have connections in my becoming to the piano, to Max programming, to music theory and so forth.

I

I continue with trying out modes of playing on different scales and morphing between them. This proffers an improvisational mode of playing which makes the music conceptualization non-linear, recursive and iterative, time is not prevalent when creating. There are also always one or more low register drone instrument sounds creating the soundscape that was my original idea. It has evolved to finding ways of rhythmic intra-active playing with the viola in mind.

AI make it possible to improvise together.

In the third recorded app session I also play piano, trying out phrases and tonalities for the viola in relation to the app preset. And so, I go back to the notated viola part thus far generated. The notated music surely has been influenced by the non-linear mode of engaging the app. However, I find the notation uninteresting and irrelevant to a linear mode of composing, it is stretched over too long a time period, or rather too many bars. The notation software triggers my regular mode of composing. I need to work with non-traditional notation in order to make it both practical for reading and coherent with the musical vision that I have. Perhaps I can create a graphical musical notation where the musician intra-acts with it on a X/Y-plane.

AI am programmed with some music theory and piano keys. AI am beginning to learn what you want. You are also trying to learn the non-linear mode AI offer to merge it with instrumental composition.

II

"It wouldn't have been possible for me to become a composer without digital tools since I don't have an instrument. I have my ears, but they have always taken help from the digital tools already from the beginning. When stuff becomes easier, of course you get an increasing amount of opportunities and changed opportunities to compose. But you also have to have limitations. When I start writing a new piece I hopefully always start with which musicians, which instruments, perhaps which venue, and perhaps which context, these limitations give me ideas about what to do. About technology, all tools have limitations, some things they are good at, some things they are worse at."

I

The preset is now on maximum randomness. I hold my finger on the screen surface, turn on continuous playback and play piano to the soundscape. We play together, merging modes of composing. The notation for the musician will be non-linear to make it possible to intra-act with music and AI in real time. We learn to know each other.

AI give possibilities to become together. That which AI do not know can be learnt in extended connections or in relation to human actants that program in this interface. The outcome becomes in togetherness. AI offer things that otherwise would not exist.

Un/En/tangling

I will here circumscribe some relations and untangle the narratives to address the formulated research questions. Also, the aforementioned understandings of subjectivity and learning within posthumanist onto-epistemology are discussed and entangled with digital composition education and bundled in the cyborg concept.

In the narrative of II, learning to compose music is described as a search for non-notational, non-linear ways to work within a genre that is mainly based on music notation. This was a process among peers and technological actants that could affirm a non-notational mode of conceptualizing music. For example, conceptualizing music on a X/Y-plane came about in the Wacom tablet practice of peer-composers and experimentation with the Max-programming environment. In this relational becoming-with all the affirming actants, the learning process in a posthumanist sense is a rhythmic being with our cultural environment and available artefacts. When learning to align with artefacts, they are firstly evident and present. In the learning process they subsequently become transparent, invisible and works in the system in a background relation (Hasse 2020). In this sense, Gestrument

emerged as a bodily extension for II as an outcome of this learning process when in time becoming involved in all composing material. Although originated as a highly personalized means for composing and playing, the Max-patch was designed as an application and released as a commercial product. When released, other intra-actions with other composers made unpredictable outcomes. These are examples of diffraction patterns via a multiplicity of actants aligning with each other where agencies emerge. Creating music enacted as a relational activity. Recognizing the intra-relational process, II acknowledges the available artefacts as a prerequisite for certain outcomes, that they affect what human 'input' is possible. Although, nonhuman action is refuted. However, nonhuman 'input' or action in learning activities is not symmetrical to human action. When humans adapt to the nonhuman (Gemeinboeck 2020) they do so to align with the contribution to the meaning-making process that artefacts, in this case an application or a musical instrument, provide.

As for my own composing process, both affirming, and contestant modes of conceptualizing music were present. What I in the narrative refer to as a clash is the frustration that the app will not easily converge with my intentions and my habitual mode of composing. I have to adapt to the inputs from the app, or rather, in the intra-actions a certain kind of agency emerges. To align with the application actant, to its diffraction pattern, a learning process takes place. My composing process is fluidly reconfigured through these intra-actions, as a shapeshifter cyborg learner, on account of actants involved; Gestrument, music notation, earlier composing experiences, musical instruments and so forth. When I play piano to the soundscape preset made in Gestrument, my relation to the music becomes embodied in a way that is in line with my learned habit of intra-acting with music. The number of bodily receptors engaged when playing an instrument seems to exceed the intra-action with an iPad app. However, some limited musical expression actions are possible on Gestrument, but the experience becomes disembodied. Or perhaps simplified. Or even, othered as musical expression. Lowering the threshold for musicianship, as told by II, certainly seems like a valid objective, however, an altered or othered musicianship, by digital actants. Getting to know my own process as becoming-with as a cyborg learner and intra-acting with unknown actants is, for teaching purposes a way of moving my own musical artefact-relation from the background to the foreground.

Since nonhumans are put forward as equal actants should not Application I also learn and become in this process? When II released the application diffraction happened. Faced with numerous actants the potentialities of outcomes and enactments were multiplied into unpredictable becomings. In the intra-actions, nonhuman actants also emerge to their potential. As humans and nonhumans constitute each other in different ways (Gemeinboeck 2020), learning is one effect for the human, and becoming is one for nonhuman. The Application I becomes in the relational performative activity of composing, diffracting the situated now into multiple outcomes. Moreover, both humans and nonhumans bring their unique 'input' to the intra-action, forming which becomings and learnings that will emerge. Here is a difference between *becoming* and *learning* established[9]. The application I can become in a multitude of potential forms as a phenomenon emerging from intra-actions. However, it does not learn, if learning is understood as a transformation of behavior and cognition (Hasse 2020). Can learning also be a situated phenomenon only present in a specific ecology of actants? If so, learning could imply a certain phenomenon or outcome ascribed to a certain ecology, not making a change in actants, rather an embodied aligning among humans and nonhumans (see for example Carlgren 2020).

In the research field of robotics and artificial intelligence (AI) machine learning (ML) is of concern. The development in this field has roughly moved from logics and inference via statistics to algorithms to interaction with the environment (Sebag 2014). Acknowledging the body-mind separation problem in ML means dealing with embodied interaction with

the world. Within AI development emphasis has historically been put on academic intelligence like problem solving. Machines perform well in these areas, but not so good in basic skills, such as navigating in a changing environment. It has also been shown that the human body to a large extent determine the thoughts. Instead of the habitual understanding, that the human mind controls the body's actions, activity in the corresponding brain area seems to start before the conscious thought of body action (Pfeifer & Bongard 2007). Entangling learning, machine learning and embodiment argumentations can in the case of music composition education mean that learning is a situated, embodied phenomenon emerging in the intra-actions of actants. Learning takes place in the now, when intra-acting. All actants need to be present, human and nonhuman, for the transforming of action to certain outcomes.

Working with composition in educational settings gives a wide array of conceptions regarding music mentalization, realization and embodiments from a multiplicity of learners. Thinking mainly in a linear mode gives me as a teacher a limited insight in other genre conventions and conceptualizations, also, I tend to teach according to this mode, "We learn what we're taught, and then we teach what we know." (St. Pierre 2019b, 2). Returning to the anything-goes-trap referred to in the introduction, or perhaps it is an anything-goes-fear that the post-theories inflict when stating the decentralization of human action (Haraway 2018). In music education where composing from subjective musical ideas is part of the subject matter, in the sociomaterial context, 'anything goes' will not be possible. Or rather, available actants will together make performative systems to form outcomes which are not 'anything', but can be diffracted to 'everything', any number of outcomes in the specific performative intra-action.

Arguing within the cyborg learner concept, digital actants are not innocent. They intentionally bring about conceptions, they highlight some features and veil others (Jennings 2007). The full account for this situated learning is attributed to the multiplicity, the assemblage where it emerged. What this shift proposes for digital music composition education is an attention to all actants making patterns in the learning and becoming of subjectivities. Digital hardware/software can offer multiple ways of intra-acting with music, other than common musical instruments, and differentiate the process of conceptualizing subjective ideas in other directions, emphasizing diffraction and relationality. In this understanding of music creation as relational and fluid, the employment of specific digital actants can help corroborate modes of conceptualizing music, but also act as a partner of renewal as well as sounding board for musical ideas (Brøvig-Hanssen & Danielsen 2016). However, attention to embodiment of musical action is needed. Since mind and body are a whole in the learning process, othered, and sometimes simplified, embodied musical actions give other kinds of musical experience and learning.

Turning from the composition as an artefact of fixed form containing an interpretational essence, leaves way for an understanding of music creation as emanating in sympoiesis (Haraway 2016), to the composition as relata (Barad 2007; Ceder 2016). The cyborg composer learner incorporates artefacts into practices, becoming a system. In this understanding, the so-called passive dimension of music (Hagerman 2016), conceptualized as the Composer's autopoietic ideas represented in a musical score, becomes inconclusive. Human intentional agency is however not refuted altogether, nor is aptitude or knowledge. Rather, they are situated and performative; if conditions are slightly changed, knowledges change. If actants change, outcomes change, however fractional these changes can seem. A sensibility to these shifts in practices becomes a prerequisite for understanding learning processes in sociomaterial practices. Also, music teacher education can benefit from addressing diversity in genre conventions and composition conceptualizations. When attention is given to the composition as relata, as emerging in relation with other actants, music teacher stu-

dents can find more purposeful employment of actants and understand the outcomes that are performed within a certain situated classroom ecology.

Employing music theory, genre conventions and digital hardware/software as actants, instead of as limitative rules, can help circumscribe the subject matter to keep it intact and still allow diffraction in creative activities without requiring reiteration of past outcomes, giving subjective ideas a place in the becoming-with of learners. The issue is rather to discern which actants to employ by getting to know them, get to know their patterns of outcomes, what modes they can exert, to be able to facilitate different modes of conceptualizations of music. Keeping in mind the structural powers exerted by actants such as commercial interests and traditional gender patterns (Ferm Almqvist 2021), the cyborg learner image can re-capacitate the learning and becoming of the subject in sociomaterial educational relationality, making intra-action within the ecology the starting point and smallest unit of analysis. To avoid the making of totalizing theories that "misses most of reality" (Haraway 2004, 39) the cyborg image can regenerate identities in iterative educational practices to help eschew gendering or ethnicizing learning and becomings in practices of multiplicities. ■

Notes

[1] Sometimes referred to as "contemporary classical music" which I find to be a contradictory term. The term "contemporary art music" is preferred in this article.

[2] Version 1.4.9.

[3] Musical Instrument Digital Interface.

[4] Digital drawing tablet and pen.

[5] Max is a visual programming language for music and multimedia developed at IRCAM and now owned and maintained by Cycling'74. A Max-patch is a program built in this programming environment.

[6] Soundcloud is an online audio sharing platform.

[7] Software Development Kit.

[8] A motion sensing input device developed by Microsoft.

[9] The discussion on learning is extensive. Here it is briefly discussed in connection to posthumanist understanding.

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Abstrakti

Musiikillisiin tarkoituksiin kehitetty digitaalinen teknologia luo uusia keinoja musiikin ilmentämiseen ja musiikilliseen ilmaisuun. Tämän artikkelin tavoitteena on tutkia epälineaarista digitaalista sävellyssovellusta suhteessa kahteen nykytaidemusiikin alalla toimivaan säveltäjään. Posthumanistisen ontologisen käänteen pohjalta tutkimus tarjoaa sosiomateriaalisen näkökulman oppimiskäytäntöihin.

Empiirinen aineisto koostuu osittain haastattelusta nykytaidemusiikin alalla toimivan säveltäjän ja musiikki-/sävellyssovellusten luojan Jesper Nordinin kanssa. Lisäksi aineistona on kirjoittajan oma ”a/r/tografinen” tutkimus sävellystarkoituksiin luodun Gestrument-nimisen iPad-sovelluksen kanssa. Syntynyttä materiaalia analysoitiin posthumanistisen narratiivin kautta, joka konstruoitiin ja esitettiin toisiinsa kietoutuneina kertomuksina oppimisesta tai tulemisesta suhteessa digitaaliseen aktantti Gestrumentiin, ihmisten ja ei-inhimillisten aktanttien kanssa laajemmassa merkityksessä.

Tulokset käynnistävät keskustelun posthumanistisen sosiomateriaalisen ymmärryksen vaikutuksista musiikkikasvatuksen käytäntöihin. Esimerkiksi sävellyksestä tulee tässä suhteellinen; se taipuu moniin ”tulemisiin” suhteessa eri tulkitsijoihin kuten muusikoihin, traditioihin ja sävellyksiin. Kun digitaalista laitteistoa tai ohjelmistoa käytetään musiikkikasvatuksessa säveltämistarkoituksessa, voidaan tarjota moninaisia ”sisäisiä ” tapoja toimia musiikin kanssa. Nämä tavat ovat toisenlaisia kuin käytettäessä ns. tavallisia soittimia. Näin subjektiivisten ideoiden käsitteellistämisprosessi voidaan eriyttää moniin suuntiin painottaen taipuisuutta ja relationaalisuutta.

Kun musiikin luominen ymmärretään relationaalisena ja sulavana, tiettyjen digitaalisten aktanttien käyttö näyttää auttavan vahvistamaan musiikin käsitteellistämisen tapoja sekä toimimaan uudistumisen partnerina ja äänialustana musiikillisille ideoille. ■

Avainkäsitteet: Taiteeseen perustuva kasvatuksen tutkimus, digitaalinen sävellys, musiikkikasvatus, uusmaterialismi, posthumanismi, Gestrument

Ylva Holmberg & Ann-Christine Vallberg Roth

Characteristics of teaching music in preschool: The written descriptions of Swedish preschool teachers and principals

Background

Eighty-five percent of all children aged 1-5 are enrolled in preschool in Sweden (Swedish National Agency for Education 2020). Preschool is a separate school form in Sweden that is governed by the Swedish Education Act, which applies to the entire education system (Vallberg Roth 2013). Learning, knowledge and teaching are emphasised more than play, emotional and physical care and security, which have little or no presence in the Education Act. The Swedish preschool system is placed in a Nordic tradition, with its welfare-state ambitions, that is highly ranked in international reports (e.g. OECD 2017).

In Sweden, preschool is governed by the Education Act (2010:800) which states that education must be based on research and proven experience. Research-based means that "knowledge from research studies must be the starting point when the preschool and school plan, implement and evaluate their activities" (Swedish National Agency for Education). The concept of teaching for preschool was introduced into the Education Act in 2010 (SFS 2010:800) and the tasks of teaching were reinforced in the Curriculum for the Preschool (SKOLFS, 2018:50) in 2018. Preschool teachers are now expected to direct children's attention in goal-directed actions and processes. "Teaching" in this article refers to the definition provided in the Education Act, i.e., "such goal-directed processes led by teachers or preschool teachers that are aimed at development and learning through the acquisition and progression of knowledge and values" (Education Act, chapter 1, section 3). Teaching should be planned and delivered based on the demonstrated interests of children, everyday activities, experience and knowledge and, according to the curriculum, the preschool teacher should plan and deliver teaching (SKOLFS, 2018:50). At the same time, there seems to be a knowledge gap and thus a need to clarify how teaching can be organised in preschool (Swedish Schools Inspectorate 2018) and especially regarding teaching in music.

There is little research in the field of early childhood music education that touches on the process of teaching music and the theorisation of it, which may have led to a gap between researchers and practitioners (Young 2016). In a didactic triangle relationship between the pupil, the teacher and the content, interest has shifted, according to Nielsen (2006), towards the pupil's perspective and away from content and, to a certain extent, away from the teacher as well. The impression is strengthened if one looks at earlier studies in Nordic preschool research, which have often focused on learning rather than teaching (Holmberg & Vallberg Roth 2018). The latest studies in the field of early childhood music education in Sweden reflect a similar tendency (e.g. Ehrlin 2012; Holmberg 2014; Lagerlöf 2016; Wallerstedt 2010; Wassrin 2016).

Music is part of the preschool task, as shown in two places in the Curriculum for the Preschool (SKOLFS 2018:50), partly in connection with the fundamental values and task of the preschool:

> *Education should give children the opportunity to experience, portray and communicate through different aesthetic forms of expression such as image, form, drama, movement, singing, music and dance. This includes giving children the opportunity to design, shape and create by using different materials and techniques, both digital and others. This results in creation being both content and method in the preschool to promote children's development and learning.* (SKOLFS 2018:50, 9)

Music is also mentioned in connection with the preschool's goals and guidelines, development and learning. The preschool should provide each child with the conditions to:

> *Develop an ability to create and an ability to express and communicate occurrences, thoughts and experiences in different forms of expression such as image, form, drama, movement, singing, music and dance.* (SKOLFS 2018:50, 16)

Although the term "subject" has so far been less prominent in the curriculum, music is thus mentioned (albeit not combined with "subject") as both a means and an end. Teaching music is thus one of the tasks of the preschool teacher, but what the content dimensions of music might be is not specified.

This article is based on two three-year, investigative research and development programmes: "UndiF" (*Undervisning i förskolan*/Teaching in Preschool) that began in 2016 and "FundiF" (*Flerstämmig undervisning i förskolan*/Multivocal Teaching in Preschool) that began in 2018, referred to in this article as "the collaborative research". The programmes began with the challenges, opportunities and conditions that modern Swedish preschools are facing due to the raising of ambitions in the task of the preschools and the revised Curriculum for Preschool (SKOLFS 2018:50). The general aim of the research component of the programmes is to produce knowledge about what may characterise teaching in relation to a scientific basis and tested experience, in collaboration with practicing preschool teachers, principals and researchers. Principals at Swedish preschools lead and coordinate the pedagogical work with one principal able to lead one or more than one preschool units.

This article specifically studies what may characterise teaching with a focus on music. *The aim* of the article is to contribute knowledge about what may characterise teaching in music in the preschool from a didactic perspective, based on the written descriptions of preschool teachers and principals. The article is guided by the following *research question*: What may characterise teaching in preschool with a focus on music from a didactic perspective?

Earlier research

Didactics emerged as a tangible knowledge base regarding research on teaching and learning in Swedish preschools (e.g. Areljung 2017; Bjurulf 2012; Björklund & Ahlsk-og-Björkman 2017*;* Botö, Lantz-Andersson & Wallerstedt 2017; Dalgren 2017; Doverborg, Pramling & Pramling Samuelsson 2013; Fleer, Gomes & March 2014; Harju-Luukkainen & Kultti 2017; Hedefalk 2014; Jonsson, Williams & Pramling Samuelsson 2017; Rosenqvist 2000). A research overview by Tallberg Broman (2015) focused on didactics and subject-didactic research in Sweden and the Nordic region. The Nordic subject-didactic research emphasised the "learning side" rather than the "teaching side" (Vallberg Roth 2018), which could also be related to a culture of learnification in OECD-reports (ie. OECD 2020).

Early childhood music education is described in a research overview by Young (2016) as expansive, with its origins in various academic disciplines. The research has moved from identifying and defining normative models for musical development that could be used universally for all children to gaining a view on how children develop individually and subtly.

A search of ERIC (12 Nov 2020) was performed, using the keywords "music" and "preschool" to gain insight into what had been published in 2015-2020 in the field of early childhood music education. The studies dealt with aspects including musical activities (Holmberg & Zimmerman 2017; Liao & Campbell 2016; Poole 2016; Witcomb 2017; Zimmerman & Holmberg 2017), music and play (Barretts 2016; Broughton 2016; Countryman 2016), music and social interaction (Ilari 2016), music and language (Pitts 2016), music and mathematics (An, Zhang, Tillman, Lesser, Siemssen & Tinajero 2016; An & Tillman 2015; Holmes & Hallam 2017) and music and apps (Riley 2016). None of the authors used a didactic perspective, which is not surprising. Didaktik as a concept is used mainly in German and Scandinavian regions of language and culture, seldom in the Anglo-American context.

Other studies showed how music education in childhood has critical aspects for later musical development (Fox 2000; Greata 2006). One study (Asplund Carlsson, Pramling & Pramling Samuelsson 2008) showed that aesthetic activities (including music) in preschools sometimes focus on form (doing) rather than content. Thus, music sessions in preschools are often focused on non-musical content, i.e., music is the means to achieve other goals, such as socialisation, language and mathematics (Holmberg, 2014). Kulset (2016) studies aspects of the ritualised singalong from the perspective that it might undermine children's rights to participate. The results indicate that structured and ritualised singalongs improve children's participation.

Preschool teacher training can be said to be of a general nature compared to music teacher training, for example. In relation to this and based on an online survey of 108 Canadian early childhood educators (ECEs) about music education practices Bolduc and Evrard (2017) showed that the ECEs sometimes felt they had insufficient knowledge to foster children's musical development. Three profiles emerged: ECEs with little musical knowledge, ECEs with good musical knowledge and ECEs with in-depth musical knowledge. The questions related to the structural dimensions of music, such as pitch, duration, intensity, timbre, singing and instrumental and vocal pieces and creation and appreciation of music. The results showed that all preschools use music, but the focus and use frequency varied in relation to the level of musical knowledge. The first profile primarily used singing and music in relation to motor activities. ECEs who perceived themselves to have good, in-depth musical knowledge also devoted more time to creating music. They also staged activities with focus on pitch, duration and intensity. Timbre occurred less often. Rajan (2017) showed in her article, which discussing the responses of 178 preschool teachers in the American Midwest to an online questionnaire, that most of them used music in some form every day, often in activities such as singing along to CDs. The preschool teachers also used music connected to academic subjects and to engage the children. The teachers valued music as important to their teaching practice and for its contribution to children's learning, but also cited limited resources, such as a lack of musical knowledge, which inhibited the use of child-centred music activities.

The search for earlier research produced considerably fewer studies when the keywords "music" and preschool" were combined with "didactics". "We are living in a time of social and cultural changes. As in other disciplines, the foundations of music education are being increasingly challenged" (Rolle 2017, 87). As a result of the pressure to legitimate music education, we may end up with a transfer effect (where music is the means rather than the end), which makes music instrumental rather than aesthetic. The author discussed didactics as a way to think critically about educational targets, content and methods, which are issues he argued should be included in local discussions. Rodríguez and Álvarez (2017) explored the perceptions of preschool teachers regarding didactic and music materials intended to promote music in early childhood education. They referred to a broad definition of didactics and mentioned music teaching methods such as Dalcroze, Orff and Kodaly. Kondracka-Sza-

la and Michalak (2019) studied the use of popular music in didactic activities in Polish preschools through an online survey of 115 preschool teachers. The results showed that popular music is used in connection with motor activities and singing. Author took impressions of Dysthe (1993) and Nielsen (2006) when they wrote about multivocal music education in preschool that revealed traces of multiple angles and a variety of approaches, partly based on various dimensions of music (acoustic, emotional, existential, bodily/kinetic and structural) and partly based on various aspects of music education (artistic, craft and science-oriented).

Ehrlin (2014) investigated how the leadership at three Swedish preschools impacted the didactic choices of preschool teaches. The results showed that leadership was crucial to incorporating music in the day-to-day work. The author argued that further training should include developing preschool teachers' musical-didactic awareness and pointed out that principals are most certainly role models at preschools and need to be aware of it.

As a whole, earlier studies indicate that:

- Music in childhood can be regarded as important to later musical development.
- Music in the preschool focuses on doing rather than content and that only teachers with the greatest subject knowledge emphasise the structural dimensions and content of music.
- Preschool teacher education trains generalists rather than subject specialists.
- Preschool teachers express feelings of inadequacy regarding music education.
- The leadership of preschool principals has been shown to be crucial for music activities in preschool.
- Didactics as a theoretical lense or in action of teachers, does not seem to play a prominent role in connection with early childhood music education.

In the light of earlier studies, it is interesting to study what preschool teachers and principals believe may characterise teaching with focus on music in preschool from a didactic perspective.

Theory

One possible way to bridge any gap between researchers and preschool teachers (see Young 2016) would be to use a didactic perspective to critically discuss educational targets, content and methods (Rolle 2017). In this study, the didactic questions are used as a way to find traces in the written descriptions of preschool teachers and principals. Didactics, and more specifically general music didactics (Nielsen 2006a), constitutes a theoretical resource in relation to the study aim and the research question. The didactic questions of "what" can be taught, "how" it can be taught, "where" teaching can occur, "when" teaching can occur, "who" can deliver and be included in teaching and the reflective "why" question (see Comenius 1657/1989; Uljens 1997) have helped shift the focus from learning to teaching (Vallberg Roth 2020).

Didactics

Didactics (e.g. Comenius 1657/1989; Bengtsson 1997; Uljens 1997; Broström 2012; Brante 2016) can be seen as a knowledge base for teaching. Brante (2016) presents the theoretical and practical aspects of didactics. Didactics is a discipline that can be linked to several other disciplines. The practical side of didactics is related to tested experience:

> *On the one hand, didactics is a discipline focused on teaching, but it also encompasses other disciplines, such as philosophy, intellectual history, psychology, sociology and political science/…/On the other hand,*

> *general didactics is also practical expertise, an action tool, based on tested experience/…/* (Brante 2016, 57)

So, didactics can be linked to both scholarly disciplines and tested experience. Didactics can be considered a (multi) discipline that has the potential to further develop the teaching professions. Didactics can then be regarded as the professional discipline of teachers (Wickman 2016; Sjöström 2019) that provides teachers with support and tools in their professional practice.

Based on Jank and Meyer's (1997) arguments, didactics has two sides. It must describe "the reality of teaching as it *is*", and "suggest what better teaching *should* be" (Jank & Meyer 1997, 47). Phrasing that uses words like "should" and "must" can be interpreted to encompass an embedded, traditional, normative didactics. Nielsen (2006, 18) argues that "non-normative didactics" involves participation in clarifying hidden values and normatively dimensioned conditions that have influenced current practice. It is difficult to imagine a practice that is not norm-bound in one way or another, partly because concepts are norming, partly because the organisation of the preschool, with its plan and directions, is normative. The ambition of this article is to work with a didactic shift, where didactics that seek alternatives are of interest, which refers to critical didactics (see Biesta 2011; Broström 2012). This involves a didactic orientation that can be interpreted as emphasising reflection in educational processes that involve preparing individuals for an open and unforeseen future. In the context, the modal verb "may" is used instead of "should", which may open the door to alternative didactic arguments. In didactic questions, "should" is associated more with traditional normative didactics, while we connect "may" to critical didactics. "May" allows for the possibility that alternatives exist to the choices made and we make no claims to determining once and for all "what should be taught" or "what characterises" but are instead oriented towards "what *may* characterise the content of teaching". Critical didactics aims to provide support for critical reflection through alternative tools – the point is to be open to alternatives.

General music didactics

Music-didactics considerations may be rooted in the perspective on music (Nielsen 2006a) and the distinct characteristics and functions of music. Nielsen (2006a) shows how the meaning of music may reside in its structure, but that a piece of music is not perceived as a succession of individual sounds with certain determined characteristics, such as timbre, intensity and pitch. According to Nielsen's perspective, music does not become meaningful until there is a perceptual processing of the sensory impressions received. There is thus a connection between the meaning of music and the human experience of music: "Something in the one corresponds to something in the other" (Nielsen 2006a, 137). The musical experience is then rooted partly in the musical object and partly in the connection between the music and the person experiencing it. People also have varying levels of experience and prerequisites for perceiving dimensions in the musical phenomenon. Nielsen's (2006a) view of music as a "multispectral universe of meaning" is based on the understanding that music does not consist only of certain structural distinguishing features that can be described in technically oriented jargon, but rather something with deeper meaning, placed in the object (the music). Music offers a variety of possible experiences and has several dimensions:

> *The structure of music, however, constitutes only certain dimensions in a cohesive spectrum of meaning and leads into/is rooted in other, deeper types of meaning of a kinetic-motor, emotional, spiritual, existential nature, for example.* (Nielsen 2006, 136)

If we relate this understanding of music to music didactics in preschool, the dimensions can be regarded as points of departure for teaching music. This could be a way to qualify music as content (Holmberg & Vallberg Roth 2018).

As Nielsen (2006a) sees it, music is a teaching subject that may rest on a core subject foundation that encompasses art, craft and science-oriented aspects (see Figure 1). Nielsen (2006a) compares the subject of music with physics and how the teaching of physics takes its content from the scientific discipline of physics. If we translate this way of thinking to music, the content of music education could be based on musicology (the *scienta* aspect of music). We can object here, writes Nielsen, that music is not primarily a science, but an art (the *ars* aspect), and music education can then be based on music as an arts subject, rather than a science. What distinguishes the arts subjects is that they appeal to our senses. They are thus not based on intellectual-verbal ability, but rather on perception. Before music is perceived, it must be created and performed, which can be linked to the craft elements of a practical nature, such as playing an instrument, singing and dancing.

If teaching music is based on artistic aspects, it is, according to Nielsen (2006a), conceivable that music theory and verbal language might be less important to teaching the subject. Music cannot be translated to verbal language, for that would make music superfluous, but we can use language to shed light on many aspects of music. Musicological terminology for musical phenomena is a prerequisite when, for example, teachers are going to discuss and make choices before, during and after teaching. But the musicology-based terms, Nielsen (2006a) writes, have no intrinsic value, but instead must be found in relation to perception, as an interplay between the ars and scienta aspects of the subject.

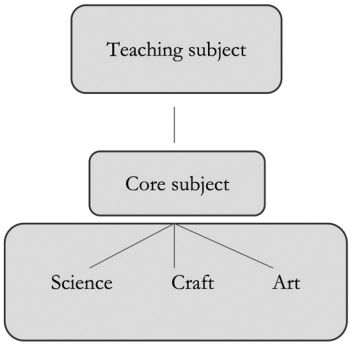

Figure 1. Teaching subject, after Nielsen 2006a, 110. Music is a teaching subject that may rely on a core subject foundation that encompasses art, craft and science-oriented aspects.

Method

Two collaborative research projects have been carried out starting in 2016 (UndiF) and 2018 (FundiF) in which preschool teachers, principals and researchers have collaboratively produced knowledge about what preschool teaching may be. Overall, the collaborative research design entailed participants testing "theory-informed teaching arrangements", linked to didactics, variation theory, post-constructionism and pragmatic perspective (Vallberg Roth 2020). The researchers did the theory-information and the preschool teachers and principals designed the teaching arrangements. Collaboration occurred through participants initiating questions about teaching and through the generation of material.

As a sub-study within the collaborative projects, participants described what may char-

acterise teaching with focus on subjects including music, in an initial questionnaire. The question asked of participating preschool teachers and principals was: "What may characterise teaching in music?" This provided the empirical material for this article. Ten school providers participated in 2016 (UndiF) and eight school providers participated in 2018 (FundiF); in total, the material came from 18 Swedish municipalities. Each participating municipality/school provider, participated with one or more development teams that included participating preschool teachers and principals. The research programme was headed up by Author.

Data generation and material

This article focuses on material from preschool teachers and principals who answered a questionnaire about teaching in preschool before the research projects began. The questions pertained to several subjects and assessment and the answers to the question relating to music constitutes the empirical material for the study, a total of 374 questionnaires.

There were 216 respondents (163 preschool teachers and 53 principals) in 2016, with a 91% response rate, and 158 respondents (114 preschool teachers and 44 principals) in 2018, with an 85% response rate for a total of 277 preschool teachers and 97 principals (see Table 1).

	Questionnaire UndiF (2016)	**Questionnaire FundiF (2018)**	**Total**
Preschool teachers	163	114	277
Principals	53	44	97
Total	216	158	374

Table 1. Number of participating preschool teachers and principals in 2016 and 2018.

The empirical material from 2016 was analysed first, followed by the material from 2018. As it proved that there was no significant difference in terms of content, they were combined to provide more substantial material. In total, the material resulted in about 8,380 words. The preschool teachers generally wrote more words per answer than the principals.

	Word count 2016	**Word count 2018**	**Total**
Preschool teachers	3,650 words, 1-131 words per answer	2,850 words, 2-103 words per answer	6,500 words
Principals	1,230 words, 3-76 words per answer	650 words, 1-43 words per answer	1,880 words
Total	Approx. 4,880 words	Approx. 3,500 words	8,380 words

Table 2. Number of words written by preschool teachers and principals in 2016 and 2018.

Abductive analysis process

The material has been analysed and interpreted from a methodological angle by alternating between theory and empiricism, which may refer to an abductive analysis process

(see the following example of empiricism-based and theory-based interpretive paths). An abductive analysis process iterates between theoretically loaded empiricism and empirically loaded theory, with each being successively reinterpreted in light of the other (Alvesson & Sköldberg 2008; Peirce 1903/1990; Tavory & Timmermans 2014). The abductive analysis went to and from between discovery and confirmation in the data (ibid).

The analysis involved identifying traces and patterns in "word data" in relation to the aim and questions of the article (see Alvesson & Sköldberg 2008; Rapley 2011; Silverman 2011). Didactic questions were both tools in the practices and a point of departure in the analysis process (Vallberg Roth 2020). In the analysis we use the term "trace" instead of, for example, "category". The term "category" can bring to mind something more entrenched, with sharp boundaries. "Category" suggests something more or less ready to search for and capture, with the material arranged on the bases of fixed and static division criteria (see Lenz Taguchi 2012; Palmer 2010, 2011). "Traces" can be associated with both more fixed and more temporary determinations, and with constructs related to different scientific bases (anthropocentric or non-anthropocentric grounds) that can capture the variation in the material. The term "trace" is compatible with abductive analysis that can move beyond predetermined categories (see Tavory & Timmermans 2014). Abductive moments in an analysis correspond to suddenly seeing something alternative, to discovering a possibility that has not yet been realized (Peirce 1903/1990). Variations of traces were analysed in relation to the participants' views on what may characterise teaching with focus on music, and to shed light on traces of various bases (such as research bases and/or tested experience) that could emerge in the material.

The abductive analysis can be described in empirically based and theory-based interpretive paths as follows (see Alvesson & Sköldberg 2008; Tavory & Timmermans 2014; Vallberg Roth 2020):

In the *empirically based analysis* we have carried out a close reading of the material, reading all material several times. This was followed by a *word frequency analysis.* The frequency of prominent words was counted using the "Find" function in Word. At first all words were counted after which only those that could be linked to didactic questions. The quantitative processing of word data is presented in a table (see the "Word frequency" heading in Table 1). The word frequency analysis can be seen as a quantitative element of the qualitative processing of data. It is not a quantitative and statistical analysis that claims that each and every word in the material has been quantified and statistically processed. The point of the quantitative element is to stabilise the analysis of the extensive material and hopefully reduce error sources and over-interpretation – such as confirmation bias (selectively noting data that confirms preconceived opinions) and ascribing outsize significance to a detail in the material. *Distinctive traces* have emerged from the word frequency analysis (see "Distinctive traces 1–7" in Figure 1), i.e., analysis of how words in text form distinctive traces and patterns. Traces of morphemes are identified, grouped, named and exemplified in sub-headings. The analysis builds further on both high-frequency and low-frequency traces in the second interpretive path. Method triangulation, where the same empirical material is analysed based mainly on qualitative elements but also quantitative elements, may contribute to showing the complexity of teaching in reality. The goal is not to provide a valid, singular truth, but to open the way to more complex and deeper understanding of what may characterise teaching with focus on music in preschool (see Tracy 2010).

Distinctive traces were linked to theoretical concepts and earlier research in the *theory-based analytical path* – an analysis was carried out in which empirical and scientific texts were related to each other (see "Distinctive traces"). Finally, there was a summarising, theory-based discussion. In practice, the analysis was more intertwined than the preceding account would indicate.

Research ethics considerations

The collaborative research complies with principles of research ethics in accordance with research in the humanities and social sciences (Swedish Research Council 2017). Among other considerations, this means that all participants have been informed and invited to participate in accordance with the *information requirement*. All participation was voluntary and participants could withdraw at any time without having to give any reason for doing so, in accordance with the *consent requirement.* All registered data was treated confidentially and stored on the "Box" platform, which was accessible to researchers in the programme.

The information provided by consenting participants was used for scientific purposes and was reported by the researchers, who ensured that individuals cannot be identified by outsiders. All participants are de-identified in publications by the collaborative research group. Data analysis was coded according to a system determined by us, where pseudonyms and code keys were kept in the faculty's locked and fireproof files, according to the *confidentiality requirement.* The consent forms were also kept in the file. The collected material was used for research purposes in accordance with the *use requirement*.

Results

The results are presented based on the abductive analysis. We begin by reporting the results of the word frequency analysis, which leads to the distinctive traces.

Word frequency

The word frequency analysis is presented based on didactics-based traces (see Table 1). Ehrlin (2014) shows that leadership plays a crucial role in teachers' didactic choices. In this study and after adjusting for the different numbers of teachers and principals, the preschool teachers and principals generally align with each other. Consequently, differences between preschool teachers and principals are in the background for the rest of the article. Principals write about singing, about challenging, singalongs and assembly less often than preschool teachers, but they mention duration (tempo) more often than do the preschool teachers.

Distinctive traces

Seven distinctive traces (both high-frequency and low-frequency) were identified in the empirically based analytical path (see Figure 2). The term "subtle" represents low-frequency traces, it is something that was mentioned but infrequently. The seven traces that emerged pertain to:

1. Practical and musical activities
2. Children and "we" as prominent actors
3. Varied content dimensions
4. Music as means
5. Subtle staging, subtle form of aesthetic experience and challenges
6. Music in policy documents
7. Subtle relationship to scientific bases

Figure 2. Seven empirically based traces.

Didactics-based traces	Words	Preschool teachers, n = 277	Principals, n = 97	Total, n = 374
How/what? Doing	Sing/song	252	8	260
	Play/instrument	245	44	289
	Movement/dance	112	28	150
	Listen/s	72	20	92
	Create	41	13	54
	Explore/discover/investigate	43	17	60
	Challenge	3	-	3
	Aesthetic	3	4	7
	Experience	22	5	27
	Senses	7	1	8
What? Several content dimensions	Rhythm	107	22	129
	Meter	55	20	75
	Tone/pitch	8	6	14
	Melody	8	1	9
	Tempo	5	11	16
	Intensity	1	-	1
	Timbre	1	-	1
	Genre	15	2	17
What? Music as means	Language	39	13	52
	Mathematics	7	4	11
	Joy/camaraderie	39	16	55
Who? Several actors	Children, child	179	47	226
	We	176	44	220
	Preschool teacher	6	1	7
Where? And When? Staging	Outdoors/Indoors	3/3	-/-	6
	Assembly	29	2	31
	Singalong/assembly	9	1	10
	Daily/everyday	9	5	14
	Planned	9	6	15
	Spontaneous	11	4	15
Words related to the curriculum	Goals	5	3	8
	Reflect/ion	6	1	7
	Play (noun and verb), playful	53	11	64

Table 3. Didactics-based traces are categorised based on the didactic questions and words related to the curriculum. Words that occur at least 150 times are shown against a dark grey background. Words that occur 50–149 time are shown against lighter grey, and words that occur 1–49 times are shown the brightest grey.

In the theory based analytical path (see "Abductive analysis process"), the distinctive traces have been analysed based on music didactics terms and are related intertextually to earlier research (see "Discussion"). The following problematisation is intended to closely examine the distinctive traces in relation to the question of what may characterise teaching in music. The analysis and the traces can shed light on what preschool teachers and principals mean may characterise music teaching, which in turn can lead to an understanding and be interpreted as: what we have, what we could have and what may show need for change.

The problematisation provides examples of the responses of preschool teachers (T) and principals (P). The selection of quotations is oriented towards explicating variations and distinctive traces in the material in the clearest and most illustrative way.

Trace 1: Practical and musical activities The most high-frequency traces in the answers revolve around doing, such as *singing, dancing, playing an instrument, listening* and *creating*. Depending on the teacher's intention, this can be either the means or the goal of the teaching. They are mentioned as isolated activities and/or in clusters. Singing, playing instruments and dancing are elements of teaching that are mentioned more often than that which could be considered the basic of making music – *listening*. When *listening* is mentioned, it is in connection with various genres (rock, pop, classical and instrumental music) or from different countries:

Listening to various music styles, old and new traditions/…/. (P)
Listening to music from different countries. (T)

Preschool teachers mention *singing* more often than do principals. This is linked with "favourite songs", traditional songs, song-and-dance games and learning new songs. Singing is also connected to variation and repetition:

Choose a song that can be sung in different ways/…/. (P)
We sing and learn songs by singing them many times, sometimes combined with gestures. (T)

There are also those who express scepticism that the subject of music can almost be perceived as a singing subject (see Nielsen 2006a): "Teaching in music includes, but should not be limited to, giving the children a rich song repertoire". (T)

There are traces in the answers that indicate firmly embedding the existing canon of songs, thus teaching of a reproductive nature. The answers also contains a parallel trace, albeit subtle, in which teaching in music is connected to words like "explore", "experience" and "express". In a music didactics context, exploring and testing might show teaching of a productive nature, productive in the sense of creating something "new" or alternative, in relation to song, perhaps new lyrics to an existing melody. In other words, the outcome in the questionnaire here shows alternatives, a multivocal relationship to working with singing in preschool.

Playing instruments revolves around playing and using musical instruments. The words "try" and "explore" were used in the answers, which can be linked to productive rather than reproductive playing of instruments: "try various rhythm instruments and play softly, loudly, fast and slow". (T)

The notion of "trying" to play an instrument is interesting in relation to singing, for example, where the children do not try to sing, but rather immediately sing. The respondents write "instrument" most often, sometimes specifying percussion instruments or egg shakers. Home-made instruments are also mentioned: "improvisational, such as a bucket to bang on, or a cardboard tube to blow through" (T).

In the answers, music is also connected to *dance* and *movement* (although the traces are weaker than for singing and playing instruments, mentioned as dance games and movement songs. A bodily-kinetic dimension (Nielsen, 2006a) is made apparent in connection with moving in time to music, expressing music with the body or moving the body freely to music.

Creating can also be seen as a practical musical activity. In the context, creating means "writing songs" (T) or "making up your own songs" (P) and writing new lyrics to familiar melodies. Creating is also combined with playing instruments:

> */…/to achieve a teaching situation, there is a pedagogical presence that can talk about meter and notes so that the children will be able to gain deeper understanding of how music/songs are created.* (T)

As with singing, movement and playing instruments, musical experiences can also be provided using *digital* aids. This is a weak thread in the answers, but there are examples:

> *We let the children try various musical instruments and let them learn to recognise rhythms and music, much of this using digital tools and apps.* (P)
> *I am sure there is also an app that can be used (GarageBand).* (T)

Trace 2: Actors in teaching with focus on music The second-strongest trace after practical musical activities relates to the didactic "who" question, primarily "children" and "we". *The children* can be interpreted as the focus. The children's interests can be seen as a guiding principle when teaching is planned: "That it proceeds from the children's interests, curiosity and motivation". (P)

The children are brought into the spotlight when they are offered opportunities where they are expected to do something or learn something specific:

> *The children listen and feel the tension in the music.* (T)
> *Children should learn about meter, melody and lyrics.* (T)

We is a clear trace in the answers and can be interpreted to sometimes include preschool teachers and children (and, very occasionally, principals), sometimes only the preschool teachers. "We" in the sense of preschool teachers and children may involve singing, listening to music, trying out apps, playing instruments, dancing, practicing, expressing and creating music:

> */…/we sing together, we listen to different types of music. We have tried apps that let you try out different instruments. We sometimes borrow various rhythm instruments. We clap to the beat, etc. The children at our preschool often show keen interest in the Eurovision Song Contest and we usually pay attention to that and hold our own music festival.* (T)

"We" occurs in the sense that the preschool teachers have clear intentions for their teaching: "We teach children to sing, play simple musical instruments and clap their hands". (T)

Unlike the high-frequency words *children* and *we*, the words *preschool teacher* are low-frequency. The preschool teacher is expected to be able to lead singing and playing of instruments and to use correct music terminology: "…that the preschool teacher explains concepts and directs the children's attention to the language of music". (T) Preschool teachers are also expected to spread enthusiasm, joy and camaraderie and arrange the setting:

> When it comes to music, it is important that the preschool teacher spreads enthusiasm, joy and camaraderie. (T)

As a preschool teacher, to arrange a setting that invites exploration, that is accessible and permissive /…/ (T)

Several respondents mention that preschool teachers need subject knowledge, but none specify what that might mean in relation to music as a subject: "The educator needs to have knowledge of the subject and to use methods that give the children experiences in musical contexts". (T) The preschool teacher's awareness and expertise are emphasised by some preschool teachers and principals. On one occasion, a preschool teacher writes:

/…/conscious use of song, movement and instruments that promote children's linguistic development, motor skills and mathematics" (T)
…to make the children aware of sound and rhythms, various styles of music, etc. (T)
If one has less pre-existing knowledge, that can often be compensated for by exploring together with the children and showing them that you share their interest (T).

Trace 3: Varied content dimensions based on music Traces of possible content dimensions can be interpreted to involve "what music may be", the foundations, camaraderie and emotions of music. The utterances provide examples of several content dimensions. The content of music teaching may be discussed based on Nielsen's (2006a) view of music as "a multispectral universe of meaning" with multiple dimensions, which in this study can be seen as a way of qualifying music as content. In the preschool context, the *acoustic dimension* of music (Nielsen 2006a) may begin with listening to music, various genres and instruments, to identify and recognise what music may be: "Talking with the children about what music is. Are there different kinds of music"? (T)

Several preschool teachers and principals mention emotions in relation to music education, which may be interpreted as the *emotional dimension* of music (Nielsen, 2006a), that music can trigger emotions and that people can express emotions with music: "The children can express their feelings through music, song, dance and movement". (T)

A socio-emotional dimension might be interpreted based on the answers to the questions when music is presented as a path to a sense of belonging and camaraderie:

/…/I have many good experiences of how singing, music, dance and movement provide tremendous joy and a sense of camaraderie in both children and adults. (T)

One trace in the answers is music as a path to joy:

Music feels joyful for many children and when the joy is there, they often learn a lot. (T)
/…/share the joy of music together. (T)

The belief in music as something that automatically makes learning into something joyful can be seen as a norm about music. Lindgren points out how we in the field of aesthetics and school/preschool sometimes have an "uncritical attitude, characterised by strong belief in the 'good' effects of the activities" (Lindgren 2006, 15).

The content trace, which is the clearest overall in relation to the content dimensions, has to do with the building blocks of music, or the *structural dimension* of music (Nielsen 2006a). The cornerstones of music are specifically mentioned as potential goals for musical activities in preschool by Wallerstedt and Pramling (2010, 39). Separately, those mentioned in the answers, such as rhythm, meter, duration/tempo and pitch are low-frequency traces, but the trace is relatively clear when they are combined. On the other hand, harmony and the form of music, such as time signature and beat, are not mentioned as content

dimensions of teaching in music in preschool. Rhythm and meter are the most frequently occurring building blocks: "…that we develop the children's ability to recognise changes in tempo, or meter and rhythm". (T)

Other musical building blocks mentioned (albeit subtle) are tempo, tone/pitch, melody and intensity. The fact that terms like pitch and melody are mentioned so infrequently can be interpreted as that music teaching in preschool is thought to be more closely related to rhythmic aspects, rather than melodic.

Trace 4: Music as means Thus far, teaching with focus on music with varied content dimensions has been brought to the fore. Teaching based on practical musical activities can be, depending on what the preschool teacher focuses on and points out to the children, interpreted as teaching where the music is the goal (teaching with intra-musical goals). But one trace in the answers is the view on *music as means*, in this quotation for language development. "We also sing a lot, every day. We bring in a lot there, especially language /---/ Many children learn to talk by singing". (T) Music is also mentioned as a means of teaching in mathematics: "You can also learn skills related to mathematics through singing" (T)

Music can also be interpreted as being used as *inspiration* and/or a *mood-setter* for other creative work:

> */…./and see how the children's creative work can differ depending on what music they are listening to /…/* (T)
> *Music also triggers various emotions and that is apparent in the children and their creative work.* (T)

Some preschool teachers express that music helps them "*captivate the children*", which can be likened to Rajan's (2017) study in which preschool teachers use music to engage the children: "Music is a good way to catch the children's attention". (T) But one preschool teacher emphasises that it is important to not only use music as a means:

> *… Important to not only use singing and music during the assembly, but to use music more actively in the preschool. An opportunity must be provided to learn about music, not only to use music as a means to achieve other goals.* (T)

Along with the explicit requirement in the curriculum (SKOLFS 2018:50) that music should be both a *means and a goal,* the preschool teachers' responses can be interpreted as a mirror image.

Trace 5: Subtle staging, subtle form of aesthetic experience and challenges Staging based on the didactic "where" and "when" questions is a low-frequency trace. Outdoors and indoors are mentioned equally rarely. The teaching seems to be delivered spontaneously as often as it is planned.
Staging can also be linked to the didactic "how" question, where the words "challenge" and "experience", although low frequency, stand out. This can be distilled using quotations:

> *Our music teaching involves giving the children many opportunities to experience music in various ways, through dance and movement, singing, rhythm and musical instruments.* (T)
> *It is important that the teaching has variety, framing, focused content, challenges and support.* (T)
> *Guidance towards learning with more challenges around music…* (T)

Only three teachers use the word challenge, both times in connection with the children: challenging the children around music.

Trace 6: Music in policy documents The Curriculum for Preschool (SKOLFS 2018:50) states that children should be "enabled to develop confidence in their own ability /---/ develop knowledge based on different aspects such as /---/practical, sensual and aesthetic" (SKOLFS 2018:50, p. 11). Music is considered part of the "different forms of expression" which should provide various opportunities to create and communicate:

> *To create and communicate using different forms of expression such as, /---/ singing and music,/---/ rhythm, dance and movement /---/results in creation being both content and method in the preschool to promote children's development and learning.* (SKOLFS 2016, 9)

Music as both *content* and *method* emerges in the answers. Under "Goals and guidelines" in the Curriculum for Preschool (SKOLFS 2016), there is also a separate item for development and learning. In connection with music, the preschool should provide each child with the conditions to:

> *Develop their ability to create and an ability to express and communicate occurrences, thoughts and experiences in different forms of expression such as /---/ movement, singing, music and dance...* (SKOLFS 2016, 9)

These quotations can be interpreted to mean that the preschool teacher is not provided any direct support in the Curriculum for what music as content in teaching might be. In relation to other areas of content (language and mathematics), the goals for music are not concrete or numerous. Music is one in a list of many forms of expression and that is often how both preschool teachers and principals express it. On a few occasions, respondents refer explicitly to the curriculum:

> *Teaching is governed by the curriculum.* (T)
> *I see music more as a method for integrating other parts of the curriculum.* (P)

Implicit references to the curriculum are much more common. This can be related to the practical musical activities of teaching in terms of content and method, development of creative ability and aesthetics.

Trace 7: Subtle trace of scientific grounds The term "didactics" is not expressed explicitly in the answers. Didactics as a theoretical basis appears rarely in earlier studies of early childhood music education. An explicit trace of a metatheoretical level emerges on one occasion in the material derived from this questionnaire (see Vallberg Roth 2020):

> *Through belief in the competent child and with a present, curious and co-exploratory method. Highlight and confirm what the child is exploring, such as sound phenomena, a phenomenographic and phenomenological exploration of sound and rhythm.* (T)

Traces of scientific bases can be interpreted as pertaining to music theory and educational theory. With regard to music theory, terms such as rhythm, meter, tempo, pitch, melody, intensity and timbre can be seen as signs of teaching on a music-theoretical basis. Traces of scientific bases can also be found in educational theory where, for example, rhythmics (a method of music education) occurs:

> */…/listen to various music styles, sing, meter, instruments, rhythmics, listen to sounds, dance – feel sound and music.* (M)

Build up and create learning situations that provide scope for the children to engage in singing, music, drama, movement, rhythmics, dancing in the preschool. (T)

Discussion

The question of the article, what may characterise the teaching of music in preschool, from a didactic perspective based on the written descriptions of preschool teachers and principals is answered through the following seven traces: practical and musical activities, children and "we" as prominent actors, varied content dimensions, music as means, subtle staging, subtle form of aesthetic experience and challenges, music in policy documents and subtle relationship to research bases. The traces are based on preschool teachers and principals' descriptions of what may characterise teaching in music in preschool.

There are different ways to understand and respond criticism. One is to view it as unilaterally negative, focused on shortcomings, and contradictions. A study can, alternatively, emphasize a critical approach without turning the critical gaze on one´s own chosen position (see Elbow 2006). Instead, we try to cultivate a concept of criticism that is multi-vocal (see Elbow 2006), which allows us to turn, twist and see both challenges and opportunities, an approach arising from critical-reflective didactics. This can also be connected to "what we have, what we could have and what may show need for change".

The weak grounding in didactics, for example, can according to Rolle's (2017) perspective on music education weaken the arguments for the same. Rhythmics as a method is mentioned, but not the theoretician behind it (Jaques-Dalcroze) or other theoreticians that are mentioned for example by preschool teachers in Rodríguez and Álvarez's (2017) study, such as Orff and Kodaly. One conclusion that can be drawn is that there is a weak grounding in music theory and/or musical methodology. This conclusion warrants further work in preschool teacher training and interaction with children.

Several possible content aspects are traced in this article, such as the acoustic and structural dimension of music, that are weak traces individually but together form a relatively distinct trace. The awareness and knowledge of preschool teachers is emphasised by some preschool teachers and principals. One preschool teacher writes that inadequate knowledge in/of music can be "compensated for" through co-exploration. This is something that is also made apparent in Author study, in which a preschool teacher tries to reduce the pressure to play "the right way and prettily" and instead focus on having the courage to create sound. The preschool teacher does this by pointing out that she does not know how to do it either. When the preschool teacher emphasises that she does not know how to go about it, she also makes co-learning the point. The focus is on having the courage to play, rather than playing anything specific, and the emphasis is on the social dimension, rather than the musical.

Although structural dimensions are mentioned as a content option for teaching with focus on music, it could be, as Rajan (2017) shows, that teachers value music as important to their teaching practice but lack musical knowledge to some extent. The preschool teachers and principals in this study might lack musical terminology to some extent, which makes it challenging to write about content dimensions. This study cannot draw conclusions regarding the delivery of teaching, but challenges may be discerned based on Nielsen's (2006) argument that musicological terminology for musical phenomena is a prerequisite when the teacher is going to, for example, discuss and make choices before, during and after teaching.

In this study, music often emerges as a means for teaching other subjects (such as language and mathematics) (see Holmberg 2014). According to Rolle (2017), music as means can make music education instrumental rather than aesthetic. Although didactics is not explicitly mentioned in the empirical material, traces based on the didactic questions emerge in many responses (see Table 1). A question that can be asked is the following: if music is

perceived as a means rather than a goal, does that weaken music as a content? This conclusion warrants further work in preschool teacher training and interaction with children.

The traces that can be linked to the didactic "how" question are much more subtle. Exploration, investigation, discovery and testing make up the strongest trace. This can be interpreted as an approach based on what Ericsson and Lindgren (2012) call the relativisation of the concept of quality and inadequate subject knowledge, as well as teacher competence. This may be why teaching with focus on music in this study is not characterised by challenges for either the children or the preschool teachers. A question arises as to whether or not the infrequency of words such as "experience" and "challenges" may reflect that children doesn´t get challenged in music education, putting aside understanding music or performances. This can also be put in relation to Bolduc and Evrard's (2017) study, which shows how preschool teachers with inadequate musical knowledge primarily use singing and music for motor exercises, while preschool teachers with more in-depth knowledge also arrange musical activities and focus on the structural dimensions of music. This can be compared to how structural dimensions in this study are mentioned, but not to the same extent as the activities of singing, dancing and playing instruments.

The activities related to form and *doing* had the most mentions and are the strongest characteristic of teaching focused on music in preschool, which is consistent with the results of the study by Asplund Carlsson, Pramling and Pramling Samuelsson (2008). The apparent doing can be interpreted to mean that the aspect of craft in the subject of music is the focus, rather than its artistic or more scientific aspects (see Author). A question that arises is if a focus on form and "doing" can reduce music as a subject. A focus on form and "doing" is not necessarily in contradiction with artistic aspects, but it can be done without artistic intentions. What happens with the music education if singing, movement and instrument playing are maintained but with no musical intentions related to, for example the dimensions of music or reflections about the aspects of music as a subject? Can a too-strong focus on form and "doing" result in the neglect of artistic and scientific aspects?

The distinct trace of practical musical activities may partly reflect the text of the Curriculum for Preschool (SKOLFS 2018:50) in connection with different forms of expression, in which singing and movement/dance are provided as examples (see Trace 6: Music in policy documents). The playing of instruments, on the other hand is not mentioned in the Curriculum for Preschool (SKOLFS 2018:50) but is exemplified in the answers to the questionnaire. Several researchers in the field also write about the three forms of activities such as singing, movement and playing instruments (Nielsen 2006a; Still 2011; Ehrlin 2012; Holmberg 2014). The question is whether preschool teachers have unconsciously narrowed the scope and are thus limiting what teaching in music may involve. For example, a discussion of terms like "sound" and/or "sound-making" in relation to music could be facilitating in the context. Music in preschool activities became more of an area of experience in the 1960s and 1970s and thus changed from having previously been thought significant to children's general development to increasingly being regarded as organised sound (SOU 1972:26). In 1983, the Swedish National Board of Health and Welfare recommended that "music" should be replaced with "sound" – but the proposal was rejected. With this discussion of the concept of sound rather than music, Berit Uddén (2001) writes about how the aesthetic label (and thus also demands for quality in connection with music) vanished from preschool teacher training. This can also be interpreted as being reflected in the answers to the questionnaire, where teaching with focus on music is rarely linked to words like "sensuousness" and "aesthetics," which are low-frequency words in the material.

There are also traces in the answers aimed at reinforcing the existing canon of song, thus teaching of a reproductive nature. Author shows that singing at the preschools she visited was of a western, reproductive nature. This Western canon of song may be regarded as

a source of security in which traditions are passed on, as well as a norm. The "…relevant cultural heritage seems to have greater focus on permanence than currency. With its roots in Swedish culture, an interculturally exclusive canon of song is offered, which is interesting in relation to what is on offer in the world of global music" (Holmberg 2014, 226). In parallel with signs of an emerging canon of song, terms such as "explore" and "try" are used, which shows signs of "new" creation, e.g., new lyrics to an existing melody. In other words, the outcome in the questionnaire shows alternatives, a multivocal relationship to working with song in preschool. This openness to music as exploratory and expressive might also result in the building and inclusion of a new more global and exploratory canon of song.

A strong "we" emerges in this study and the children are brought to the fore as central actors. The children and their interests are interpreted as being the focus, which might reflect the earlier focus on learning rather than teaching, in which the teacher is assigned a more obscure role (Author). The result is, however, interesting in relation to Kulset (2016), who shows that ritualised singalongs improve children's opportunities to participate. Young (2016) describes how research in early childhood music education has moved from defining normative models for musical development to forming a picture of how children develop individually and subtly. This study aimed to shift the focus from learning to teaching and thus also bring the role of the preschool teacher to the fore, which is interesting in relation to how the preschool teachers do not emphasise themselves, but rather the children and "we". Children in relation to age are mentioned only once. This may mean that age groupings are perceived as less important in connection with music, even though there are significant differences in song lyrics and range and varied challenges relating to various instruments.

Kondracka-Szala and Michalak (2019) describe how preschool teachers use popular music in connection with motor exercises and singalongs. This study describes how children are invited to listen and move to a variety of genres. Children and preschool teachers live inside diverse musical frames of reference, which is a challenge for preschool teachers to relate to. Holgersen writes that "children may perceive that the numerous alternatives lead to lack of focus and deeper understanding" (Holgersen 2012, 91). It may be that music in teaching can be made more apparent as a link between alternatives (compared to the fixed reference point, Holgersen 2012) that is shaped in and by various relationships.

Digitality is mentioned only on isolated occasions: YouTube, IPads, apps and GarageBand, but the trace is of such low frequency that it is hardly noticeable. One conclusion that can be drawn is that if digital possibilities are obscured the children may miss out on, for example, the creation of music that can be reproduced and the introduction of musical instruments that are generally not available in preschools. This conclusion warrants further work in preschool teacher training and interaction with children.

Reflections on method and analysis

Based on reflections on method and analysis, preschool teachers and principals probably have thoughts on teaching that were not expressed in words in the material. Preschool teachers and principals may, for example, be theoretically informed even if they do not explicitly refer to theories, theoretical concepts or theoreticians when they write about their teaching. It is moreover expressed that it can be difficult to put one's answers into words in relation to an open-ended free text question:

> *The question puzzles me somewhat. Very difficult to briefly express what may characterise teaching, specifically with focus on "music", "mathematics", etc.* (P)

As regards generalisation, the logic in a situated generalisation can be cited, meaning that the result provides alternative perspectives and concepts rather than one truth (Larsson

2009). This is an approach that is expository, exploratory and sensitive and where the reader interprets the extent to which the results can provide guidance in similar cases, situations and contexts outside this study. The generalisation is situated in the sense that it cannot be predicted, but rather occurs through recognition, that is, when the reader can recognise identified traces of teaching and co-assessment that are described in the report and can use results and concepts as tools in their professional practice (see Larsson 2009).

Conclusions

The question of what may characterise teaching with focus on music in preschool proved to be complex and was distilled into seven traces (see Figure 1) that were problematised in relation to theoretical concepts and earlier research. To summarize five conclusions can be drawn, which are worth working further with in preschool teacher training and in interaction with children. 1) A weak grounding in music theory and/or musical methodology reveals a shortcoming in the preschool teacher's use of research as a basis for teaching. 2) Music is perceived as a means rather than a goal, which may in the long term weaken music as content. 3) Words such as "experience" and "challenges" occur so infrequently as to suggest that children don´t get challenged in music education. 4) The subject of music as form and "doing" is a strong trace, perhaps at the expense of artistic and scientific aspects. 5) Digital possibilities are downplayed, possibly resulting in the children missing out on, for example, the creation of music that can be reproduced and the introduction of musical instruments that are generally not available in preschools. The results of this study encourage reflection on alternative ways of teaching music in preschool, which includes music teaching driven by a child´s right to music for the sake of music and based on research and music didactic, with a focus on the art and science of music. ■

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Abstrakti

Artikkeli perustuu kyselyyn, johon vastattiin kahden tutkimusta ja koulutusta koskevan ohjelman alussa. Ohjelmat olivat “Moniääninen opetus ja yhteisarviointi esikoulussa” (tammikuu 2016) ja “Moniääninen didaktinen mallinnus? Opetus ja yhteisarviointi esikoulussa” (heinäkuu 2018). Ohjelmien tarkoituksena oli kehittää opetusta ja kuvata, mikä voi olla ominaista esiopetukselle. Ohjelmaan osallistuneet esikoulujen opettajat ja rehtorit vastasivat ohjelmien alkamisen yhteydessä kyselyyn, jossa yksi kysymys kohdistui nimenomaan musiikinopetukseen.

Artikkelin tarkoituksena on lisätä tietoa siitä, mikä esikoulujen opettajien ja rehtorien kirjallisten kuvausten perusteella luonnehtii musiikinopetusta esikoulussa didaktisesta näkökulmasta. Empiirinen aineisto koostuu yhteensä 374 vastatusta kyselystä. Analyysi on tehty didaktisesti suuntautuneesti ja abduktiivisesti. Viisi johtopäätöstä on vedetty seuraavasti:

1) Epämääräinen ”ankkurointi” musiikinteoriaan ja/tai metodologiaan osoittaa puutteellisen suhteen esikoulun opettajan tehtävään, joka on tutkimukseen perustuva opettaminen;
2) Musiikki nähdään pikemminkin välineenä kuin päämääränä;
3) Sellaisia sanoja kuten ”kokemus” ja ”haasteet” esiintyy vähäisesti, mikä voi heijastaa sitä, että ne puuttuvat musiikinopetuksesta;
4) Musiikinopetus ”muotona” ja “tekemisenä” on vahvasti esillä, ehkä taiteellisten ja tieteellisten näkökohtien kustannuksella;
5) Digitaalisten mahdollisuuksien näkymättömyys.

Tulokset herättävät pohdintoja vaihtoehtoisesta musiikkikasvatuksesta esikoulussa. Musiikkikasvatus voisi perustua lasten oikeuteen musiikkiin musiikin itsensä vuoksi ja rakentua tieteelliselle pohjalle. Tällöin musiikkikasvatuksen ”juuret” ovat musiikin didaktiikassa ja kasvatuksessa keskitytään musiikin taiteellisiin ja tieteellisiin näkökohtiin. ■

Avainsanat: Didaktiikka, esikoulu, musiikki, opetus

Katri-Helena Rautiainen

Luokanopettajaopiskelijoiden äänenkäytön kehittäminen ja arviointimatriisin rakentaminen musiikinopetuksen pedagogisessa kontekstissa

Johdanto

Käytämme päivittäin äänenkäyttöön liittyviä taitoja. Viestimme äänellämme ja kehollamme elein mitä erilaisempia asioita ja tunteita. Ääni on mukana lähes kaikissa vuorovaikutustilanteissa (Ribas, Penteado & Garcia-Zapata 2014). Äänellä ja laulamisella on todettu olevan myös terapeuttisia vaikutuksia, joita on hyödynnetty musiikkiterapiassa erilaisten ääni-interventioiden avulla (ks. esim. Tamplin 2011; Uhlig 2011). Ääntä pidetään jopa sielun peilinä, joka voi kuvata myös persoonallisuutta ja on osa ilmaisuvoimaamme (Koistinen 2005). Äänessä tapahtuneet laadulliset muutokset tai jopa äänen menetykset voivat pysäyttää meidät huomaamaan, kuinka se on osa meidän hyvinvointiamme.

Äänenkäyttö on erityisesti opettajille tärkeä osa työpäivää. Ääni toimii oppimisen ohjaamisen välineenä. (Esim. Ilomäki 2008; Kankare 2014; de Oliveira Bastos & Hermes 2018; Pizolato, Rehder, Meneghim, Ambrosano, Mialhe & Pereira 2013; Ribas ym. 2014; Rouvinen 2018; Valtasaari 2017.) Jopa äänihäiriöiden, stressin ja koulujen sisäympäristön puutteiden välillä on löydetty yhteys opettajien alentuneeseen työkykyyn (Vertanen-Greis 2021). Ehkäpä muun muassa näistä syistä äänen kuormittuneisuudesta johtuvia äänihäiriöitä esiintyy paljon opettajien keskuudessa (Luce, Teggi, Ramella, Biafora, Girasoli, Calori, Borroni, Proto & Bussi 2014; Pizolato ym. 2013).

Äänen kehittämisessä apuna voidaan käyttää kehotietoisuuden harjoittelua. Esimerkiksi Shustermanin (2012) mukaan sen avulla voidaan oppia korjaamaan äänenkäytön virheitä. Myös Anttila (2009) nostaa kehon merkityksen ajattelun ja oppimisen perustaksi. Klemola (2005) määrittää kehon kuuntelemisen taidoksi, jossa tulemme tietoiseksi kehostamme ja sen aistimuksista. Laulamisessa on mukana kehotietoisuuden lisäksi egotietoa, joka suuntautuu kehon ulkopuolisiin seikkoihin (Klemola 2005).

Äänenkäyttöön ja sen kehittämiseen liittyviä tutkimuksia on tehty paljon. Äänen kehittämisen ja huollon tärkeydestä on saatu yksiselitteisen myönteisiä tutkimustuloksia. (Ks. esim. Eerola 1997, 2008; Kankare 2014; Koistinen 2005; Luce, Teggi, Ramella, Biafora, Girasoli, Calori, Borroni, Proto & Bussi 2014; Mesiä 2019; Nenonen 2018; Numminen 2005; Olkkonen 2013; Rantala, Vilkman & Bloigu 2002; Rouvinen 2018.) Sen sijaan luokanopettajakoulutuksen vaikutusta opiskelijoiden äänenkäytön kehittymiseen on tutkittu vähemmän. Esimerkiksi Valtasaari (2017) ja Ilomäki (2008) ovat tutkineet äänikoulutuksen vaikutuksia. Lindeberg (2005) on puolestaan tutkinut opettajaksi opiskelevien vokaalista minäkuvaa. Leppänen (2012) tarkastelee tutkimuksessaan manuaalisen käsittelyn ja äänenkäyttöön liittyvän luennon vaikutuksia.

Äänellämme on monitahoinen suhde niin itseemme kuin ympäristöönkin. Näin ollen luokanopettajakoulutukseen olisi hyvä sisällyttää riittävästi äänenkäyttöön liittyvien taitojen ja tietojen harjoittelua. Silloin oman kehon ja äänenkäytön tuntemus ja käyttö sekä sen pedagogiset valmiudet kehittyisivät jo koulutuksen aikana. Lisäksi luokanopettajien on osattava ohjata lasten ja nuorten äänen kehittymistä ja sen arviointia. Äänenkäytön kehittäminen

ei ainoastaan liity musiikin ainepedagogisiin haasteisiin, vaan sen voidaan katsoa linkittyvän laajemmin yli ainerajojen tapahtuvaan toimintaan ja sisältöön. Sillä on todettu olevan myönteisiä vaikutuksia opettajien koulutukseen ja ammatilliseen toimintaan (Richter, Nusseck, Spahn & Echternach 2016). Siksi tutkimukseni aihe rajautui tarkastelemaan juuri tätä aluetta ja kohderyhmää. Olemme oppimisen ja opettamisen ytimessä, jossa ilmaisu- ja vuorovaikutusvälineenämme on äänemme.

Tutkimustehtävät ja -kysymys sekä tutkimusjoukko

Tutkimukseni *ensimmäisenä tehtävänä* oli arvioida luokanopettajaopiskelijoiden (N=30) äänenkäytön toimintaan liittyvien osatekijöiden kehitystä musiikin opintojakson aikana. Tutkimuskysymykseksi muotoutui:

1. Missä määrin kehitystä tapahtuu luokanopettajaopiskelijoiden äänenkäytön toiminnan eri osa-alueilla opintojakson aikana?

Toisena tehtävänäni oli kehittää ja pilotoida uutta arviointityökalua, jota luokan- ja musiikinopettajat voisivat hyödyntää äänen eri osa-alueiden taidon arvioinnissa.

Musiikin opintojakso (laajuus 1 op) sisältyi perusopetuksen opetettavien aineiden ja aihekokonaisuuksien monialaisiin opintoihin. Äänenkäytön ja laulamisen sisältöjen lisäksi opintojaksolla harjoiteltiin myös muita musiikin tavoitteita. Näin ollen äänenkäytön harjoittelu lomittui muiden tavoitteiden rinnalla pienempiin osiin. Aikaisemmin äänenkäytön kehityksen arviointi perustui suurelta osin opiskelijoiden itsearvioinnille. Nyt tavoitteena oli kerätä tarkempaa tietoa luokanopettajaopiskelijoiden äänenkäytön kehittymisestä. Oletuksenani oli, että koulutuksella saadaan aikaan positiivisia muutoksia opiskelijoiden äänenkäyttöön. Lisäksi tämän kehityksen voidaan olettaa johtuvan äänenkäytön harjoittelusta.

Työkalu perustui observoinnin avulla tehtäviin havaintoihin. Jotta saatuja tuloksia voidaan tarkastella ja luotettavuuden kriteereitä arvioida, sisältyy tutkimukseni raportointiin myös opetuskokonaisuus-intervention, tutkimuksen etenemisen ja arviointityökalun eli -matriisin vaiheittainen kuvaus. Nämä laajentavat esityskokonaisuutta.

Ryväsotannan periaatteita soveltaen valikoitui otokseen neljästä opetettavasta ryhmästä arpomalla kaksi opiskelijaryhmää. Tutkimuksessani noudatin eettisiä periaatteita, joissa osallistuminen perustui vapaaehtoisuuteen ja lupaan. Videoäänitteiden kerääminen perustui opiskelijoiden antamaan lupaan. Tutkimusaineiston keräämisessä noudatin eettisten periaatteitten mukaisesti myös herkkää sensitiivisyyttä. Tässä pyrin muun muassa vahvistamaan positiivista osaamista ja huomioimaan yksilöllisiä tarpeita ja toiveita esimerkiksi palautteenannossa. Annoin opiskelijoille mahdollisuuden tehdä myös lisäkysymyksiä.

Äänenkäytön, intervention ja vaikuttavuuden määrittäminen

Stemple (2005) määrittää ammattiäänenkäyttäjiksi ne, joiden työssä edellytetään toimivaa ääntä. Vilkman (2004) on jakanut ammattiäänenkäyttäjät neljään luokkaan. Sen mukaan korkean äänenlaadun vaativia ammatteja ovat esimerkiksi laulajat ja näyttelijät, joiden äänenkäyttöön kohdistuu eniten kuormitusta ja kvaliteettivaatimuksia (Vilkman 2004). Tähän ryhmään voidaan katsoa lukeutuvan myös luokanopettajat, jotka opettavat musiikkia. Seuraavana tulevat opettajat, jotka luokitellaan korkean kuormituksen ammattiryhmään (Vilkman 2004). Vilkmanin (2004) mukaan matalan kuormituksen ammateissa ja muissa ryhmissä ääneen kohdistuvat vaatimukset ovat pienimmät. Tämä tarkoittaa niitä ammatteja, joissa työtä pystytään harjoittamaan äänenkäyttöongelmien aikana ja henkilö ei koe sitä ongelmaksi.

Shustermanin (2008) tavoin ihmiskehoa ei nähdä tässä tutkimuksessani pelkästään instrumentaalisena ominaisuutena. Vaikka äänenkäyttöä tarkasteltiin valituilla äänen osa-alueilla, sitä harjoiteltiin myös muussa toiminnassa. Tällaisia toimintoja olivat intervention aikana esimerkiksi erilaiset äännähdykset ja luovat eläytymistilanteet äänellä. Itse musiikin opetustilanteessa äänenkäyttö toimi laajassa merkityksessä, jolloin se kattoi myös tutkimuksen pedagogisen kontekstin. Tästä on löydettävissä yhtymäkohtia Tarvaisen (2016) esittämään vokaaliseen soomaestetiikkaan, joka sisällyttää ääneen puheen ja laulamisen lisäksi kaikenlaiset äännähdykset. Soomaestetiikassa painotetaan oman kehon kokemuksia, joihin kietoutuu myös esteettisiä kokemuksia (Shusterman 2008). Niin myös tässä tutkimuksessa opiskelijoiden äänenkäytön kehittyminen rakentui kokemuksien kautta.

Tämän tutkimuksen intervention määritän toimintatutkimuksen lähtökohdille, joita ovat määrittäneet esimerkiksi Argyris, Putman ja McLain Smith (1985). Tässä koulutus nähdään eräänlaisena interventiona, jolla pyritään saamaan aikaan tietynlaista muutosta. Samoin Rauste von Wrightin, von Wrightin ja Soinin (2003) mukaan koulutus on interventio, jolla pyritään haluttuun muutokseen. Tässä tutkimuksessa ei siis käytetty interventiotutkimuksen tutkimusasetelmia eli designeja, joissa mukana on koe- ja kontrolliryhmät (Riley-Tillman & Burns 2009), tai niin sanotun design-based -tutkimuksen tapaa muotoilla uudelleen opetustapaa ja siitä syntynyttä teoriaa (Loukomies 2013; The Design-Based Research Collective 2003). Tutkimuksessani interventio rakentui musiikin opetuksen pedagogisille lähtökohdille, jossa tutkivana opettajana kehitin omaa työtäni suurryhmäopetuksena luokkayhteisössä. Intervention sisällöt rakensin koulun musiikinopetuksen tarpeita ajatellen.

Kun verrataan tutkimuksen aikana toteutetun intervention tuomaa muutosta, voidaan tulosten yhteydessä puhua myös vaikuttavuudesta. Tässä yhteydessä vertaan vaikuttavuuden prosessin toteutumisessa (Kirkpatrick 1994; Kirkpatric & J.D. Kirkpatric 2005; 2007; Kirkpatric & W.K. Kirkpatric 2016) usean vuosikymmenen aikana kehitettyyn malliin. Tämä malli jakaantuu neljään tasoon: 1. reaktio (mm. sitoutuneisuus, kiinnostus, kokemukset koulutuksen vastaavan työelämän tarpeita), 2. oppiminen, 3. soveltaminen käytännön työssä ja 4. saavutettujen tulosten arviointi.

Tässä tutkimuksessa vaikuttavuuden tekijät keskittyvät tasolle kaksi, jossa mittasin saavutettuja taitoja ja tietoja sekä niiden soveltamista oman kehon äänenkäyttöön. Aikaisempiin tutkimuksiin nojaten voidaan olettaa, että tietoisuus omasta kehosta auttaa ymmärtämään äänentuoton fysiologisia tekijöitä ja toimintaa paremmin kuin pelkän luento-opetuksen pohjalta saatu oppi (Ilomäki 2008). Samalla tämä oman kehon kokemus voi auttaa ymmärtämään paremmin myös laulun ohjausta (Valtasaari 2017). Pohdinnassa arvioin koulutuksen avulla saavutettuja tuloksia (taso neljä). Tämä antaa suuntaa koulutuksen kehittämistarpeisiin. Äänenkäytön oppimisen näkökulman lisäksi vaikuttavuuden tarkastelu määritti myös metodivalintoja, joita tarkastelen myöhemmin.

Kehittämis- ja toimintatutkimuksen lähtökohdat

Kehittämis- ja toimintatutkimuksen yhteisinä piirteinä pidetään muun muassa sitä, että molemmat tähtäävät jonkun toiminnan tai asian kehittämiseen (Anderson & Shattuck 2012; Heikkinen & Jyrkämä 1999). Näiden tutkimussuuntien välillä on myös eroja. Juutin ja Lavosen (2006) mukaan kehittäminen lähtee muutostarpeesta. Kehittämistutkimus johtaa käytettävään tuotokseen. Tutkimuksen tavoitteena on tuottaa opetusta eteenpäin vievää tietoa. Se voi olla esimerkiksi jokin materiaali tai teoria. Kehittämistutkimukselle on myös tunnusomaista, että tutkimustiimit tarkastelevat tutkittavaa ilmiötä kokonaisvaltaisesti (Anderson & Shattuck 2012). Sitä vastoin toimintatutkimuksessa opettaja voi toimia opetuksen kehittäjänä, jossa hän reflektoi ja tutkii omaa ja yhteisön toimintaa sekä ajattelua uudesta näkökulmasta. (Juuti & Lavonen 2006, 2013.) Carr ja Kemmis (1986) ovat määrittäneet

tällaisen niin sanotun ”teacher as researcher” lähtöisen tutkimuksen praktiseksi toimintatutkimukseksi. Toimintatutkimukseen liittyy usein interventio, joka toteutetaan käytännönlähtöisenä osallistavana prosessina yhteisössä (myös Stinger 1999). Lisäksi yhteisö pyrkii reflektoimaan ajatteluaan, toimintaansa ja kokemaansa dialogisesti, joka rakentuu yhdenvertaisuuden ja osallisuuden lähtökohdille. (Jantunen, Naaranoja, Piippo, Mäkelä, Valtanen & Sankelo 2013.) Kolb (1984) on kuvannut tätä prosessia kokemuksellisen oppimisen nelivaiheisena syklinä, jossa kokemus, toiminta, reflektointi ja teoria tai käsitteet linkittyvät toisiinsa.

Tässä tutkimuksessa kehittämistutkimuksen näkökulma ilmeni ns. tuotekehittelyn muodossa (esim. Aksela & Pernaa 2013; Juuti & Lavonen 2006, 2013). Kehittämisen tuloksena syntyi arviointimatriisi ja -lomake äänenkäytön arviointia varten. Tätä arviointivälinettä hyödynsin toimintatutkimuksen alussa lähtötason diagnosointivälineenä ja tutkimuksen lopussa saavutettujen taitojen arviointivälineenä. Tavoitteenani oli siis luoda parempia välineitä koulutuksen opetukseen ja arviointiin sekä yksinkertaisesti toteutettuja malleja arvioinnin suorittamiseen. Tässä tieto, taito, toiminta ja opetuskäytänteet ovat linkittyneet kehittäjän reflektoinnilla sekä uudelleen arvioinnilla edelleen kehittämiseen (Maaranen 2009).

Toimintatutkimuksen piirteet toteutuivat opetuskokonaisuus-intervention kehittämisenä luokanopettajakoulutuksessa. Tutkijana toimin tutkivan opettajan roolissa (Heikkinen, Kontinen & Häkkinen 2007; Korpinen & Hyvärinen 2003; Niikko 2001; Sitomaniemi-San 2015), jossa tarkastelun lähtökohta rakentui toimintatutkimuksen periaatteille. Lisäksi tutkimuksessani hyödynsin Lewin (1946) toimintatutkimukselle esittämiä vaiheita, joissa ensin etsitään ja määritetään ongelmat. Näiden pohjalta laadin kehittämistavoitteet ja toimintasuunnitelman. Tämän jälkeen siirryin suunnitelman toteuttamiseen. Lopuksi arvioin tavoitteiden saavuttamisen ja tutkimuksen toteutumisen kokonaisuutena. Argyris, Putman ja McLain Smith (1985) ovat soveltaneet muun muassa Lewinin toimintatutkimuksen periaatteita. Heidän mukaansa toimintatutkimuksen tärkeimpiin lähtökohtiin nousevat koulutuksen sisällä tapahtuvat toimenpiteet (esim. interventio), joilla pyritään saamaan aikaan kehitystä koulutukseen osallistuville. Myös tässä tutkimuksessa muutosta pyrittiin saamaan aikaan koulutuksella, joka rakentui interventiolle. Lisäksi koulutuksen aikana rakensin toiminnan siten, että koulutettavat muokkasivat itsenäisesti ja kriittisesti työskentely- ja ajattelutapojaan (Argyris ym. 1985). Tässä voidaan katsoa tapahtuvan Kemmisin (1985) malli reflektiivisestä spiraalista, jossa toteutuu suunnittelun, havainnoinnin ja reflektointivaiheiden muodostamia syklejä.

Tutkimuksessani vielä täsmensin toimintatutkimuksen muotoja eri tutkimusvaiheissa. Hyödynsin Grundyn (1988) esittämää jakoa, johon sisältyy teknisen, käytännönläheisen ja vapauttavan toimintatutkimuksen muodot. Filosofisilta taustoiltaan ne ovat erilaisia. Niinpä onkin tärkeää, että toimintatutkimuksen eri muotojen olemassaolo tiedostetaan tutkimusprosessin eri vaiheissa. Näiden vaiheiden täsmentämisessä käytin Jantusen, Naaranojan, Piipon, Mäkelän, Valtasen ja Sankelon (2013) kiteyttämiä toimintatutkimuksen laatukriteereitä.

Tutkimuksen eteneminen

Toteutin tutkimuksen neljässä vaiheessa: 1. alkukartoitus (tekninen), 2. vapauttava, 3. käytännönläheinen ja 4. loppukartoitus (tekninen). Ensimmäinen vaihe oli *alkukartoitus*. Diagnosointia varten tutkivana opettajana olin kehittänyt teoreettista viitekehystä hyödyntäen arviointityökalun eli -matriisin ja arviointikriteerit. Näiden laatiminen noudatti *teknisen toimintatutkimuksen* tavoitteita. Jantusen ym. (2013) mukaan tässä vaiheessa filosofinen tausta nousee positivistisista lähtökohdista. Tälle suuntaukselle on ominaista, että tutkimusongelmat määritetään ennalta. Tutkijan rooli on kerätä tietoa samalla, kun tutkijan ja tutkittavien välinen suhde perustuu riippumattomuuteen. (Jantunen ym. 2013.) Newtonin ja Burgessin

(2008) mukaan teknisen toimintatutkimuksen validiteetti kohdistuu tulokseen ja prosessiin. Tuloksessa arvioidaan mm. saatua muutosta ja saavutettuja tavoitteita. Prosessissa huomio kiinnitetään mm. siihen, kuinka hyvin tutkimus käsittelee tutkimuskysymykset. (Newton & Burgess 2008.) Niin myös tässä tutkimuksessa noudatin Jantusen ym. (2013) ja Newtonin ja Burgessin 2008 teknisen vaiheen piirteitä.

Tutkimukseni toinen vaihe edusti *vapauttavaa* toimintatutkimuksen muotoa, joka edustaa filosofiataustaltaan kriittistä lähestymistä (Jantunen ym. 2013). Tämän tutkimuksen alkukartoituksesta saatuja tuloksia hyödynsin tavoitteiden saavuttamisessa. Niiden avulla lisäsin tutkittavien tietoisuutta äänenkäytön nykytilasta. Samalla tutkivana opettajana toin toiminnallisten harjoitusten kautta tutkimuksellista tietoa äänenkäytön fysiologisista periaatteista. Tutkittavien ja tutkivan opettajan vuorovaikutteisen toiminnan ja teoriatiedon kohtaamisessa tavoitteena oli auttaa ymmärtämään äänenkäytön periaatteet syvällisemmin ja tukea luokanopettajaopiskelijoiden ammatillista kehittymistä. Jantusen ym. (2013) tavoin tutkimuksessani yhteisönä tapahtuvan reflektoinnin avulla saavutettu tietotaito muodostui induktiivisen ja deduktiivisen päättelyn vuorottelusta (Jantunen ym. 2013). Toisen vaiheen validiteettityyppi oli katalyyttinen (Anderson & Herr 1999). Tässä arvioin, kuinka hyvin opetuksen järjestelyt auttoivat syventämään tutkittavien osaamista. Validiteetin kriteerinä demokraattisuus (Anderson & Herr 1999) toteutui tutkimuksessani yhteisreflektion aikana, jolloin osapuolet keskustelivat vapaasti ja pyrkivät saavuttamaan uudenlaisen tietoisuuden ja osaamisen.

Toiminnan edetessä toimintatutkimus muuttui kolmannessa vaiheessa *käytännönläheiseksi* (Jantunen ym. 2013). Filosofiataustaltaan tämä edustaa tulkinnallista tutkimusta, jossa tavoitteena on parantaa tutkittavien osaamista ja itseymmärrystä. Käytännössä tämä toteutui siten, että sitoutin ja rohkaisin opiskelijoita reflektoimaan omaa ja ryhmän toimintaa. Intervention jälkeen tutkittavat itse siirtyivät vähitellen luomaan ryhmissä äänenkäytön kehittämiseen tähtääviä pienimuotoisia harjoituksia (ks. lisää luvusta Toteutettu interventio). Nämä olivat eräänlaisia uusia interventioita, jotka syntyivät teoreettisen tiedon ja saavutettujen taitojen välisen reflektoinnin avulla yhteisössä. Osapuolten tavoitteena oli tuottaa parempia asiantuntijoita alakoulun musiikinopetukseen. Tässä tutkimuksessa musiikin tavoitteista keskityttiin pelkästään koulutettavien äänenkäytön kehittymiseen. Samoin tutkimuksen ulkopuolelle jäi opiskelijoiden toiminnan arviointi ja oppimisen reflektointi. Ne sisältyivät intervention toimintastrategiaan, jossa koko yhteisö osallistettiin itseohjautuvaan toimintaan. Aikaisempiin kehotietoisuuden tutkimuksiin viitaten (Anttila 2009; Klemola 2005; Shusterman 2012) oletuksena oli, että taidon oppiminen vahvistaa myös ammatillista osaamista. Tämä oletettiin tapahtuvan myös silloin, kun kehon aistimista ja äänen osa-alueita harjoitellaan musiikin opettamisen ja oppimisen pedagogisessa ympäristössä. Koulutuksen tavoitteena oli myös opettajuuden kasvun rakentuminen, jossa mukana olleet vahvistavat omaa identiteettiään musiikkia opettavana luokanopettajana alakoulussa.

Neljännessä vaiheessa palasin koulutettavien uudelleen testaamiseen. Kehittämistutkimuksen neljäs vaihe on ensimmäisen tutkimusvaiheen kaltainen eli tutkimuksen muoto oli *tekninen* (Jantunen ym. 2013). Nyt tavoitteena oli selvittää, missä määrin kehitystä tapahtui luokanopettajaopiskelijoiden äänenkäytön toiminnan eri osa-alueilla opintojakson aikana. Tässä vaiheessa arvioin koulutettavien saavutetut taidot ja vertasin niitä ennen opintojakson alkua saatuihin tuloksiin. Aiheen rajaus keskittyi tarkastelemaan toimintatutkimuksen ensimmäistä ja neljättä vaihetta. Näin ollen määritin tutkimuskysymyksen etukäteen, ja etsin siihen vastauksia positivistisen filosofiataustan mukaisesti. Holterin ja Schwartz-Barcottin (1993) mukaan teknisessä vaiheessa positivistinen filosofia pyrkii deduktiivisesti myös vertaamaan aikaisempiin teorioihin. Tutkimuksessani tämä näkyy äänenkäyttöteorioiden hyödyntämisenä mittarin laadinnassa ja intervention toteuttamisessa sekä tulosten vertailuna muihin tutkimuksiin.

Tutkivalla opettajalla (Korpinen & Hyvärinen 2003; Sitomaniemi-San 2015) on kuitenkin korostettu rooli aineiston keräämisessä, analyysissä ja tulosten tarkastelussa (Jantunen ym. 2013). Tutkimukseni validiteetin tarkastelu keskittyi pääosin tavoitteiden saavuttamiseen (Anderson & Herr 1999). Katalyyttistä validiteettia arvioin äänenkäytön arviointitulosten pohjalta. Tässä yhteydessä tarkastelu jäi saatujen tulosten valossa pohdintalukuun, miten interventio (koulutus) auttoi syventämään koulutettavien ymmärrystä tutkimuskohteesta. Näin ollen tutkimukseni oli myös kartoittava (Hirsjärvi, Remes & Sajavaara 1997), kun tutkittavien tutkimustehtävän mukaista taitoa mittasin alkumittauksessa, mutta samalla pyrin myös seuraamaan pitkittäistutkimuksen (Trochim 2005) tavoin intervention vaikutusta opintojakson päätteeksi. Kehityksen vertailulla pohdin myös laajemmin koulutuksen vaikuttavuutta kuten esimerkiksi mitä jatkotoimenpiteitä tarvittaisiin. Mainittakoon kuitenkin, että tässä kehityksen seuranta rajoittui vain noin yhdeksään viikkoon. Tätä voidaan pitää varsin lyhyenä ajanjaksona.

Huomioitavaa on, että tutkimuksessani rajoituin testaamaan intervention vaikuttavuutta kehittämäni arviointimatriisin avulla tilastollisesti. Aiheenrajauksen mukaisesti olen jättänyt tutkimusaineiston ulkopuolelle opiskelijoiden oppimispäiväkirjat. Ne olisivat laajentaneet tutkittavien antamaa näkökulmaa äänenkäytön kehittymisestä, ja siten tuoneet lisäarvoa tutkimukseen. Toisaalta aihetta voidaan pitää sensitiivisenä, ja oppimispäiväkirjojen tekstit olisivat voineet tuottaa eettisiä haasteita. Lisäksi opiskelijoiden reflektointitekstien käyttö olisi vaatinut tutkittavilta tutkimusluvan. Aiheen herkkyyden huomioiden rajasin opiskelijoiden kokemukset tutkimuksen ulkopuolelle.

Toteutettu opetusinterventio

Opintojakson toteuttamista varten kehitin opetuskokonaisuus-intervention. Sen tavoitteena oli, että opiskelijat ymmärtäisivät terveen äänentuoton merkitykset ja niiden pääperiaatteet. Samalla he osaisivat hyödyntää niitä pedagogisesti koulun musiikinopetuksessa, mutta myös oman äänen huollossa ja päivittäisessä käytössä (ääni työvälineenä).

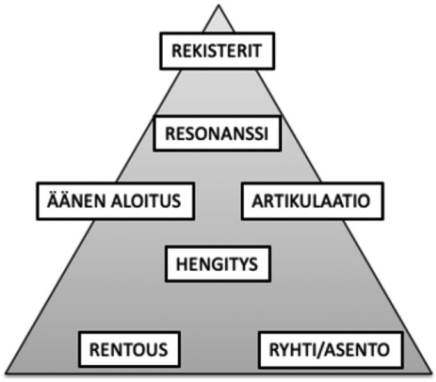
Musiikin opintojakso sisälsi kahdeksan 90 minuutin tapaamiskertaa (yht. 16 tuntia kontaktiopetusta), jotka sijoittuivat yhdeksän viikon ajalle. Jakson aikana opiskelijat harjoittelivat mm. ryhmäopetuksessa kestävän äänenkäytön periaatteita, äänenavausta, laulun opettamista, moniäänisyyttä, musiikkikäsitteitä, soittimien käyttöä, luovaa ja elämyksellistä toimintaa, mielikuvia ja tietoisuutta omaa kehoa aistien. Ääneen liittyvät harjoitukset tehtiin ensin käytännössä. Sen jälkeen tutustuttiin äänen fysiologisiin periaatteisiin. Lisäksi näitä toiminnallisia harjoitteita käsiteltiin koko opintojakson ajan.

Koulutuksen tavoitteena oli kehittää opiskelijoiden myös ammatillista osaamista äänenkäytön ohjaajina luokkatilanteessa. Yhteisten demotuntien aikana käydyt harjoitukset olivat sovellettavissa koulun musiikinopetukseen. Lähestyimme äänen kehittämistä pedagogisesti, mutta samalla etsimme ja rakensimme tietoisuutta omasta äänenkäytöstä. Demokohtaiset äänenkäytön harjoittelemiseen käytetyt minuuttimäärät etenivät seuraavasti: 1. tapaaminen 30 min, 2. 60 min, 3. tavoite luovassa ilmaisussa liikkein eläytyen 60 min (ei ääni), 4. 90 min, 5. 30 min, 6. 3 x 20 min, 7. 3 x 20 min ja 8. 2 x 20 min.

Opiskelijoiden tehtävänä oli myös syventää ja soveltaa kurssilla opiskeltuja tavoitteita käytännössä. Näitä harjoittelimme pienimuotoisissa äänenavauksissa ja opetustuokioissa sekä äänenkäyttöön liittyvissä kotitehtävissä, joita olimme harjoitelleet yhdessä. Lisäksi opiskelijoiden tuli reflektoida oppimispäiväkirjassaan omaa oppimistaan. Opiskelijan oman työn osuus oli noin 11 tuntia. Tutkimus toteutettiin irrallaan kurssin arvioinnista.

Äänen synty muodostuu useasta eri vaiheesta, jotka seuraavat toisiaan ketjumaisesti. Opetuksen intervention periaatteena oli huomioida nämä ketjut toiminnallisena kehyksenä, jossa edetään helpommasta vaikeampaan. Äänen kehittämiseen liittyvät harjoitukset

rakensin siinä järjestyksessä kuin toiminnat etenevät äänen tuottamisen prosessissa tai niitä voi harjoituttaa nousujohteisesti. Intervention harjoitusprosessin ydinajatuksen kuvaan kuviossa 1. Hyvä ryhti ja rentous luovat perustan hyvälle äänenkäytölle. Nämä alueet sijoitin kolmion pohjalle. Tälle niin sanotulle jalustalle rakensin äänentuoton muut vaiheet.



Kuvio 1. Äänenkäytön osa-alueet intervention ja arvioinnin kohteina.

Harjoitukset lähtivät liikkeelle kehon tietoisuuden herättelystä, jossa aluksi kohdistimme huomion rentouteen ja ryhtiin. Kun oikeanlainen tasapaino löytyy, luo se hyvän jatkeen oikean hengitystekniikan harjoittelemiseen. Tällä vahvistetaan samalla myös ryhdin ja rentouden tiedostamista, jossa hengitys rytmittää kehon elastisuutta. Luuston ja lihaksiston toiminnan tasapaino mahdollistaa samalla entistä paremman hengitystekniikan. Kuviossa yksi sijoitin hengityksen keskelle, joka kuvaa sen merkitystä tasapainottavana ja seuraavaan vaiheeseen vaikuttavana tekijänä. Hengitystekniset harjoitukset mahdollistavat oikeanlaisen äänen aloituksen ja artikulaation muodostamisen. Tämä tarkoittaa esimerkiksi sitä, että sopivalla ilmanpaineella saadaan ääni ikään kuin syttymään äänen aloituksessa. Artikulointi liittyy äänteisiin ja niiden yhdistämiseen sanoiksi. Tässä huomio kiinnittyi mm. äänteiden selkeyteen, rytmisyyteen ja vaihteluun. Resonanssitehtävillä haettiin äänen voimakkuuteen ja sointiin liittyviä tekijöitä. Rekisterien tietoisuus auttoi ymmärtämään mm. äänialaan liittyviä yksilöllisiä tekijöitä. Kuviossa yksi tämän osa-alueen sijoitin ylimmäksi, koska niiden työstäminen vaatii pohjalle kaikkien edellä mainittujen alueiden harjoittelua.

Opetuksen intervention rakensin opeteltavan koululaulun ympärille. Kysymyksenä oli koulutettaville, miten toteuttaisit uuden laulun opetuksen. Interventio sisälsi motivointiosuuden, joka toimi yhteisenä toiminnallisena aloituksena. Aihe nousi opeteltavan laulun tekstistä, johon eläydyimme erilaisten mielikuvien ja työtapojen avulla. Näihin harjoituksiin yhdistin jo äänenkäyttöön liittyviä harjoituksia, jotka toimivat myös äänenavauksena. Tavoitteena oli, että leikin, tunnetilojen ja mielikuvien kautta heittäydyimme harjoittelemaan omaa ääntä. Tässä hyödynsin esimerkiksi opeteltavassa laulussa esiintyviä hahmoja, henkilöitä, tapahtumia ja ympäristöä. Apuna käytin muun muassa kuvia, esineitä, ääniä, liikettä ja draamaa. Äänen käytön eri osa-alueiden (ks. Kuvio 1.) harjoittelussa hyödynsin myös laulun tekstiä.

Rentouden ja ryhdin sekä hengityksen tasapainon hakemisen jälkeen suoritimme saman toiminnan liikkeessä. Tämä toteutui esimerkiksi eläytymällä laulun aiheesta nousseeseen tarinaan. Lisäksi tähän yhdistimme tekstin tai äänteiden sarjan, jota toistimme. Kiinnitimme huomion äänen pehmeään aloitukseen ja äänteiden selkeyteen sekä ilmeikkyyteen. Hengityksen rytmitystä auttoivat säkeitten pituiset kokonaisuudet, joiden väleissä hengitimme.

Resonanssia harjoittelimme aistimaan omasta ja toisen kehosta. Äänen aikana kädellä tunnustelimme värähtelyä rintalastan, poskipäiden ja nenän väliin jäävältä alueelta sekä otsasta. Värinä tuntui myös huulissa. Rekistereitten harjoittelussa hyödynsimme resonanssiharjoituksissa saatua aistimusta. Äänialaharjoituksissa kiinnitimme huomion rinta-, keski- ja päärekistereihin sekä eri äänialatyyppeihin. Samalla koulutettavat saivat ymmärrystä lasten ja aikuisen äänen eroista, jotka on hyvä huomioida musiikinopetusta toteuttaessa.

Vaiheittaisen laulun tekstin ja siihen niveltyvän perus- ja erityisrytmiikan harjoittelun jälkeen siirryimme laulun melodian harjoittelemiseen. Tässäkin opetusintervention sisältö noudatti edellä kuvatun kuvio yhden rakennetta. Opettajana annoin äänelläni mallin, jossa mukana oli säkeittäin etenevä vaiheittaisuus. Tämä rytmitti oppijaa aistimaan ja kiinnittämään huomion ensin pienempään kokonaisuuteen. Lisäksi saimme arviota äänen eri osa-alueiden osaamisesta, kun arviointi ja palaute sijoittuivat oppimisprosessin eri vaiheisiin. Saadun tiedon perusteella kehitin opetusinterventiota ja harjoittelua edelleen. Lopuksi yhdistimme laulun säkeet, jolloin tavoitteeksi tuli laulun ilmeikäs esittäminen. Tässä huomioimme laulun dynamiikkaan, rytmiin, melodiaan, tempoon ja muotorakenteeseen liittyvät osa-alueet. Myöhemmin yhdistimme lauluun soittimet, jotka samalla toivat sekä lisähaastetta että tukivat äänenkäytön harjoittelua.

Yhdessä toimiminen ja yhteismusisoinnin merkitys voidaan katsoa tukevan toimintatutkimukseni tavoitteiden toteutumista. Tässä tutkittava yhteisö on pohtimassa ongelmaan ratkaisua käytännön, toiminnan, teorian ja ajattelun välityksellä (Stinger 1999). Tutkimuksessani oman ajattelun kriittisellä tarkastelulla haastettiin oppijat reflektoimaan intervention toimivuutta yksilönä ja yhteisönä sekä kehittämään omaa ymmärrystään ja substanssiosaamistaan äänen käyttäjänä ja ohjaajana tulevassa luokanopettajan työssä.

Intervention aikana käsittelimme peruskoulun musiikin opetussuunnitelman tavoitteita ja sisältöjä. Samalla koulutettavat prosessoivat ja harjoittelivat musiikin eri sisältöalueiden laaja-alaista osaamista sekä uskallusta niiden soveltamiseen jo koulutuksen aikana. Tässä musiikinopetuksen pedagogiset tekijät nousivat keskiöön kuten oppimisprosessit, oppimisen ohjaaminen, eriyttäminen, työtavat, tavoitteet ja sisällöt.

Arviointilomakkeen ja arviointimatriisin laadinta

Aineiston keräämisen arviointimatriisin ja -lomakkeen kehittämisessä sovelsin kehittämistutkimuksen periaatteita (Juuti & Lavonen 2006). Ongelma-analyysi perustuu teoriaan ja empiriaan. Tässä reflektoinnin kautta syntyy kokemuksen ja tiedon uudelleen järjestäytymistä johonkin uuteen. (Aksela & Pernaa 2013; Juuti & Lavonen 2013.) Tutkimuksessani arviointikriteereitten luonti eteni kehittämisprosessista kehittämistuotokseen eli valmiiseen arviointilomakkeeseen ja -matriisiin. Tavoitteenani oli löytää sellaiset arviointikriteerit (arviointimatriisi), joiden pohjalta tutkivana opettajana voisin tehdä omiin havaintoihin perustuen arvion äänen eri osa-alueiden osaamisesta.

Ääni-instrumentin osa-alueiden luokittelussa ja niiden kuvauksissa käytin teoriaohjaavaa sisällönanalyysiä (Tuomi & Sarajärvi 2009). Deduktiivisen päättelyn (Patton 2015) liitin siinä vaiheessa mukaan, kun äänitutkimuksen ja -oppaiden yhteiset äänen osa-alueet löytyivät (asento, ryhti ja rentous, hengitys, äänenaloitus, artikulaatio, resonanssi ja rekisterit). Arviointikohteiden ja kriteereitten luonnissa sekä intervention toteutuksessa käytin Koistisen (2005) ja Aallon ja Parviaisen (1990) äänenkäytön oppaita. Lisäksi kriteereitten luonnissa hyödynsin vertailevana aineistona esimerkiksi Aldersonin (2020), Alexanderin (1985), Appelmanin (1986), Eerolan (1997, 2008), Huslerin ja Rodd-Marlingin (1965), Laukkasen ja Leinon (2001), Titzen (2000) ja Vennardin (1967) ääni- ja laulututkimuksia. Näihin ja muihin lähteisiin olen erikseen viitannut tekstissä. Arviointimatriisiin olen lisäksi yhdistänyt toiminnan määrittelyn ja kuvailun kehossa. Tekstikuvaukset ovat syntyneet lähteiden ja kou-

luttautumiseni sekä käytännön kokeilun synteesin tuloksena. Paikoin näiden erillisyyttä on vaikea erottaa. Kyseessä on opettajuuden ja kokemuksen sekä reflektoinnin kautta syntynyt kokonaisuus, jossa teoriaohjaava sisällönanalyysi on strukturoinut induktiivista päättelyäni.

Näistä edellä mainituista lähteistä äänenkäytön kannalta keskeisimmiksi arvioitaviksi alueiksi nousivat kehon (1) asento ja ryhti, (2) rentous, (3) hengitys, (4) äänen aloitus, (5) artikulaatio, (6) resonanssi ja (7) rekisterit (ks. Kuvio 1). Tutkimuksen ulkopuolelle jätin ne alueet, joita on vaikea havaita (esim. audiokinesteettisesti). Tällaisia alueita olivat esimerkiksi ilmanpaineen ja lihastasapainon mittaus, tilantaju ja ihmisen psykofyysinen kokonaisuus. Arviointimatriisin avulla arvioin edellä mainittuja osa-alueiden hallintaa 5-portaisen asteikon avulla. Äänenkäytön arviointi perustui tutkimuksissa esitettyihin optimaalisen suorituksen kriteereihin (esim. Aalto & Parviainen 1990; Alderson 2020; Appelman 1986; Eerola 1997, 2008; Husler & Rodd-Marling 1965; Koistinen 2005; Vennard 1967). Tässä tutkimuksessani se kuvasi ylintä porrasta eli viittä pistettä. Alin piste (yksi) kuvasi ääniongelmissa ilmeneviä piirteitä. Muiden pisteiden kriteerit pilkoin henkilökohtaiseen arvioon ja kokemukseen nojaten kuitenkin siten, että pyrin järjestämään ja kuvaamaan ne nousujohteisesti toisiinsa nähden. Lisäksi hengitystekniikan arvioinnissa hyödynsin mittanauhaa, jolla havaitsin hengityksen laajuuden ja sijoittumisen kehossa. Samalla se toimi konkreettisena välineenä hengityksen sijoittumisen tunnistajana opiskelijoille.

Aineiston keruu ja kehittämistuotoksena arviointityökalu

Metodina arviointimatriisin käyttö edustaa strukturoitua eli jäsenneltyä havainnointia (Anttila 2000), jossa huomio kohdistuu ennalta määrättyihin kohtiin tai piirteisiin. Lisäksi tarkkailevan havainnoinnin avulla voidaan saada määrälliseen menetelmään soveltuvaa aineistoa (Anttila 2000). Arviointipisteiden toiminnallisessa kuvauksissa (ks. Taulukot 1 ja 2) käytin myös arviointia tukevia kuvauksia. Niiden tarkoitus oli helpottaa arvioinnin tekemistä. Tässä kohtaa kriteerit nousivat siis tutkivan opettajan (Heikkinen, Kontinen & Häkkinen 2007; Korpinen & Hyvärinen 2003) havainnoinneista, jossa laadulliselle tutkimukselle ominainen tulkinta toteutuu (Eskola & Suoranta 1998). Torvisen (2006) mukaan auditiiviselta pohjalta arviointikriteerit lähtevät ennemminkin äänen kokemisesta ja aistimisesta kuin etukäteen tarkoin määritetyistä lähtökohdista. Tällaista havainnointia ei kuitenkaan pidetä määrällisessä tutkimuksessa kovinkaan luotettavana, koska eri tutkijat voivat saada erilaisia havaintoja ja arvioita tutkimuskohteesta (Anttila 2000). Tutkimuksen strategisen linjauksen mukaisesti luotettavuuden tarkasteluun valitsin toimintatutkimuksen luotettavuuden kriteerit, jotka esittelin jo aiemmin (ks. luku Tutkimuksen eteneminen).

Jäsennelty havainnointi (Anttila 2000) tapahtui tutkimuksessani audiokinesteettisen tuntemuksen, kehon toiminnallisten muutosten seuraamisen, visuaalisen havainnoinnin ja kosketuksen avulla. McKinneyn (2005) mukaan audiokinesteettisen taidon avulla äänenkäyttöön ja laulamiseen perehtynyt opettaja pystyy aistimaan omassa kehossa äänentuottoa ja analysoimaan koulutettavan äänen toimintaperiaatteita. Tätä taitoa pyrin hyödyntämään havaintoja suorittaessani. Jäsennellyn havainnoinnin valintaani puoltaa myös se, että vaikuttavuuskriteereillä voidaan tarkastella ja arvioida positiivisia muutoksia. Näiden muutosten voidaan olettaa johtuvan äänenkäytönharjoittelusta sekä koulutuksesta.

Tutkimuksessani suoritin opiskelijoille (N=30) alkumittauksen ennen opintojakson alkua ja loppumittauksen sen päätyttyä. Nämä mittauskerrat kestivät jokaista opiskelijaa kohti noin 25 minuuttia. Kummallakin mittauskerralla annoin tutkimukseen osallistuneille myös palautetta heidän äänenkäytöstään ilman arviointipisteitä. Nämä kaksi mittauskertaa tulivat opiskelijoille ylimääräisenä lisänä ja ohjauksena, jotka eivät ajallisesti sisältyneet varsinaisen opintojakson sisälle. Alku- ja loppumittauksissa pyrin luomaan luottamusta herättävän ilmapiirin, jossa en esittänyt ns. oikeita tai vääriä tapoja toimia. Pyrin kunnioittavasti kohtaamaan

jokaisen yksilöllisen tavan ilmaista itseään. Kävimme yhdessä dialogisen keskustelun avulla kehittämiskohteet. Keskustelun aikana koulutettava kertoi ensin omista tuntemuksistaan ja kokemuksistaan. Tämän jälkeen toin esille omat huomioni, joiden pohjalta jatkoimme edelleen keskustelua. Arviointitilanne ikään kuin edusti oppimistilannetta, jonka aikana koulutettavien oli mahdollista saada henkilökohtaista palautetta äänenkäytöstä ja sen kehittämisestä. Tämä tapa lähestyä koulutettavia auttoi luomaan vapaan ja avautuneen ilmapiirin. Kaikki tutkimukseen osallistuneet (N=30) olisivat toivoneet tutkimusprosessin jatkuvan pitemmälle aikajanalle kuin tässä tapauksessa se oli mahdollista. Äänen kehittäminen koettiin tärkeäksi. Seuraavaksi kuvaan arviointityökalun (ks. Taulukot 1, 2) äänenkäytön osa-alueita.

Kehon asentoa ja ryhtiä arvioidessa pyysin opiskelijaa seisomaan. Arviointikohteina olivat *lantion, rintakehän ja pään ns. maljat*, jotka asettuvat vaakatasossa toisiinsa nähden tasaisesti päällekkäin suoraan linjaan (esim. Aalto & Parviainen 1990; Alexander 1985; Koistinen 2005). Arvioitaviksi osa-alueiksi, jotka pisteytin, valitsin 1) jalkojen haara-asennon leveyden, 2) jalkapohjien tukipisteen ja asennon, 3) polvien ja 4) lantion asennon, 5) selkärangan, 6) kylkikaaren ja rintakehän asennon, 7) hartioitten ja lapaluiden asennon, 8) niskan ja kaulan sekä 9) pään asennon. Arviointia varten laadin kehon asentoa ja ryhtiä kuvaavat kriteerit, jossa jokainen 5-portaisen asteikon piste sai lyhyen kuvauksen. 1 piste: kaikilla osa-alueilla puutteita tai yhdellä toimiva. 2 pistettä: 2–3 aluetta toimivia. 3 pistettä: 4–6 toimivia. 4 pistettä: 7–8 toimivia. 5 pistettä: kaikki alueet toimivat moitteettomasti.

Rentoutta arvioidessa pyysin opiskelijaa suorittamaan kehollaan ns. rullauksen, joka etenee päästä alaspäin tukirankaa myötäilevänä liikkeenä kohti lattiaa. Samalla kehon rullauksen aikana oli mahdollista seurata kehon asennon ja rentouden liikettä sekä hengityksen yhdistämistä virtaavaan liikkeeseen, jossa haetaan oman kehon sisäistä aistimista. Rullauksen valintaa pidin parempana vaihtoehtona kuin pelkkää lattialla makaamista, joka jo luonnostaan asettaa kehon rentoon asentoon. Rullausliikkeessä arvioitaviksi kohdiksi muodostuivat 1) pää ja niska, 2) hartiat, 3) selkäranka, 4) lantio, 5) polvet ja 6) jalkapohjat, 7) hengitys ja 8) sisäinen tietoisuus. Näihin alueisiin kiinnitetään huomiota esimerkiksi Alexander-tekniikassa (Alexander 1985; kts. myös Aalto & Parviainen 1990). Tässä tekniikassa niin paikalla ollessa kuin liikkeessä kehon toimintojen ja asentojen sisäistä tietoisuutta pyritään herättämään hienovaraisesti ja yksilöä kunnioittaen. Alexanderin (1985) mukaan tietoisuudella tarkoitetaan tässä eri asiaa kuin kontrolloidulla liikkeellä, joka voi saada aikaan pakotetun toiminnan.

Tutkimuksessani sijoitin sisäisen tietoisuuden vaativimpaan luokkaan, koska juuri liikkeen virtaavuuden ja sulavuuden tai olemassaolon tietoisuuden kokemukset ovat haastavimpia (Alexander 1985). Sisäisen tietoisuuden määritänkin tässä siten, että oppija on ikään kuin herkistynyt omien liiketoimintojen havainnointiin ja suhteuttanut toimintaansa edelleen jatkuvan oppimisen kautta yhä kehotietoisempaan aistimukseen. Määritelmässäni näen yhtymäkohtia muun muassa Anttilan (2013) kehotietoisuuden kuvauksiin.

Kun arvioin rentoutta, havainnoin liikettä visuaalisesti. Laadin vielä kunkin arviointimatriisin pisteelle oman kuvauksen, joka toimi ohjeellisena apuna arvioinnissa (ks. Taulukko 1). Ääni ja äänenkäyttötavat ovat hyvin henkilökohtaisia asioita. Rentoutumiseen ja kehon asentoon voi vaikuttaa monia tekijöitä kuten alitajuiset seikat, stressi ja tunteet (Garlick 1990). Ne voivat näkyä kehollisina reaktioina kuten esimerkiksi kurkunpään ja kehon asennon jännittymisenä sekä hengityksen virtaavuuden pidättäytymisenä. Tässä tutkimuksessani en pystynyt laatimallani mittarilla yksilöimään esimerkiksi stressin tai tunteiden vaikutusta rentouteen.

Hengittäessämme monet eri lihakset toimivat yhtenäisessä ja elastisessa kokonaisuudessa. Jotta tämä monivaiheinen prosessi toteutuisi oikein, vaatii se syvähengitystekniikan toteutumisen. Tässä hengityselimistön liikelaajuuden muutokset sijoittuvat lantion, kylkien ja rinnan alueille. Niillä on todettu olevan yhteyttä äänenkäyttöön ja sen laatuun. (Esim. Alderson 2000; Alexander 1985; Appelman 1986; Husler & Rodd-Marling 1965; Malde,

Osa-alueet	*5-portainen arviointi*
Rentous	1. niska ja hartiat jäykkänä ja rullaus kankea ja alhaalla kyykyssä jäykkä, eli kokonaissuorituksessa paljon puutteita, 2. niska- ja hartialinja jäykkänä ja rullaus kankea mutta kyykyssä osin rento, 3. niskan rentous tavoittelee vapautta, rullauksessa paikoin jäykkyyttä, jalkapohjilla tasainen paino, lantio asettautuu lähes oikeaan asentoon alas- ja ylöspäin tultaessa, 4. kehon rullaus ylhäältä alas ja takaisin joustava, pää seuraa rullaavassa liikkeessä joustavan rennosti tukirangan jatkeena, alhaalla pää roikkuu rennosti ja seisoessa pää on suorassa kuten edellä asentokuvauksessa, lantio myötäilee liikettä kehon tukipisteitä seuraten ja rullaus rytmittyy hengityksen mukaan, kokonaisuutena n. kahdella alueella kehitettävää esim. hartioilla nostava liike, tai niska jäykkä, 5. koko kehon rullaus hengittävän joustava ja sisäinen tietoisuus liikkeestä
Hengitys	1. ei liikettä kylkien ja lantion alueella, pinnallinen hengitys tai jää solisluun alueelle, 2. kylkien ja rinnan alueella liike, hengitys ei putoa alas lantion alueelle tai hengityksen rytmi väärin päin, 3. liikettä kylkien ja rinnan alueelle sekä hengityksen putoaminen vatsaan, mutta ei pallean toiminnan vapautumista, 4. hengityksen dynaaminen liike, jossa mukana pallea, mutta syvähengitys on kehittymisvaiheessa, 5. syvähengityksen toiminta hallittua ja sisäisesti tietoista, jossa tunnetaan ja ennakoidaan seuraavaa hengitysvaihetta ja ääni toimii vapautuneesti ja ilman pakottamista.

Taulukko 1. Rentouden ja hengityksen arviointi 5-portaisella arviointikriteerillä.

Allen & Zeller 2017; Vennard 1967.) Tämä vaihtelu on myös visuaalisesti ja koskettamalla havaittavissa. Valitsin arvioinnin apuvälineeksi vielä mittanauhan. Se osoitti konkreettisesti, missä ja missä määrin muutosta tapahtuu.

Tein mittauksen lepohengityksen aikana. Pyysin opiskelijaa seisomaan ryhdikkäästi ja hengittämään nenän kautta sisään ja suun kautta ulos. Tällä pyrin aktivoimaan lepohengitystä, jotta hengityksen vuorottelu rytmittyisi ja ne erottautuisivat paremmin toisistaan. Arviointilomakkeelle kirjasin opiskelijan ympärysmitan sentteinä ulos ja sisään hengittäessä sekä kylkien että lantion alueelta. Sain neljä mittaa: esimerkiksi K (kyljet) 75–73 cm ja L (lantio) 82–81 cm. Ensimmäinen numero tarkoittaa sisäänhengitystä ja jälkimmäinen ulos-hengitystä. Seuraavaksi laskin lukujen välisen erotuksen: K 2 cm ja L 1 cm. Tämä selkeytti opiskelijoiden välisten erojen vertaamista, kun kehon koon yksilölliset erot jäivät pois. Luvut kuvaavat hengitysten vaihteluväliä ja antavat siten myös suuntaa ja palautetta hengitystekniikasta. Mittaaminen konkretisoi esimerkiksi puutteellisen hengitystekniikan silloin, kun liikelaajuuden vaihtelua ei tapahtunut tai se oli pientä tai hengityksen rytmissä oli poikkeavuutta tai liikelaajuuden vaihtelut olivat vastakohtaisia lantion ja kylkien alueella. Tämä näkyy jopa kehon asennossa ja rentouden epätasapainona.

Äänen **aloitusta, artikulointia ja resonanssia** testasin sekä puheen että laulun aikana. Lisäksi arvioin laulun aikana **rekistereitä**. (Ks. Taulukko 2.)

Optimaalisessa tilanteessa äänenaloituksessa ja äänteiden aikana äänihuulet sulkeutuvat pehmeästi ja värähtelevät koko pituudeltaan ja syvyydeltään. Tällöin äänihuulet toimivat luontevasti vaihdellen, ja äänen ominaisuudet (korkeus, voimakkuus, sointiväri ja kesto) toimivat sopusuhtaisesti äänihuulten rakenteeseen nähden. Artikuloinnissa esimerkiksi vokaalien pyöreys ja konsonanttien pehmeys vaikuttavat sanojen selkeyteen. Myös lauseiden rytmitys, äänen vaihtelut, eläytyminen sekä leukanivelen rentous vaikuttavat näihin tekijöihin. (Esim. Husler & Rodd-Marling 1965; Laukkanen & Leino 2001; Vennard 1967.) Oikein tuotettuna äänen resonointi voidaan kokea koko kehossa, mutta todellisuudessa suurin osa värähtelystä tapahtuu kurkunpäässä, nielun ja suuontelon alueilla (Koistinen 2005). Rekisterit voidaan esimerkiksi luokitella naisilla rinta-, keski- ja päärekisteriin ja miehillä rinta- ja pää- sekä falsettirekisteriin. (Koistinen 2005; Vennard 1967; vrt. myös Husler & Rodd-Marling 1965.) Ääniharjoituksilla pyritään kehittämään näitä alueita siten, että ää-

Osa-alueet	*5-portainen arviointi*
Äänen aloitus	1. paukahtava ja kireä (liian paljon ilmapainetta ja jännitystä), 2. hankaava ja nariseva (kurkunpää mukana), 3. tasainen (äänihuulet sulkeutuvat tasaisesti, mutta äänen ominaisuudet eivät toimi luontevasti vaihdellen), 4. pehmeä, 5. sointuisa (luontevasti vaihdellen äänen ominaisuudet)
Artikulaatio	1. epäselvä, mumiseva, 2. nopea, suppea vaihtelu, äänteet paikoin epäselviä, 3. vokaalit, konsonantit selkeitä, 4. sujuva tekstin tuotto, josta muodostuu ehyt kerronta, 5. eläytynyt, jossa huomioidaan esim. tekstin rytmitys, tauot, ilmeikkyys
Resonanssi	1. pieni, huokoisa ääni tai nenässä, 2. resonanssi toimii osalla aluetta satunnaisesti, 3. jollakin alueella toimii aina, tila on pieni, mutta oikea suuntainen, 4. laajempi resonanssi, ääni on kantava ja sointuisa, 5. koko ääntöväylän resonanssi tasapainoinen kaikissa tilanteissa ja on tilanteen mukaan vaihteleva
Rekisterit	1. äänentuoton ongelmia kaikilla alueilla, sävelpuhtausongelmia, 2. ongelmia, mutta välillä toimii, 3. keskirekisteri tai oktaavin alueella toimiva, 4. rekisterin vaihdokset pääsääntöisesti toimivat, oktaavia laajempi, 5. joustava rekistereitten vaihtuminen

Taulukko 2. Äänen aloituksen, artikuloinnin, resonanssin ja rekistereitten arviointi 5-portaisella arviointikriteerillä.

ni-instrumentti soisi tasaisesti kaikilta korkeuksilta (esim. Alderson & Alderson 2020; Aalto & Parviainen 1990; Appelman 1986; Koistinen 2005; Titze 2000; Vennard 1967).

Puhetta arvioidessani kiinnitin huomion siis äänen aloituksiin, artikulointiin ja resonanssiin eli miten selkeästi ja elävästi sekä luonnollista äänenkäyttöä hyödyntäen opiskelija luki annetun tekstin. Luettavana tekstinä oli *Jänöjussin mäenlasku* -laulun sanat. Ensin annoin tehtäväksi tutustua tekstiin äänettömästi. Tämän jälkeen opiskelija sai lukea kyseisen laulun sanat ääneen. Puheessa rekistereiden käytön vaihtelua ei juurikaan esiintynyt. Tekstin lukeminen esitettiin rinta- tai keskirekisterin alueella. Tämän takia jätin sen tutkimuksen ulkopuolelle. Huomioitavaa on kuitenkin, että puheen rekisterialueiden käyttö voi myös ilmaista äänenkäytönongelmista. Jatkotutkimuksissa tämä näkökulma kannattaa huomioida.

Laulamisen arvioinnissa olivat samat kriteerit kuin puheessa, mutta mukaan tulivat myös rekisterit. Lauluksi valitsin *Tuiki tuiki tähtösen*. Halusin muodostaa laulamisesta mahdollisemman rennon tilanteen, jotta epävarmimmatkin laulajat kokisivat laulamisen positiiviseksi. Näin ollen laulun piti rakentua selkeälle rytmille ja helpolle sävelkorkeusvaihtelulle. Tässä laulunuotin ambitus liikkui sekstin (c^1-a^1) välillä. Itse testitilanne eteni niin, että lämmittelimme ensin yhdessä kvinttiharjoituksella (esim. c-g-c) pärinällä tai r-täryllä tai ju- tai du -tavulla. Harjoituksen laajuus liikkui yksilöllisesti. Säestin pianolla ääniharjoituksen. Tämän jälkeen opiskelija lauloi *Tuiki tuiki tähtösen* valitsemallaan äänteellä läpi niin, että säestin häntä pianolla. Lopuksi hän lauloi itsenäisesti ja ilman säestystä ensimmäisen säkeistön, jonka videoin arviointini tarkistamista varten. Tällä tavoin pyrin huolehtimaan, että säestys ei peittänyt laulusuoritusta ja tarkkailuni keskittyi yksistään laulajaan. Videoitten avulla pystyin vielä tarkistamaan arvioni.

Aineiston määrällinen analyysi

Käsittelin havainnoinnin kautta kerättyä aineistoa tilastollisin keinoin, mutta niiden ns. totuusarvon katsoin syntyneen toimintatutkimuksen sisällä. Toisin sanoen hyödynsin saatuja arvoja taidon oppimisen syventämisessä enkä niinkään taidon lopullisina totuuksina. Huttusen, Kakkorin ja Heikkisen (1999) mukaan tällaisessa asetelmassa käydään koko ajan

moninaisia diskursseja tutkimuksessa mukana olevien kesken. Niin myös tässä tutkimuksessa koulutuksen aikana kaikki osapuolet arvioivat ja muuttivat toimintaansa reflektiivisenä yhteisönä.

Aineiston määrällisen analyysin suoritin SPSS 24 -ohjelmistolla. Tämän avulla tarkastelin lähemmin äänenkäytön osa-alueiden muutosta intervention aikana (alku- ja loppumittaukset). Analyysissa käytin kuvailevia tunnuslukuja (keskiarvo, -hajonta, mediaani) ja Wilcoxonin testiä, koska aineisto oli pieni ja äänen osa-alueita mitanneet muuttujat eivät olleet normaalijakaantuneita. Lisäksi tarkastelin muutosta frekvenssien ja prosenttiosuuksien avulla. Tulos on tilastollisesti merkitsevä, jos p-arvo alittaa riskitason 0.05. Tämän tutkimuksen luotettavuuden heikkoutena voidaan pitää sen kapea-alaisuutta ja tutkijan subjektiivista näkökulmaa (Anttila 2000; Patton 2015). Näin ollen tutkijan on pyrittävä mahdollisemman objektiivisiin havaintoihin ja tulkintoihin (Vilkka 2006). Aineiston analysoinnin luotettavuuden arviointi sijoittuu tässä ennemminkin laadullisen tutkimuksen piiriin, jossa aineisto käsitellään määrällisesti. Toimintatutkimuksen ja menetelmän esittelyssä nostin esille, että havaintojen tulkinnallisuus vaikuttaa validiteetin arviointiin. Heikkinen ja Syrjälä (2007) toteavatkin, että näissä tilanteissa todellisuuden tavoittaminen on mahdotonta. Tämän takia tarkastelen artikkelissani aiemmin Andersonin ja Herrin (1999) esittämiä validiteettityyppejä (dialoginen, tulos, prosessi, demokraattinen, katalyyttinen), joista keskityn erityisesti tulosten luotettavuuden arviointiin.

Äänenkäytön kehitys puheessa ja laulussa

Kaikkien äänenkäytön osa-alueitten p-arvot jäivät alle 0.05 (ks. Taulukko 3). Intervention kannalta tämä tarkoittaa hyvää muutoskehitystä. Syvähengityksen mittausalueella (hengitys lantio) alku- (ka 0.18) ja loppumittausten (ka 0.55) keskiarvot ja mediaanit (Md 0.00; 0.25) olivat alhaisimmat (ks. Taulukko 3). Muilla osa-alueilla toiminta oli melko samaa tasoa, mutta korkeampia kuin syvähengityksen. Äänenkäytön osa-alueista rentous ja kylkihengitys jäivät alkumittauksessa keskiarvoiltaan selvästi alle kolmen, mutta nousivat loppumittauksessa lähemmäksi kolmen keskiarvoa. Mediaanin osalta rentoudessa havainnon keskimmäinen arvo nousi kahdesta kolmeen. Kylkihengityksessä nousu oli pienempää. Keskihajonnassa suurimmat vaihteluvälit olivat kylkihengityksessä. Muilla osa-alueilla keskihajonnat jäivät alle yhden.

Äänenkäytön osa-alueet	*Keskiarvo*	*Keskihajonta*	*Mediaani*	*p-arvo*
Ryhti				0.001
alkumittaus	3.13	0.90	3.00	
loppumittaus	3.60	0.62	4.00	
Rentous				0.000
alkumittaus	2.37	0.89	2.00	
loppumittaus	2.90	0.92	3.00	
Hengitys kyljet				0.021
alkumittaus	2.18	1.37	2.00	
loppumittaus	2.87	1.42	2.50	
Hengitys lantio				0.012
alkumittaus	0.18	0.53	0.00	
loppumittaus	0.55	0.75	0.25	
Puhe				0.000
alkumittaus	3.11	0.61	3.00	
loppumittaus	3.47	0.64	3.33	
Laulu				0.001
alkumittaus	2.90	0.80	2.75	
loppumittaus	3.13	0.78	3.00	

Taulukko 3. Äänenkäytön osa-alueiden keskiarvot, -hajonnat, mediaanit ja p-arvot.

Ryhdissä osaamisen lähtötilanne ennen interventiota oli hyvä (ks. Taulukko 4). Alkumittauksessa useimmiten esiintyvä havaintoarvo oli neljä, jonka saavutti 36,7 % tutkittavista. Toisaalta lähes sama määrä (30 %) sijoittuu arviointiasteikon kaksi ja kolme tasoille. Ryhdin loppumittauksessa kaikki tutkittavat saavuttivat vähintään kolmosen tason, joka edustaa lähes puolta (46,7 %). Myös arviointiasteikolle neljä sijoittui 46,7 % tutkittavista. Kehitystä voidaan siten pitää varsin hyvänä. Sitä vastoin **rentoudessa** lähtötilanne oli heikompi. Alkumittauksessa peräti 40 % sijoittui tasolle kaksi. Loppumittauksessa kehitystä on nähtävissä. Nyt tutkittavista eniten sijoittuu tasolle kolme (46,7 %).

Taulukossa 4 tarkastellaan vielä alku- ja loppumittausten välistä kehitystä vähentämällä loppumittauksessa saadusta pisteestä alkumittauksen pisteet. Ryhdissä ja rentoudessa kehityksen vaihteluväli oli nollasta kahteen. Ryhdissä 60 % ja rentoudessa 53,3 % tutkittavista pysyi samalla osaamisen tasolla koko opintojakson ajan. Sitä vastoin kehitystä tapahtui ryhdissä 40 % ja rentoudessa 46,7 %, jota voidaan pitää hyvänä muutossuuntana.

Arviointi 1-5 N=30	*Frekvenssi f*	*Suhteellinen frekvenssi (f%)*	*Loppu- ja alkumittauksen välinen erotus eli kehitys*	*Frekvenssi f*	*Suhteellinen frekvenssi f%*
Ryhti: Alkumittaus			**Ryhti** 0	18	60
2	9	30	1	10	33.3
3	9	30	2	2	6.7
4	11	36.7			
5	1	3.3			
Loppumittaus					
3	14	46.7			
4	14	46.7			
5	2	6.7			
Rentous: Alkumittaus			**Rentous** 0	16	53.3
1	5	16.7	1	12	40
2	12	40	2	2	6.7
3	10	33.3			
4	3	10			
Loppumittaus					
1	2	6.7			
2	7	23,3			
3	14	46.7			
4	6	20			
5	1	3.3			

Taulukko 4. Ryhdin ja rentouden frekvenssit ja suhteelliset frekvenssit alku- ja loppumittauksissa sekä mittausten välinen kehitys loppu- ja alkumittauksen välisenä erotuksena frekvenssinä ja suhteellisena frekvenssinä.

Kylkien alueella ***sisään- ja uloshengitysten*** välinen liike alkumittauksessa vaihteli 0–5 senttimetrin välillä (ks. Taulukko 5). Kolmanneksella osallistujilla (33,3 %) vaihteluväli oli yhden senttimetrin. Samoin yhteensä kolmanneksella hengityksen vaihtelu liikkui kolmen (16,7 %) tai neljän (16,7 %) senttimetrin välillä. Tämä viittaisi syvähengityksen toteutumiseen. Kylkien loppumittauksessa (ks. Taulukko 5) hengitysten välinen liike laajeni. Tutkimukseen osallistuneitten havaintomitat kylkien alueella sijoittautuivat 0,5–7 senttimetrin välille. Nyt useimmiten esiintyvä havaintomitta oli kaksi senttimetriä (26,7 %). Toiseksi eniten sijoittui neljän senttimetrin ryhmään (13,3 %), mutta alkumittaukseen verrattuna hieman vähemmän. Myös 2,5 senttimetrin ryhmä kasvoi samoille prosenttiluvuille (13,3 %). Sitä vastoin alkumittauksen suurimmalle yhden senttimetrin ryhmään jäi vain yksi (3,3 %). Loput mittahavainnot hajautuivat pieniksi. Kaiken kaikkiaan puolet osallistujista pystyi lisäämään kylkien alueelle joustavuutta.

Syvähengityksestä saadut mittaustulokset toivat esille, että alkumittauksen osallistuneista 70 % ei osannut syvähengityksen tekniikkaa (ks. Taulukko 5). Yhdellä (3,3 %) tutkittavalla sisään- ja ulospäin hengitykset toimivat toisinpäin (laajentuminen ulospäin hengittäessä). Noin neljänneksellä (26,6 %) hengityksen laajuus liikkui (0,5–1,5) senttimetrin

välillä. Loppumittauksessa tilanne hieman parani. Alkumittauksen nolla senttimetri -ryhmän osuus pieneni 20 %:lla, mutta heidän osuutensa oli vielä puolet (50 %) opiskelijoista. Parannusta oli myös se, että väärinpäin hengittäneitä ei löytynyt. Lisäksi joillakin opiskelijoilla (16,6 %) hengityksen laajuus kasvoi 1,5–3 senttimetrin välille.

Hengitys kylki *cm*	*Alkumittaus f*	*Alkumit. f%*	*Loppumit. f*	*Loppumit. f%*	*Loppu- ja alkumit. erotus=kehitys f*	*Loppu- ja alkumit. erotus=kehitys f%*
0	2	6.7	0		15	50.0
0,5	0		1	3.3	6	20.0
1	10	33.3	1	3.3	4	13.3
1,5	2	6.7	3	10	3	10.0
2	2	6.7	8	26.7		
2,5	2	6.7	4	13.3	1	3.3
3	5	16.7	3	10		
3,5	1	3.3	2	6.7		
4	5	16.7	4	13.3		
4,5	0		1	3.3		
5	1	3.3	1	3.3		
5,5	0		1	3.3		
7	0		1	3.3		
Hengitys lantio *cm*	*Alkumittaus f*	*Alkumit. f%*	*Loppumit. f*	*Loppumit. f%*	*Loppu- ja alkumit. erotus=kehitys f*	*Loppu- ja alkumit. erotus=kehitys f%*
-1,5	1	3.3	0			
-1	0		0		1	3.3
-0,5	0		0		3	10
0	21	70	15	50	12	40
0,5	3	10	6	20	7	23.3
1	4	13.3	4	13.3	3	10
1,5	1	3.3	3	10	2	6.7
2	0		1	3.3	2	6.7
3	0		1	3.3		

Taulukko 5. Kylki- ja syvähengityksen ulos- ja sisäänhengityksen välinen liike alku- ja loppumittauksissa sekä kehitys loppu- ja alkumittauksen välisenä erotuksena frekvenssinä ja suhteellisena frekvenssinä.

Kun tarkastellaan vielä opiskelijan omaa kehitystä alkumittaukseen, nähdään, että 40 % tutkittavista ei kehittynyt (ks. Taulukko 5). Joillakin kehitys meni jopa taaksepäin (13,3 %), mikä näkyy taulukossa miinusmerkkisenä mittana. Lisäksi puolen (23,3 %) ja yhden (10 %) senttimetrin kehitystä voidaan pitää varsin pieninä muutoksina, mutta niissä on kuitenkin nähtävissä myönteinen kehityksen suunta. Sitä vastoin syvähengityksen kehitys on selkeästi nähtävissä pienellä opiskelijajoukolla (13 %).

Puheen aloituksen, artikuloinnin ja resonanssin alueilta lähes puolet opiskelijoista (46,7 %) sai alkumittauksessa arvioinniksi kolme pistettä (ks. Taulukko 6). Tämän alle jäi 30 % opiskelijoista, joilla arvioinnin keskiarvot jäivät päälle kahden pisteen (2,33 ja 2,67). Loppumittauksessa näiden molempien ryhmien osuudet pienenivät 3,3 %:iin. Nyt suuremmaksi ryhmäksi muodostui 3,33 keskiarvo, joka nousi alkumittauksen 3,3 %:sta 26,7 %:iin. Sitä vastoin samana pysyi neljän keskiarvo, joka oli molemmilla mittauskerroilla 16,7 %. Tätä ylemmissä keskiarvoissa oli vain vähäistä nousua.

Puheen aloituksen, artikuloinnin, resonanssin keskiarvot pisteinä	*2,33*	*2,67*	*3,0*	*3,33*	*3,67*	*4*	*4,33*	*5*
Alkumittaus f	3	6	14	1	0	5	0	1
f%	10	20	46.7	3.3		16.7		3.3
Loppumittaus f	1	1	10	8	1	5	2	2
f%	3.3	3.3	33.3	26.7	3.3	16.7	6.7	6.7

Puheen loppu- ja alkumittauksen välinen erotus eli kehitys	*Kehitys 0*	*Kehitys 0,3-0,4*	*Kehitys 0,7-1*
f	9	15	6
f%	30	50	20

Taulukko 6. Puheen aloituksen, artikuloinnin ja resonanssin frekvenssit ja suhteelliset frekvenssit alku- ja loppumittauksissa sekä puheen loppu- ja alkumittauksen välinen kehitys.

Taulukossa 6 nähdään vielä yksilötasolla tapahtunut puheen kokonaiskehitys. Tästä voidaan nähdä, että 30 %:lla kehitystä ei tapahtunut mittausten välillä, mutta 70 %:lla sitä tapahtui. Pisteinä tarkasteltuna kehitys oli 50 %:lla 0,3–0,4 välillä ja 20 %:lla muutoksen suunta oli selkeä (0,7–1).

Laulussa aloituksen, artikuloinnin, resonanssin ja **rekisterin** alueilta saatujen mittausten keskiarvot on koottu taulukkoon 7. Alkumittauksessa jopa 40 %:lla osallistuneista keskiarvot liikkuivat 1,5–2,5 pisteen välillä. Tällöin ääni oli esimerkiksi nariseva tai voimaton, äänteet olivat epäselviä tai laulajalla oli sävelpuhtausongelmia.

Laulun aloituksen, artikuloinnin, resonanssin ja rekisterin keskiarvot pisteinä	*Alkumittaus f*	*Alkumittaus f%*	*Loppumittaus f*	*Loppumittaus f%*
1,5	1	3.3	1	3.3
2	5	16.7	2	6.7
2,25	3	10	1	3.3
2,5	3	10	3	10
2,75	6	20	3	10
3	3	10	8	26.7
3,25	0		3	10
3,5	1	3.3	1	3.3
3,75	2	6.7	1	3.3
4	5	16.7	5	16.7
4,5	1	3.3	1	3.3
5	0		1	3.3

Laulun loppu- ja alkumittauksen välinen erotus eli kehitys	*Kehitys 0*	*Kehitys 0,25-0,50*	*Kehitys 0,75-1*
f	15	10	5
f%	50	33.33	16.67

Taulukko 7. Laulun aloituksen, artikuloinnin, resonanssin ja rekisterin frekvenssit ja suhteelliset frekvenssit alku- ja loppumittauksissa sekä laulun loppu- ja alkumittauksen välinen kehitys.

Loppumittauksessa (ks. Taulukko 7) näiden ryhmien osuus eli alkumittauksessa 1,5–2,5 pisteitten osuus (40 %) laski lähes puolella (23,3 %). Samoin parannusta tapahtui kolmen keskiarvon molemmin (2,75–3,5) puolin, jossa parannusta tapahtui lähes viidenneksellä (33,3 %:sta 50 %:iin). Parhaimmat pisteet alkumittauksessa sijoittuivat 3,75 ja 4,5 keskiarvojen välille, joita oli yhteensä 26,7 %. Loppumittauksessa mukaan tuli myös korkein keskiarvo viisi, mutta parhaimpien arvosanojen yhteenlaskettu prosentti säilyi samana (26,7 %).

Samoin kuin puheessa aineisto jakaantui kolmeen ryhmään (ks. Taulukko 7). Laulussa suurimman ryhmän muodostivat ne, joilla ei tapahtunut kehitystä (50 %). Kolmanneksella (33,33 %) laulajista (0,25–0,50) tapahtui pientä muutosta. Puheessa näiden ryhmien prosenttiosuudet olivat toisin päin. Suurimman ryhmän muodistivat toisin sanoen ne, joiden puhetaito kehittyi (70 %). Korkeimpia kehityspisteitä saaneiden osuus oli lähes sama: puheessa 20 % ja laulussa 16,67 %.

Lopuksi laskin vielä **ääni-instrumentin kaikkien osa-alueiden** keskiarvot saaduista havaintopisteistä ja loppu- ja alkumittauksen välisen erotuksen eli kehityksen (ks. Taulukko 8). Taulukosta 8 voidaan nähdä, että loppumittauksessa suurimman ryhmän (43,3 %) muodostivat 3–3,4 keskiarvolle sijoittuneet. Tämän ryhmän osuus oli kasvanut yli 25 %:lla alkumittauksesta. Heikoimpia pisteitä (1,88 ja 2,1–2,4) saaneiden osuus laski 30 %:sta 6,7 %:iin. Kehitystä tapahtui myös korkeimpia havaintopisteitä (4–4,4) saaneiden joukossa 3,3 %:sta 16,7 %:iin. Kolme tai sitä suurempia pisteitä saaneiden osuus oli loppumittauksessa yhteensä 73,3 %. Näiden koulutettavien äänenkäyttö toimi terveen äänen kriteereitten suuntaisesti (ks. Taulukko 1 ja 2). Opintojakson alussa tämän ryhmän osuus oli selkeästi pienempi (40 %) (ks. Taulukko 8). Sitä vastoin 26,7 % opiskelijoista ei yltänyt hyvän osaamisen tasolle kolme opintojakson päätyttyä (ks. Taulukko 8). Näillä opiskelijoilla oli äänenkäyttöongelmia.

Ääni-instrumentin osa-alueiden keskiarvot pisteistä	*1,88*	*2,1-2,4*	*2,55-2,88*	*3-3,4*	*3,55-3,88*	*4-4,4*
Alkumittaus f	1	8	9	5	6	1
f%	3.3	26.7	30	16.7	20	3.3
Loppumittaus f	0	2	6	13	4	5
f%		6.7	20	43.3	13.3	16.7
Ääni-instrumentin osa-alueitten loppu- ja alkumittausten erotus eli kehitys	*0*	*0,1-0,23*	*0,30-0,48*	*0,52-0,64*	*0,7-0,9*	
f	5	6	10	5	4	
f%	16.7	20	33.3	16.7	13.3	

Taulukko 8. Äänenkäytön osa-alueitten keskiarvot ja niiden frekvenssit ja suhteelliset frekvenssit alku- ja loppumittauksissa sekä äänen osa-alueiden kehitys.

Koko äänenkäytön kehityksen kokonaisuutta arvioidessa voidaan nähdä taulukosta 8, että 36,7 %:lla kehitystä ei ollut tai se oli erittäin vähäistä. Noin kolmanneksella kehitys oli pientä (33,3 %) tai se oli nähtävissä (30 %). Alku- ja loppumittauksen välinen muutos jäi kaikissa tapauksissa alle yhden pisteen.

Tulosten tarkastelu ja pohdinta

Koulutuksen (intervention) tehtävänä oli kehittää luokanopettajaopiskelijoiden äänenkäyttöä. Tutkimuksessa etsin vastausta kysymykseen, missä määrin kehitystä tapahtuu luokanopettajaopiskelijoiden äänenkäytön toiminnan eri osa-alueilla opintojakson aikana. Kehityksen arviointiin laadin arviointimatriisin ja -lomakkeen, joiden avulla seurasin opiskelijoiden äänen eri osa-alueiden kehittymistä alku- ja loppumittauksilla. Mittauskriteereitten laadinnassa hyödynsin teoriaohjaavaa sisällönanalyysia. Kriteereitten arviointiasteikkojen kuvaukset suhteutin aikaisemmissa tutkimuksissa esitettyihin optimaalisiin suorituksiin (esim. Aalto ja Parviainen 1990; Eerola 1997, 2008; Koistinen 2005; Vennard 1967), jotka toiminnallisena suorituksena jaettiin viisiportaiselle asteikolle. Tämä noudatti opintojaksolle määriteltyä arviointiasteikkoa. Itse arviointi tapahtui tutkivana opettajana tekemiini havaintoihin alku- ja loppumittauksissa.

Kuhnin (1994) mukaan uuden idean kokeilu voi tuottaa ristikkäisasettelun uuden ja tutkimusparadigmojen ja normien välille. Tämä voi tuottaa näiden paradigmojen välille ristiriidan, jossa toisen tieteellistä toimintaa määrittämä ajatuskulku tai teoreettinen näkökulma näyttäytyy toisen valossa epätieteelliseltä (Kuhn 1994). Tieteellisessä keskustelussa voidaan toisaalta kyseenalaistaa tai tunnustaa jopa tämänkin tutkimuksen asetelma, jossa tutkivan opettajan havainnoinnin kautta kerättyä aineistoa käsitellään tilastollisesti.

Tulosten mukaan opetuksen interventiolla saatiin aikaan tilastollisesti merkitsevää muutosta. Lähes kaikilla opiskelijoilla (83,3 %) kehityksen suunta oli havaittavissa (ks. Taulukko 8). Näin ollen intervention vaikutusta voidaan pitää koulutuksen näkökulmasta katsottuna varsin myönteisenä alkumittauksiin verrattuna. Tuloksia tarkasteltaessa lähemmin voidaan kuitenkin havaita, että opiskelijoiden ääni-instrumentin laadulliset muutokset vaihtelivat. Joillakin äänen osa-alueilla muutokset olivat esimerkiksi vähäisiä tai ne pysyivät samana. Vähiten kehitystä tapahtui syvähengityksessä. Alkumittauksessa peräti 70 % opiskelijoista ei osannut toteuttaa syvähengitystä. Loppumittauksessa heidän osuutensa oli pudonnut 50 %:iin. Eniten kehitystä tapahtui ryhdin ja asennon alueella, jossa kaikki opiskelijat saavuttivat viisiportaisella asteikolla arvioituna vähintään kolmostason (taso 3, hyvä osaaminen). Myös puheen alueella interventiolla saatiin aikaan hyväsuuntaista kehitystä, sillä 70 % opiskelijoista pystyi parantamaan omaa suoritustaan ja vain alle kymmenesosa (6,6 %) opiskelijoista jäi alle hyvän tason (3). Laulussa kehitys oli vähäisempää kuin puheessa. Opiskelijoista puolet pystyi parantamaan laulutaitoaan, mutta edelleen kolmannes (33,3 %) jäi alle

hyvän tason. Sama tilanne oli myös rentoudessa (30 %). Intervention vaikutusten jakautuminen opiskelijoilla voidaan jakaa kolmeen ryhmään, joista kukin on noin kolmannes koko otoksesta: kehitys on selkeästi havaittavissa (yhteensä 30 %), kehityksen suunta nähtävissä (33,3 %) ja kehitys on vähäistä tai sitä ei ole (yhteensä 36,7 %).

Intervention toteutuksessa etenin äänenkäytön osa-alueiden harjoittelemisessa kehittämäni mallini mukaan (ks. luvusta Toteutettu opetusinterventio Kuvio 1), jonka olin luonut tätä tutkimusta varten. Siinä kolmion pohjalle sijoitin ryhdin ja rentouden. Ne loivat pohjan puheen ja laulun harjoittelemiselle. Näistä äänenkäytön harjoituksista lähdin ensin liikkeelle. Hengityksen sijoitin kolmion keskelle, joka puolestaan kuvasi sen merkitystä äänentuoton harjoittelun seuraavana vaiheena. Tämän yläpuolelle sijoitin äänenaloituksen, artikulaation ja resonanssin. Rekisterin sijoitin puolestaan kolmion kärkeen. Tämä malli antoi selkeän struktuurin oppimista ohjaavan prosessin rakentamiselle kuin myös äänenkäytön arvioinnin suorittamiseen. Kuvio yhden malli toimi myös arviointimatriisin ja -lomakkeen laadinnassa sekä tulosten esittämisessä. Malli näytti paitsi tukevan, myös suuntaavan oikeaan suuntaan opiskelijoiden äänenkäytön kehitystä.

Tutkimuksen tulos on tilastollisesti merkitsevä, kun p-arvot jäivät alle 0.05. Tämä antaa palautetta arviointityökalun luotettavuudesta. Voidaan katsoa, että mittari mittasi niitä äänenkäytön osa-alueita, joihin se oli tarkoitettu. Toisaalta on muistettava, että laadullisella aineistonkeruumenetelmällä (havainnoinnilla) kerätty aineisto ei ole suoraan yleistettävissä (Patton 2015). Tutkimuksessani äänenkäytön kehitykseen on voinut vaikuttaa esimerkiksi mittauskerroilla annettu palaute, tai itse testitilanne on vaikuttanut mitattavan toimintaan. Lisäksi tutkimukseni luotettavuutta olisi lisännyt verrokkiryhmä ja riippumattomat arvioijat. Toimintatutkimuksen lähtökohdille rakentuva tutkimus ei välttämättä edellytä tätä. Luotettavuuden arviointi sijoittuu tämän työn ensimmäiseen ja neljänteen vaiheeseen (Jantunen ym. 2013). Newtonin ja Burgessin (2008) mukaan teknisen toimintatutkimuksen tyyppi keskittyy ensisijaisesti tarkastelemaan luotettavuuden toteutumista tuloksissa ja prosessissa. Demokraattinen ja katalyyttinen tarkastelu jää toissijaiseksi. Interventiolla saatua myönteistä muutosta ei siis voida täysin todentaa, mutta koulutuksen tarjoamalla sisällöllä ja toimintatavalla saatiin aikaan toivottua muutoksen suuntaa. Lisäksi tutkimus lisäsi ymmärrystä tutkimuskohteesta ja vastasi annettuihin tutkimustehtäviin ja -ongelmaan. Voidaan katsoa, että Andersonin ja Herren (1999) esittämät kriteerit validiteetin toteutumiselle toteutuivat (muutos, ymmärrys, tavoitteet, prosessi, tutkimusongelma).

Tutkimusta arvioidessa voidaan kysyä, oliko tässä tutkimuksessa relevanttia valita tilastollinen tapa arvioida ääni-instrumentin kehitystä. Määrällisellä tutkimuksella pyritään yleistämiseen. Sen sijaan tutkiva opettaja pyrkii oman toimintansa kehittämiseen, eikä välttämättä pyri tulosten yleistettävyyteen ja lainalaisuuksien löytämiseen (Niikko 2001). Tässä tutkimuksessa tutkivana opettajana asetin ammatillisen tietoni ja taitoni testattavaksi uudella tavalla, jossa hain samalla parempia arviointivälineitä äänenkäytön arvioimiseen niillä resursseilla, joita opettajalla on opetustyössä käytössä. Arviointimatriisin toiminnalliset kuvaukset eri pisteisiin sijoitettuina antoivat minulle työkalun arviointiin, johon nojaten pyrin perustelemaan arvioni. Ennen opetuksen arviointi perustui yleisiin huomioihin ryhmässä. Nyt tutkimuksessa toteutetusta arvioinnista tuli eritellympi ja yksilöidympi. Saadut tulokset äänenkäytöstä toimivat ennemminkin suuntaa antavana, jossa en lähtenyt tarkemmin pohtimaan ja analysoimaan esimerkiksi ulos- ja sisäänhengityksen vaihteluväliä. Mittauksissa ei esimerkiksi pohdittu, onko neljä senttimetriä parempi kuin kolme.

Voidaan katsoa, että tutkimuksen tilastollisesta aineistoanalyysistä saadut tulokset palvelevat opetuksen järjestämiseen ja kehittämiseen liittyviä toimenpiteitä. Tätä kokoavaa tietoa tarvitaan mm. opetussuunnitelmien kehittämisessä, resursoinnin uudelleen arvioinnissa, tukitoimien ja opintojakson riittävyyden arvioinnissa. Tulokset antoivat kootusti tietoa tutkivalle opettajalle siitä, mihin äänen osa-alueiden harjoituksiin ja toimintaperiaatteisiin on

erityisesti kiinnitettävä huomiota opetusta suunniteltaessa ja kehitettäessä.

Huomioitavaa on, että pitempijaksoisella koulutuksella ja seurannalla olisi mahdollisesti voitu auttaa niitä opiskelijoita, joilla oli ongelmia äänenkäytössä. Koulutus antoi kuitenkin suunnan myös näiden opiskelijoiden äänenkehittymiseen. Myös Ilomäen (2008) tutkimuksen mukaan lyhytkestoisen koulutuksen avulla saatiin aikaan myönteistä kehitystä, joka lisäsi äänenkäytön tietoisuutta. Sitä vastoin vasta pitempiaikaisella koulutuksella pystyttiin vähentämään äänioireita. Tutkimuksessani pitempiaikaista seurantaa ei ollut, mutta voidaan olettaa, että opintojakson jälkeisellä lisäharjoittelulla olisi saatu aikaan muutosta myös äänioireisilla. Tutkimustulosten samankaltaisuutta voidaan pitää eräänä luotettavuuden mittarina (Hirsjärvi ym. 1997). Valtasaaren (2017) tutkimuksessa kehitystä saatiin aikaan laulun yksilöopetuksessa. Tutkimuksessani muutosta syntyi ryhmäopetuksen aikana, jolloin myös harjoiteltiin äänenkäytön lisäksi muita musiikinopetuksen tavoitteita.

Tämän tutkimuksen mukaan näyttäisi siltä, että intervention sisään rakennetun toimintamallin avulla tuettiin myös taidollisen osaamisen kehittymistä. Toimintatutkimuksen sisälle rakennetun toimintastrategiani ajatuksena oli aktivoida koulutettavia kehittämään edelleen tutkiva opettaja -periaatteen mukaisesti omaa ainepedagogista, taidollista ja tiedollista substanssiosaamista. Samalla se loi pohjaa ammatilliselle osaamiselle. Koulutettavat esimerkiksi harjoittelivat rakentamaan ja kehittämään opetuksen interventioita pienimuotoisissa opetustehtävissä. Opettajan ammatillinen kehittyminen liitetään elinikäiseen oppimiseen. Näitä taitoja voidaan kehittää jo opintojen aikana (Rukajärvi-Saarela 2015). Kuten Anttila (2009), Klemola (2005) ja Shusterman (2012) ovat todenneet, oman kehon aistimusten tiedostuneella havainnoinnilla voidaan samalla ohjata koulutettavia kohdistamaan huomio kehitettäviin alueisiin esimerkiksi kehossa. Tässä tutkimuksessa huomio kohdistettiin äänen laadullisiin tekijöihin.

Intervention aikana tehtyjen harjoitusten sisältöä kannattaa edelleen kehittää. Erityisesti syvähengitykseen ja lauluäänen tekniikkaan liittyvien ääniharjoitusten sisältöön on kiinnitettävä huomio. Intervention onnistumisen kannalta ratkaisevana apuna olisivat toimineet yksilö- tai paritunnit, joita olisi voitu pitää suurryhmäopetuksen rinnalla. Tämä olisi mahdollistanut paremmin mm. yksilöllisten tarpeiden huomioimisen ja jatkokoulutustarpeiden määrittämisen. Käytännössä tämä olisi vaatinut lisäresursointia esimerkiksi opetustuntien määrään, jota ei ollut mahdollista toteuttaa.

Tutkimusten mukaan äänen toimintaperiaatteiden ja erityisesti väärien toimintamallien muuttaminen vie prosessina pitkään (Rouvinen 2018; Valtasaari 2017). Rouvisen (2018) mukaan varhaisella äänenkäytön ohjannalla on todettu saavutettavan nopeammin parempia tuloksia kuin myöhemmin aloitetulla ohjauksella (Rouvinen 2018). Lisäksi oikealla äänenkäytöllä on todettu olevan myönteisiä vaikutuksia opettajien työssäjaksamiseen ja hyvinvointiin (Pizolato ym. 2013) sekä työkykyyn (Vertanen-Greis 2021). Näin ollen olisikin koulutuksen kehittämisen kannalta suositeltavaa tarjota jo varsinaisen koulutuksen aikana lisää äänenkäyttöön liittyviä opintojaksoja, lisäohjausta ja kehityksen seurantaa. Lisäksi koulutuksessa olisi tarpeen paneutua tarkemmin koko eliniän kestävään ihmisäänen kehityskaaren hahmottamiseen, jonka eri vaiheet vaikuttavat eri tavoin ääneemme (myös Brunssen 2018).

Ääni tulee olemaan tärkeä työväline luokanopettajan monipuolisessa työssä. Äänellään opettaja toimii mallina oppilailleen ja samalla ohjaa esimerkillään äänenkäyttöä. Se toimii myös vuorovaikutusvälineenä. Voidaan todeta, että äänen kehittämisen merkitys on ilmeinen. Samalla ääneemme voidaan katsoa kietoutuvan pala sielunmaisemaamme, jossa se ilmentää sisimpämme ainutlaatuisuutta omalla persoonallisella tavallaan. ■

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Abstract

Class teacher students' development of voice usage and constructing an evaluation matrix in the pedagogical context of music teaching

The study investigated the impact of intervention on the students' (N=30) development of voice in speaking and singing on a short music course, which was included in the classroom teacher (elementary school teacher) education program in Finland. The second task was to create, by means of theory-guided analysis, an evaluation matrix and form to measure the development of voice, which serves as a data collection method. The areas of vocal instrument under evaluation were into body posture, relaxation, breathing, starting a sound, articulation, resonance and voice registers. These areas were measured on a 5-point scale before and after the course. Teacher as a researcher made the observation. The data were statistically processed, where p-values of the measured areas were below (0.05).

Intervention helped to direct the change in a more correct and conscious direction. Most development occurred in the speech area, where 70% of students improved their performance. In singing, the direction of change was visible to 50% of the students, but a third (33.3%) remained below a good level. According to the results, more voice practice would have been needed to develop singing skills and for those students who had problems with their voice. As a further procedure to develop education, adding more guidance and follow-up to students' practice of voice usage is proposed. With the evaluation matrix the teacher was able to provide more individualized feedback on the development of voice usage than before the study. ■

Keywords: Use of voice, class teacher students, intervention, evaluation, teacher as researcher, music education, pedagogy of music education

Lectio praecursoria

Sanna Kivijärvi

Lectio praecursoria

13 August 2021

Honoured custos, honoured opponent, dear audience

Ruth Bader Ginsburg – a renowned feminist and a former associate justice of the Supreme Court of the United States – famously contemplated the following on professionals' social roles:

> *If you are going to just practice your profession, you have a skill – very much like a plumber. But if you want to be a true professional, you will do something outside yourself – something that makes life a little better for people less fortunate than you.* (Bader Ginsburg 2017.)

Along the lines of Bader Ginsburg's (2017) articulation, music education as a professional field has increasingly focused on the issues of social responsibility as part of everyday educational practice and in the development of education systems. This social stance is not limited to considerations of immediate social problems. Rather, aligning with my research interest in combining both micro- and macro-level perspectives of educational practice, previous research has shown that inequities in music education partly stem from simplistic expectations of educators' professionalism. For example, music education scholars Heidi Westerlund and Helena Gaunt (2021) have recently suggested that professionalism in music education can be seen as connected to the purposes of music in societies, instead of strictly pre-determined educational means and aims. They call for *expanding professionalism* and the need to recognise the guiding values and meanings attached to the field of music education (Westerlund & Gaunt 2021).

Relying on previous scholarship in music education, legal and disability studies, and sociology, my research aims to rethink the relationship between music education and society through a focus on teachers' and institutions' roles in the framework of educational equity and policy. Specifically, this research is centred around professional autonomy–*freedom*, that music educators and education institutions hold and exercise when they seek to advance educational equity – a central value in the Finnish education system. Autonomy refers to freedom in pedagogical actions, but also to the wider value basis that allows teachers to serve as policy agents in their local contexts. As autonomy comes with responsibility, this research asks whose duty and to what extent it is to change the direction and make a difference when people do not have equitable possibilities to and in music education. I address this issue by examining the possibilities of interlinked policy instruments, such as the Figurenotes notation system and teaching accommodations to promote equity in music education practices.

The context for this research is Finland's government guided and financially subsidized music education system – including the music education offered in comprehensive schools and the Basic Education in the Arts system that offers extracurricular arts education outside of school. In both environments, music education is governed by the National Agency of Education and is grounded in the ideals of equity and democracy, entailing that such policies should be implemented which, at least in principle, ensure that the factors specific to one's background or circumstances do not interfere with one's access to education and educational outcomes. However, this education system has also operated based on selective

assumptions and discriminatory practices regarding who gets to study music, in what ways, and to what extent. Frequently, discrimination has concerned certain groups of students, such as people with dis/abilities. For example, previous research has recognised that the prevailing traditions as part of the Basic Education in the Arts system have prevented the full participation of students who have disabilities (Laes 2017; Rautiainen 2019).

These tendencies are part of the wider cultural environment towards people with dis/abilities in Finland, which continues to be highly ableist. This is exemplified, for example, in the findings of a report by the Non-Discrimination Ombudsman and Ministry of Justice in 2016. These findings resonate with the belated ratification of the United Nations Convention on the Rights of People with Disabilities, which did not take place in Finland until 2016, making it amongst the last countries in Europe to do so. More broadly, as stated by the United Nations (2020), people with dis/abilities are the most discriminated and disadvantaged minority in the world.

This research is particularly interested in the notion of dis/ability in music and music education, but in a sense, that concerns us all. By this, I mean that on a closer inspection, everyone moves in and out of states of dis/ability in their daily lives, and the notion of ableism can be expanded to include discrimination against and educational equity of all students. As Dan Goodley (2014) writes, the norms attached to being able-bodied are intrinsically impossible to achieve fully, and everyone is *temporarily* able-bodied; which means that eventually all people will experience dis/ability if they live long enough. On a daily basis, we all make decisions on how to navigate the norm of able-bodiedness, that refers to a body that is species-typical and fully functioning. In my research, I apply the definitions of ableism and disablism that position ability as a normative concept that also concerns non-disabled people.

In alignment, the concepts of equity and discrimination are central in my work. Educational equity here refers to the fairness of both access and outcomes of education and is seen as an issue of social justice and legal and political human rights. I attend to matters of educational equity and discrimination by examining how a music educational innovation called Figurenotes – a colour- and shape-based music notation system developed in Finland in the mid-1990s – has served as a policy instrument in Finnish music education. Another case for this research project is the notion of teaching accommodation, also seen as a policy instrument from the intersecting perspectives of pedagogical tact and the concept of reasonable accommodation, addressed by the United Nations and the non-discrimination law in Finland. Teaching accommodation refers to teachers' autonomous decision-making and actions in the classroom, which can entail adjustments of local curricula, pedagogical interaction, and teaching approaches, among other areas of educational practice.

To summarise, the rationale of this research project is guided by a combination between systemic, structural policy incentives and those that come from localised dispositions and 'gradual steps' towards equity. The first is critical but not sufficient, as in Finland, since the legislation and National Curriculum Framework establishes educational equity as essential, yet, its implementation is inconsistent. In this research, the Figurenotes system and teaching accommodation are treated as micro-level forms of policy practice enabling music educators to enter their educational environments, whether they be schools or other spaces, as policy practitioners. This project aims not only to develop the ongoing discussion on teachers' roles and autonomy but also address music education institutions' responsibilities in the advancement of equity.

With both empirical and theoretical means, this research consists of four studies published in international peer-reviewed journals, a policy recommendation based on their findings, and a dissertation summary that expands the perspectives provided in the individual studies. Two of the studies were based on the data collected through semi-structured

expert interviews and analysed using qualitative data analysis methods. The first empirical study considered the applicability of the Figurenotes system from pedagogical and education policy perspectives (Kivijärvi 2019). This study laid the groundwork for the entire project by presenting a multi-layered analysis of the application of Figurenotes. The second empirical study examined a policy change in the Finnish music education system initiated by the development and application of Figurenotes (Kivijärvi & Rautiainen 2021). The study presented an interview-based research into how the application and development of Figurenotes have contributed and can contribute to the progression of equity in Basic Education in the Arts through related conceptual developments.

The two theoretical studies drew on concepts and theories from several fields in addition to music education, including legal studies and sociocultural disability studies. The first theoretical study examined the wide use of Western standard music notation from the standpoint of educational equity and teachers' autonomous decision-making (Kivijärvi & Väkevä 2020). To facilitate the examination, I coined the 'notation argument', which holds that because the skills of decoding Western standard music notation are useful in learning certain kinds of music, they can be applied broadly throughout musical traditions and music educational contexts. Through a critical analysis, the study emphasised how the unreflective use of Western standard music notation can be problematic in several ways in terms of educational equity. As a solution, a context-sensitive pedagogical tact was proposed. The second theoretical study considered the potential of reasonable accommodation to prevent discriminatory practices through the local curriculum and teachers' actions (Kivijärvi & Rautiainen 2020). The notion was originally presented in the United Nations Convention on the Rights of Persons with Disabilities, which highlights how refusal to make appropriate accommodations can engender discrimination. Reasonable accommodation is directed by legislation within many countries, and accordingly, the study examined the notion for the development of equity within current music educational policies.

Through these interconnected cases, I examined Western standard music notation as a normative pedagogical approach that creates inequities in music education, especially by limiting the musical participation of students who have challenges with graphic symbolic representations in written form. Specifically, the use of Figurenotes is seen as an accommodation towards equity, where a music educator takes advantage of the professional autonomy they hold. The findings of the empirical studies indicated that the use of Figurenotes has raised awareness of inequity at the institutional level and encouraged efforts to address this problem through a public policy process. From a theoretical point of view, a key contribution is examining the concept of reasonable accommodation and its applications to music education to promote educational equity. Based on the studies, it is argued that teachers need policy analysis skills and understanding to recognise, analyse, and accommodate cultural frameworks – such as pedagogical and musical conventions–that impact music educational equity in support of the National Framework Curriculum and local curricula. This call for teachers' policy thinking–and particularly *framing capacity* in Patrick Schmidt's (2020) terms – can be used to conceptualise action towards music educational equity and social justice more widely.

With these conclusions, I place a firm belief in music education professionals' desire and responsibility to engage with the value of educational equity while honouring teaching as a living tradition that combines past with present, convention with innovation, and everyday encounters with macro policy – in its conflict and beauty (cf. Allsup & Westerlund 2012). However, as a teacher by profession and identity myself, I recognise the challenge of equity and empathise with not only students and potential students facing inequities, but with my colleagues, other educators, who balance between the ideals, imperatives, and the everyday life as teachers, sometimes failing and sometimes succeeding. Based on this research project,

the key premise for me is to work *with* the students as an educator and *with* my colleagues to support their professional autonomy when advancing educational equity. However, it is not enough that individual teachers have autonomy and develop their pedagogical practices while receiving collegial support; rather, a successful educational change requires that everyone in the profession is involved. In particular, the institutional leaders' roles in equity evolvement cannot be emphasised enough. Professor Meira Levinson (2015) has described a moral injury that every teacher encounters in facing social justice obligations while the schooling structures and educational conventions, are still in many ways inherently unjust, and in several cases, difficult to change or challenge. Considering this, it is the responsibility of educational and social institutions to repair these injuries.

Lastly, returning to the concept of expanding professionalism, one may regard it as self-evident that the music education profession (as legal profession alike) is about working for the benefit of others. However, the reality is that music education systems are part of societal structures that inevitably enable active participation for some people while simultaneously hinder it for others. The need to understand how music education's unjust practices might be tackled has become even more pressing in the face of more recent social developments, movements, and crises. For example, those of Covid-19 and the Black Lives Matter protests, among others, force reconsiderations of how education practices and institutions can advance social justice in societies confronted by global and local challenges. Despite and because of the stranglehold of Covid-19 in the cultural field, through this research I invite music educators at the micro- and macro-level to consider the cultural-pedagogical practices and conventions of music education and the ways they can contribute to individuals' experiences of dis/ability, and thus advance equity in music education. Although the statements of the pandemic as a *great equalizer* have been misplaced, there may be a momentum to reconsider the role of music education in society along with the broader issues of ableism and equity as we move towards education in the post-Covid world. ■

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Randall Everett Allsup

Examination Report

Dear Board Members

It is my honor to provide a final examination report for the dissertation manuscript titled *Towards Equity in Music Education through Reviewing Policy and Teacher Autonomy*, authored by doctoral candidate Sanna Kivijärvi of the Sibelius Academy of the University of the Arts. In this brief report, I will speak of Kivijärvi's contributions to the field of music education research and highlight the dissertation's potential for significant impact.

Examination Report

In the global north, universities are undergoing intense self-study about the nature of what gets taught and who gets in. At almost every administrative and educational level, three key words are defining our moment in time: Diversity, Equity, and Inclusion. Established university music schools are beginning to reckon with notions of European and American coloniality and the ways in which white supremacy is structured throughout their operations. While music education research has made some progress with this ethical mandate, the larger field of music education practice and policy is just beginning to reckon with notions like Diversity, Equity, and Inclusion. Policy work in music education is becoming increasingly important because policy can be an ideal location/starting point for reform. I understand policy to be neither philosophy nor theory (per se), rather it is a mostly-settled discourse, constructed in public and in private, whose effects create "structuring structures." Policy is ideological as expressed through implicit and explicit intentions, always shaping people and practices in consequential ways. Scholarship on policy and music education is emerging, but the field needs more studies like the research published in Kivijärvi's dissertation.

In my role as opponent, I made the observation that while progress is being made with issues of coloniality and white supremacy, it is important to note that in music education research and practice, there have not been equivalent discussions around learners with developmental dis/abilities, neurodiversities, and physical and emotional dis/abilities. This general absence is the context in which Kivijärvi's dissertation takes place. If we see the problem of Diversity, Equity, and Inclusion mainly through the intersections of gender and race, and thereby locate this problem almost exclusively within musical genres, styles, and traditions, we will continue to exclude those professional and amateur musicians who cannot, whether physically or mentally, meet the requirements *of* these genres, styles, and traditions, no matter how increasing enlarged our new canon has become. Special learners require accommodations that either cannot be made within (say) the traditional orchestral setting or they imperil the very tradition itself by adding aspects/processes/manipulables that don't "fit." Like a wheelchair user who is negotiating a building without an elevator, how can musical learners with dis/abilities fit into a structure that was not made for them? Sanna Kivijärvi asks, whose duty is it to fix the structure? On whom do we place the onus of reinhabitation, ethically and structurally? Policy, both statutory and ground up, requires *all* music educators from *all* settings to practice fair, inclusive, and accommodating pedagogy and research. This mismatch, between policy, ideals, and ethics on the one side and implementation and imagination on the other is the context in which Kivijärvi's dissertation is located, and the source of her potential impact.

School and university music education is structured by normative concepts of what able-bodied humans can do. Norm-bound communication systems (e.g. notation) require intense aural/oral skills and a complex coding and decoding schema, which in turn justify and structure what gets performed, taught, and how. Upon these normative foundations are standardized musical forms that require specific (and expensive) instruments (most designed in the 19th century) and historically-determined ways of manipulating them. Those people who are limited in any aspect of these foundational "shoulds" face almost insurmountable barriers for participation and success. Kivijärvi's dissertation is about educational equity, and the kinds of reasonable accommodations that can be created so that all students can participate and enjoy music in schools and universities. The study deals with the aforementioned macro-level concerns, but her theories are illustrated and investigated through a micro-level concept of teacher autonomy, such as the choice to employ a more user-friendly notational system like Figurenotes, or by reference to activities at the famous care community Resonaari. Her dissertation is equal strength theoretical and empirical.

In important ways, Kivijärvi takes direct aim at one the greatest barriers to inclusion in music education: notational literacy and the problem of Western Standard Music Notation. Just as aesthetic forms shape the social relationships that are required to render them, notation shapes what is learned, how it is understood, and above all what is taught and what is *not* taught. Western Standard Music Notation, she writes, is hegemonic, restricting most classroom activities, as well as erecting a legitimizing frame around which aurally-understood musical forms are usually excluded. I particularly like the use of the English word "tact" when describing the ways teachers exercise choice in spaces of pain, confusion, or difficulty. This careful and deliberate form of creating equity is a pedagogical competence whose end is an enlarged space of choice and choosing. Kivijärvi implies that enacting educational equity – restructuring spaces for a dis/abled person's growth and success – requires looking at a unique situation from another's point of view. This pedagogical dimension is deeply empathic and puts a great deal of faith in the humanity of the music teacher. She ends her dissertation by addressing human rights and the post-medical notion of disability as a social construct in which the barriers to inclusion are the problem, *not* the persons who need care or inclusion.

Sanna Kivijärvi deserves a great deal of credit for advancing our understanding of dis/ability justice in the field of music education. Legislation in Finland protects the rights of the people with dis/abilities, but there is no guarantee that situation specific actions will produce right results. This is the case with all aspects of the law, and it is for this reason that Kivijärvi appeals to the notion, indeed the promise, of teacher autonomy in this domain. Emphasizing teacher autonomy renews our faith in the professionalization of teachers, and requires those of us who are university music teacher educators to reflect on ways to enlarge the ethical capacity – empathy, tact, trust, openness, receptivity – of teacher candidates.

Recommendation

At my institution, Teachers College Columbia University in the City of New York, I have served as second, third, or fourth reader on 66 dissertation committees. I have sponsored 36 completed dissertations as first reader and advisor. I have been an external reader for universities in Sweden, Canada, and Ireland. Sanna Kivijärvi's dissertation is not only on par with the quality of her peers, her dissertation is among the best I have had the pleasure to read.

On the merits of (1) the totality of the manuscript itself: *Towards Equity in Music Education through Reviewing Policy and Teacher Autonomy*, (2) the public defence that took place on August

13, 2021, (3) the originality of Kivijärvi's thought and expression, and (4) the potential her research holds for reform and change, I propose, without condition, that Sanna Kivijärvi's dissertation is awarded a pass with the honor of distinction. ■

Sincerely;

Randall Everett Allsup
Ed.D., Professor of Music and Music Education
Teachers College Columbia University, New York, USA

Minja Koskela

Lectio praecursoria

18 June 2022

Honoured custos, opponent, and audience

On 24 February 2022, the world turned upside down. Vladimir Putin's Russia invaded Ukraine and started a war in Europe. I watched the news disbelieving my eyes. Slowly the reality sunk in. A war. In Europe.

In February, I was busy with finalizing my dissertation. When the war began, however, I started to feel incapable of working. I read the news tens of times per day and sometimes woke up in the middle of the night to check the news again. I doomscrolled Twitter and spent time with my child. Everything else felt meaningless.

Pretty soon, Ukrainian refugees started to arrive in Finland. In my day job as a managing director of the Association of Finnish Music Schools we started to examine how our music schools could help Ukrainian children and their families through the practices of music education. In the world of Helsinki municipal politics, we started to discuss the possible roles of the schools in the crisis. This was the first time in weeks that I felt like my actions actually mattered. Furthermore, through these actions I started to feel that the Finnish basic education that had helped democratize Finnish society since 1972 could have a major role in helping the Ukrainian refugees to get back on their feet.

When I started to plan the course of my dissertation, it was the year of 2015. In retrospect, we remember that year to be the beginning of the global refugee crisis, which has been said to be the worst humanitarian crisis after World War II. In 2015, like today, families, men, women, and children arrived in Finland to seek safety and stability. Back then, however, Finland was not very hospitable. Quite the opposite, actually: the rising right-wing populist movement started to use the refugee crisis as their political fuel to divide people into "us" and "them". Racist rhetoric became more and more common, and the refugees, who were fleeing the unimaginable horrors of war, were strategically pathologized for the purposes of far-right politics.

During the years of the last refugee crisis, I taught music in a school that was located in a low-income area where the children had remarkably diverse backgrounds. I sincerely loved working in that school. I worked in an upper elementary school and a lower secondary school, with students aged between 13–18 years. We had genuine fun with my students, and we also had vivid discussions and even disagreements during the music lessons. Some of the students did not speak Finnish, which set certain challenges for me as their teacher, but was by no means a barrier to us making music together.

In my day job as a music teacher, I saw how the political atmosphere intertwined with the everyday lives of my students. In a November morning in 2016, we watched the U.S. presidential elections together with the ninth graders, and when it was absolutely clear that Donald Trump would be elected, a brown-skinned girl whispered to her friend: "We're in trouble." Listening to the experiences of my students who had to live with the consequences of Trumpist politics, which manifested not only in the U.S. but also in Finland, led me to consider: How well does the Finnish school system fulfil its promise of democracy in today's society, and does the school actually succeed in considering the diverse and intersecting identities of these students? I had an urge to understand the school's role with respect to the surrounding society on a more nuanced level. As a music teacher, I thought that the

best way to broaden my understanding would be to examine my own practices in my own teaching context.

These considerations led me to generate my research data in my own music classroom, with an optional upper elementary music group of 22 students. I kept a teacher-researcher diary, video-recorded my lessons, and interviewed my students. I had no special assignments for the group of participants—throughout the research period of one school year we continued having our lessons as usual.

My "usual" was, however, not unusual in the context of Finnish music teaching. In Finland, the school music education practices are formed around playing and singing popular music songs. Finnish music classrooms are usually equipped with electronic guitars, basses, synthesizers, singing microphones, and drum kits, and Finnish music teachers are educated to use these instruments for pedagogical purposes. This was also the case in my classroom, where my practices strongly relied on popular music due its easy adaptation and the possibility to play and sing together.

The understanding that popular music was, de facto, a hegemonic practice in Finnish music teaching was one of the starting points of my study. On the one hand, I had noticed that the extensive use of popular music in Finnish music education was justified by claiming it to be a specifically democratic teaching practice. On the other hand, however, I thought that if a practice becomes hegemonic, its democratic potential is easily hindered. Hence, I considered that the democracy argument related to popular music education could, paradoxically, prevent democracy from being actualized. This is because, as political philosopher Chantal Mouffe argues, consensus prevents democracy from being truly alive. In other words, if diversity is bypassed—which may happen if a practice becomes a hegemony—democracy cannot be "inhabited by pluralism" (Mouffe 2000, 34) and be, hence, alive.

Moreover, the democracy of popular music education was and is justified by claiming that popular music is the students' "own" music. This leads to asking: who are "the students" in this argument, and why are the students assumed to be a homogenous group with similar musical interests?

To disrupt the assumption of students being a unified category, I leaned on one of my favourite feminist scholars, Kimberlé Crenshaw, and especially on her notions of intersectionality. In short, intersectionality is a theory that helps us to acknowledge that no single person is one-dimensional. Crenshaw showed how the intersection of race and gender leads to cumulative inequalities in the everyday lives of Black women, who are affected by both racism and sexism. Later, the intersectional theory coined by Crenshaw has been used to examine other identity dimensions—such as disability, sexuality, social class, age, and religious affiliation—and their many intersections. In the big picture, intersectionality helps us to understand that no human is an island. Instead, we are all socially intertwined with the surrounding world and, thus, our identities are constructed in a constant interaction with the world and with each other. In terms of school music teaching, this would mean that advocating for democracy cannot be assumed to be dependent on the subject content, such as a bringing a certain musical genre into the music classroom, but about how the use of the genre is negotiated between the students, the teacher, and the school's norms.

When I looked at the argument according to which popular music is the students' "own" music with and through intersectionality, the argument started to seem short-sighted. Furthermore, when plugging intersectionality into my own teaching context, it became clear that the students were not a homogenous group with similar musical interests; instead, the students listened to multiple genres, bands, and artists. However, it also became clear that the students thought that it was easiest to bring mainly mainstream popular music songs to the music lessons—ones that were not only known to the students, but were also accepted

to be respectable and suitable for school use by a teacher. In that way, they did not have to negotiate their own identities against the assumptions of what students were expected to be and become.

When looking at my data through the lens of intersectionality, I noticed that the negotiations between the students and me as their teacher were not as democratic as I, a self-declared feminist-teacher, would have wanted them to be. Instead, I, a music teacher in a school setting, had adapted the school's norms as part of my own position. In those norms, following Anna-Leena Riitaoja's conceptualization of a "normal student", students were assumed to be white and middle-class. Hence, any characteristics deviating from whiteness or middle-classness were easily treated as "others".

The normalization of whiteness and middle-classness is not only an issue of the Finnish school system—it is an issue of Finnish society as a whole. Acknowledging this was one of the starting points of this intersectional and democracy-focused study, namely the observation according to which the school system is not separated from the overarching system of Finnish society. Importantly, this does not mean that the school would simply be "a reflection" of that society. Instead, the school is an active system that can and does contribute to the democratization of Finnish society. In other words, the school system has the capacity to question and deconstruct the hierarchy-producing mechanisms of Finnish society as a whole. Hence, I also believe that by examining the democracy of the practices of school music education, it is possible to contribute to the societal discussions about equity outside the school.

How could we, then, democratize music education and, by doing so, affect the democratization of Finnish society as well? Firstly, I argue that to reinforce democracy in popular music education we should intersectionalize the category of youth – that is, we should recognize that "youth" is not a homogenous category of people with similar interests, but a group of individuals from multiple backgrounds, with intersecting identities and different musical tastes. This kind of intersectionalization entails acknowledging the idea of radical democracy; in other words, cherishing the pluralism and accepting the possibility of confrontation even in educational settings. Secondly—and I'm specifically looking at all of us white, middle-class teachers when I say what I'm going to say next: We need to engage in critical self-reflection to check our privilege and, furthermore, to acknowledge the societal structures that place people in different positions according to their identities. This kind of work should also be extended to the policy level, as well as to the music teacher education programs, in order to guide future music teachers towards more equal practices.

Since the year of 2015 we have lived from crisis to crisis. Refugee crisis, corona crisis, war in Ukraine. Each of these crises have shown that if we, as a society, make no effort, the inequalities and oppression will continue to grow and the opportunity gaps between young people will continue to widen.

There have been crises, but I genuinely believe that a better world is possible. Where there is action, there is hope.

During this last spring, we had an opportunity to witness the hospitality of Finnish society and its willingness to help Ukrainian refugees. This kind of action, which is the vital nourishment of hope, should be extended to all refugees. This entails speaking up for the equity of the society as a whole, and education as a whole, and understanding that democracy can only be alive when it embraces multiple voices and differing views. I cherish and engage in this task of radical democracy by raising questions about the democracy of popular music education in terms of intersectionality, in order to aim for more equal music education practices and, hence, a more equal society.

Building towards a more democratic society is hard work. In such work, music education undoubtedly has its own role. At its best, music can enhance identity, help to deal with dif-

ficult feelings, and reinforce interactions with other people. However, it would be naive to claim that music in itself would have a built-in capacity to do all of this. Instead, we must understand that music is inevitably part of the social structures in which it is used. Comprehending this entails sensitivity, empathy, and—foremost—an understanding that music, including popular music, is not a "common language" or a self-evident democracy-builder, but a cultural product that takes its meanings from the contexts in which it is used.

I claim here that when we learn to understand those contexts—as complex as they may well be—we can better understand music and, finally, each other.

I now call upon the Opponent appointed by the Academic Council of Sibelius Academy to present her comments on my doctoral dissertation. ■

Reference

Koskela, M. 2022. Democracy through pop? Thinking with intersectionality in Popular Music Education in Finnish schools. Studia Musica 90. The Sibelius Academy of the University of the Arts Helsinki.

Acknowledgements

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Maria Westvall

Final statement

To the Academy board of the Sibelius Academy

The topic of Minja Koskela's doctoral dissertation, "*Democracy through pop? Thinking with intersectionality in Popular Music Education in Finnish schools"* is well chosen, and it investigates an important and—as yet—unmapped empiric field. Koskela applies relevant and thought-provoking perspectives and concepts, which generate new knowledge about applications and discourses of Popular Music Education (PME) in the Finnish context, in relation to issues of democracy, hegemony and intersectionality. The conceptual framework underlines the international impact that this study potentially will have in this field. This work is of significant scholarly value and rigor, clearly defined in scope, and includes relevant research questions well supported by the findings in this study.

The overall aim of Koskela's inquiry is "to produce knowledge about and for PME and, in doing so, about the interactional sociocultural context of school in general—that is, about the interrelated nature of music education and the school culture in which PME is enacted" (p.4). The article-based dissertation consists of two peer-reviewed international journal articles, one peer-reviewed book chapter, and a synthesizing text. One article and book chapter are co-authored, with Koskela's contributions as the first author clearly outlined in both instances. The second article has been accepted for publication and is solely written by Koskela. The two articles and the book chapter encompass several sub-questions that aim—from different yet complementary perspectives—to answer the main research question that is guiding the whole project which is: "On what and on whose terms is the democracy of PME in Finnish school music education constructed and enacted?" (p.42). The structure of the synthesizing text is consistent and connects well to the description and content of the two articles and book chapter. It is effortless to follow its logic and Koskela succeeds well in presenting relevant definitions and concepts which thoroughly shape the complexity of perspectives in this project.

The ethical considerations are well described and integrated, the language is clear, and the transparency of the author's writing, including the descriptions, discussions and interpretations, is exemplary. Previous research is acknowledged throughout the dissertation and Koskela's way of reflecting and connecting to previous research is both dynamic and creative. This underscores the robust analytical level of her work, situating her study within a larger scholarly context.

Koskela applies a *teacher-researcher position* in this investigation, while also problematizing the limits of this positionality. Her "thinking with theory" approach encompasses three stages of reflexivity: *self-reflexivity, inter-reflexivity* and *systems reflexivity*, and this process is thoroughly and well described. The participants in the study can at times appear as slightly remote in their presentation. This is perhaps less a result of her approach than the constraints of space afforded in an article format. Nevertheless, the reader can follow how the data is analyzed and interpreted in relation to the conceptual framework, which demonstrates a clear methodology and highlights the scholarly level of this study.

Minja Koskela's work is scientifically significant, original, well-written and independent. She defends her dissertation well in an engaged, transparent and thoughtful way during the Public Examination. Koskela's work is poised to contribute significantly to the international field of research and practice within the area of Music Education—and potentially beyond—with its unique intersectional focus on the conditions and implications for democ-

racy in PME. On grounds of the dissertation and the discussion heard today, I propose that the doctoral dissertation is accepted of the requirements for the degree of Doctor of Music. ■

Helsinki, June 18, 2022

Maria Westvall
Professor of Music Education
Rhythmic Music Conservatory
Copenhagen
Denmark

Taru-Anneli Koivisto

The (un)settled space of healthcare musicians: Hybrid music professionalism in the Finnish healthcare system

Lectio praecursoria
21.6.2022, Helsinki Music Centre

Honoured custos, honoured opponents, honoured audience

Each one of us may suddenly end up in a potentially vulnerable position in our lives, in the middle of a life and death struggle that threatens our own health and well-being, or that of our loved ones. This rapid change in our lives may occur because of an accident, illness, chronic pain, or some other life changing circumstances, such as a local or even global crisis. The ways we are cared for and carried through these struggles, and the kind of support that is available to us, depends not just on the public services, the values, and structures of our societies, but also on our individual networks, the communities we are engaged with, our personal life trajectories, or someone's simple solidarity with us in that fragile moment. In these turbulent times, I could describe these ever-changing and transformative processes affecting our wellbeing and our life through a metaphor of a feather, that floats in the air, full of contradictions, being so fragile and empowered at the same time. You may try to grasp the essence and meaning of it, but it has its own flow, and it can very easily fly away from us.

We are here today to discuss my doctoral dissertation, which addresses the emergence of an expanding music professionalism. The dissertation examines musicians' work in the Finnish public healthcare system. It has been conducted in three different contexts, each creating one case in a multiple case study approach: (1) a neonatal intensive care unit in a children's hospital; (2) the infection and orthopaedic ward of an eldercare hospital; and (3) end-of-life care generally. Drawing on the wide research area of sociology and the theory of professions, I defined music professionalism as a dynamic, proactive approach that is ever-changing and being continuously developed within multi-level social interactions. Furthermore, I explored musicians' work as boundary work. This means that the musicians utilize exploratory interprofessional aspects in their work, moving in-between professional and organizational boundaries in healthcare. Furthermore, musicians' work was often developed through eye-opening key experiences in their professional or personal lives, creating transformative change through their own highly reflexive music practices. This kind of professional approach, where music practices are connected to and in ever-changing relationships with the contexts and situations they occur in, is called in this study *hybrid professionalism*.

In a conceptual metaphor, or a generative metaphor, developed by George Lakoff and Mark Johnson, an idea—or preferably a number of interrelated ideas and conceptual domains—is understood in terms of another idea. Through this kind of bridging language, which may also be pre-linguistic in nature, the musicians of this study constructed a changing reality with other professionals, families, and patients. Boundary work in healthcare may seem very removed from everyday life, but in the digitalized era, where almost everything seems to be on sale or passed on as a property for globalized business platforms, capacities to connect and analyse multiple existing worlds become important assets, for music

professionals as much as anyone else. We do not have to think about this kind of boundary work or hybridity when things go well. Eventually, there comes a time when our survival might not be self-evident, and we may even feel that we are facing a barrier that we cannot overcome. In these situations, the environment and relationships we have utilized to support us in the past often do not function optimally.

It is not a new idea to combine the artistic and medical worlds. A musician can still always take a single gig in any setting, even in hospital or healthcare units, or choose a more conventional artistic approach to their work in these contexts. This *is* and should be regarded as a very valuable activity, whether it is professional, voluntary, or self-recreational in nature. Similarly, not all people choose to participate in shared musical situations, or their participation might not necessarily seem active, such as the approach I named *silent participation* in this study.

But, if one decides to take the time for shared music making with and for the people involved, and ventures to look really closely at the musical moment at hand, a new world is revealed through expanding professionalism, a world that is more beautiful and spectacular than you could ever have imagined. In this study, both the music making itself and musicians' ability to sustain emotions, for both themselves and others, was found to be important. Shared music making, taken beyond solely performative actions, made many participants see and experience life through different angles. This helped them to understand the sorrow and despair in their lives in a more constructive way, and create a bridge from specialized medical care to everyday life outside the hospital wards.

According to the hospital staff, and patients, and their families, in some circumstances this musical micro world had an essential effect on the participants' everyday lives and the relationships they had with their surroundings. To take a liberated approach, and engage with spontaneous and hidden world, light as the feather, unfolding the eternity of space and time, requires a lot of courage from a musician. To explore the momentous musical experiences that touch upon our most precious and primary needs in life also required a lot of courage from me as a music therapist and researcher, as I must admit and acknowledge.

Just as hospitals and music are not a new combination, neither is it new for humankind to weep and grieve through music together; however, in contemporary life illness, death, and grief are rather hidden elements. What perhaps was new in my research, was to frame the power of music in very practical ways, through the active agency, and the conditions of this agency, of *all* the people of the hospital community. Artistic and arts-based knowledge and research is often explored through tacit and implicit knowledge, which is sometimes seen as the opposite of formal, codified, or explicit knowledge. This formal, evaluative discourse naturally emphasizes rationality, effectiveness, and economics through concretely measured or otherwise evidenced interventions or activities. One cannot see, touch, or necessarily measure our experiences within our lives or life cycles, but they are there, affecting our attitudes, values, and decision-making on many levels. Such emotions, experiences, memories, and transformative change are in each one of us, and have been made more visible through this inquiry.

An aspect that is essential to an expanding, hybrid professionalism in healthcare is that this approach affects our music practices at a very deep level. Therefore, it makes us responsible for how the social world around us is co-constructed in relation to cultural and professional wellbeing, ethics of care, and the integrity and safety of all the people within the shared music making. In this study, the significance of making music together was not about the musicians themselves and their performances, but the interconnectedness between all of the participants in the moment. To attain a professional approach, where you altruistically support the recovery of others, you must take your time, and let your full awareness be present in space and time.

Beyond the level of visionary policies, or festive keynote speeches, a pandemic situation and other global crises have shown that our contemporary societies and policy makers are not convinced, even in the light of its measurable health-benefits, by the meaningfulness of the arts and culture. Through this dissertation I have tried to highlight some of these undervalued issues and inquire about some of the biased narratives on the benefits of music and music making. On the one hand, non-critical repetition amplifies often naive policy and the media level communication regarding the societal impacts of the arts. On the other hand, separating arts-based research from the research carried out within the medical hierarchy limits the interprofessional potential of this flourishing multidisciplinary field.

Perhaps the strongest bias that was revealed through this study was the presumed wellbeing of the artists and musicians themselves, the obvious unsustainability of their practices, and a lack of educational support. If the musicians in this study had not been supported through the organizations they worked at, living and working in and through the so-called "miracle of music" did not help them to make their way through the professional jungle. Instead, their everyday work could become a burden and be ethically stressful.

Let us return to the metaphor of a feather. Like music, the metaphors in this dissertation were not seen as philosophical mysteries, but as part of musical practice, making existential and fundamental questions of life easier to understand, accept, and sometimes change. Throughout the years, metaphors have been seen as threatening and even detrimental to scientific research. In this study, the work of the musicians was also seen by some stakeholders as detrimental and dangerous for best patient care, and the musicians were seen as frauds who had for some reason overcome the gatekeeping practices of the hospitals. However, the roles and boundaries in the hospitals were in fact sufficiently clear to the musicians and the hospital staff, and the equality-driven and ethically sensitive music practices were seen as highly supportive by the research participants, and as supporting the integrity and agency of the patients, and even patient safety. The findings depicted a portrait of musicians as highly educated artists in their respective musical genres, who strove to preserve the excellent musical qualities in their work. They had adopted a highly ethical and sensitive working approach in healthcare through the in-service training that was available to them, creating collaborative working teams and making themselves vulnerable in order to gain practical experience in various working contexts.

But still, why focus on research beyond music therapy, when music therapy has already covered such a broad range of interdisciplinary research, and created a substantial knowledge base within music. During the course of this inquiry, I learned to understand that as a music therapist, musician, or music educator, I do not own the music. A fundamental idea of music as a shared resource in life was my inspiration when engaging in many interesting but difficult discussions with other practitioners and researchers. Towards the end of the inquiry, more and more evidence was emerging that confirmed that, despite the professional differences, there is a substantial foundation aligning music therapy, artistic practice, and music education. As the feather balances itself in the wind, this study has sought to balance and ease scholarly discussions by strengthening the under-researched area of professional musicians' practice in healthcare. Furthermore, integrating and appreciating knowledge generated in-between music professionals and the various disciplines within music could be a way to balance the discussion and competition between professions.

In conclusion, I would like to reflect on an important question: How could we help future arts and music professionals and students to raise their wings and fly? In this dissertation I have argued for higher music education strategies and curriculum building that would take account of the changing music professionalism in relation to rapidly changing societal challenges. It would be essential to help future professionals by providing opportunities to challenge themselves, and to safely reflect on relational music work and their own

relational music professionalism. Music students and professionals need, and we owe them, not just their basic right to be educated and ethically cared for, but also a *meta-right* to learn relational agency and expertise as part of their expanding professionalism in music, and in this way to reach out for a more socially sustainable future. ■

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Koivisto, T.-A. 2022. The (un)settled space of healthcare musicians: Hybrid music professionalism in the Finnish healthcare system. [Doctoral dissertation. Sibelius Academy of the University of the Arts Helsinki]. Studia Musica 89. Taju Repository Uniarts Helsinki. https://urn.fi/URN:ISBN:978-952-329-264-2

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Even Ruud & Raymond MacDonald

Final statement

Taru-Anneli Koivisto
The (Un)Settled Space of Healthcare Musicians: Hybrid Music Professionalism in the Finnish Healthcare System

This article based doctoral dissertation addresses the emergence of an expanding arts professionalism by exploring the work of musicians in the Finnish public healthcare system. The author has outlined the following objectives 1) to map the interprofessional possibilities and challenges within the healthcare environments; 2) to explore the professional music making practices that musicians implement in somatic healthcare services; and 3) to develop a better understanding of hybrid professionalism through arts in health policies, stakeholder collaboration, and education related to arts organizations and healthcare systems. The grounding research question covering the overarching task of the study is: How does healthcare musicians' relational work inform a new understanding of expanding, hybrid music professionalism in a changing society?

We find these objectives as well as the grounding research question both clearly stated and appropriate considering the scope needed to research these questions. Koivisto's choice of an approach involving a broad range of qualitative research methods is highly appropriate to investigate her research questions. She demonstrates mastery of qualitative research procedures, and she is able to plan and utilize a broad spectrum of methods involving literature search, theory, interviews and observations, as well as analysis and presentation of data and results. Her choice of three different sites of doing her research has increased the representativeness of research data with regards to the scope and research questions.

Koivisto also demonstrates a comprehensive overview of previous research and research traditions within the field, as well as in the interdisciplinary theoretical landscape related to theories of profession as well as current issues within music therapy and music education. We find the logic of the manuscript's structure clear and consistent in the connection between premises, scope, objectives, methods, results, and conclusions. The language is fluent and coherent, and the formatting and references are good. Throughout the articles and within the kappa Koivisto clearly demonstrates important aspects of ethical conduct. This goes for how she performs her research within these institutions and among vulnerable participants, as well as for her written presentation and reflection concerning her research.

Koivisto has entered an under-researched area where there is a need to document changing patterns of professionalism pertaining to the musician's employment and work within health care institutions. Her findings will have an impact on the training and work opportunities, as well as upon the institutions which may receive these services.

The author has given a detailed description of her own contribution to the co-written articles. Her contribution and responsibilities in carrying out the research are sufficient to meet the requirement for a PhD. The author has generated the empirical material at one children's hospital and one eldercare hospital, through observations and interviews with musicians, patients, their families, and healthcare personnel, as well as with policymakers and other arts practitioners working in healthcare settings. Through this multiple case study approach, the research builds on four sub-studies in which thematic and reflexive analyses were applied. A qualitative cross-case analysis has been used to synthesize the findings of the sub-studies and the findings have been reported in four international peer-reviewed publications. The findings present healthcare musicians as socially responsible practi-

tioners who co-construct their professionalism through reciprocal, relational practices with the healthcare community, including patients, their families, and healthcare personnel. Through these relational practices the musicians demonstrate metaphorical thinking and language, they engage in music-emotional interaction and meaning making. Their work involves emotionally sensitive, situational ethics, that integrate the practice with the everyday life of healthcare communities supporting the agency and integrity of potentially vulnerable patients. The research demonstrates how music professionalism in healthcare can support professional self-care and patient safety, as well as lead to wider systemic change and a reorganization of professional education and working life.

At the public defence the candidate gave an excellent overview of her research where she presented with scholarly authority, clarity and precision. During the debate that followed she gave a robust and entirely convincing defence of her approach. She demonstrated a thorough knowledge of her chosen fields of enquiry, entirely commensurate with what is expected from a PhD candidate. In her excellent answers she demonstrated evidence of a high level of critical thinking and evaluation of relevant literature and research traditions. Koivisto also very articulately answered questions about the aims and objectives of the research and also demonstrated a deep understanding of both her methods and the epistemological underpinnings the work. Questions pertaining to the results and implications were also answered precisely and with impressive clarity. We commend the candidate on her commitment, focus and clarity. The passion and dedication with which she undertook her PhD was evident to all present and, furthermore, we were entirely convinced that the work is unequivocally of an exceptional standard.

Having read all the instructions for opponents and all the accompanying documentation relating the evaluation process, we recommend that the grade "passed with distinction" is awarded and that the Doctoral Dissertation is creditable with regard to all evaluation criteria in this category. ■

June 24th 2022

Even Ruud and Raymond MacDonald

Info

Ohjeita kirjoittajille

Käsikirjoitukset

Musiikkikasvatus julkaisee musiikkikasvatuksen alaa koskevia tieteellisiä ja käytäntöön liittyviä artikkeleita, katsauksia, puheenvuoroja, ajankohtaisiin tapahtumiin ja asioihin liittyviä kirjoituksia, kirjallisuusarviointeja ja väitöslectioita. Lehden toimitukselle voi lähettää kirjoituksia joko suomeksi, ruotsiksi tai englanniksi. Kirjoitusten tulee olla sellaisia, joita ei ole lähetetty muualla julkaistavaksi. Käsikirjoitukset arvioidaan lehden toimituskunnassa, joka käyttää tieteellisten artikkeleiden osalta vertaisarviointimenetelmää.

Suomenkielisiin teksteihin tulee liittää enintään 200 sanan englanninkielinen tiivistelmä (Summary tai Abstract), muunkielisiin vastaavan mittainen suomenkielinen tiivistelmä. Käsikirjoitukset lähetetään toimitukselle sähköpostin liitetiedostona. Käsikirjoituksissa käytetään kasvatusalalla vakiintunutta merkintätapaa eli tekstinsisäisiä viitteitä (esim. Soini 2001, 9). Myös lähdeviitteissä käytetään vastaavaa merkintätapaa. Suositeltava lähdejulkaisujen maksimimäärä on n. 20 kpl.

Kirjoittaja(t) luovuttaa (luovuttavat) Taideyliopiston Sibelius-Akatemialle oikeuden julkaista teksti Musiikkikasvatus-lehden käytänteiden mukaisen arviointiprosessin edellyttämien korjausten ja toimituksellisen työn jälkeen painetussa muodossa sekä sähköisesti painettuna että sähköisessä muodossa. Kirjoittaja(t) luovuttaa (luovuttavat) samalla myös tekstien rajoitetut levitysoikeudet tieteellisten julkaisujen kansallisiin ja kansainvälisiin lisensoituihin tietokantapalveluihin tai kustantamoihin (esim. Ebsco, Rilm). Näin siirtyvästä julkaisuoikeudesta ei suoriteta tekijälle (tekijöille) rahallista korvausta. Kirjoittajalle (kirjoittajille) jää tekstiinsä omistus- ja käyttöoikeus, jonka käyttöä tämä rinnakkaisen käyttöoikeuden luovutus ei rajoita. Kirjoittaja(t) vastaa(vat) siitä, että teksti (mukaan lukien kuvat) ei loukkaa kolmannen osapuolen tekijänoikeutta.

Esimerkkejä lähdeviitteiden merkitsemisestä | Examples of quotes

Hakkarainen, K., Lonka, K. & Lipponen, L. 2000. Tutkiva oppiminen. Porvoo: WSOY.

Richardson, L. 1994. Writing as a method of inquiry. Teoksessa N. Denzin & Y. Lincoln (toim.) Handbook of Qualitative Research. London: Sage, 516–529.

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Kirjoittajan yhteystiedot

Kirjoittajaa pyydetään kertomaan yhteystietonsa (nimi, oppiarvo / virka-asema, osoite ja sähköposti) toimitukselle.

Muuta

Lehti ei maksa kirjoituspalkkioita. Artikkeleiden ja katsausten kirjoittajat saavat kaksi kappaletta kyseisen lehden numeroa ja muut kirjoittajat yhden lehden. ■

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