



OPEN ACCESS

EDITED BY

Anna Van Der Want,
Leiden University of Applied Sciences,
Netherlands

REVIEWED BY

Jan-Erik Mansikka,
University of Helsinki, Finland
Mark Vicars,
Victoria University, Australia

*CORRESPONDENCE

Peter Lutzker

✉ lutzker@freie-hochschule-stuttgart.de

RECEIVED 30 December 2023

ACCEPTED 16 February 2024

PUBLISHED 27 March 2024

CITATION

Lutzker P (2024) Artistic practice in Waldorf
teacher education: a sensory-aesthetic
concept for a digital age.
Front. Educ. 9:1363254.
doi: 10.3389/feduc.2024.1363254

COPYRIGHT

© 2024 Lutzker. This is an open-access
article distributed under the terms of the
[Creative Commons Attribution License
\(CC BY\)](https://creativecommons.org/licenses/by/4.0/). The use, distribution or reproduction
in other forums is permitted, provided the
original author(s) and the copyright owner(s)
are credited and that the original publication
in this journal is cited, in accordance with
accepted academic practice. No use,
distribution or reproduction is permitted
which does not comply with these terms.

Artistic practice in Waldorf teacher education: a sensory-aesthetic concept for a digital age

Peter Lutzker*

Freie Hochschule Stuttgart (Waldorf Teachers College), Stuttgart, Germany

One of the general concepts underlying Waldorf education is that teaching is an art. Although this idea is certainly not unique to Waldorf education, what is unique is the way it has been integrated into Waldorf teacher education. While Waldorf teacher education programs are diverse, both in national and international contexts, one of the central elements which they share is the prominent role which different forms of artistic practice play throughout the course of pre-service and in-service programs. This article explores the reasons and aims behind the inclusion of subjects such as music, sculpture, and speech in Waldorf teacher education, at first within the larger context of viewing different perspectives and justifications for the inclusion of the arts in teacher education outside of Waldorf pedagogy. In light of the educational challenges posed by widespread sensory deficits among children and adolescents, viewed here as being connected to the extensive role/s which different forms of digital media play in their lives, the case is made for the potentials of the arts as a way to address those deficits. In examining both the arguments for arts-based courses in teacher education and the pedagogical challenges of our times I propose a concept for the inclusion of the arts in teacher education connected to the concept of aesthesis, from the Ancient Greek concept of aisthesis, understood here as the primary perceptual-sensory basis of aesthetic experience. The integration of scientific courses with arts-based practice in teacher education is seen as providing a fruitful basis for teachers to be able to take on these educational challenges.

KEYWORDS

Waldorf teacher education, arts-based teacher education, teaching as an art, sensory deficits, aesthetic education, aesthesis

1 Introduction

In considering the extent to which the extensive use of digital media affects and shapes the lives of children and adolescents, this article makes the case for viewing the role and practice of the arts in teacher education from a new perspective. One of the effects on young people of growing up in a highly digitalized environment has been the significant reduction of their direct sensory connection to both the world and their own bodies. It is in this context that the unique potentials of the arts in providing a rich basis of sensory-aesthetic experience will be examined. The article focuses on exploring the possibilities of arts-based courses in teacher education as a way of preparing future teachers to be better able to concretely address the pedagogical challenges they will face. The significant role

which the practice of the arts has historically always played in Waldorf teacher education offers an experiential basis upon which a concept for our times can be developed. Prominent educators outside of Waldorf education have also emphasized the importance of the arts, both in schools and in teacher education, and it will be argued that their contributions are highly relevant today. In discussing the role of the arts-based approaches in Waldorf teacher education in the larger context of also considering non-Waldorf perspectives and practices, the overriding aim will be to develop a broader basis for an integrated artistic and scientific concept for teacher education which can address the specific needs of our times.

The first section of this paper gives a brief, general overview of Waldorf teacher education, its origins and guiding principles which include its foundational concept of viewing teaching as an art and the prominent role of the arts in the teacher education curriculum. It is followed by considering different reasons for the study of the arts in teacher education that have been advanced by prominent educators in the 20th and 21st century, along with the results of a recent meta-study evaluating the effects of artistic courses in teacher education in different university settings. The third section will explore in more detail specific reasons for courses in sculpting, music and speech which have been chosen as exemplary for the role of the arts in Waldorf teacher education. In the final discussion, drawing on both Waldorf and non-Waldorf sources, the arguments for arts-based courses in teacher education which are also conceptually integrated into the study of the education sciences will be elucidated.

2 The origins and current status of Waldorf teacher education

Beginning with the founding of the first Waldorf school in Stuttgart in 1919, the significant differences between Waldorf education and the pedagogical concepts underlying traditional education called for a new approach to teacher education (Frielingsdorf, 2019; Zdražil, 2019). Directly before the opening of the first school, Rudolf Steiner gave an intensive two week course for the teachers, a number of whom had little or no previous experience teaching children (Steiner, 1996b; Zdražil, 2021). Up until 1924, he also continued to give shorter yearly courses in Stuttgart, along with numerous lectures on Waldorf education in Switzerland, England and Holland, often in conjunction with the intended founding of new schools. As the number of Waldorf schools in Germany and other countries continued to grow, the first Waldorf teacher education course began in Stuttgart in 1928.

Today there exist more than 200 teacher training courses in around 70 countries serving more than 1,800 kindergartens/day care centers, 1,100 schools and around 500 special education schools and communities (Freunde der Erziehungskunst Rudolf Steiners, 2023). These programs consist of both academically accredited Waldorf teacher education programs in colleges and universities, as well as a broad range of full-time and part-time seminars. Those academic programs which are accredited or in the process of accreditation are members of the [International Network for Academic Steiner Teacher Education \(INASTE\)](#) (2023), which meets bi-annually and organizes academic conferences.

2.1 The curriculum of Waldorf teacher education programs

Although each institution of Waldorf teacher education has its own individual profile invariably shaped by the traditions, cultures, and legal requirements of their respective countries (and even within one country there may be significant differences between programs), there is, nevertheless, far more that they have in common with respect to their underlying principles and curricula. These have recently been described in a document put out by members of the International Teacher Education Program (ITEP) in 2023, working under the auspices of the Pedagogical Section in Dornach, Switzerland, an institution which has continually served as a link connecting both Waldorf schools and all forms of teacher education worldwide (McAlice and Boland, 2023).

In a Waldorf teacher education program, one can expect to find a focus on pedagogical anthropology and educational psychology offering an encompassing, holistic view of the developing child and adolescent. It draws on Steiner's anthroposophical understanding of the human being and specifically the foundational lectures he gave to the first teachers, along with a broad range of more recent materials both from Waldorf and non-Waldorf contexts (Steiner, 1996b; Zdražil, 2017; Lutzker and Zdražil, 2019; Lutzker, 2020a,b; Rawson, 2020a,b). There are also courses in the methodology and didactics of subject teaching. Another aspect they share is a strong emphasis on students gaining practical teaching experience in schools during sustained internships during their pre-service studies. Although both the anthropology and the methodology of Waldorf pedagogy differ in significant ways from what is taught in mainstream teacher education, the subjects themselves are, naturally, found in both, as is, in most cases, practical school experience. The clearest difference between the subjects which are taught in Waldorf and other teacher education programs lies in the specific role which the practice of the arts plays.

2.2 Teaching viewed as an art in Waldorf pedagogy and its consequences for teacher education

Among the foundational principles underlying Waldorf education is the concept that teaching is an art based on the artistic development of the teacher (Steiner, 1996a). Accordingly, one of the primary goals of pre-service and in-service teacher education is to support teachers in their own artistic development as a basis for attaining artistry in teaching. Steiner writes:

If teachers themselves feel a strong bond with the artistic element and appeal to the artistic appreciation in their pupils, and if they create an artistic atmosphere in the classroom, the proper teaching methods and human influence will stream out into all other aspects of education. Then they will not "save" the artistic element for other subjects, but let it flow and permeate all their teaching. ... Art and the esthetic sense place knowledge of the human being at the meeting of purely spiritual knowledge on the one side, and external sensory knowledge on the other. It also helps lead us most beautifully into the practical aspects of education. (Steiner, 1996a, p. 61)

It is within this framework, that the striking emphasis placed on the practice of a wide range of arts in both pre-service and in-service programs must be viewed. The arts-based aspect of the curriculum is rooted in the conviction that extensive practical experience in different art forms can help teacher students and teachers develop specific qualities which are inherent to the concept of teaching as an art. It is both the number and range of artistic courses that are required that most obviously distinguish the Waldorf teacher education curriculum from other programs. Although the number of artistic courses varies from institution to institution, generally at least 1/3 of an entire course of studies will be devoted to various forms of artistic practice (Goldschmidt, 2017).

The fact that from the very beginnings of Waldorf education, artistic experience and practice was an essential element in teacher education and that this concept has been further developed over the course of more than a hundred years, makes it unique within the larger framework of teacher education programs. At the same time, there have also been influential and inspiring proponents of arts-based approaches to teacher education outside of Waldorf education whose contributions must be considered in developing a broader conceptual basis for the arts in teacher education in our times.

3 Teaching viewed as an art and artistic practice in teacher education

The concept that teaching is an art is part of a long historical tradition going back to Ancient Greece (Lichtenstein, 1970; Jäger, 1973). It was also part of the European humanistic understanding of education in the Renaissance (Haussman, 1959; Flitner, 1980). A highpoint was reached in the different reform pedagogical movements in Europe at the beginning of the 20th century, which also included Waldorf education (Kozdon, 1984; Flitner, 1992). In the United States, the concept of teaching as an art is usually thought to have its origins in the public lectures which William James gave to schoolteachers in Cambridge in 1892 (James, 1899/1962; Anderson, 1995). Later, John Dewey repeatedly made the case for the interconnectedness between education and art in different contexts emphasizing its vital contribution with respect to the development of perception, imagination and creativity (Dewey, 1948, 1980). Often referring to Dewey, the belief that the study and practice of different arts should also be incorporated into teacher education has continued to play a central role in the thinking of leading educators such as Ted T. Aoki, Gert Biesta, Donald Blumenfeld-Jones, Elliot Eisner, Jim Garrison, Maxine Greene, Christian Rittelmeyer, Horst Rumpf, Seymour Sarason, Keith Sawyer, and Lawrence Stenhouse. As some of their contributions play a role in my final discussion, I will attempt to very briefly introduce their perspectives.

Elliot Eisner (1933–2014) continually made the case that the practice of the arts provides a model for education:

The arts, I argue, can serve as models of what educational aspiration and practice might be at its very best. To be able to think about teaching as an artful undertaking, to conceive of learning as having aesthetic features, to regard the design of an educational environment as an artistic task – these ways of thinking about some of the commonplaces of education could have profound consequences for redesigning the practice of

teaching and reconceiving the context in which teaching occurs. (Eisner, 2002, p. xii)

He also refers to specific aspects through which artistic practice can support teachers emphasizing the role of the imagination and a heightened perceptual sensibility (Eisner, 2002, p. 198).

Maxine Greene (1917–2014) was the philosopher-in-residence and later the philosopher emeritus of the Lincoln Center Institute for the Arts in Education which became the most well-known example of an in-service course wholly based on teachers' experiential immersion into a broad range of arts. In her lectures given as part of that program, she makes the case that aesthetic education "can be called an education in being present, personally present as imagining, feeling, thinking beings to works of art" (Greene, 2001, p. 203). She also argues that such forms of aesthetic education can be seen as paradigmatic for all learning:

I believe that the learning provoked by what we call aesthetic education is paradigmatic for the learning many of us would like to see. Learning stimulated by the desire to explore, to find out, to go in search. This is the learning that goes beyond teaching – the only significant learning, I believe. (*Ibid.*, pp. 46–47)

The Maxine Greene Institute has continued to build on her work in both academic and school programs (Greene, 2023).

The Dutch educator Gert Biesta (b. 1957) has made the case for an understanding of the arts in education in which they are not instrumentalized in such ways that their so-called 'transfer effects' for cognitive subjects become their primary justification, but rather for the far more encompassing and long-ranging effects of artistic experience itself (Biesta, 2020).

In Germany, Christian Rittelmeyer (b. 1940) has drawn on Friedrich Schiller's (2000) give ref link *Aesthetic Letters* as well as on the Greek concept of aesthesis as a philosophical basis for an experiential aesthetic education in schools and in teacher education. He emphasizes the significance of the inner activity which can occur in the encounter with works of art in which a confluence of sensory, emotional, intellectual and spiritual experience becomes possible (Rittelmeyer, 2018).

3.1 Empirical research on the effects of arts-based teacher education

There is an extensive body of empirical research on the effects of arts-based teacher education. In the context of this article, it is not feasible to even attempt to give an overview of these studies. Thus, I will confine myself to a recent meta-study which I think can serve as a fruitful basis of comparison when considering similarities and differences to the role of the arts in Waldorf teacher education.

In Skau and Lindstel's meta-study of arts-based teaching and learning in teacher education, the authors draw exclusively on peer-reviewed journal articles taken from ten data bases. Their initial findings yielded 1,296 articles, which were then reduced to 146 from which 19 articles were then chosen for their study (Moller-Skau and Lindstol, 2022, p. 5). Based on a "crystallization metaphor" through which they aimed to achieve a meaningful coherence to the highly complex and diverse contexts of the studies, they discuss three

recurring patterns which became the lens through which they viewed and analyzed the articles—*emotional turns, ability and desire to act, and changed attitudes* (*Ibid.*, pp. 5–6).

In their conclusions regarding *emotional turns*, they highlight the wide range of emotions which these courses evoked in participants “... from fear, nervousness and uncertainty to excitement, joy and the feeling of appreciation.” Through taking risks and facing these challenges, the participants experienced positive changes in their emotions during these processes “due to their authenticity, depth and connection to personal spheres” (*Ibid.*, p. 7).

In discussing the effects of the courses on the teaching students’ *ability and desire to act*, the authors point out that their initial reactions to taking artistic courses in a teacher education program was a lack of confidence and serious doubts about their own skills and abilities. This changed significantly during the courses and, in the end, students described feeling empowered through their experiences, discovering in themselves degrees of creativity that they had not been formerly aware of (*Ibid.*, pp. 8–10). This led not only to an increase in their abilities, but also to their desire to take part in such courses (*Ibid.*).

In discussing *changed attitudes*, the authors highlight both the fundamental change in their initial negative attitudes toward the relevance of such artistic courses in an academic context and their later recognition of the potential of the arts to address diverse learners in heterogeneous classrooms, as well as the power of the arts as a motivational factor in learning across the curriculum (*Ibid.*, pp. 7–9). Moreover, connections between their personal experiences and the changes in their understanding of the nature of teaching and learning became apparent in their reflections. In some studies, this link between personal and professional spheres led students to reflect critically on the rigidity of school curricula (*Ibid.*, pp. 10–11).

In their concluding remarks, the authors emphasize how arts-based learning can prove to be an important way for student teachers to prepare for the unknown future and that arts-based learning has epistemological implications and possibilities that could expand what is recognized as valuable learning outcomes in teacher education (*Ibid.*, p. 11).

3.2 Résumé

Although each of the abovementioned educators offers a different perspective, what Eisner, Greene, Rittelmeyer and Biesta share is a deep-seated conviction that the study and practice of the arts is a profoundly important part of what education can and should be. Each makes clear that for both pupils and teachers, the most significant value of artistic studies and learning is intrinsic and lies in the potential meaning of the artistic experience itself and not in its ‘transfer effects’ to other fields. They also view the study and practice of the arts as a paradigmatic form of learning which can serve as a model for other forms of learning as well.

Skau und Lindstel’s meta study demonstrates the far-reaching and potentially transformative effects of even a single arts-based course in teacher education. Their findings offer examples of what Greene terms the “learning that goes beyond teaching” and which Eisner argues is “what educational aspiration and practice might be at its very best.” These diverse perspectives provide a larger framework within which the specific role of the arts in Waldorf education can be viewed.

4 The role and practice of the arts in Waldorf education

Waldorf teacher education understands artistic practice as both an essential dimension of a teacher’s personal and professional development and as fostering many of those capabilities necessary to attain artistry in teaching. Teachers of all subjects and at all levels from elementary to secondary are required during their studies to engage in the regular practice of the arts in as one part of their preparation for becoming artists in teaching their subjects. Steiner considered this to be an essential element in teacher education: “...not only the study of the Arts must be cherished, but rather all lessons must be derived from what is artistic. All methodology must be immersed in artistry” (Steiner, 1996a, p. 61). He maintained that if teachers felt strongly connected to the arts, it will “permeate” their teaching and “stream into” different aspects of lessons (*Ibid.*). These are aspects which Martyn Rawson has also emphasized in his discussion of the role and practice of the arts in Waldorf teacher education:

On the one hand practical skills for teaching are learned, such as clearer speaking, storytelling, drawing, painting, singing, playing an instrument and so on. Furthermore, the artistic work helps the teacher students to cultivate an aesthetic sense so that they can shape their lessons in an artistic way. (Rawson, 2020b, p. 30)

The amount and continuity of artistic courses in pre-service programs and their prominent role in many in-service training courses make clear that the role of *practicing* in Waldorf teacher education is highly significant. Artistic practice can not only lead to an artistic product, but more significantly in this context, also transforms and enables the person who has engaged in it. The dancer, painter and violinist have in common that the consequences of their practice sit deeply in their bodies and in different respects shape the way they perceive, feel and think. The distinction between practicing and *training* is crucial in this respect. Although the terms are often used interchangeably, they have very different meanings (Bollnow, 1982). When *training* for something, one has a clear goal and achieving this becomes the focus of the work; the way in which one reaches it is a secondary consideration. Much traditional learning relies heavily on training, focusing on defined, short-term, and often testable goals. *Practicing* is fundamentally different and involves a far longer and subtler process. It is not reaching a specific goal that transforms a practitioner—she may not even reach that goal—but the nature of the practice itself (Bollnow, 1982; Ronner, 2018; Lutzker, 2018b). Through such practice one has to continually encounter and address different challenges, including experiencing oneself over a long period of time as a learner.

Initiating and supporting such processes of practice are considered fundamental in Waldorf teacher education and are not only part and parcel of the artistic courses, but in different ways are also integrated into phenomenological approaches to subject studies, methodology and pedagogical anthropology (Oberski and McNally, 2007; Kiersch, 2008; Lutzker, 2016a, 2018a; Martzog et al., 2016; Jeuken and Lutzker, 2019; Lutzker and Zdražil, 2019; Rawson, 2020a,b).

The broad range of the arts which may be offered in different Waldorf teacher education programs can include speech and drama, storytelling, music, sculpting, painting, drawing, eurhythm, theatre clowning, Bothmer gymnastics and land art. Each in their own ways

enable students to actively and creatively experience different dimensions of the world and of themselves. Although each institution will make its own choices and there are not many institutions that offer all the above-mentioned arts, they give an indication of the spectrum of artistic activities which can be found in different institutions. Most of these arts have traditionally been a part of Waldorf teacher education: in the last few decades theatre clowning has played an increasingly prominent role, particularly in Germany (Lutzker, 2012, 2022; Rawson and Bryden, 2022). Within the constraints of this article, it will not be possible to discuss the specific reasons for the choice of each of these art forms, so I have chosen to focus on what Steiner called the three “teachers’ arts”—clay modeling, music, and speech (Steiner, 1994b, pp. 35–53) They encompass what he termed the “language-musical stream” of performative arts such as music, eurythmy, speech and drama as well as the “plastic-architectural stream” which includes sculpting, painting and drawing (Steiner, 1983a). In the practice of these three arts, he saw not only the possibilities of developments contributing to the artistry of teaching, but also how the study of each could be connected to the study of the pedagogical anthropology central to Waldorf education.

4.1 Clay modeling in Waldorf teacher education

Along with painting and drawing, clay modeling generally plays a prominent role in Waldorf teacher education programs. Working on clay modeling can be seen as a necessary preparation for doing this with pupils in elementary school, yet its role in Waldorf teacher education goes much further than that. Although less directly related to teaching than speech or music, it calls for experiential processes which can lead to different kinds of insights. On various occasions, Steiner spoke of sculpting as a way of learning through one’s hands to develop those differentiated sensory capabilities required in both closely observing phenomena and in learning to shape materials which require expanding and contracting to create a desired form. He gives an example of how through clay modeling one can, for instance, gain a heightened understanding of the human gestalt and human physiology through sculpting external organs such as hands or feet or inner organs such as the lungs. Such modeling processes can lead to an experiential realization that organs can only be fully perceived and understood in the context of their ongoing dynamic, fluid functioning. For Steiner, this can lead to an embodied and differentiated understanding of those inner life processes which he referred to as *etheric processes* and in the context of the entire human gestalt as the *etheric body* (Steiner, 1994a, pp. 31–38; Kiersch, 2008, pp. 49–51). The sculpting teacher Georg Schumacher writes that this heightened sense of the dynamic nature of life processes can also lead to heightened forms of awareness and perception of these processes in children (Schumacher, 2018, p. 171).

The process of sculpting can also be seen as a paradigmatic form of learning insofar as one continually learns to observe the results of one’s actions in handling the material. The first attempts at sculpting a hand or foot usually bear little resemblance to what is intended, and it is only in the course of time that one begins to see more exactly, develop a feeling for what is being observed and for the material itself. Through a student’s own careful observation of what he or she has done, together with the feedback from the instructor, other changes

in attitudes and habits can be initiated. Schumacher describes how through observing their own work, students have the possibility to realize how their own habits, preferences, temperaments, one-sidedness have also been at work, often interfering with attentively observing and modeling the phenomenon itself (*Ibid.*). It is through this process of learning to observe actively and accurately, that learners, through their hands, become more aware of and connected to the phenomena of the world (Lindenberg, 1985, pp. 154–155).

4.2 Music in Waldorf teacher education

The practice of music and singing in teacher education is intended to develop a teacher’s own musical abilities and enable her to support the musical developments of her pupils. Considering the central role of music and singing in different areas of the Waldorf curriculum, which include not only music lessons, but other subjects such as foreign language lessons, the development of these capabilities is considered crucial in teacher education.

At the same time, capabilities of listening, along with a feeling for rhythm and timing are practiced in a medium in which the focus is not on an object, but on a musical process unfolding in time. This temporal process comes together with the spatiality and materiality of a musical instrument and/or the human body through the complex interplay of sensory and motor organs. Students are given opportunities to practice a broad range of musical capabilities, including learning to improvise both vocally and instrumentally and thereby to experience their own self-efficacy as an ongoing and immersive volitional process (Ronner, 2018). For students who have had little or no previous musical experience, engaging in a process which simultaneously entails actively listening and participating, can present significant challenges. The ongoing acceptance of insecurity which musical processes then call for, lead them to experience learning in a heightened form which may also require them to leave their comfort zones and take risks. The new “muscle” that is continually called upon is simultaneously cognitive, emotional and volitional (*Ibid.*).

The active performative (or listening) experience of a musical work can also lead to a connection to the inner world of the composer which, at that moment, is recreated in one’s own experience. The singing, playing, or actively listening person can thus experience his or her own capacities of felt experience awaken and grow through the felt experience and expression of another. While this can also be said to occur in any art, in music it can occur in a uniquely internalized and emotional manner (Kern, 2018, p. 158). Steiner drew a corresponding distinction between music and the other arts:

In music, man (*sic*) feels the echoes of the element that weaves and lives in the innermost core of things, which is so closely related to him. Because feelings are the innermost elements of the soul, akin to the spiritual world, and because in tone the soul finds the element in which it actually moves, man’s (*sic*) soul dwells in a world where the bodily mediators of feelings no longer exist but where feelings themselves live on. The archetype of music is in the spiritual, whereas the archetypes for the other arts lie in the physical world itself. (Steiner, 1969, p. 7)

Steiner saw in music the potential to enhance and develop teachers’ perception and understanding of the feelings and emotional

lives of their pupils. In the context of his anthroposophical/anthropological understanding of the human being he considered this to be a way of more clearly perceiving what he termed the *astral body* interwoven in the etheric life processes and the physical sensory-motor dimensions of being (Steiner, 1994a,b; Kiersch, 2008).

4.3 The art of speaking: speech formation, storytelling, and drama

A teacher's voice and articulation, considered together with all means of gesture, facial mimic and body language can be seen as among her most essential 'instruments' in teaching. From the first teachers' course on, Steiner placed an emphasis on working on teachers' capabilities of speaking through different speech exercises and having the teachers speak poems that were not intended for the classroom, but for the teachers' own artistic development (Hans, 2018, p. 182). Speech formation courses in Waldorf teacher education today focus on practicing ways of speaking stories, poems, and all forms of narrative content in a pedagogically appropriate, artistic-aesthetic manner (*Ibid.*).

Whereas for teaching the youngest classes a focus will lie on learning to bring to life the inner pictures which the telling of fairy tales and stories call for, teaching older children and adolescents with different subject matter calls for different registers of speaking to awaken interest, inner pictures and felt experience. This, like any other art, needs to be learned and in Waldorf teacher education there is at first a focus on the quality and range of experience which the students themselves have with the different poems, stories, ballads, dramas, and narratives that they work on during their studies. The underlying principle is that they themselves need to have first had these experiences of speaking and listening to be able to convey pictures and meanings more fully to their pupils (*Ibid.*, pp. 186–190).

It is not intended that this leads to overly dramatic ways of speaking and acting. One of the primary tasks in speech lessons in teacher education becomes learning to pull oneself back and learning to let the material, whether poem, story, or narrative, speak for itself. This is not a question of learning methods or techniques, but rather experiencing what lies in a specific work and creatively searching for ways to express that more fully and authentically (*Ibid.*, p. 187). The different forms of speaking, whether dramatic, lyric, or epic, require specific capabilities which are developed using suitable material. What connects the work is the attention paid to the smallest element of speech, i.e., the individual phonemes which constitute the building blocks of words and language. This was a particular focus of the speech formation courses which Steiner and his wife Marie Steiner introduced. This element is seen as comparable to the colors in painting and the tones in music, each having its own character and thus its own effect. This is a dimension of language which actors and directors are also very much aware of and it plays a crucial role, for instance in the classic teachings of Konstantin Stanislavski:

Every single one of the speech sounds of which the word is composed has its own soul, its own essence and its content, which the speaker must sense and feel. ... He (*sic*) who does not feel the soul of the sound feels nothing of the soul of the word, of the sentence, of the thought. (Stanislavski, 1984, p. 49, cited in Hans, p. 190) (author's translation)

The significance of individual speech sounds must be viewed in the context of the entirety of oral communication which is expressed and perceived within a behavioral organization encompassing the entire dynamic physical and physiological sensory-motor 'attitude' of a human being (Rugg, 1963; Hall, 1971). Ongoing positional shifts and gestures of the entire body, demonstrating language, cultural and individual variations, are also inextricably tied to gesture, body language, facial expression, and vocal qualities, as well as to "micro-kinesic" movements co-occurring with the single speech sounds (Birdwhistell, 1970; Condon, 1970, 1985, 1988). The temporal hierarchy of the linguistic-kinesic behavior of the speaker has been analysed as simultaneously incorporating dimensions of movement corresponding to the enunciation of phones, syllables, and words (*Ibid.*).

A teacher's entire manner of speaking invariably has a direct, though often unconscious effect on her pupils. As linguistic-kinesic research has demonstrated, it lies in the very nature of all forms of oral communication that the entire body of both the speaker and the listener are directly involved on macro-kinesic and micro-kinesic levels of behavior in every moment (*Ibid.*). The extraordinarily detailed analysis of films in which each second was divided into 48 frames, demonstrated that not only is there a continual and exact coordination of a speaker's movements with his or her own speech (self-synchrony), but also that the listener with a time lapse of 50 milliseconds *entrains* in precise synchrony to the articulatory structure of the speaker's speech sounds demonstrating an interactional synchrony (Condon, 1970, 1985, 1988). This synchrony of movement encompasses the entire human being: "Metaphorically it is as if the listener's whole body were dancing in precise and fluid accompaniment to speech" (Condon, 1970, p. 76).

Steiner believed that the explorative study of the students into the nature of language itself, its vowels and consonants, along with learning to perceive and to use voice, gestures and the body more fully, could also open up possibilities of perceiving and understanding others in a more nuanced and differentiated way. For teachers, it can lead to a richer perception of a pupil's manner of speaking and thus potentially to a deeper and more encompassing understanding of the unique individuality of each of their pupils (Steiner, 1994b; Kiersch, 2008).

Finally, a teacher's voice and manner of speaking will not only be a determining factor in her teaching and for her pupil's learning but can have long term effects on her health and her relation to her profession. Learning to enhance a teacher's flexibility and artistry in speaking, learning to treat one's voice as an instrument that always needs to be tuned and practiced can thus also be considered as a significant salutogenetic factor in promoting a teacher's health (Patzlaff, 2023).

4.4 Complementary perspectives on the role of the arts in teacher education

In considering the aims and approaches of arts-based teacher education in Waldorf and non-Waldorf programs, it is evident that on the one hand, they share much in common and, on the other hand, there are also significant differences, particularly with respect to their role/s in the larger educational contexts in which such courses take place. The perspectives that each offer can be seen as complementary and as offering a fruitful basis for developing a general concept for arts-based teacher education for both Waldorf and non-Waldorf teacher education programs.

5 Discussion: toward a sensory-aesthetic concept for the arts in teacher education

5.1 The arguments for an aesthetic concept for the arts in education

In his critical discussion of the deficits in most existing empirical research on the value of the arts in education, Rittelmeyer emphasizes the necessity of conceiving and conducting such research within a broader conceptual understanding of the nature of aesthetic experience (Rittelmeyer, 2018). It is the absence of such a concept that leads to a reduction of what is then assessed: for example, a focus on evaluating the transfer effects of artistic experience, – do increased music lessons lead to better mathematics results?—rather than exploring those individual effects the arts can evoke and which a statistical evaluation of data cannot capture. He calls for both a structural analysis in which the aesthetic qualities and value of what is being examined are considered, as well as a casuistic biographical approach in which through case studies the individual nature of artistic experience and its biographical consequences are concretely examined, as opposed to attempting to derive measurable and generalizable results (Rittelmeyer, 2014).

Gert Biesta argues that such approaches in which art is instrumentalized to serve another purpose such as enhancing cognitive learning “for subjects which really count” stand in no relation to the actual experience of a work of art, its intrinsic value as aesthetic experience and its potential biographical significance (Biesta, 2020, pp. 37–38). Eisner also makes the case for a holistic understanding of artistic experience and for adopting broader and biographical research perspectives which examine more encompassing and long-term effects on individuals instead of focusing on measurable effects deduced from collective data (Eisner, 2002).

A theoretical perspective taking such positions into account would provide a different framework within which arts courses would be offered and researched, relevant for the arts in teacher education and for arts education in schools as well. Drawing on both non-Waldorf and Waldorf perspectives, I would like to propose such a conceptual framework in the light of the specific challenges of our times.

5.2 The role of the senses in education and teacher education

The perspective that I am taking is based on the crucial role of the senses and sensory development in education and the unique potentials of artistic practice to enhance and develop sensory/aesthetic perception with respect to experiencing, creating and appreciating works of art and in heightening one’s connection to the world. In considering the role of the senses we need to consider the role of those ‘internal senses’ such as balance and proprioception which provide the sensory-motor basis for all forms of movement, as well those ‘external senses’ through which we perceive and experience the world such as hearing and seeing. Although each sense has different functions, dependent on its specific sensory receptors and the requisite physiological-neurological processes, they are also simultaneously integrated in sensory perception and

experience: “External perception and the perception of one’s own body vary in conjunction because they are the two facets of one and the same act” (Merleau-Ponty, 1986, p. 205). What all senses have in common is that their healthy development, as well as their undisturbed integration, are dependent on whether and how they are used.

From the perspective I am advancing, it is first necessary to realize how a direct sensory experience of the world has been radically reduced for children, adolescents and adults to a degree that was hardly imaginable even a generation ago. For adolescents in Germany, for example, the amount of time spent staring at screens, meaning that sensory experience occurs in digital and virtual worlds, now averages of 8.5 h a day (ARD/ZDF, 2023). This reduction of a direct, embodied connection to the physical world raises essential educational questions regarding deficits within the entire spectrum of the human senses in children and young people who are in their most critical stages of physiological/neurological development. The negative effects have been discussed in a wide range of pedagogical, psychological and neurological studies (see Turkle, 2011; Hübner, 2017, 2019; Koch et al., 2017; Twenge, 2017; Weinzirl et al., 2017; Centers for Disease Control and Prevention (CDC), 2018; Rittelmeyer, 2018; Lutzker, 2020a,b; Cardoso-Leite et al., 2021; Rideout et al., 2022).

Sensory experience cannot be separated from physical/motor actions; in fact, it is precisely because they exist as a unified system or circle, what Viktor von Weizsäcker termed a *Gestaltkreis*, that we are capable of both sensing and moving (von Weizsäcker, 1990; Edelhäuser, 2022). The neurologist Friedrich Edelhäuser writes:

Our perceptions only appear to have a purely receptive character. If one observes the function of the entire organism in sensory perception more exactly, it becomes apparent that the actions of the organism, and, in particular, its active movements are necessary for sensory perception. ... It is even true that in a general sense our perception of forms is not based on our sense of sight, but rather on our sense of movement that is stimulated by the movements of our eyes. Our optical perception is based on all these movements. ... For all the other sensory modalities there are comparable relations. Not only does movement make perception possible, but perception is what makes all forms of differentiated movements possible. (Edelhäuser, 2019, pp. 55–59) (author’s translation)

It is the unity and mutual dependence of movement and perception that constitutes the basis of our bodily connection to the physical world and is essential for all learning. The profound differences between sensory and intentional experience in the physical world and in digital/virtual worlds must be considered in the larger context of how sensory experience affects childhood development. Research has demonstrated that during early childhood, in kindergarten and in the first school years, the healthy development of the inner, basal senses upon which gross and fine motor actions are dependent will prove to be a crucial foundation for later cognitive learning in school (see Stoeger et al., 2013; Koch et al., 2017; Suggate et al., 2019; Suggate and Stoeger, 2018; Röbe, 2022; Suggate, 2022).

Deficits of sensory experience can potentially also have long-term consequences for physiological-neurological development (Spitzer, 2014, 2017, 2018; Koch et al., 2017; Teuchert-Noodt, 2017).

The German sociologist Hartmut Rosa in the context of his resonance theory points out the fundamental difference between a body as a ‘tool’ enabling one to experience and act upon the world directly and a body which is only indirectly or ‘symbolically’ connected to the world through a screen:

The difference between the instrumental deployment of the body and its utilization as a resource lies in the intentionality of our physical relationship to the world. When we employ the body as a tool – e.g. for transporting stones or harvesting potatoes – we relate to the world through it intentionally; the body is here part of our intentional relationship to the world. By contrast, when we sit at a computer, we need the eyes’ vision and the brain’s ability to concentrate not as elements of, but as *prerequisites* for our intentional actions; in this sense, we are not physically/intentionally related to the world. The difference is made clear by the fact that the physical demands on our body when we are at the computer or in front of a screen are always the same – regardless of whether we are working, chatting, playing a game, or surfing the internet. (Rosa, 2019, p. 104)

The implications of a dramatic reduction of both direct sensory experience and a physical intentional relation to the world are wide-ranging. Teacher education needs to take this into account and consider ways to redress such deficits. It is precisely from this perspective that I see both the need and unique potentials of including different forms of artistic experience in teacher education.

5.3 Aesthetics and the arts in teacher education

The concept of aesthesis in Greek philosophy refers to lived, embodied, felt experience; knowledge obtained through the senses. It can also be understood as the interplay of all the senses; as that which links people with sensations and feelings and fills them with consciousness—not as reflective analysis, but as a form of being involved (Rittelmeyer, 2018). In working toward a concept of the arts in teacher education, I will consider aesthesis in the specific context of artistic/aesthetic education. In his heuristic exploration of the formative relations between perception and the experience of resonance, Rittelmeyer suggests a model in which the arts in education are rooted in aesthesis:

According to this model, the development of the senses would always also be an enhancing of the resonance of mental activities, allowing the initially neutral, central registration of sensory perceptions to become accentuated, more or less affecting and enabling more nuanced judgements regarding the perception of the world. ... What influence does this have on the way we experience reality? When the body is more strongly affected, does one have the feeling of being more inwardly involved in what is seen? Do weaker inner sensory processes lead to a feeling of more coldly distanced or indifferent observation? ... I suspect that the answer to these questions could also be of considerable importance for anthropologically based didactics that strives equally to take body, soul, and spirit into consideration.... (Rittelmeyer, 2017, p. 91) (author’s translation)

Eisner’s discussion of the benefits of the arts in education also emphasizes the importance of the development of sensory perception and what this requires:

As for sensibility, the arts invite us to attend to the qualities of sound, sight, taste, and touch so that we experience them; what we are after in the arts is the ability to perceive things, not merely to recognize them. We are given permission to slow down perception, to look hard, to savor the qualities that we try, under normal conditions, to treat so efficiently that we hardly notice they are there. (Eisner, 2002, p. 5)

Eisner’s and Rittelmeyer’s views of the significance of sensory experience offer significant contributions toward a general concept of the arts in relation to the senses in teacher education. In establishing connections between non-Waldorf and Waldorf sources, it will be necessary to also examine Steiner’s understanding of the senses, which, in crucial respects, goes beyond contemporary mainstream thinking.

5.4 Rudolf Steiner’s understanding of the human senses and its pedagogical relevance

Steiner’s understanding of the range and importance of the senses plays a central role in his pedagogical anthropology and the methodology of Waldorf education (Steiner, 1996b; Lutzker, 2016b). It is rooted in Goethe’s phenomenological approach to sensory development based on Goethe’s extensive scientific studies in a wide range of areas including color theory, morphology and botany, all stemming from his conviction that through careful observation the senses provide a legitimate basis for research: “Every object well-observed opens up a new organ in us” (Goethe, 1988, p. 38) (author’s translation).

After decades of research, Steiner proposed a concept of the senses that went past the classical five senses and beyond the nine senses recognized today. He maintained that the innate human capabilities of directly perceiving and understanding the orally expressed words and the thoughts of another, as well as being able to perceive the “self” or “I” of another person, point to the existence of specific senses for perceiving language, thoughts, and the “I” of the other. In their co-occurring integration with other senses such as the senses for sight and hearing they enable us to perceive and understand others. Together with the sense of hearing, he referred to these three senses as social senses, or imaginative senses (Steiner, 1983b, 1996b; Scheurle, 1984; Lutzker, 2017).

In the context of the pedagogical anthropology upon which Waldorf education is based, one works heuristically with the hypothesis that these innate human social capabilities can be developed through corresponding forms of sensory experience. This plays a crucial role in the methodology and didactics of Waldorf education which are also strongly rooted in phenomenological experience. It is mirrored in the curriculum regarding the importance of age-appropriate subject content considered from the holistic and aesthetic perspective of sensory/affective/cognitive engagement and development. It also lies at the heart of Waldorf teacher education both in the study of didactics and methodology and in providing a basis for the role of the arts in teacher education. It is exactly this

integration that I would suggest offers a fruitful basis for a concept designed to address the challenges of our times.

5.5 The integration of artistic experience into *Bildung* and transformation (*Umbildung*)

What first distinguishes the role of artistic practice in Waldorf teacher education from other programs appears to be the differences in the amount, spectrum, and the continuity of artistic practice, along with its integration within a broader concept. Although each of these differences are significant, both the Lincoln Center Education program and the abovementioned meta study by Skau and Lindstel indicate that even a single course can have a significant effect on teachers and may provide an impetus to further pursue different forms of artistic experience on one's own (Holzer and Noppe-Grandon, 2005). In my own qualitative study of the effects of theatre clowning courses generally lasting one week, the results also showed that a single intensive artistic course could have transformative effects on participants (Lutzker, 2022). Though this is clearly not transformative practice in the deeper sense which Bollnow elucidated, its actual effects can also be seen as transformative insofar as previous attitudes toward learning and teaching appear in many cases to be fundamentally affected and changed (Illeris, 2010; Kegan, 2010).

In considering those arts-based courses offered in mainstream teacher education, there exist a broad range of approaches which make any form of generalization difficult. However, from my reading what appears to be lacking is an attempt to integrate the arts with pedagogical anthropology, subject knowledge, methodology and didactics. Although this is not the focus of Skau and Linstel's meta study, a felt dichotomy between their arts-based courses and their other studies is apparent both in the participants' initial reactions and in their reflections afterwards. In a nutshell, even in those teacher education programs in which the arts are included, the art and science of teaching appear to be completely divorced from each other.

Jörg Soetebeer considers how the potential integration of the sciences and the arts lies at the core of Waldorf teacher education:

Teacher education in Waldorf pedagogy follows the path of using science and art as a space for experiencing, practicing and shaping an encounter with the self and the world, in mutual interplay and interconnection. When made fruitful in this way, scientific and artistic activities make it possible to practice certain ways of looking at things and to develop methods of thinking and convictions based on phenomena; they also make it possible to allow the ensemble of diverse talents of the personality as a whole to become active in ways of being and acting. (Soetebeer, 2018, 123) (author's translation)

In this confluence of artistic and scientific studies, Soetebeer sees the core element lying in the individual transformative processes which he connects to the concept of *Bildung*, a German term usually translated as education, but implying more; an open developmental process which is never finished, the work of the self at being a self (Biesta, 2022). Soetebeer views *Bildung* in this context as both transformative and as providing a potentially fruitful and ongoing basis for their teaching:

As a methodological principle and goal, a transformative experience in the Goethean sense is an educational process which enables students to discover, develop and cultivate personality-specific potentials that enable them to teach. If the subject and methodological knowledge required for teaching, which is otherwise functionally oriented towards a specific subject area and provides the necessary methodological tools, is cultivated in a process of being interwoven into artistic-performative practice, being in continual exchange and interaction with other educational activities, it can be presumed to a high degree that a subject and methodological knowledge that has been developed in this way will have an intensive effect on both the person and their actions and holds the promise of successful teaching. (Soetebeer, 2018, pp. 123) (author's translation)

Soetebeer offers a holistic, integrative vision of teacher education and teaching based on connecting art and science. It corresponds to Steiner's vision of teaching as an art: "...all lessons must be derived from what is artistic. All methodology must be immersed in artistry" (Steiner, 1996a, p. 61). Viewed from the conceptual perspective which I am advancing, it will be necessary to connect this to an awareness and engagement with the rapidly changing realities of the world in which children will grow up. This will mean incorporating insights from relevant fields including educational science, sociology, child and adolescent psychology, neurology, and the arts. Undoubtedly, finding appropriate ways of addressing the role of artificial intelligence in education will also play a prominent role (Damberger, 2020; Hübner, 2023).

I am proposing that the practice of different arts can play a unique role in facing these challenges. Considering the role of sensory development in relation to artistic practice, it is evident that this does not imply instrumentalizing the arts for something else but *simultaneously enabling and deepening artistic experience itself*. At the same time, artistic/aesthetic experience can also lead to a richer and more differentiated dialogue with the world. This is a point that Gert Biesta has also made:

... art, in its differing manifestations, is an ongoing attempt at figuring out, quite literally, what it means to be in dialogue with the world. While this does not make art identical to education, it does reveal that the educational questions – how to come and remain in dialogue with the world – is also the question of art. Recognising this joint ambition provides fertile ground for an approach to art education in which artists are not turned into didacticians whose task it is to deliver objectified art, but where the educational movement appears *inside* the artistic endeavour, in such a way that art *itself* can and is allowed to teach. (Biesta, 2020, pp. 37–38) (emphases in original)

For art to be able to teach teachers in the most meaningful ways, it will be necessary to develop concepts and theories of teacher education in which arts courses are also experienced in meaningful relation to other educational courses. Considering the role of the senses and sensory development in different contexts offers an integrative basis for such a concept. Waldorf teacher education can potentially serve as an example of one way to approach this task. It is certainly not the only way and, in fact, will only profit from and be increasingly dependent on the insights and practices of others to

find ways to meet the educational challenges that we face to enable children and adolescents in Hannah Arendt's phrase "to be at home in the world" (Arendt, 1994, p. 308).

Author contributions

PL: Writing – original draft, Writing – review & editing.

Funding

The author(s) declare that no financial support was received for the research, authorship, and/or publication of this article.

References

- Anderson, L. (Ed.) (1995). "Education as art" in *International encyclopedia of teaching and teacher education* (London: Pergamon Press)
- ARD/ZDF (2023) Massenkommunikation Trends 2023. Available at: <https://www.ard-zdf-massenkommunikation.de/> (Accessed November 29, 2023).
- Arendt, H. (1994). "Understanding and politics (the difficulties of understanding)" in *Essays in understanding 1930–1954*. ed. J. Kohn (New York: Harcourt, Brace and Company), 203–327.
- Biesta, G. J. J. (2020) *Letting art teach. 2nd ed.* Arnhem: ArtEZ Press.
- Biesta, G. J. J. (2022) *World-Centered education: A view for the present*. Abington & New York: Routledge.
- Birdwhistell, R. (1970) *Kinesics and context: Essays on body motion communication*. Philadelphia: University of Pennsylvania Press.
- Bollnow, O. F. (1982) *Vom Geist des Übens [The spirit of practice]*. Freiburg: Herder.
- Cardoso-Leite, P., Buchard, A., Tissieres, I., Mussack, D., and Bavelier, D. (2021). Media use, attention, mental health and academic performance among 8 to 12 year old children. *PLoS One* 16:e0259163. doi: 10.1371/journal.pone.0259163
- Centers for Disease Control and Prevention (CDC) (2018) Lean time vs. Screen Time Infographic. Available at: <https://www.cdc.gov/nccdphp/dnpao/multimedia/infographics/getmoving.html> (Accessed November 26, 2023).
- Condon, W. S. (1970). Method of micro-analysis of sound films of behavior. *Behav. Res. Meth. Instr.* 2, 51–54. doi: 10.3758/BF03210994
- Condon, W. S. (1985). "Sound-film microanalysis: a means for correlating brain and behavior" in *Dyslexia: A neuroscientific approach to clinical evaluation*. eds. F. Duffy and N. Geschwind (Boston: Little Brown & Co)
- Condon, W. S. (1988). An analysis of behavioral organization. *Sign Lang. Stud.* 58:5588. doi: 10.1353/sls.1988.0007
- Damberger, T. (2020). "Künstliche Intelligenz und der Sinn der Pädagogik [Artificial intelligence and the meaning of pedagogy]" in *Resonanz und Lebensqualität: Weltbeziehung in Zeiten der Digitalisierung. Pädagogischen Perspektiven [Resonance and life quality: relating to the world in a digital age]*. eds. E. Hübner and L. Weiss (Opladen: Barbara Budrich), 143–172.
- Dewey, J. (1948) *Foreword to Henry Schaefer-Simmern, the unfolding of artistic activity: Its basis, processes and implications*, Berkeley CA. University of California Press.
- Dewey, J. (1980) *Art as experience*. New York: Putnam's Sons.
- Edelhäuser, F. (2019). "Die menschliche Bewegung: die Rolle des Nervensystems der "motorischen Nerven" und der Stoffwechsel-Gliedmaßen-organisation beim Wahrnehmen und Bewegen [Human movement: the role of the nervous system, the motor nerves and the metabolic and limb organization in perception and movement]" in *Zugänge zur Allgemeinen Menschenkunde Rudolf Steiners: Wissenschaftliche, künstlerische, schulpraktische Perspektiven [Approaches to Rudolf Steiner's pedagogical anthropology -the foundations of human experience: Scientific, artistic and practical teaching perspectives]*. ed. P. Lutzker and T. Zdražil (Stuttgart: Edition Waldorf)
- Edelhäuser, F. (2022) *Wahrnehmen und Bewegen: Grundlagen einer allgemeinen Bewegungslehre [Perception and movement: Foundations of a general theory of movement]*. Stuttgart: Kolhammer Verlag.
- Eisner, E. W. (2002) *The arts and the creation of mind*. New Haven: Yale University Press.
- Flitner, W. (1980) *Allgemeine Pädagogik [General pedagogy]*. Stuttgart: Klett-Cotta.
- Flitner, A. (1992) *Reform der Erziehung: Impulse aus des 20 Jahrhunderts [Education reforms: impulses from the 20th century]*. Munich: Piper
- Freunde der Erziehungskunst Rudolf Steiners (2023) Waldorf world list [Friends of Waldorf education]. Available at: <https://www.freunde-waldorf.de/en/waldorf-worldwide/waldorf-education/waldorf-world-list/> (Accessed November 26, 2023).
- Frielingsdorf, V. (2019) *Geschichte der Waldorfpädagogik: Von ihrem Ursprung bis zur Gegenwart [The history of Waldorf education from its origina to the present]*. Weinheim: Beltz.
- Goethe, J. W. (1988). "Zur Naturwissenschaft im Allgemeinen, Studie nach Spinoza [About the sciences in general: studies after Spinoza]" in *Goethes Werke*, vol. 13. ed. E. Trunz (München: Hanser)
- Goldschmidt, G. (2017). "Integrating Waldorf education principles with traditional teacher education" in *An arena for educational ideologies: Current practices in teacher education programs*. eds. M. Ben-Perez and S. Feinman-Nemser (Maryland/London: Rowman & Littlefield)
- Greene, M. (2001): *Variations on a blue guitar: The Lincoln Center institute lectures on aesthetic education*. New York: Teachers College Press.
- Greene, M., (2023) The Maxine Greene Institute. Available at: <https://maxinegreene.org/> (Accessed November 26, 2023).
- Hall, E. (1971) *The silent language*. Garden City: Anchor Press.
- Hans, U. (2018). "Sprachgestaltung in der Waldorflehrer-Ausbildung [Speech formation in Waldorf teacher education]" in *Lehrerbildung für Waldorfschulen: Erziehungskünstler werden [Teacher education for Waldorf schools: becoming a pedagogical artist]*. eds. H. Kern, T. Zdražil and W. M. Götte (Weinheim: Beltz), 182–193.
- Hausman, G. (1959) *Didaktik als Dramaturgie des Unterrichts [Didactics as dramaturgy in lessons]*. Heidelberg: Quelle & Meyer.
- Holzer, M. F., and Noppe-Grandon, S., (eds.) (2005) *Community in the Making: Lincoln Center institute, the arts and teacher education*. New York: Teachers College Press.
- Hübner, E. (2017). "Medienpädagogik und die Schulung der Wahrnehmung [Media pedagogy and the education of the senses]" in *Bedeutung und Gefährdung der Sinne im digitalen Zeitalter [The significance and endangerment of the senses in a digital age]*. eds. J. Weinzirl, P. Lutzker and P. Heusser (Würzburg: Königshausen & Neumann), 207–234.
- Hübner, E. (2019) *Education for media literacy. Media in Waldorf Education*. Brüssel: ECWSE.
- Hübner, E. (2023) *ChatGPT: symptom einer technischen Zukunft: Aufgaben der Schule im Zeitalter der Mechanisierung des Geistes [Chat GPT: a symptom of a technical future: tasks for school in an age of the mechanization of the spirit]*. Stuttgart: edition Waldorf
- Illeris, K. (2010). "A comprehensive understanding of human learning" in *Contemporary theories of learning: Learning theorists ...in their own words*. ed. K. Illeris (London & New York: Routledge), 7–20.
- International Network for Academic Steiner Teacher Education (INASTE) (2023) Available at: <https://www.inastenetwork.com> (Accessed November 22, 2023).
- Jäger, W. (1973) *Die Formung des Griechischen Menschen [The forming of the Greeks]*. 5th ed. Berlin: Walter Gruyter.
- James, W. (1899/1962) *Talks to teachers on psychology and to students on some of life's ideals*. New York: Henry Holt, Reprint, Mineola NY: Dover.
- Jeuken, M., and Lutzker, P. (2019). "Lehrerbildung für Waldorfschulen: Das waldorfpädagogische Studium" in *Studienbuch Waldorfpädagogik [A study guide to Waldorf pedagogy]*. ed. A. Wiehl (Bad Heilbrunn: Klinkhardt), 291–306.
- Kegan, R. (2010). "What form transforms? A constructive-developmental approach to transformative learning" in *Contemporary theories of learning: Learning theorists...in their own words*. ed. K. Illeris (London & New York: Routledge), 35–52.

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

- Kern, H. (2018). "Die Künste: Verwandlungskräfte in der Lehrerbildung. Den Erziehungskünstler erwecken, Persönlichkeit entwickeln [The arts: transformative effects in teacher education. Awakening the artistry of the teacher, developing the teacher's personality...]" in *Lehrerbildung für Waldorfschulen: Erziehungskünstler werden* [Teacher education for Waldorf schools: Becoming a pedagogical artist...], eds. H. Kern, T. Zdražil and W. M. Götte (Weinheim: Beltz), 144–146.
- Kiersch, J. (2008) *Freie Lehrerbildung – Eine Utopie? Die vier Entwürfe Rudolf Steiners* [Free teacher education – a utopia? Rudolf Steiners four proposals]. Stuttgart: Freies Geistesleben.
- Koch, S., Herbert, B., and Bleckmann, P. (2017). "Leiblichkeit und die Sinne im digitalen Zeitalter: Gefahren der Überreizung, Verkümmern und Inkongruenz [The body and the senses in a digital age: the dangers of overload, deterioration and incongruence]" in *Bedeutung und Gefährdung der Sinne im Digitalen Zeitalter* [The significance and endangerment of the senses in a digital age]. eds. J. Weinzirl, P. Lutzker and P. Heusser (Würzburg: Königshausen & Neumann), 101–134.
- Kozdon, B. (1984) *Didaktik als "Lehrkunst": Idee und Begründung* [Didactics as the art of teaching: Idea and rationale...]. Heilbrunn: Klinkhardt.
- Lichtenstein, E. (1970) *Der Ursprung der Pädagogik* [The origin of pedagogy]. Hannover: Hermann Schrödel.
- Lindenberg, C. (1985) *Die Lebensbedingungen des Erziehens: Von Waldorfschulen Lernen* [Creating living conditions for education: Learning from Waldorf schools]. Frankfurt: Rowohlt.
- Lutzker, P. (2012) 'Attunement and teaching,' in *Research on Steiner Education 5/ Special Issue*, pp. 65–71.
- Lutzker, P. (2016a). "The recovery of experience in foreign language learning and teaching" in *Performatives Lehren Lernen Forschen – Performative teaching learning research*. eds. M. Schewe and S. Even (Berlin: Schibri Verlag), 222–240.
- Lutzker, P. (2016b). Rudolf Steiners Hypothese eines Sprachsinns und ihre Bedeutung für den Fremdsprachenunterricht und die Fremdsprachlehrerausbildung der Waldorfschulen [Rudolf Steiners hypothesis of a sense for language and its significance for foreign language teaching and foreign language teacher education]. *Pädagogische Rundschau* 6, 695–714.
- Lutzker, P. (2017) *Der Sprachsinns: Sprachwahrnehmung als Sinnesvorgang* [The sense of language: language perception as sensory process]. 2nd ed. Stuttgart: Verlag Freies Geistesleben.
- Lutzker, P. (2018a). "Moving language: exploring relations between research on language and artistry in foreign language teaching" in *The arts in language teaching international perspectives: Performative-aesthetic-transversal*. eds. O. Mentz and M. Fleiner (Wien: Lit Verlag), 107–138.
- Lutzker, P. (2018b). "Training und Üben in der Mittel- und Oberstufe: Vergleichende Ansätze am Beispiel des Fremdsprachenunterrichts [Training and practice in the middle school and high school: comparative approaches using the example of foreign language lessons]" in *Aufbruch in die Welt: Waldorfpädagogische Grundlagen der Oberstufe mit Unterrichtsbeispielen*. ed. R. Landl (Dornach: Verlag am Goetheanum)
- Lutzker, P. (2020a). "Die Entwicklung der Sinne als Grundlage von Lebensqualität und Resonanz [The development of the senses as a basis for life quality and resonance]" in *Resonanz und Lebensqualität: Weltbeziehung in Zeiten der Digitalisierung. Pädagogischen Perspektiven* [Resonance and life quality: relating to the world in a digital age], Opladen & eds. E. Hübner and L. Weiss (Berlin & Toronto: Barbara Budrich), 234–269.
- Lutzker, P. (2020b). Teaching as an art in an age of science and technology. *Tsing Hua J. Educ. Res.* 37, 1–65. doi: 10.6869/THJER.202012_37(2).0001
- Lutzker, P. (2022). *The art of foreign language teaching: Improvisation and Drama in teacher development and language learning*. 2nd ed. Tübingen: Francke.
- Lutzker, P., and Zdražil, T. (eds.), (2019): *Zugänge zur Allgemeinen Menschenkunde Rudolf Steiners: Wissenschaftliche, künstlerische und schulpraktische Perspektiven* [Approaches to Rudolf Steiner's pedagogical anthropology – The foundations of human experience: Scientific, artistic and practical teaching perspectives]. Stuttgart: Edition Waldorf.
- Martzog, P., Kuttner, S., and Pollak, G. (2016). A comparison of Waldorf and non-Waldorf student-teachers' social-emotional competencies can arts engagement explain differences? *J. Educ. Teach.* 42, 66–79. doi: 10.1080/02607476.2015.1131365
- McAlice, J., and Boland, N. (2023) *Towards pedagogical creativity: Formative guidelines for Steiner teacher education*. Dornach, Switzerland: Pedagogical Section
- Merleau-Ponty, M. (1986) *Phenomenology of perception*. London: Routledge & Kegan.
- Moller-Skau, M., and Lindstol, F. (2022). Arts-based teaching and learning in teacher education: "crystallising" student teachers' learning outcomes through a systematic literature review. *Teach. Teach. Educ.* 109:103545. doi: 10.1016/j.tate.2021.103545
- Oberski, I., and McNally, J. (2007). Holism in teacher development: a Goethean perspective. *Teach. Teach. Educ.* 23, 935–943. doi: 10.1016/j.tate.2006.07.009
- Patzlaff, R. (2023) *Sprache die Gesundheit bewirkt: Ein pädagogischer Impuls Rudolf Steiners im Kontext moderner Entwicklungen* [Language that leads to health: A pedagogical impulse of Rudolf Steiner in the context of modern developments]. Stuttgart: Edition Waldorf
- Rawson, M. (2020a). A theory of Waldorf teacher education part 1: learning dispositions. *Res. Steiner Educ.* 11, 1–22.
- Rawson, M. (2020b). A theory of Waldorf teacher education part 2: the role of study and artistic exercise. *Res. Steiner Educ.* 11, 23–36.
- Rawson, M., and Bryden, C. (2022). Theatre clowning in L2 teacher learning: an example from Waldorf/Steiner education. *L2 J.* 14, 1–12. doi: 10.5070/L214350976
- Rideout, V., Peebles, A., Mann, S., and Robb, M. B. (2022). *Common sense census: Media use by tweens and teens, 2021*. San Francisco: Common Sense.
- Rittelmeyer, C. (2014) *Aisthesis: Zur Bedeutung von Körper-Resonanzen für die ästhetische Bildung* [Aesthesis: the significance of embodied resonance for aesthetic education]. München: Kopaed
- Rittelmeyer, C. (2017). "Vom Sinne der Sinne für die menschliche Bildung: Ein Einblick in Forschungen zur "verkörperten Erkenntnis" [From the sense of the senses for human education: considering research on embodied knowledge]" in *Bedeutung und Gefährdung der Sinne im Digitalen Zeitalter* [The significance and endangerment of the senses in a digital age]. eds. J. Weinzirl, P. Lutzker and P. Heusser (Würzburg: Königshausen & Neumann), 135–154.
- Rittelmeyer, C. (2018) *Digitale Bildung – ein Widerspruch: Erziehungswissenschaftliche Analysen der schulbezogenen Debatten* [Digital education – a contradiction: a scientific analysis of research in schools]. Oberhausen: Athena
- Röbe, E. (2022). "Frühe Kindheit im sog der Digitalisierung [Early childhood in the wake of digitalization]" in *Resonanz und Lebensqualität: Weltbeziehung in Zeiten der Digitalisierung. Pädagogischen Perspektiven* [Resonance and life quality: relating to the world in a digital age]. eds. E. Hübner and L. Weiss (Opladen: Barbara Budrich), 177–233.
- Ronner, S. (2018). "Lernen als schöpferischer Prozess am Beispiel musikalischen Übens [Learning as a creative process using the example of musical practice]" in *Lehrerbildung für Waldorfschulen: Erziehungskünstler werden* [Teacher education for Waldorf schools: Becoming a pedagogical artist]. eds. H. Kern, T. Zdražil and W. M. Götte (Weinheim: Beltz), 173–181.
- Rosa, H. (2019) *Resonance: A sociology of our relationship to the world*. Cambridge: Polity Press.
- Rugg, H. (1963) *Imagination*. New York: Harper & Row.
- Scheurle, H. J. (1984) *Die Gesamtsinnesorganisation: Überwindung der Subjekt-Objekt-Spaltung in der Sinneslehre* [The entire sensory organization: Overcoming the subject-object division in the concept of the senses]. Stuttgart & New York: Georg Thieme Verlag.
- Schiller, F. (2000) On the aesthetic education of man in a series of letters: parallel-text edition.
- Schumacher, G. (2018). "Phänomenologische Betrachtung des Plastizierens [Phenomenological observations on sculpting]" in *Lehrerbildung für Waldorfschulen: Erziehungskünstler werden* [Teacher education for Waldorf schools: Becoming a pedagogical artist]. eds. H. Kern, T. Zdražil and W. M. Götte (Weinheim: Beltz), 146–161.
- Soetebeer, J. (2018). "Bildende Erfahrung als Methodenkonzeption der Lehrerbildung [Formative experience as a methodological concept in teacher education]" in *Lehrerbildung für Waldorfschulen: Erziehungskünstler werden* [Teacher education for Waldorf schools: becoming a pedagogical artist]. eds. H. Kern, T. Zdražil and W. M. Götte (Weinheim: Beltz), 116130.
- Spitzer, M. (2014): *Digitale Demenz* [Digital dementia]. München: Droemer.
- Spitzer, M. (2017). *Cyberkrank!: Wie das digitalisierte Leben unsere Gesundheit ruiniert* [Cyber-sick: how digitalized life is ruining our health]. München: Droemer Verlag
- Spitzer, M. (2018). *Die smartphone-Epidemie: Gefahren für gesundheit, Bildung und gesellschaft* [The smartphone epidemic: Dangers for health, education and society]. Stuttgart: KlettCotta.
- Stanislawski, K. S. (1984) *Die Arbeit des Schauspielers an sich selbst* [The actor's work on himself]. 3rd ed. Berlin: Das Europäische Buch.
- Steiner, R. (1969) The inner nature of music and the experience of tone. Lecture 1, GA 283. Available at: <https://rsarchive.org/Lectures/GA283/English/AP1983/19061203p02.html>
- Steiner, R. (1983a) *Meditatively acquired knowledge of man, lecture 2*, Sussex: Steiner School Fellowship Publications.
- Steiner, R. (1983b) *Von Seelenrätseln GA 21* [Riddles of the soul]. Dornach: Rudolf Steiner Verlag.
- Steiner, R. (1994a) *Theosophy: An introduction to the spiritual processes in human life and the cosmos*. New York: Anthroposophic Press.
- Steiner, R. (1994b) *The roots of education, GA 309*. New York: Anthroposophic Press, pp. 39–52.
- Steiner, R. (1996a). "Education and art" in *Waldorf education and anthroposophy II GA304a* (New York: Anthroposophic Press), 43–62.
- Steiner, R. (1996b). *The foundations of human experience, GA 293*. New York: Anthroposophic Press.
- Stoeger, H., Suggate, S., and Ziegler, A. (2013). Identifying the causes of underachievement: a plea for the inclusion of fine motor skills. *Psychol. Test Assess. Model.* 55, 274–288.
- Suggate, S. (2022). "Die (Fein)Motorik als Resonanzphänomen zwischen form und Handlung [Nimble hands, nimble minds? The importance of fine motor skills for children's

cognitive development]” in *Resonanz und Lebensqualität: Weltbeziehung in Zeiten der Digitalisierung. Pädagogischen Perspektiven [Resonance and life quality: relating to the world in a digital age]*. eds. E. Hübner and L. Weiss (Opladen: Barbara Budrich), 270–286.

Suggate, S., Pufke, E., and Stoeger, H. (2019). Children's fine motor skills in kindergarten predict reading in grade 1. *Early Child. Res. Q.* 47, 248–258. doi: 10.1016/j.ecresq.2018.12.015

Suggate, S., and Stoeger, H. (2018). Nimble hands, nimble minds? Die Bedeutung der Feinmotorik für die kognitive Entwicklung von Kindern. *Blick in die Wissenschaft* 37, 8–11. doi: 10.5283/bidw.v27i38.88

Teuchert-Noodt, G. (2017). “Risiken einer neuroplastischen Anpassung der Wahrnehmung von Raum und von Zeit im Kontext der Medienwirksamkeit [Risks of a neuroplastic adaptation of the perception of space and time in the context of the effects of media usage...]” in *Bedeutung und Gefährdung der Sinne im Digitalen Zeitalter [The significance and endangerment of the senses in a digital age]*. eds. J. Weinzirl, P. Lutzker and P. Heusser (Würzburg: Königshausen & Neumann), 155–178.

Turkle, S. (2011). *Alone together: Why we expect more from technology and less from each other*. New York: Basic Books.

Twenge, J. (2017) *iGen: Why Today's super-connected kids are growing up less rebellious, more tolerant, less happy – and completely unprepared for adulthood*. New York: Atria Books.

von Weizsäcker, V. (1990): *Gesammelte Schriften*, vol. 3, Frankfurt a. M.: Suhrkamp.

Weinzirl, J., Lutzker, P., and Heusser, P. (eds.) (2017): *Bedeutung und Gefährdung der Sinne im Digitalen Zeitalter [The significance and endangerment of the senses in a digital age]*. Würzburg: Königshausen & Neumann.

Zdražil, T. (2017) *Anthroposophie und Pädagogik: Beiträge zur Allgemeine Menschenkunde Rudolf Steiners [Anthroposophy and pedagogy: Contributions to Rudolf Steiner's pedagogical anthropology – the foundations of human experience]*. Stuttgart: Edition Waldorf.

Zdražil, T. (2019) *The understanding of the human being in Waldorf education across the world's diverse cultures*. Stuttgart: Edition Waldorf.

Zdražil, T. (2021) *Freie Waldorfschule in Stuttgart 1919 – 1925: Rudolf Steiner – das Kollegium – die Pädagogik [The Waldorf School in Stuttgart from 1919–1925 – Rudolf Steiner – the teachers – the pedagogy]*. Stuttgart: Edition Waldorf.