



Article

'They Were Surprised That Such Jobs Even Exist...' Supporting Students' Career Awareness During Learning Activities at Museums and Environmental Education Centres

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Abstract: Many factors influence students' career awareness and future career choices. Curricula-related learning activities that entail boundary-crossing between formal and nonformal contexts, such as museums and environmental education centres, can also broaden perspectives. Out-of-school learning can unveil career trajectories, introduce professions, spark interest in new topics, and support lifelong learning. Nevertheless, it is unclear how on-site educators of museums and environmental education centres perceive or address supporting students' career awareness. We aimed to explore how Estonian on-site educators perceive the connection between curricula-related learning at their institutions and students' career awareness (namely, work-related knowledge and self-awareness). The qualitative data are drawn from two datasets: (1) 27 out-of-school educators chosen by purposeful sampling participated in focus-group interviews about their practice; (2) 43 out-of-school educators filled out open-ended online surveys on career awareness education. Qualitative content analysis was used to find meaningful patterns from the dataset. Various specific examples of work-related learning activities emerged. However, career awareness was often understood narrowly or had not been previously conceptualised: students' self-awareness was seldom explicitly perceived as part of career awareness. Moreover, supporting students' lifelong learning or the development of sustainability competencies was explicitly emphasised only by more experienced or outstanding on-site educators.



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1. Introduction

In this article, we concentrate on field trips that involve curricula-related learning activities organised by schoolteachers and guided by on-site educators at Estonian museums, libraries, environmental education centres, and science centres. Although field trips can support students' career awareness starting from the earliest stages of formal education, it is unclear how on-site educators understand supporting students' career awareness and how they incorporate career-related topics into their teaching. We aim to explore and analyse the current practice regarding work-related topics during curricula-related learning activities in different out-of-school environments and make suggestions for policy and educators' professional development.

Career awareness of children and adolescents precedes and prepares them for occupational choices. Career awareness, sometimes referred to as knowledge about career information or occupational awareness, is an umbrella term involving knowledge of various career pathways and professional alternatives that are accessible based on the individual's interests and circumstances (Savickas 2002; Wise et al. 1976). Thus, career awareness is not only about knowing about work but also about oneself. Moreover, a significant positive correlation exists between career awareness and children's self-concept or personal view of themselves (Nasir and Lin 2012). However, information processing that precedes career-related decision-making is considered somewhat under-researched (Milosheva et al.



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2021). Moreover, there is not as much empirical research available on the vocational development of children compared to adolescents and grownups (Hartung et al. 2005). Paul Hartung et al. (2005) call for a life-span approach towards career development and suggest that childhood should be seen as a ‘period of active precursory engagement’ rather than ignoring childhood as a somehow isolated or neutral period in individuals’ lives.

Career awareness is influenced by cognitive competencies such as planning, decision-making, and problem-solving (Savickas 2002). An important thing to consider is that occupations and people change over time, reflecting societal changes and situations we encounter. Thus, we do not make career-related decisions once in a lifetime, e.g., after finishing school. Predictable transitions, like transitioning from school to work, have always been a part of career development theories (e.g., Law 1999). However, career changes that are not predictable are increasingly common, and the ability to manage career transitions influences both career success and well-being (Akkermans et al. 2024).

Moreover, to encompass the diversity and fluidity of society and our lives, unpaid and voluntary activities should be considered alongside market work and constructing lives rather than careers being the focus (Richardson 2012). Thus, career awareness should not be limited to paid work but aimed at acclaiming an ‘active life’ (Guichard 2022). This idea of an ‘active life’ is directly rooted in Arendt’s ([1958] 1998) seminal concept, later reworked by Salmaso and Pombeni (1986; cf. Guichard 2022). Moreover, Richardson (2012) also states that the whole notion of ‘career choice’ is problematic because, for many, the matching process of individuals’ strengths and preferences with available occupations is inaccessible, and they must resort to whatever is available. Moreover, much of what is going on in people’s lives is relatively incidental, not bound to classrooms or curricula. Seddon (2022) stresses the situatedness and liquidity of learning and argues that ‘learning rests on interpretations of the lived-in-world’. This explains how contexts like family, school, community groups, and media influence children’s future careers (Wise et al. 1976).

1.1. Why Career Awareness Needs to Be Addressed in Formal Education

Children from families with higher socio-economic status (SES) are more likely to reach higher education than their counterparts with lower SES (Pöder et al. 2023). There tends to be a more significant gap between the occupational expectations and aspirations of children with lower SES compared to their more affluent peers (Cook et al. 1996; cf. Hartung et al. 2005). In other words, children’s expectations of their futures are more class-bound than their aspirations. Moreover, teenagers tend to hold unrealistic views on career paths; they do not understand how to obtain specific jobs, what courses they should enrol in for post-secondary education, or what the reality of these jobs is (e.g., routines and wages), and this misalignment or low career maturity tends to be greater among minorities and students with lower SES (Holland 1981; cf. Hartung et al. 2005; Schneider et al. 2017).

The occupations of students’ parents inspire their career-related aspirations, too. For example, children of engineers are more likely to pursue engineering careers than children whose parents are not engineers (Jacobs et al. 2017). Belonging to a specific minority or gender group can also limit perceived educational choices or career options (Faitar and Faitar 2013). On the other hand, SES does not strongly influence family involvement in children’s career development (Trusty et al. 1997; cf. Whiston and Keller 2004, p. 556). Thus, even families with low SES can provide a nurturing environment. This indicates that besides SES, the culture of students’ homes, schools, and community groups (i.e., the set of dynamic and evolving collective practices shaped by historical development as defined by Engeström ([1987] 2015)) plays a vital role in determining the future career trajectories of children. There is a considerable gap between students from rural backgrounds or lower socio-economic status (SES) compared with their more affluent peers regarding career aspirations (Hartung et al. 2005) and access to different cultural resources and learning environments during formal education (Greene et al. 2014). Moreover, less advantaged students have been shown to gain the most from field trip experiences (Greene et al. 2014; Whitesell 2016). Moreover, access to cultural participation, even free of charge, is uneven.

Regarding informal visits outside the school context, libraries, museums, or even public natural areas are more likely used by people with higher socio-economic status (OECD 2022). Thus, students with low SES need extra encouragement via school activities to overcome insecurities from a lack of previous experiences (Uppin and Timoštšuk 2022).

1.2. The Potential of Out-of-School Curricula-Related Learning Activities to Develop Career Awareness

Most conceptualisations of career awareness are intended for use in the career counselling of adolescents (e.g., Law 1999; Law and Watts 1977; Sampson et al. 2003; Wise et al. 1976). Accordingly, explicit career-development activities like special career courses and career counselling tend to focus on the end of lower or upper secondary school before making important career-related choices. However, supporting the career development of children and adolescents can be much more than counselling; formal education can provide career-related role models, information, and skills throughout formal schooling. Field trips to different out-of-school environments could play an essential role in bridging students' experience gap regarding knowledge about work-life. For example, teachers opt for field trips for many reasons, such as expanding the classroom curriculum, exposing students to novel experiences, and boosting their motivation (Kisiel 2005). Besides occupational knowledge, career awareness encompasses cognitive skills and self-awareness (Savickas 2002). Thus, *what* is learned and *how* it is learned are both critical. Contextual factors like curricular aims, teacher professionalism, teaching methods, school climate, and teacher–student relationships all influence students' career awareness to some extent.

Paraphrasing John Dewey ([1916] 2018), methods that prove to be the most effective in formal education are connected to our daily life outside the school and give us something to do rather than something to learn. In other words, meaningful learning experiences are likely to happen in authentic situations because learning is deeply contextual: dependent on the physical environment, culture, relations to others, and our previous experiences (Collins and Greeno 2011). Thus, it is unsurprising that field trips to various locations have always been part of formal education, especially in the constructivist tradition, from parks and museums to factories and libraries (Hein 2004; Luha 1927).

Field trips can serve both relatively broad aims regarding students' cultural participation and knowledge of the world, but they can also have a particular connection to the curriculum. For example, specific work-related field trips in vocational education are positively correlated to career maturity (Srianturi and Setyoningsih 2023), and learning gains in terms of occupational knowledge tend to be higher and more diverse in real field trips compared to virtual alternatives (Seifan et al. 2020). Learning in museums during curriculum-related learning activities can also develop students' content-specific knowledge and learning skills (DeWitt and Storksdieck 2008; Tenenbaum et al. 2015), have a positive influence on students learning motivation (Greene et al. 2014; Paris et al. 1998), support positive peer and student–teacher relationships (Uppin and Timoštšuk 2022), and inspire future careers in science (Flemming 2023; Spock 2000). Even though teachers' agendas dominate the course and outcomes of field trips (DeWitt and Storksdieck 2008), there is always an element of unpredictability in learning in out-of-school environments. This makes it difficult to measure or fully comprehend the complexity of field trip outcomes and learning gains. For example, a field trip to a hospital introduces children to various occupations and their interconnectedness but also results in lower anxiety towards hospitalisations (Beale 2000).

Structured environments of science and culture, such as museums, contain 'real life' problems rather than assignments with predictable outcomes and 'right' answers. For example, while examining the logbook of a historic icebreaker at the maritime museum, a parallel with contemporary times can emerge with the help of the on-site educator, and the theory of climate change gains practical implications. Thus, authentic environments are well suited to fostering inquiry skills essential for lifelong learning. Learning activities that aim to develop inquiry skills have successfully been implemented in museums and science

centres (e.g., [Gutwill and Allen 2012](#); [Kreuzer and Dreesmann 2017](#)), and school–museum collaborations have also been embedded in school curricula ([Coppersmith and Song 2017](#)). Moreover, whether guided ([Shaby et al. 2019](#)) or not ([Gutwill and Allen 2012](#)), structured and collaborative learning activities revolving around specific exhibits to support students' inquiry skills have shown to be very effective. However, even experienced schoolteachers struggle to support their students' collaborative problem-solving in novel settings ([Uppin and Timoštšuk 2022](#)). The latter indicates that inquiry learning or gaining any complex learning skills is not self-evident during field trips but rather the combination of skilful design of learning activities and collaboration between educators.

Authentic settings in museums enable students to test realities and role-play, too. This helps them to discover their preferences and expand career-related knowledge ([Savickas 2002](#)). Role-play is a standard method in history teaching to introduce historical periods ([Tuubel 2002](#)) and develop historical empathy ([Uppin and Timoštšuk 2019](#)). Accordingly, observing and working with or as professionals in different fields is common during learning activities at museums and environmental education centres. Unlike classroom assignments with similar learning outcomes, out-of-school experiences carry rich information about the content, routines, working conditions, special equipment used, and culture of the workplace. For example, [Paris et al. \(1998\)](#) described working with museum professionals and using museum artefacts embedded in inquiry learning in primary biology to boost students' learning motivation in science.

Moreover, many more factors determine well-being and success in work-life than adequate content-specific knowledge. There is a growing demand for flexibility and lifelong learning to overcome the changes caused by global warming, digital innovations, and demographic shifts ([OECD 2019](#); [UNESCO 2024](#)). In fact, lifelong learning, something that happens throughout the life of a person, in a wide range of contexts and variety of modalities, is considered a human right ([UNESCO 2024](#)). Moreover, societal agreements like the UN sustainability goals ([UNECE 2012](#)) and European key competencies for lifelong learning ([Council of the European Union 2018](#)) expect society, specifically schools, to deal with increasingly complex issues. These agreements are also reflected in local policy documents like curricula (e.g., [National Curriculum for Basic Schools 2011](#)) or the Estonian Educational Strategy ([Ministry of Education and Research 2021](#)). In other words, as a society, we try to prepare students in school to solve complex or even wicked societal problems throughout their future professional and personal lives. It could be argued that due to the deeply contextual nature of learning and problem-solving ([Kirsch 2009](#)), this will only be possible in collaboration with out-of-school partners. For example, teaching global citizenship benefits from locally rooted projects meaningful for specific communities ([Pérez-Ortega and González-Fuente 2024](#)), and field trips can be used to bridge schools and local communities and sustain their collaborations.

However, adding subjects to the curriculum, using slightly more student-centred methods, or analysing societal problems as case studies of the past are insufficient ways to overcome current global crises. Deconstructing the neoliberal understanding of development will be crucial in remaining within the planetary boundaries ([Boström et al. 2018](#); [Misiaszek 2023](#)). Nevertheless, schools, with their rigid social structure or 'grammar' ([Courtney and Mann 2021](#)), historically lack dialectical bottom-up approaches that consider multiple perspectives necessary for disrupting anthropocentrism ([Misiaszek 2023](#)). One possible tool to (re)consider the role of flexibility and adaptability in work-life is the framework of sustainability competencies ([Bianchi et al. 2022](#)). Sustainability competencies are skills, knowledge, and attitudes necessary to promote thinking, planning, and acting '*with empathy, and care for our planet and for public health.*' ([Bianchi et al. 2022](#)). Moreover, sustainability competencies such as critical thinking, problem framing, future thinking, and adaptability ([Bianchi et al. 2022](#)) are meant to equip children with the necessary knowledge, skills, and attitudes to manage currently unimaginable societal shifts in the future, not only to manage the changes that have already happened.

It could be argued that current global changes require transformative (Mezirow 1997) or expansive learning. According to Engeström ([1987] 2015), expansive learning emerges ‘as practitioners struggle through developmental transformations in their activity systems, moving across collective zones of proximal development’. He defines activity systems as complex, socially mediated systems where human actions are interconnected. Moreover, he expands on the term coined by Vygotsky, the ‘zone of proximal development’, that goes beyond individual learning with the help of a more knowledgeable other (Vygotsky 1978). He focuses on how groups or communities progress beyond their current capabilities by resolving contradictions and developing new forms of collective activity. Thus, developmental transformations help reorganise whole activity systems towards better outcomes in expansive learning theory. The literature on sustainability also suggests that conflicts cannot be avoided during these transformations and should be understood as part of transformative learning (Boström et al. 2018).

Thus, knowledge about occupations and work-related decision-making should face the future and be informed by large-scale societal changes intertwined with environmental problems (Guichard 2022). Moreover, work-related decision-making is also mediated by attitudes, beliefs, response tendencies, and preferences (Savickas 2002). Such dispositions are hard to change or tilt, but critically reflecting on the assumptions that underlie our thinking, i.e., transformative learning, makes it possible (Mezirow 1997). Sustainability competencies also aim to profoundly change the learners’ perspectives, question their interpretations of the world, and make them envision sustainable future scenarios (Bianchi et al. 2022).

It seems advisable to create as many situations as possible where students can reflect on the assumptions that underlie their thinking during their learning journey, as suggested by Mezirow (1997). Bridging diverse contexts and learning with different teachers throughout formal schooling is one way of obtaining new perspectives. Thus, field trips are one way to lay the foundations for students’ lifelong learning and introduce various open-access environments for learning, working, and recuperation. For example, they can open the learning potential of public spaces such as shops, historical sites, and parks; introduce workplaces and students’ surrounding community; boost cultural participation through visits to theatres, cinemas, or galleries; or acquaint students with curated cultural environments such as museums, libraries, zoos, and botanical gardens.

1.3. The Complexity of Bridging Learning Environments

However, learning in out-of-classroom settings is often more complex than learning in the familiarity and relative safety of the classroom. Inevitably, out-of-school learning activities are of varying quality and might not always follow best practices concerning meaningful learning (Griffin and Symington 1997; Kisiel 2007). Systemic factors such as governmental funding, curricula, and safety regulations determine whether students can go on field trips at all (DeWitt and Osborne 2007; DeWitt and Storksdieck 2008; Kisiel 2014). Moreover, when the basic psychological needs (autonomy, competence, and relatedness) of students in these learning experiences are unmet, students will struggle to learn (Ryan and Deci 2000).

Teacher agency also has an impact on students’ learning. Teacher agency is the potential to act influenced by personal (and temporal) capacities and contexts, cultural, structural, and material conditions, and accumulated competence (Leijen et al. 2020). For example, a teacher might know that it is beneficial for students to learn evolution with the help of a museum collection but lack the agency to organise a field trip to that museum. Agency, in this case, might be lacking due to stress, colleagues’ opinions, negative previous experiences with students’ behaviour, or lack of know-how on connecting learning in the museum with learning at school. Moreover, teachers with the agency to go on field trips and are avid users of different learning environments are a valuable resource for enhancing the practice for all and encouraging colleagues to participate in out-of-school activities (Kisiel 2014). In the context of field trips, the agency of schoolteachers and on-site educators

alike affects the results of out-of-school learning activities. For example, suppose the on-site educator prioritises student learning and has the agency to act on that thought. In that case, they will engage teachers in designing learning activities to ensure their meaningfulness.

On-site educators of museums and other similar institutions are crucial in building bridges between communities and shaping meaningful learning experiences for students (DeWitt and Osborne 2007), because unlike teachers, they have a deep understanding of the resources available at their institutions. Moreover, out-of-school environments and their experienced on-site educators can support teachers in teacher training to use in authentic teaching settings (Coddington 2020), create learning activities centred around current and real-life topics (Domenici 2022), and raise awareness of the teaching possibilities of out-of-school learning environments in general and their potential in professional development (Kisiel 2013). On-site educators generally have diverse backgrounds and career paths, regardless whether they work in Estonian museums (Uusmaa 2012), environmental education centres (Põim et al. 2012), or in out-of-school learning environments elsewhere (Bailey 2006; Tran and King 2007). This diversity also means that the understanding of effective teaching and learning can differ widely (Bevan and Xanthoudaki 2008).

The effectiveness of museum learning activities also depends on the collaboration of on-site educators and schoolteachers (Uppin and Timoštšuk 2024). Learning in out-of-school environments involves crossing the socio-cultural boundaries of communities of practice. Communities of practice are groups of people who share a common interest or passion and engage in collective learning through regular interaction (Wenger 1998). According to Akkerman and Bakker (2011), learning is inevitable during boundary activities. For example, both the teacher and their students must consider the rules of the place they are visiting (e.g., is talking with each other or asking questions from the guide prohibited?), they might have to start using language differently (e.g., what if the museum guide uses another term and set of rules for 'group work' than regularly used in the classroom?), and conduct their ordinary activities (e.g., students' collaboration on tasks) differently. Teaching and learning during such boundary activities seem to require more flexibility because the rules of multiple activity systems must always be considered.

The communication between on-site educators and schoolteachers is often mediated by boundary objects such as funding schemes, the national curriculum, and marketing forms (Uppin and Timoštšuk 2024). Interestingly, Star and Griesemer (1989) introduced the analytical concept of boundary objects precisely in the museum context to describe artefacts used by different social groups (i.e., amateur naturalists, professional biologists, etc.) to coordinate and structure their activities in complementary ways. In the context of curricula-related field trips, a primary requirement to be included in governmental funding schemes is to show clear connections between learning activities and the national curriculum. Thus, the national curriculum serves as a baseline planning document for both parties, and marketing materials guide schoolteachers in choosing learning activities (Uppin and Timoštšuk 2024). However, these documents do not explicitly emphasise the need to support students' career awareness during museum learning activities. Moreover, learning materials (worksheets, games, etc.) are, so far, a relatively underused vector of communication and coordination (Noel and Colopy 2006; Uppin and Timoštšuk 2022).

1.4. Curricula-Related Field Trips in the Estonian Context

Some contextual information is necessary to understand the importance of learning in out-of-classroom environments in Estonia. Estonian students have delivered high results in PISA (short for the *Programme for International Student Assessment of the Organization for Economic Cooperation and Development*, OECD) and demonstrated a strong growth mindset (OECD 2024). However, there is a narrowing but still relatively large gap between the results of Estonian students who learn in schools with Estonian as the language of instruction and those who learn at schools with Russian as the language of instruction (Põder et al. 2023): students with Estonian as the language of instruction have significantly better results, approximately the equivalent of one year on average. This gap is mainly explained by the

differences in socio-economic background of the respective student bodies (Põder et al. 2023). Moreover, it has been shown that the Estonian educational system is becoming less egalitarian, as socio-economic background is becoming more prominent in explaining the differences in student results (OECD 2023).

On the other hand, Estonian society generally values education and culture. For example, art, music, technology, and physical education are compulsory subjects until the end of lower secondary school (National Curriculum for Basic Schools 2011). Moreover, the Estonian government has steadily increased funding for field trips, especially for learning activities connected to science, technology, engineering, and mathematics (Uppin and Timoštšuk 2024). The increased funding for out-of-school learning activities might, in turn, enable more equal access for children to cultural institutions, even though it does not entirely erase the experience gap because of differences in teachers' agency and school culture concerning field trips and structural problems like uneven funding in different municipalities, concentrations of students with low SES in certain schools, or school location (field trips tend to be more expensive for rural schools). Moreover, funding for field trips comes from different sources. It is not coordinated between ministries and local municipalities, which might indicate that field trips are primarily understood as an effective teaching method rather than a way to grant equal opportunities.

Estonian teachers are relatively autonomous in deciding how and where to teach, and the National Curriculum encourages them to teach in diverse learning environments (Uppin et al. 2023). Estonian on-site educators work with all age groups within formal education, from age 5 to around 19 (equivalent with ISCED levels 0–3), with primary school students in their initial career-development stages being the most frequent visitors to curricula-related learning activities. However, learning in out-of-classroom environments is not even among Estonian teachers (Davõdova 2022; Kink 2013; Sirkel 2016). Thus, students can have radically different schooling experiences regarding learning across environments. Differences in teachers' agency, attitudes, beliefs, and practices regarding field trips are crucial when choosing learning environments because teaching inside the classroom is relatively easier than going on time- and energy-consuming field trips.

Moreover, teacher training in Estonia does not offer enough possibilities to conceptualise the need for nor the complexities of teaching in diverse learning environments (Uppin et al. 2023). This is illustrated by an increasing number of Estonian teachers stating that they were 'sent' on field trips by administrators rather than opting for out-of-school learning activities due to their pedagogical reasoning (Uppin and Timoštšuk 2024). Thus, sometimes, neither the schoolteachers nor their students have prepared for the specific topic booked for the group and the full potential of the learning activity is not harvested. This might be explained by increased funding opportunities for schools to go on field trips, an increasing number of unqualified teachers joining the workforce recently, and a general lack of qualified teachers (Kaarlõp 2021).

However, outstanding Estonian on-site educators tend to have training in education and often also working experience as teachers; they also perceive themselves as partners for teachers and find it essential to participate in shaping Estonian educational policy (Uppin and Timoštšuk 2024). Besides teaching curricula-related content knowledge, they emphasise the importance of 'widening students' horizons', supporting science-based thinking and lifelong learning skills, and enforcing closer contact with nature or culture. Recognising the broader value of field trips and their potential to support students' lifelong learning seems to influence schoolteachers' practice regarding field trips, too. For example, teachers who go on field trips often may willingly understand the unequal opportunities of the families and emphasise the need to provide eye-opening and enriching out-of-school experiences accessible to all their students (Uppin and Timoštšuk 2022).

Moreover, learning is described as a lifelong process in the National Curriculum for Basic Schools (2011) of Estonia and 'career-planning and lifelong learning' are among the leading topics in the curriculum. Thus, those topics should be covered across different subjects from the beginning of primary school to the end of high school, including during

curricula-related learning activities at museums and other similar institutions. However, Estonia is known for its relatively high teacher autonomy (Tire 2021). Although teachers do not always perceive or practice that autonomy (Erss et al. 2016), the autonomy granted to teachers and on-site educators by the state to choose how they integrate leading topics with content learning and the vagueness of how career-related topics are described in the curriculum makes it difficult to follow whether students' career awareness, in general, is supported during lessons throughout their formal schooling or specifically during curricula-related field trips.

Our aim is to explore how Estonian on-site educators perceive supporting career awareness and how they implement career-related topics into learning activities. Therefore, we posed two research questions:

1. How do on-site educators perceive the connection between curricula-related learning activities and students' career awareness?
2. How do on-site educators address career awareness during learning activities at museums and environmental education centres?

2. Methods

We set out to understand the practice and perceptions of Estonian on-site educators about career awareness in the context of curricula-related learning activities for students. Thus, we needed to approach the broad population of Estonian on-site educators who work in a broad spectrum of cultural and scientific organisations such as museums, archives, libraries, environmental education centres, science centres, botanical gardens, and zoos. Some of these belong to the private sector and most are governed by the state. More than 200 organisations provide curricula-related learning activities to school groups that can be considered part of compulsory formal education. However, we do not know how many educators work there: many on-site educators are contracted seasonally or work part-time, many do not have standardised professional titles, the number of educators in one organisation varies from one to more than 20, and no central body collects such data. However, we can estimate that Estonia has over three hundred on-site educators.

We designed our study in three steps (see Figure 1). In the first step, we explored the practice of experienced and distinguished on-site educators from very different organisation types, sizes, and geographical regions of Estonia. Purposeful sampling enabled us to study information-rich cases and collect rich data (Emmel 2013) to understand the practice of skilful on-site educators and the organisations where they work. In the second step, we aimed for maximum variation (Emmel 2013) to illuminate the perceptions and practice of on-site educators concerning supporting career awareness by all members of the community of practice. In the third step, we analysed the results iteratively. Qualitative content analysis was used to find meaningful patterns from the data, flexibly combine different datasets, and reduce data (Schreier 2013).

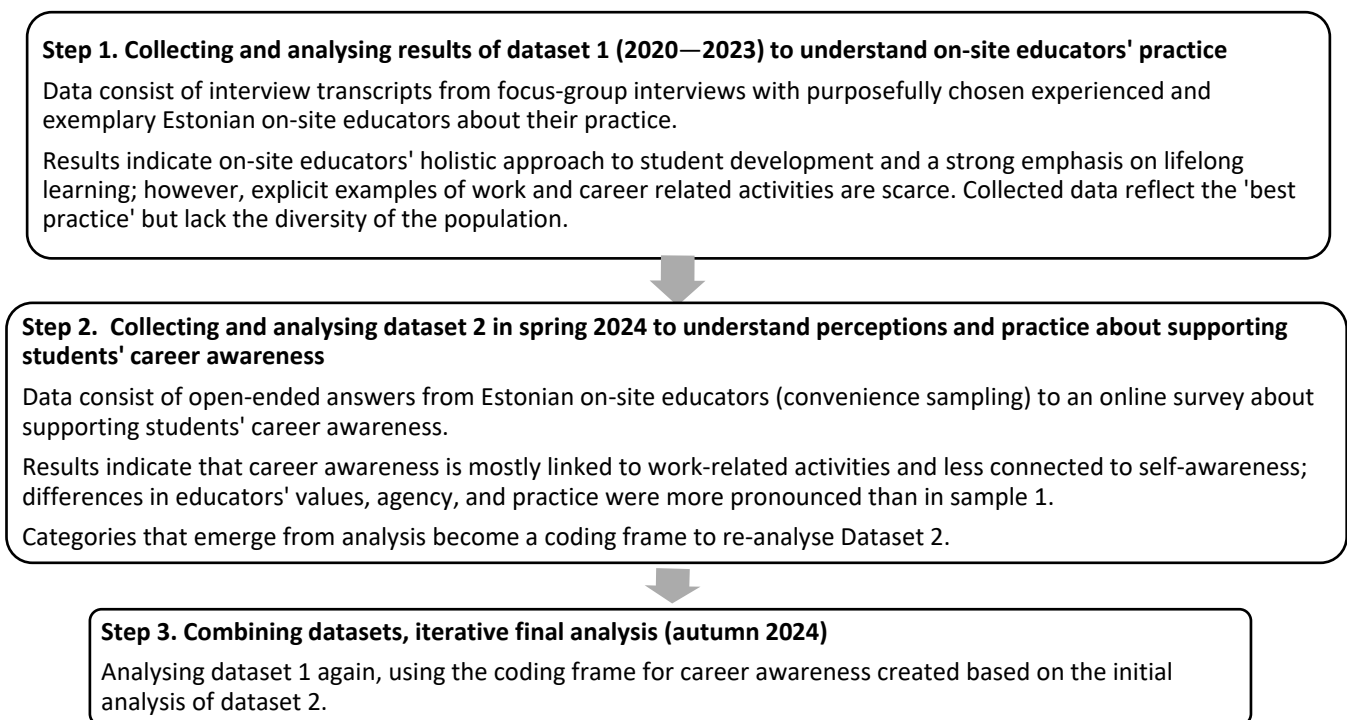


Figure 1. Design of the study.

2.1. First Step: Focus-Group Interviews with Experts

2.1.1. Sampling for First Step

Twenty-seven purposefully chosen educators from outstanding providers of curricula-related out-of-school learning activities participated in focus-group interviews about their practice as on-site educators. Expert opinions collected through individual consultations with ministry experts (4) and long-standing members of the on-site educators' community (4) chosen through snowball sampling were incorporated when compiling the sample. Ministry representatives had access to some visitor statistics that were otherwise not open for public use. However, the visitor numbers alone are insufficient to determine the expertise of on-site educators. For example, comparing locally relevant but small enterprises with large and well-established organisations is challenging.

Eighty different organisations and their on-site educators were mentioned, and an initial sample of 32 organisations and their on-site educators (30 female, 2 male) who had been suggested by at least two experts and who had local importance were approached. However, 5 educators could not participate in the interviews. All interviews were held in the Estonian language. All interviewees were female. A slightly higher rate of males would have been expected, because in previous studies around 7% of museum educators ([Uusmaa 2012](#)) and 13% of on-site educators from centres of environmental education ([Põim et al. 2012](#)) have been male. Three participants mainly worked with students with Russian as their language of instruction.

2.1.2. Methods of Data Collection for the First Step

Altogether, 7 digital (via video call) focus-group interviews were held during the COVID-19 pandemic at the end of May 2020, each interview lasting 2–3 hours. There were 3–6 on-site educators in each group. Groups were compiled to ensure maximum diversity in terms of geographic regions, types of organisations (for example, museums vs. centres of environmental education), or ownership (private vs. governmental) ([Morgan and Hoffman 2018](#)). This was done to help participants notice seemingly ordinary details in their work that might differ in slightly different organisations. Semi-structured focus-group interviews were selected to enable participants to exchange ideas and collect as much rich

data as possible (Morgan and Hoffman 2018). The breakdown of the organisation types where participants work is given in Table 1. The interviews were structured around the core concepts of Etienne Wenger's (1998) theory of social learning: practice, community, meaning, and identity.

Table 1. Types of organisations where on-site educators participating in this study work.

Where Participants Work	Sample 1	Sample 2
Museums	17	24
Centres of environmental education	7	12
Science centres	1	1
Libraries	1	5
Archives	1	-
Unspecified	-	1
Total number of participants	27	43

2.1.3. Data Analysis for the First Step

We began the analysis by thoroughly examining the data and assigning codes to excerpts from the interview transcripts that described either a 'best practice' or 'value of the work'. This enabled us to limit the amount of data and understand broader assumptions behind experienced educators' practice. An article analysing the general practice of Estonian on-site educators' practice has already been published based on this dataset (Uppin and Timoštšuk 2024). However, the extensive material gathered included aspects (i.e., best practice when it comes to student's learning activities, as perceived by the on-site educators) that have not been published. Moreover, although the first dataset was rich in explaining the principles that guide the practice of experienced on-site educators, it did not provide enough explicit examples of addressing career awareness. Thus, a complementary study was designed to extract more meaning from the first dataset and add concrete examples from educators' practice.

2.2. Second Step: Open-Ended Online Survey for On-Site Educators (Sample 2, Dataset 2)

2.2.1. Sampling for the Second Step

The second dataset consists of the answers from 43 respondents who participated in an anonymous online survey with open-ended questions in early 2024. The survey was distributed in professional mailing lists and social media groups of on-site educators of museums and centres of environmental education. For anonymity and a maximum range of opinions, we did not ask any more specifying questions such as those about their gender, ethnicity, educational background, or age. We wanted the survey to be perceived as a safe space to share any kind of opinions, not only 'correct answers', to minimise the social desirability response bias. Another reason for a relatively simple survey was the ethical consideration of anonymity. As one of the authors is also a member of the on-site educators' community, the descriptive nature of the answers, coupled with detailed background information, would have made it relatively easy for the authors to recognise the people behind the answers. Indeed, the survey provided us with very different and open opinions.

2.2.2. Methods of Data Collection for the Second Step

The anonymous online survey focused on supporting students' career awareness, and was open for responses for one month. The survey had three open ended questions. First, we asked the on-site educators in the online survey how they perceived connections between learning in museums or centres of environmental education and students' career choices. Secondly, we asked how they had implemented career-related topics during their curricula-related learning activities. Thirdly, there was an open comment box. We specified

the types of organisations they work at (see Table 1) and their work experience as on-site educators, too. Participants could leave their e-mail addresses if they wished to be informed of the results; many did.

In the survey, the Estonian term ‘career choice’ (*elukutsevalik*, which directly translates as ‘choice of life’s calling’) was used because it is a broader and more common term in the Estonian language than ‘career awareness’. Moreover, as explained before, career choice results from career awareness, and most respondents went above and beyond any specific definitions, especially as this was encouraged in the cover letter accompanying the survey.

2.2.3. Data Analysis for the Second Step

To answer the first question, we used inductive analysis to describe and analyse whether or how on-site educators perceive the connection between their work and students’ career awareness. We found three main categories. We used a simple coding frame for the second question with pre-defined theory-based categories of ‘developing knowledge about occupations’ and ‘supporting self-awareness’ to organise the data. In many instances, the respondents shared their ideas of the ‘ideal state’ or what they think should be done mixed with what they have done in their practice; we coded such excerpts under specific work-related sub-categories only when the examples were explicitly about their practice. However, these general ideas shared under ‘implementing career-related topics’ were sometimes used to illustrate educators’ justifications for the first research question.

2.3. Third Step: Iterative Analysis

We used categories formed in the analysis of the second dataset to analyse the excerpts chosen from the first dataset as a coding frame to find career-related justifications for field trips and find evidence for addressing career awareness in practice from the first dataset. In this manner, we coded 32 excerpts to the categories for the first research questions and 22 for the second from the first dataset. All explicit examples of ‘developing knowledge about occupations’ were still from dataset 2, but excerpts coded as ‘supporting self-awareness’ were also prevalent in dataset 1. Moreover, we coded ‘supporting self-awareness’ only when explicitly stated as an example from practice or the connection between a specific activity or a methodological choice and students’ self-awareness was explained. Nevertheless, there were few explicit examples of supporting self-awareness in neither of the datasets. Using two datasets proved useful in this step, because as there was no shared conceptualisation of ‘career awareness’ among educators, the first dataset granted us insight into practice without educators trying to label their thoughts or experiences as supporting career awareness or not.

Throughout both datasets, the respondents shared their ideas of the ‘ideal state’ or what they think should be done mixed with what they have done in their practice; we coded such excerpts under specific work-related sub-categories only when the examples were explicitly about their practice (using language like ‘I have done’ or ‘in my experience’ or sharing detailed and concrete examples). However, these general ideas were sometimes used to illustrate educators’ justifications for the first research question about the connections between curricula-related learning activities and students’ career awareness.

Using two sets of data enabled limited data triangulation (Carter et al. 2014; Patton 1999) and enhanced data richness and depth of inquiry by combining individual survey answers and focus-group interviews (Lambert and Loiselle 2008). Two ways of collecting data (interviews vs. open-ended surveys) enabled method triangulation (Carter et al. 2014; Patton 1999). Excerpts from teachers of the first dataset are marked with letters (Educator A, B, etc.) and the second dataset with numbers (Educator 1, 2, etc.). To ensure trustworthiness, both authors transcribed and analysed the interviews and survey results.

3. Results

3.1. How Do On-Site Educators Perceive the Connection Between Curricula-Related Learning Activities and Students' Career Awareness?

The respondents in the second dataset did not perceive a clear connection or were somewhat apprehensive about a clear connection between curricula-related learning activities at their organisations and students' career awareness. We also identified three broad strands of explanations for perceiving learning in out-of-school locations as beneficial for career awareness: supporting lifelong learning, sharing specific occupational information, and supporting students' individual interests. These categories were often presented as intertwined by the participants. The evidence from the first dataset helped to expand and illustrate these categories. However, as it was not explicitly asked, the respondents did not use words or phrases connected to careers when sharing their ideas about lifelong learning or individualising.

3.1.1. Little Connection Between Career Awareness and Field Trips

Eight educators out of 43 participants stated that visits to museums of environmental education centres do not influence students' career awareness or choices. Educators in this group generally explained their reasoning through their personal experience in the field (see Educator 14 in Table 2). However, some respondents from this group provided specific examples of work-related activities from their experience, which might indicate that they either have a very specific understanding of what type of activities support career awareness and choice or they had not previously conceptualised career awareness at all and only started thinking about it during the survey:

'I haven't directly thought about guiding students in their career choices. We have many museum lessons that I haven't conducted yet, but I'm sure we have some lessons where career choice topics might come up indirectly (e.g., a student might find it to be an interesting profession or realise they've never thought about it before).' (Educator 11)

Another seven educators were unsure or said that such learning activities might influence students' career awareness only under some circumstances and to some extent. Some of them recognised the potential of their work in terms of values education and broadening students' worldviews but saw it only as an indirect influence on career development. One educator explicitly stated that they work with such young children that this topic is unimportant, acknowledging the potential to support career awareness in older grades. This is in line with Hartung et al.'s (2005) notion of society's tendency to ignore childhood in terms of career development.

It might be argued that the apprehensiveness of some of the participants stemmed from systemic work and long experience with students' career awareness. This allowed them to see the depth of possibilities in the field and, thus, critically assess whether the potential of out-of-school encounters is always fulfilled and whether all out-of-school learning experiences should be focused on career-related topics. For example, Educator 9 states that museums or environmental education centres influence students' career awareness only to some extent but then continues to describe lecture series designed to introduce science and scientists to students: *'The feedback at the time from many students (through a few very dedicated teachers) was that they were surprised that such fields and professions exist, and they were glad to hear about them because they couldn't see other places where they might hear about this.'*

Table 2. Categories and sub-categories for the second research question and examples from dataset 2.

Categories of Career Awareness	Sub-Categories and Examples from Dataset 2 (No of Respondents)
Self-awareness (22 examples from dataset 1; 12 examples from dataset 2)	<i>‘We are currently focusing all our educational programs on teaching future skills, with a strong emphasis on collaboration. The entire learning day is essentially divided into teams to teach them to notice the person next to them, communicate face-to-face with others, and perhaps express their opinions at the right time and in the right way.’ (Educator A)</i>
Career awareness (all examples from dataset 2)	(1) No information or not implemented (8 respondents). <i>‘Activity led by me does not support career choices in any way; it is simply an introduction to the topic’ (Educator 14)</i>
	(2) Random, unclear, or unplanned mentioning (7 respondents). <i>‘I haven’t specifically [covered career topics], but I have indirectly mentioned what, for example, scientists do.’ (Educator 27)</i>
	(3) Introducing, explaining, and discussing occupations and educational paths leading to them. (26 respondents). - Introducing occupations, occupational knowledge, and educational paths related to the field; <i>‘In our previous permanent exhibition, we even had an educational program called ‘Objects and Occupations’, which introduced a very narrow selection of professions [to small children]—shopkeeper, postman, seamstress, photographer.’ (Educator 18)</i> - Comparing historical characters or occupations with modern occupations; <i>‘[introduce the work of] Bricklayer/builder as an example of building the Tallinn city wall in the past and renovation in the present. Comparison of the time and method of learning the profession in the Middle Ages/now. Soldier/military, goldsmith/jeweller, pharmacist/doctor, etc.’ (Educator 8)</i> - Discussing the importance of specific skills or jobs. <i>‘When discussing the topic of water (both sea and rivers), I raise the question of why we need these [professions], who benefits from them, and what professions are connected to all of this.’ (Educator 21)</i>
	(4) Practising work-related skills (12 respondents). <i>‘Conducting various environmental monitoring activities—the work of environmental specialists and scientists and what it entails—specific fieldwork, sample collection, and subsequent analysis, etc.’ (Educator 15)</i>
	(5) Systemic career-related approaches such as courses, conferences, learning materials, and special interest clubs (5 respondents). <i>‘The museum has hosted elective course internships for high school students. The museum has also trained student guides who have worked as guides in the exhibitions.’ (Educator 40)</i>

3.1.2. Supporting Career Awareness as Supporting Lifelong Learning

Teachers who believed learning in museums or environmental education centres is connected to students’ career awareness described the connections through three main categories. The first category can be described as supporting lifelong learning. This group of explanations contained ideas that learning in museums or environmental education centres creates impulses for future choices and supports general competencies necessary for lifelong learning. The descriptions of supporting lifelong learning connect to and mix the cognitive competencies (i.e., planning and problem-solving) and dispositions (i.e., students’ beliefs and preferences) of career development highlighted by Savickas (2002). Many educators shared similar ideas as this one:

‘Maintaining curiosity, cultivating empathy, instilling a love for learning, and fostering the courage to experience. This way, we create a foundation for the child to be bold and successful in pursuing a field that resonates with them in the future.’
(Educator 18)

3.1.3. Supporting Career Awareness as Sharing Occupational Information and Practicing Work-Related Skills

The second and most prevalent category was sharing specific occupational information and practising work-related skills. Some respondents used practical examples from their work rather than pedagogical reasoning to justify the connection between career awareness and out-of-school learning activities. For example, Educator 37 stated: *‘I use the role-play method in museum lessons to introduce different professions.’* This group of explanations raises

awareness of aspects that broadly align with occupational knowledge as described by Wise et al. (1976), such as routines, requisites, and returns of work. The examples illustrating it are analysed in depth regarding the second research question.

3.1.4. Supporting Career Awareness as Supporting Students' Individual Interests

The third and least-mentioned group of explanations concentrated on supporting students' individual interests or self-awareness, allowing students to discover and unravel something unique about and for themselves. For example, Educator 34, who was the only educator to connect careers to environmental crises explicitly, explained how they introduce modern fields of research through students' personal preferences:

'I talked about the current trends in technology development. In microbiology and genetics. The green transition and the upcoming food crisis also create opportunities for new professions. Physical research in the human body is an option if you are interested in health but are afraid of blood and don't want to interact much with people.' (Educator 34)

An excerpt from an experienced Teacher B from the first dataset illustrates how the individualising and individuality of groups and students is seen as a creative component in educators' practice:

'I think that, since we don't know the classes that will visit us, these activities should be varied and diverse so that the learners can derive meaning, and we could also offer a bit of a challenge. At the same time, within the tasks, we shouldn't assume that students must have specific prior knowledge in order to solve them. Sometimes, it's so interesting to see that even if you give them the exact same task, in the end, the classes turn out very, very different. I also find that it's much more interesting for the facilitator this way.' (Educator B)

A few respondents could not provide specific examples from their work but still believed it impacts students' career awareness. Also, quite a few stated that they had not 'explicitly' covered work-related topics but continued to share rather detailed examples from their practice that illustrated doing just so.

'I don't [support career awareness] directly. I do talk about medieval professions, the types of work that were done, how one became a master, etc., but these are not specifically aimed at guiding career choices. Or, if anything, they serve to make younger students aware of different fields of life.' (Educator 17)

The previous excerpt illustrates how the educator seems to believe that when their intention was not to indoctrinate students into specific jobs, it did not support their career awareness. Statements like these illustrate that supporting career awareness is understood in many ways, some rather narrow. For example, excluding 'too young' students or activities that are not explicitly indoctrinating students.

3.2. How Do On-Site Educators Address Career Awareness During Learning Activities at Museums and Environmental Education Centres?

Based on the literature about career development, we looked for examples of work-related knowledge and self-awareness when analysing educators' descriptions of supporting career awareness and choice. However, seven educators in the second dataset did not provide any examples of activities that could support career awareness or choice. There was rich data in dataset 2 to illustrate the occupational knowledge category. Thus, we organised these into sub-categories based on the focus of excerpts (see Table 2 for the sub-categories and respective examples) to illustrate the diversity of work-related learning activities. However, there were few explicit examples for the self-awareness category, as it is probably not always conceived as part of career awareness. Moreover, some examples in other categories might also support students' self-awareness, but the educators did not frame them as such.

3.2.1. Examples of Work-Related Knowledge

The examples of work-related knowledge given were diverse. Most participants in the second dataset made specific examples about supporting students' career awareness during their learning activities. We uncovered a continuum of activities ranging from coincidental approaches to specific work-related tasks or systemic approaches to raise career awareness in general. We do not intend to claim that these different types of activities are evolutionary in terms of the professional development of the educators or descriptive of the general quality of the learning activities offered by these educators. Moreover, the activities described below overlap and intertwine (e.g., an educator can use specific and authentic work-related tasks in one workshop and only mention an occupation in another learning activity). However, the respondents who described more complex, detailed, and systemic activities tended to view learning in a broader sense and were more likely to have conceptualised career awareness in their practice.

3.2.2. Random or Unplanned Mentioning

A group of educators mainly made generic or ambiguous examples of career-related activities, such as mentioning professions or 'sometimes' introducing specific topics. Teacher 37 bluntly stated that they only sometimes use work as a joke to deal with smart and outspoken children: *'Sometimes, I've jokingly said to a particularly active or know-it-all student, 'You're so smart, you could take over my job'.* Meanwhile, Educator 33 makes more work-related yet still rather teacher-centred and general examples:

'(I have) mentioned how various tools that children will use in the learning activity are used in their work by, for example, scientists, biologists, doctors, and so on; briefly introduced the profession of a mycologist in connection with the program.'

There was some indication that novices, or those whose main job in their museum is not teaching, tend to be opaque, describing the learning activities they lead, using phrases like 'mentioning' or 'describing' professions, compared with those with more extended working experience.

3.2.3. Introducing, Explaining, and Discussing

Some participants shared examples of introducing, explaining, or discussing work-related topics. This sub-category introduced role models, specific jobs, and career paths related to particular occupations or fields of study, compared historical characters or occupations with modern occupations, and discussed the importance of specific skills or jobs for society. Many examples stood out due to the teacher-centred framing of the explanations. However, we do not have enough information in most cases to determine the pedagogical approaches behind the short answers given to us.

One of the most prevalent approaches in this sub-category was using modern role models or historical figures to describe certain professions and their career paths. For museum educators, historical figures and their occupations compared to modern professions was the most common method mentioned. For museums dedicated to writers, artists, or other famous historical figures, the comparisons with modern equivalents are rather organic:

'As part of the program, we will discuss the career and choices of [a writer] as a freelance creative over 100 years ago, compared to the life of freelancers today. The work of a journalist and a writer will be described.' (Educator 3)

Role models also included professionals from respective museums and environmental education centres, including themselves. Some educators emphasised the cultural and societal importance of jobs in the military and politics, using occupational role models: *'In one museum lesson, we talk about what professions are possible for those who wish to defend their country.'* (Educator 11). Some educators seemed to use different occupations to explain the complexity of specific fields:

‘For example, regarding the forest theme—who takes care of the forest, who manages it, who protects it, who processes it, what can be made from wood, what skills are needed... the extent and specific content depend on the narrower topic and age group.’ (Educator 21)

The example of Educator 21 also illustrates how studying jobs in one field (forestry in this case) can help to see the contrasting perspectives in society.

3.2.4. Practising Work-Related Skills

Twelve educators from the second dataset described more specific work-related *methods*. These were mainly connected to specific occupations represented in the organisation (such as conservators or taxidermists in museums and librarians in the library) or closely connected to the topic of the activity (such as forest conservation and management). Even though experienced educators from environmental education centres of the first dataset emphasised bringing children together with nature and somehow dealing with the environmental crisis, the descriptions of work-related activities were mostly technical and descriptive.

‘In the forest program, [we do] calculating the wood reserve, using the ecological properties of the community and natural resources by humans in various fields (tourism, foraging, wood harvesting, etc.). Water reserves and quality—the professions and authorities involved in managing them.’ (Educator 31)

Well-equipped environmental education centres enable students to practice methods and illustrate topics that otherwise would remain theoretical in the schools’ classrooms. Technology is expensive and smaller rural schools often lack trained teachers in natural sciences. Educator 43 highlighted the material resources and expertise necessary to teach and inspire students in microbiology and astronomy.

‘Schools unfortunately have poor access to educational tools, particularly in biology, where microscopes could be used in almost every lesson to examine something interesting. However, most classes can only examine specimens once the teacher has arranged time for a learning activity [in the environmental education centre].’ (Educator 43)

Some methods were playful, and many used role-play to get acquainted with specific jobs. For example, Educator 29 described an elaborate ‘detective game’ in the library where students playfully learn how to find specific books or what qualities are necessary for this work. Educator 4 explains how they use role-play to introduce historical and modern professions: *‘I introduced professions related to the field, both historical and modern. For example, [at the museum], students can take on the roles of a pathologist, lab technician, or criminal investigator in different programs.’* In other cases, a more realistic work-like scenario or specific work-related tasks were used to illustrate theory about some topics. For example, the work of scientists is often illustrated with practical tasks: *‘Conducting various environmental monitoring activities—the work of environmental specialists and scientists and what it entails, such as specific fieldwork, sample collection, and subsequent analysis, etc.’ (Educator 15).*

It should be noted that practical work-related tasks usually neglect the administrative tasks or day-to-day hustling behind endless Excel sheets of most modern jobs. Understandably, there is not enough time during an out-of-school learning activity, nor is there much inspiration in the tedious paperwork of environmentalists, countless hours spent in archives deciphering someone’s handwriting by historians, or excessive replications of experiments in lab work. However, ‘cherry-picking’ the most exciting activities might not help to achieve alignment with the realities of work, even if it raises awareness and interest in jobs never heard of or thought about by students before. On the other hand, the enjoyment and heightened motivation often experienced in museum education (Csikszentmihalyi and Hermanson 1995; Martin et al. 2016; Paris et al. 1998) can still be first steps towards getting to know a specific field at a deeper level.

3.2.5. Systemic Approaches

We distinguished exemplary practices of systematically collaborating with other organisations, schools, teachers, and students to raise awareness of specific careers or fields. Five educators in the second dataset who shared systemic approaches made numerous examples. For example, if a museum had special learning activities to introduce occupations, they might also organise lecture evenings or publish learning materials. Thus, it seems that when educators have a broader stance on students' development, they create more opportunities for students and notice connections from their current practices. Student conferences, clubs, and other career events were also mentioned. Educator 23 shared an openness to special requests, which also indicates an acknowledgement of collaborations with teachers and the professional growth that comes with it:

'We have programs that introduce museum work, the work of an archaeologist, and the work of a conservator. Additionally, we have always accommodated special requests [from teachers], such as those from vocational schools, where they inform us that students are training to be, for example, hairdressers and want to focus on hairstyles throughout history, or chefs, gardeners, economics students, etc. We have always been willing to adapt our exhibitions to their interests, even though it requires extra work and time. It's also interesting for us to look at things from a new perspective.'

One notable example was organising a student conference to raise awareness about the importance of humanities for the Estonian state and society, raise the popularity of the humanities, and attract students' interest in studying in the field in higher education and pursue careers in related scientific fields (e.g., history). Additionally, the museum had clear goals in terms of supporting careers in humanities:

'The broader goal is not only to shape young humanities scholars but also to cultivate citizens and young politicians who value culture and education. The museum has hosted elective course internships for high school students. Additionally, the museum has trained student guides who have worked as guides for exhibitions.' (Educator 40)

Considering the short-lived nature of most boundary-crossing encounters between on-site educators and schoolteachers, different boundary objects become essential tools to deepen and elongate connections. As the state already provides funding schemes and national curricula, learning materials, courses, and other systemic approaches mentioned above are potential ways of building pedagogical bridges between organisations. This is useful especially considering that implementing broad topics such as career awareness or sustainability competencies can be challenging for schoolteachers, too.

3.2.6. Examples of Addressing Self-Awareness

Supporting the self-awareness or individuality of students was much less emphasised by participants than work-related knowledge. The educators of the first dataset emphasised differences in group dynamics, situational factors like weather, hunger, or mood, and the importance of having background information about the group regarding special needs, classroom curricula, or daily schedule. They firmly believed that it is necessary to adapt to group needs to engage students and support meaningful learning. However, students' individuality was primarily mentioned in the context of problematic behaviour or learning disabilities. The second dataset provided only a few explicit examples of addressing students' self-awareness. It might be that on-site educators do not recognise self-awareness as part of career awareness or perceive supporting career awareness in a more specific and narrow way. On the other hand, it is also possible that due to on-site educators and students' brief encounters, it is difficult to individualise learning content (see, for example, [Kisiel 2014](#)), let alone in a specific career-oriented direction.

However, a few examples concentrated on supporting or helping students uncover their interests. These ranged from specific (like Educator 23 in last chapter) to broad statements like the following: *'to encourage them to think about what they want in their lives more broadly, beyond just preparing for a specific profession.'* (Educator 12). Introducing historical

figures as role models was also used to support individual students' interests: *'With my (literature-themed) programs, I primarily provide direction to young people who wish to connect their future with literature.'* (Educator 6)

Another way of explaining how students' individuality can be addressed was by emphasising the role of the museum educator as a kind and inspiring human being and role model. Such answers presented a sort of alternative setting for schools or a rest from the possible context for students, even contradicting school culture that was perceived as hierarchical and cold.

'A museum, or any other place where you are welcomed kindly, treated as an equal partner, knowledge is shared, recognition is given, not criticized for wrong answers, noticed [as a person], etc. In short, the people in our lives at different stages are incredibly important. And a museum can be one of the places where a young person meets someone wonderful who subtly supports and influences their career choice. This choice may not necessarily be museum work but could be another field entirely. For example, a career choice might be influenced by an interesting exhibit that leaves a lasting impression and inspires the young person in the future. But the prerequisite for all of this is a friendly reception.' (Educator 35)

The excerpt from Educator 35 demonstrates a deeply humanistic approach to education aiming for lifelong learning and a fulfilling life.

4. Discussion

We did not explicitly ask our respondents to define career awareness or development. Despite the lack of consensus among Estonian on-site educators on what 'career awareness' is, the meanings extracted from data analysis enable us to bring out core components understood as related to career awareness: supporting lifelong learning, students' individuality, and sharing information related to work and occupations. Supporting students' individuality partly overlaps with the notion of supporting self-awareness as described in the literature review, although as explained earlier, the evidence for self-awareness was rather scarce and opaque. Thus, supporting self-awareness seems to be the least understood and addressed aspect of students' career awareness.

Moreover, having a common ground in what we mean when discussing career development and awareness seems an essential step forward. This is especially considering that in a few cases, educators believed that primary school children are too young for career awareness-related activities or that only directly promoting specific jobs 'counts' as supporting career awareness. The question of how to support the professional development of on-site educators regarding students' career awareness and its implications remains open for future researchers. However, nurturing collaborations between educators and supporting the agency of the on-site educators seems essential. Moreover, considering the dwindling number of teachers and the influx of unqualified teachers in Estonia (Karlõp 2021), the role of experienced and exemplary on-site educators as mentors for schoolteachers should not be overlooked in teacher training.

However, due to the small amount of contextual data in our samples, we remain cautious about making solid conclusions regarding background characteristics' effect on the teaching quality of on-site educators, especially considering that teachers generally struggle to explain their pedagogical decision-making (Kansanen 1995). Nevertheless, we could see that the answers regarding pedagogical decision-making from the first dataset were more consistent than in the second dataset. On-site educators with longer teaching experience in the second dataset were also likelier to make specific examples of implementing career awareness in engaging and systematic ways. By contrast, on-site educators with little teaching experience or educators whose job was not the main work in their institution only stated that they sometimes 'mention' or 'talk about' some occupations and usually did not mention self-awareness in a career context. The differences between datasets illustrate the importance of purposeful sampling for the best practice (Kisiel 2014) and not disregarding the field's maximum diversity.

Overall, learning activities at museums and environmental education centres proved to be perceived as more than just a method to gain optimal learning by the on-site educators. Many respondents described a deep understanding of effective and meaningful learning, demonstrating the educative power of field trips to learn new content knowledge. Many Estonian on-site educators seem to believe that exposing students to different settings helps them lead a fulfilling life in the most profound sense, meaningfully participating in their communities. Moreover, serving the community, doing deeply meaningful work, and practising firmly held values are essential components of fulfilling work (Allan et al. 2019).

4.1. *The Underused Potential of Collaborations*

Most educators in the purposefully chosen first dataset stressed the important role of accompanying schoolteachers in terms of students' readiness to learn in out-of-school environments. This strongly aligns with previous research stating the dominant role of teachers (DeWitt and Osborne 2007) and the value of teachers who take on brokering between museums and schools (Kisiel 2014). Moreover, meaningful collaborations with schoolteachers seemed pivotal in creating student-centred and individualised learning activities. Such learning activities, in turn, have the potential to support students' self-awareness because they are intended to cater to individual students rather than an anonymous group. However, the role of the schoolteachers in supporting career awareness was mentioned only by three respondents.

The fact that schoolteachers' roles were rarely spontaneously mentioned when talking about addressing career awareness during learning activities might indicate that even though educators understand schoolteachers' roles in preparing students' learning of skills and behaviour beforehand, they are less likely to be seen as partners when working with the class during a learning activity or in the context of a specific topic, such as career awareness. In other words, teaching during the learning activities (including supporting students' career awareness) was perceived as an individual pursuit rather than a collaborative effort with schoolteachers. The 'black box' metaphor could illustrate this lack of collaboration during teaching and weak connections between what happens in the classroom and during the field trip when another educator is working with the group. This means that, on the one hand, teachers 'hand over' their students to on-site educators with low perceived control over what will happen during learning (Uppin and Timoštšuk 2022). On the other hand, on-site educators are accustomed to working with low or no background information about the group (Uppin and Timoštšuk 2024).

Moreover, for some respondents, the curriculum's broader learning outcomes and topics (such as career awareness) might be seen as complementary rather than core to their practice. The agency of on-site educators in dealing with career awareness, and what they consider essential or peripheral to one's practice, depends on many factors, such as previous experiences, knowledge, attitudes, and the culture of the institutions where they work. For example, one on-site educator stated that the funding schemes they must follow do not support covering broad topics such as career awareness. Interestingly, the referred funding schemes do entail a requirement to support the curriculum's leading topics (such as career planning and lifelong learning). It is hard to say whether the initial statement was a simple misunderstanding and a gap in knowledge, an attitude towards rigid funding schemes, or an excuse for misalignment with guiding documents caused by an extensive workload. However, how boundary objects like the curriculum are understood and used in practice should not be overlooked in on-site educators' professional training. Moreover, an increase in coordination between different funders for curricula-related field trips might help educators to manage their workload and understand expectations for curricular content better.

4.2. *From Career Awareness to Future Thinking*

We argued in the introduction that, besides supporting career awareness, out-of-school learning could develop students' sustainability competencies, too. This is supported by the

fact that for many on-site educators, supporting career awareness meant supporting lifelong learning. Moreover, no respondents believed their job is to prepare or indoctrinate students for specific occupations or educational paths. Instead, they wanted to give students tools to make decisions for themselves. Believing that the learners have the right to make choices for themselves is deeply democratic and in line with transformative pedagogy, which is the baseline for understanding sustainable development (UNECE 2012). Moreover, the on-site educators' notion of supporting students' 'love for nature' or the appreciation of culture expressed by participants also opposes neoliberal pressure and, instead, carries the potential to reduce socioenvironmental injustices (Misiaszek 2023).

Building students' strengths and interests could ultimately lead to higher self-esteem and better problem-solving later in life. For example, Savickas (2002) explained that positive self-talk supports effective problem-solving, whereas negative self-talk leads to indecisiveness. Thus, positive self-talk combined with problem-solving skills might contribute to future thinking, especially with the emphasis on envisioning positive future scenarios. However, envisioning sustainable futures, a core skill according to the sustainability competencies framework (Bianchi et al. 2022), was not explicitly mentioned or implicitly described among the methods used to discuss careers. Moreover, the respondents (except for one) did not elaborate on the impact of environmental changes on careers or work, nor did they explicitly emphasise the need to disrupt, reframe, or heal the dominant ideas that fuel ecological crises or societal divides. This echoes previous results where on-site educators recognise systemic problems in education but avoid a proactive stance towards solving them (Uppin and Timoštšuk 2024). Further inquiry would benefit from observing in situ learning activities to understand whether sustainability competencies are supported in some implicit ways.

However, more than ever, individuals might have to find, invent, and reinvent meaningful work numerous times throughout their careers (Akkermans et al. 2024; Guichard 2022). We did not find conclusive evidence of on-site educators considering or introducing contemporary changing career landscapes; they did, however, make comparisons with the historical past. History can give context to societal changes but is probably insufficient to deal with them, especially when not reflected upon during learning. The OECD (2019) advises decisive policy action and attention to growing disparities between countries and social groups caused by changes in the labour market: whole geographical regions transforming their industries, large sectors of industry disappearing, full-time jobs becoming ever rarer, etc. By no means are field trips in formal education a silver bullet to tackle societal changes, especially considering their complex and unpredictable nature. However, they can instil pockets of wonder, offer contrasting perspectives, and introduce places and ways of learning beyond school and formal education. In the context of the changing environment and the societal turbulence stemming from it, the creative human mind and the often unpredictable nature of learning might offer us hope (Misiaszek 2023).

5. Conclusions

Career development involves childhood (Hartung et al. 2005). That is the period when we get to know the world and ourselves, the possibilities out there, and the preferences inside us. Career awareness encompasses knowledge about occupations and self-awareness (Savickas 2002). School is one of the primary contexts where children get information about work-life and career paths. Considering the experience gap of students when it comes to knowing about the possibilities available to them in the world, formal education has the responsibility to enable all children, regardless of their backgrounds, to discover how diverse, evolving, and creative working lives can be. Moreover, adaptability and a pro-learning mindset are essential during abrupt societal and environmental changes (Bianchi et al. 2022).

However, even though field trips carry the potential to support students' career awareness in the context of formal education, there is not much data about whether or how out-of-school learning activities support students' career awareness. We explored

whether Estonian on-site educators of museums and environmental education centres think that learning at museums or environmental education centres supports students' career awareness and how they have addressed this topic in their curricula-related learning activities.

Our respondents did not seem to have a shared conceptualisation of (supporting) career awareness. However, data analysis enabled us to frame the core components perceived as related to career awareness by Estonian on-site educators: supporting lifelong learning, supporting students' individuality, and sharing information about work and occupations. Aiming for and valuing lifelong learning has been described as characteristic of on-site educators before (Tran 2007). However, our study illuminates some specific ways these educators understand and address lifelong learning.

Moreover, Estonian on-site educators address career awareness through various activities. These activities ranged from 'mentioning' to more engaging discussions and specific job-like tasks or role-play. There were also examples of systemic work towards raising students' career awareness through student conferences, courses, learning materials, specially tailored learning activities, and special interest clubs. However, supporting students' self-awareness was rarely explicitly understood as an integral part of career awareness. The boundary-crossing nature of learning activities and the importance of collaborating with schoolteachers were also rarely explicitly discussed. However, the complexity of out-of-school learning activities that involve multiple educators from different organisations should not be overlooked when supporting career awareness in the context of fieldtrips. Moreover, there were only a few examples explicitly addressing societal and environmental changes during learning activities. Nevertheless, it was evident that some experienced and professional on-site educators could be valuable mentors to both on-site educators and schoolteachers to enhance the general pedagogical quality of field trips and attain a deeper understanding of career awareness.

Field trips should not be underestimated as an educational tool for career awareness, student well-being, and long-term learning trajectories. Introducing the diversity of learning environments, including the open-access learning resources of students' immediate community, during formal schooling has a solid potential to prepare students for meaningful work-life and lifelong learning. Moreover, a shift from a self-centred approach to career development ('what I want to do') to a more community-oriented approach ('how I could help our joint cause') might be necessary to mitigate the turbulence caused by our current environmental crises through sustainability competencies.

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