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A Social-Ecological Model for Inclusion Processes in Urban Agriculture of Vienna, Austria

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Abstract: The target group of this study—people with disabilities who work and who are cared for in institutions that offer occupational therapy—is largely absent from the discussions about urban agriculture. When implementing the UN Convention on the Rights of People with Disabilities, education and work are essential aspects, especially for the self-determination of people with disabilities. However, people with disabilities are currently often prevented from truly participating in society. The main research objective of this study lies on the identification on systemic barriers to inclusion into horticultural working life as well as possible solutions. The aim of this study was to find out how inclusion processes could be facilitated in the field of urban agriculture in Vienna. A pilot project was carried out for this purpose during May and October 2019. A university, three social institutions with seven employees, two horticultural farms with two farm managers and fifteen people with disabilities took part in this pilot project. During the tomato harvest, action research was applied, evaluated and modified. At the same time, the authors tried to contribute to Grounded Theory. One of the results of this study is the suggestion that offers in the field of urban agriculture should go beyond pure cooperation between social institutions and horticultural farms. A social-ecological scenario with agro-ecological inclusion farms is elaborated. It is concluded that the establishment of such farms in terms of the UN Convention on the Rights of People with Disabilities in Vienna could bring the city closer to reaching the Sustainable Development Goals. This is exemplified in a new framework on social-ecological inclusion processes in the world of work.

Keywords: work; disabilities; climate change; biodiversity; psychological wellbeing

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Citation: Schaffernicht, S.K.; Quendler, E. A Social-Ecological Model for Inclusion Processes in Urban Agriculture of Vienna, Austria. *Merits* **2023**, *3*, 415–431. https://doi.org/10.3390/merits3020024

Academic Editor: Grigorios L. Kyriakopoulos

Received: 28 March 2023
Revised: 27 May 2023
Accepted: 29 May 2023
Published: 8 June 2023

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1. Introduction

Due to different types of systemic barriers, people with disabilities in Austria have difficulties in finding work and in staying employed, especially on the regular job market and in social enterprises on the secondary labor market. In 2016, there were 101,318 people with disabilities in the entire Austrian population with a degree of disability of more than 50%, as described in the Disabled Persons Employment Act [1]. In 2017, the unemployment rate for people with disabilities in Austria was 9% [2]. The unemployed with health constraints have significantly longer periods of unemployment [3,4]. According to the United Nations Committee on the Rights of Persons with Disabilities, in Austria, 19,000 persons with disabilities are at present working and being looked after in institutions that offer day programs with occupational therapy [1]. According to expert estimates, around 20% of them could possibly be included into the general labor market [5]. For the realization of inclusion in Austria in 2012, the Austrian Federal Government adopted an Action Plan for the implementation of an inclusive society. Overall, "the visionary goal (. . .) is an inclusive society that is in line with the United Nations Convention on the Rights of Persons with Disabilities" [6]. An inclusive society enables people to participate in all spheres of society—also in public work life. Inclusion overcomes the claim that persons with

disabilities should be "integrated" or that they should adapt as much as possible to the requirements of non-disabled people so that they are not excluded from social activities.

In this study—which has also been written about in [7,8]—the following types of disabilities are taken into account: intellectual disabilities, learning disabilities, physical disabilities and mental health conditions. This choice is based on the classification according to REHADAT [9]. REHADAT is the central information portal for topics related to inclusion of people with disabilities at work in Germany.

Persons with disabilities who are not employed in the labor market often are cared for in institutions that offer day programs of occupational therapy and in integrative enterprises. Occupational therapy is thus central to this study. In particular, people with intellectual disabilities are employed in institutions where they receive occupational therapy [10]. In Austria, 64.1% of the people receiving occupational therapy in social institutions for people with disabilities have intellectual disabilities, whereas 16.4% have learning disabilities. People with mental health conditions and with physical disabilities are represented at 14.5% [11]. For the most part, creative and manual activities are offered in such institutions. In fewer than 10% of these, sales activities (9.7%), commercial activities (8.9%), office activities (6.9%) and agricultural activities (4.6%) can be carried out [11]. As this employment status is not subject to social insurance contributions, the clients with disabilities participating in these types of activities receive no salary [12]. Instead, they receive some pocket money [13]. However, some institutions offer job training and support in the search for employment on the open labor market [14]. Nonetheless, occupational therapy in social institutions in Austria is often protective and preserving [15] and not always promoting inclusion through adequate systems of transition from institutions to paid jobs, as the number of transfers to employment subject to social security contributions in the general labor market is minimal [15]. The aim of this study was therefore to investigate the systemic barriers to inclusion and possible solutions and to illuminate potential framework conditions for inclusion processes in urban agriculture in Vienna. A pilot project was carried out for this purpose during May and October 2019.

2. Data Basis and Methods

2.1. Data Basis of the Pilot Project "Inclusion in Urban Agriculture"

2.1.1. Characteristics of Social Institutions and Employees

Three social institutions, which were organized as associations, took part in the pilot project "Inclusion in Urban Agriculture". They did not differ in the form of organization but in the number of hours worked per week (MAX: 438.5; MIN: 210; MV: 253.7; SD: 167.3). All employees were educated in social work and accompanying people in occupational therapy during the week. Some of them were still in training. During the pilot project, the care ratio ranged from 1:1 care (SOCINST3) in one social institution to up to five clients per employee (SOCINST1). The participating employees of the social institutions were between 29 and 62 years old. On average, they were 43 years old. Three of them were females (3/7, 42.9%), and four were males (4/7, 57.1%). They worked between 20 and 38 h (on average 34 h) per week (SD: 7.1) in the relevant social institutions.

2.1.2. Characteristics of Volunteers

Fifteen volunteers with disabilities who were cared for and working in occupational therapy in social institutions participated in the pilot project. It is not known whether these persons received other social work services at the same time. Only one of them was female (1/15; 6.7%). On average the volunteers were 27 years old (MAX: 37; MIN: 17; SD: 6.7). They were working between May 2019 and October 2019 between four and 181 h in the two selected horticultural farms (MV: 62.1; SD: 63.7).

2.1.3. Characteristics of Horticultural Farms and Their Managers

Both horticultural farms (HORTF1 and HORTF2) were located in the city of Vienna and were producing tomatoes at the time when the pilot project was carried out. HORTF1

produced ox-hearts, and HORTF2 produced the grape tomatoes Tomicia and Capricia. They were producing in substrate culture under commercial growing. With an area of 0.8 hectares, HORTF1 was 1.2 hectares smaller than HORTF2. The greenhouses of the two horticultural farms were a Venlo construction—with a standing wall height of 4 m. HORTF2 produced approximately 70% tomatoes and 25% cucumbers. Kohlrabi and rocket salad were grown on the remaining area. Kohlrabi was also planted outside in HORTF2. HORTF1 was only produced in the greenhouse, indoors. The plants in HORTF2 were grown in substrate mats made from coconut fiber. Foam substrate mats were used in HORTF1. In both farms, the tomato plants grew on a cord that was already wound on a tomato hook and hung down from it. The tomato hooks were hung on a wire at a height of about 3 m (informal conversation with the operations managers). The manager of HORTF1 was 10 years older than the manager of HORTF2. They were educated in different fields. Both worked over 40 h a week in the respective horticultural farm (informal conversation with the operation managers). The managers had no training in the work with people with disabilities before the project took place.

2.1.4. Work Processes of the Pilot Project "Inclusion in Urban Agriculture"

In both farms, the work process of tomato harvest was carried out in greenhouses. There was one day of tailored training on tomato harvest in the University College for Agricultural and Environmental Pedagogy in Vienna, Austria, and one day of training in each of the farms. The training was for all the stakeholders involved and is partly described in detail in the following subchapters. During the implementation there was no ongoing training. The social workers were supporting the volunteers throughout the implementation phase. While ox-heart tomatoes were harvested with scissors in HORTF1, in HORTF2, loose grape tomatoes were harvested without any cutting devices. In the following subsections, the working processes are described in detail.

Work Process in HORTF1

At the beginning, with the arrival at the company and start of half a working day, the volunteers went to the break room. In the break room, there was a refrigerator with water bottles for the volunteers as well as tables and chairs. The volunteers put their backpacks or bags in the room and went to the greenhouse with a water bottle in their hands. In the greenhouse, the volunteers put on gloves and placed the water bottles at the beginning of the respective row. Then they took a harvesting trolley and loaded it with up to twelve green boxes. One box was placed on the front side of each trolley. The other boxes were placed on the back side of the trolley. Before the volunteers entered their rows with the harvest trolley, they hung a photo of themselves at the beginning of the row so that it was always easy to see who was working in which row. At the same time, they took harvest scissors that were hanging from hooks at the beginning of each row. After these preparatory activities, the actual working process of the tomato harvest began. Depending on the height of the tomatoes to be harvested, people in HORTF1 mostly worked in a sitting position, with the trolley being pushed forward in the row with the use of the legs. Tomatoes with the right maturity level were cut and carefully placed in the box. The crown had to be upside in this process. A stem too long had to be shortened before the tomatoes could be placed in the box. Ripe tomatoes lying on the ground were picked up. However, green tomatoes were left on the ground for ripening. In HORTF1, harvesting started on the right side of the row. At the end of the row, the volunteers walked past the wagon and then harvested on the left side up to the beginning of the respective row. Tomatoes that did not meet the quality standards (too small or large, with cracks or scars as well as rotten) were placed on the harvest trolley or in a bucket that was placed next to them on the trolley. For reasons of crop protection, it was important that each scissor was only used in one row. Therefore, after the completion of a row, the scissors were hung on their hooks at the beginning of it. The volunteers drove the harvest trolley with the boxes filled to a pallet to put the full boxes on it. Sixteen boxes could be placed on each other and a total

of sixty-four boxes could be positioned on one pallet. Tomatoes of minor quality were placed in the appropriate boxes at a sorting station or—in the case of tomatoes that were too small—thrown into a box through a hole. Rings were used as aiding devices to make it easier to determine already in the row whether a tomato was too small or not. Due to previous difficulties, this adjustment was undertaken together with the operations manager and the employee of a social institution and proved to be beneficial in some cases. The follow-up activities included the disposal of the gloves in a rubbish bin. The water bottles were taken back to the break room outside of the greenhouse.

Work Process in HORTF2

As in HORTF1, the volunteers went to the break room at the beginning of their working day. The break room was located above the school kitchen in the entrance hall and was accessible via a staircase. In the break room, there were three lockers for the volunteers' valuables. In the break room, they put on their work shoes and clothes and went to the first greenhouse with a filled water bottle and templates with harvesting grades as aiding devices. The aim was to hold a small meeting each morning where the harvest grade of the day could be discussed with the operations manager. In addition, it was clarified which volunteer would work in which row on the respective day and which aspects had to be particularly considered on that day. In the greenhouse, the volunteers put on gloves and placed the water bottles at the beginning of the rows. Then they took a harvest trolley and placed six to nine yellow boxes onto it. The volunteers decided individually how many boxes they wanted to place on the trolley. The volunteers put tomatoes that did not meet the quality standards into a separate box that was provided for this purpose. Since, in contrast to the other farm, in this horticultural farm the volunteers worked without scissors, they could drive the trolley into the respective row immediately after loading. Harvesting the loose tomatoes consisted of twisting the respective fruit from its stem. Each tomato was harvested individually and put into a box as carefully as possible. At the end of each row, the volunteers had to turn around by walking past the harvest trolley on the left in order to be able to continue working on the right side of the row afterwards. When a row was finished, a piece of paper with the number of the row was pinned on a green board. Additionally, a red piece of paper was placed at the beginning of each completed row in order that each person knew that the row had already been harvested. The volunteers drove the harvest trolley with the filled-up boxes to a pallet and put the full boxes on it. A maximum of eight full boxes could be stacked on top of one another. If the row was not finished at the end of the working day, a red piece of paper was hung on the row to indicate to the other employees of the farm where the respective person had stopped harvesting. The follow-up activities in this farm also included the disposal of the gloves into a garbage can and the taking of the green board and water bottles to the break room.

2.2. Research Approach, Survey Methods and Data Analysis

2.2.1. Research Approach

Qualitative research methods were chosen as the focus because the main research question was aimed at causes and causalities which, for the most part, cannot be mapped at all with purely quantitative methods [16]. Qualitative methods are also often ascribed a greater openness and consideration of the perspective of those involved [17], which can have advantages over standardized survey methods. Qualitative methods were preferred since the following research question was to be answered: How and in what way can inclusion processes be socially sustainable in the world of the general job market in urban agriculture? In order to answer this question, field research in the context of action research in selected horticultural farms where people with disabilities gained practical experience in this working context was crucial. The effects of action research were evaluated and modified through the accompanying evaluative research. At the same time, the authors aimed to make a contribution to Grounded Theory [18–22].

2.2.2. Survey Methods

The following quote illustrates which information is usually well suited as data in the context of Grounded Theory: "Most commonly, grounded theory studies have been associated with the analysis of transcripts of interview data, typically gathered in a semi-structured format. However, this focus neglects the wide range of information that can be used as data and can provide novice researchers with a narrowed conceptualization of what constitutes data suitable for grounded theory analysis. Grounded theorists have used a number of sources of data including official records, letters and diary entries, field-notes based on observational work and focus group material, in addition to interview transcripts" [23]. For this reason, a mix of methods was used throughout the whole pilot project, which included various survey methods and a three-stage coding process. The mix of methods consisted of photovoice (volunteers with disabilities), diaries (volunteers with disabilities), informal conversations (volunteers with disabilities, employees of social institutions and farm managers), problem-centered interviews (volunteers with disabilities, employees of social institutions and farm managers), participatory and non-participatory observations (volunteers with disabilities, employees of social institutions and farm managers), workshops (volunteers with disabilities, employees of social institutions and farm managers), literature study, a learning diary and a survey according to the method of IMBA (Integration of People with Disabilities into the World of Work). The three stages of coding comprised open, axial and selective coding (see Figure 1).

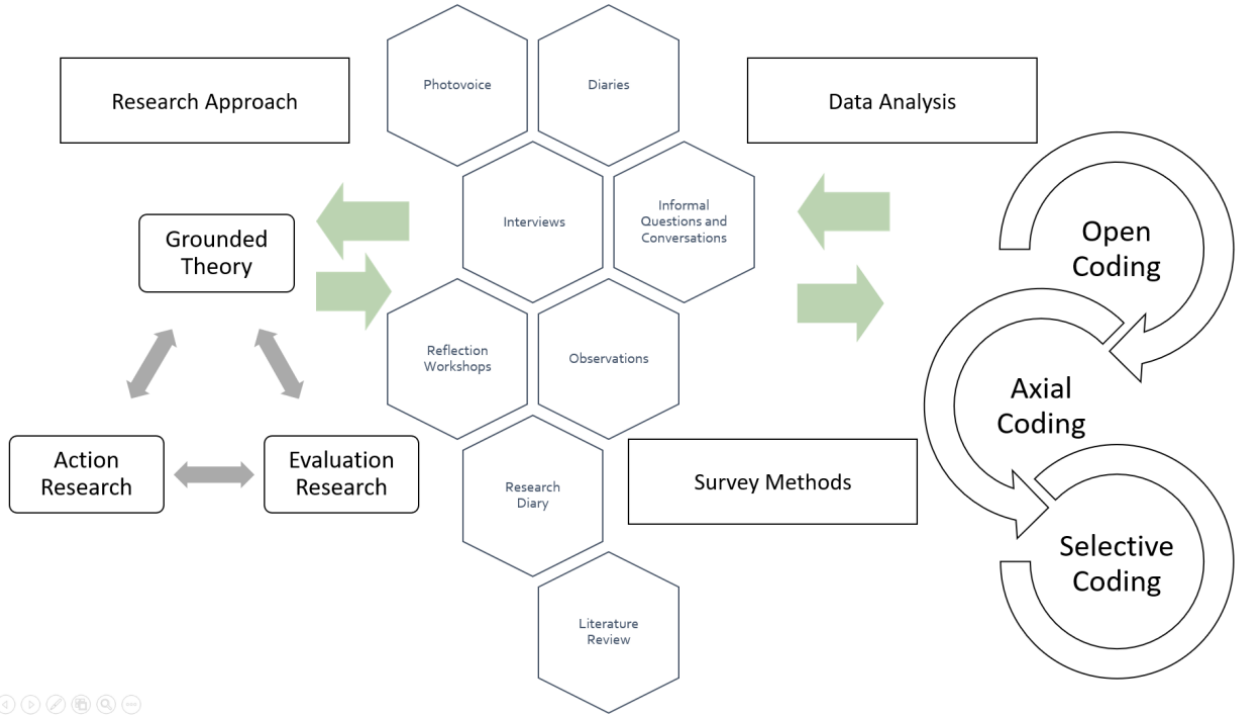


Figure 1. Research approach, survey methods and data analysis [7].

This paper mostly focuses on the literature component of the grounded theory study, which does not mean that other methods have not been as important throughout the study. Literature—both technical and non-technical—plays an important role in grounded theory [24]. Initially, however, an intensive study of literature was avoided in order to be influenced by it as little as possible [25]. Some proponents of classical grounded theory even argue that the study of literature should only be started after the analysis has been completed [18]. Glaser, Strauss and Corbin, for example, argue along these lines in Dunne [26]: "It is not unusual for students to become enamoured with a previous study (or studies) either before or during their own investigations, so much so that they are

nearly paralyzed in an analytical sense. It is not until they are able to let go and put trust in their abilities to generate knowledge that they finally are able to make discoveries of their own" [26]. As recommended by Bryant and Charmaz [20], the literature review was started in the implementation phase after the development of the theoretical framework and carried out in parallel with and after completion of the survey. Strauss and Corbin [24] argue that only when a category has proven to be relevant should reference be made to the relevant literature to determine whether this category is present there and, if so, to find out what other researchers have written about this category. This was largely taken into account in this study. What was not done in this study, was to constantly fall back on literature during the research process, as this would have hindered progress and stifled creativity [24]. In addition, it would have been largely impossible for scheduling reasons. The reason why largely solely literature is presented in Section 3 of this paper is that the overall results have been presented in a very compact way. It would have been beyond the aim of this paper to present all the details we have found in the data we have collected. This does not mean that it could not be presented in a future paper in a different way.

2.2.3. Data Analysis

Data collected was analyzed—as described above—in accordance with Grounded Theory. Most of the material generated was assessed with the aid of the software MAXQDA 2020. In Figure 1: Research approach, survey methods and data analysis, the whole research process is visualized.

The next sections describe the procedure of the coding process: open, axial and selective coding are explained. These three different types of coding cannot be clearly separated from one another. They are different ways of dealing with data between which the researchers usually switch back and forth [27] (p. 258) if they work according to the iterative processes of Grounded Theory.

Open Coding

The process of open coding is expedient in order to "break up" a text with regard to the relevant phenomena and to obtain a broad orientation on the concepts that can be used to describe and/or explain these phenomena [28] (p. 33). During open coding, at the beginning of data analysis, data was segmented and words or word sequences were ascribed with codes [28]. The material was coded sentence by sentence during this step. At the final stage of the writing, there were up to 156 different codes and six to nine categories or dimensions. Sociologically constructed codes were used and not in-vivo codes in which statements from interview partners are usually adopted [28]. Various concepts were abstracted into categories in a Word document already at the beginning of the research process. Because of previous theoretical knowledge and first experiences in the field, this could be done in a freely associative manner. The result of open coding was a list of concepts and several categories that were grouped into those concepts (See Figure 2: Exemplary list with one concept and several categories).

Work Science Related Dimension (Concept)

- Driving service
- Animals
- Speed
- Working hours
- Characteristics of employees
- Selection of volunteers

Figure 2. Exemplary list with one concept and several categories (Source: Own Figure in [7]).

The use of situational analysis [22] in combination with the traditional Grounded Theory has already proven to be practical and theoretically useful in the literature [29]

and was therefore also used in this study. As in the study by Khaw [29], "positional" or "situational maps", according to Clarke [19], were used in the phase of open coding. First, codes were written into a "messy situational map". Later, an attempt was made to create a second, ordered situational map from this first situational map. The second type of coding is axial coding.

Axial Coding

Axial coding is "a set of techniques by which links between categories are used to recompose data after it has been openly coded. This is achieved by using a coding paradigm that consists of causal conditions, context, intervening conditions and consequences" [24] (p. 75). The following figure (Figure 3: Coding paradigm) shows the coding paradigm, according to Strauss and Corbin [24] and Morrow and Smith [30].

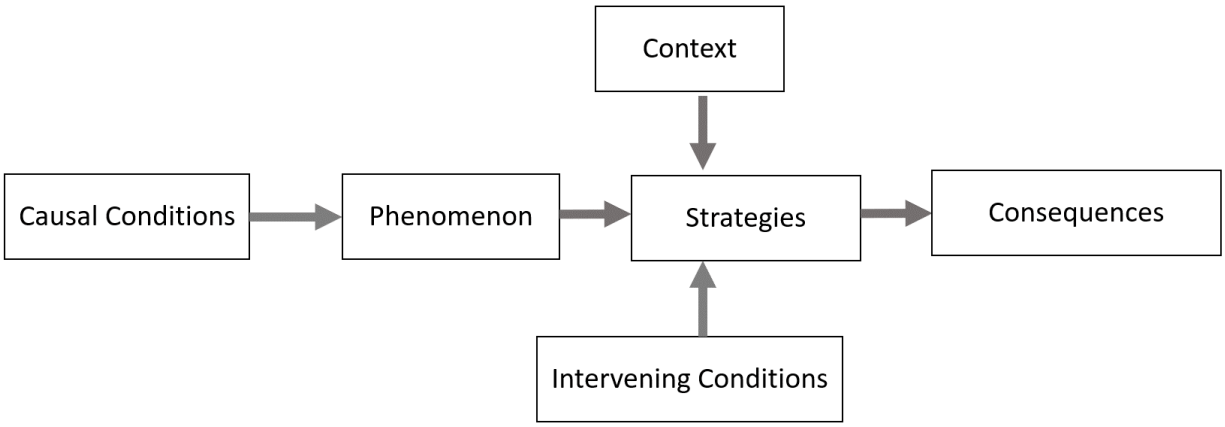


Figure 3. Coding paradigm. (Source: Modified after Strauss & Corbin [24] and Morrow & Smith [30]).

The connections between the different categories were examined as part of the process of axial coding. The names of the categories were first written on index cards and later on pieces of paper and then positioned on a surface and later on a poster, and it was examined whether these categories were related to each other in a certain way or not [31]. The result of this approach were several coding paradigms. In parallel to the coding process, several working hypotheses—relevant to the core categories—emerged that steered the research process in a certain direction. Finally, coding was also carried out selectively and the coding paradigm that was central to this research work was chosen.

Selective Coding

Selective coding is "the process of selecting the core category, systematically relating the core category to other categories, validating these relationships and filling in categories that require further refinement and development" [24] (p. 94). Two months after completing the data collection, the scientist had an abductive flash of inspiration during selective coding. Peirce describes abductive closing as follows: "The abductive suggestion comes to us like a flash. It is an act of insight, although an extremely fallible insight. It is true that the different elements of the hypothesis were in our minds before; but it is the idea of putting together what we had never before dreamed of putting together which flashes the new suggestion before our contemplation" [32] (p. 7). The central coding paradigm has been repeatedly adapted over time to the results of this study when the model was formulated. The final coding paradigm can be found in the last section.

3. Results and Discussion

This section is by and large structured according to the coding paradigm that has been developed by Strauss and Corbin (1996) [24].

3.1. Causal Conditions of Exclusion from Working Life

The academic field of Disability Studies especially deals with questions about how and by whom or by what disabilities are caused and often addresses the different types of systemic barriers that prevent people with disabilities from truly participating in society [33] (p. 3). According to the WHO [34], disabilities arise from barriers in our heads and in our world. The WHO provides some examples: "physical environment that is inaccessible, lack of relevant assistive technology, and negative attitudes of people towards disability, as well as services, systems and policies that are either non-existent or that hinder the involvement of all people with a health condition in all areas of life" ([34] p. 222).

3.2. Context: Mental Illnesses

In terms of mental illness, the following tendencies can be observed in Austria: sick leave is growing in numbers due to mental illness [35] (p. 231); inpatient rehabilitation stays are increasing [35]; and psychological well-being has generally decreased in Austria over the past few years [35].

In Austria, 64.1% of people in occupational therapy had a cognitive disability, and 16.4% had a learning disability. People with mental illnesses and people with a physical disability were each represented with around 14.5% [36] (p. 151), whereby the number of people with mental illnesses in occupational therapy has risen sharply in recent years [37] (p. 119). Recent research has shown that especially young people and people with low-income in Austria have suffered particularly from the COVID-19 crisis [38]. This clearly illustrates the urgency of addressing the proposed perspective of this study.

3.3. Intervening Conditions I: Climate Change

The more unexpected effects of climate change and natural disasters in general include, for example, the negative effects on human health in general and especially the negative effects on the human psyche [39,40], which have received increasing scientific attention during the past decade [41,42]. There are first studies that confirm that higher temperatures and increased rainfall correlate with a deterioration in mental health [42,43]. Profound emotional reactions or disturbances, such as ecological grief, fears, feelings of loss, guilt, hopelessness, stress, helplessness, shame, despair and envy can be caused or intensified by climate change [41,42,44,45]. Similar results were generated during the pilot project as the heat situation was one of the greatest work burdens for some of the volunteers.

3.4. Intervening Conditions II: Biodiversity Loss

According to the biophilia theory [46], humans have an innate tendency to connect with nature. Mental states of suffering—such as depression or anxiety—in many people therefore arise from a lack of spending time in natural surroundings [46]. Biodiversity can be one of the elements of these environments. In the scientific discussion around horticultural therapy, it has only emerged in the past decade that gardens and other environments with a large number of different plants can offer users a wider range of sensory stimulations due to the many different colors, textures and smells [47] (p. 2) than conventional environments, like e.g., monocultures, are able to do. This is one of the reasons why horticultural farms that are characterized by a high degree of agrobiodiversity could have a positive effect on human wellbeing. Global environmental changes generally can be important health risks [48]. Recent studies have confirmed as well that biodiversity and mental health as well as subjective wellbeing do correlate [49,50]. The loss of biodiversity that can be observed today has, for example, a negative impact on mental wellbeing [50]. During the pilot project a great interest in agricultural biodiversity could be observed by the researcher through the methods of photovoice and the diaries (See e.g., Figures 4–6). The volunteers were very interested in observing different elements of biodiversity present in the two horticultural farms. Due to this reason, they took photographs of other crops—e.g., cucumber plants (Figure 4) and herbs (Figure 5)—in the farms and in front of them. Also, an interest for the fauna in the farms could be recognized by the researcher (See, e.g., Figure 6).



Figure 4. Interest in agricultural biodiversity I. (Source: Photovoice—SOCINST1_VOLUNTEER2_2019 in [7]).



Figure 5. Interest in agricultural biodiversity II. (Source: Photovoice—SOCINST1_VOLUNTEER2_2019 in [7]).



Figure 6. Interest in agricultural biodiversity III. (Source: Diary—SOCINST1_VOLUNTEER1_2019 in [7]).

3.5. Strategies: Social-Ecological Processes of Inclusion

People with disabilities are largely absent from the discussions about urban agriculture like horticulture, and there is little information worldwide about the opportunities that this group of people has to participate in it [51]. At this point, it should be briefly explained that the analysis in the sense of social ecology is a conceptual apparatus that was developed primarily by Elinor Ostrom. In contrast to prevailing views, which mainly aim at technical measures and often consider only them to be relevant, the term social-ecological system also draws attention to social aspects that are essential for this context, and not just to physical conditions [52]. In the past, it has proven useful to include local user groups into the various processes [52]. This is also conceivable for inclusion processes and is illustrated in the following paragraphs by a scenario that has been discussed and optimized in an expert workshop during the research project. It has to be mentioned that the scenario has not been realized until now. Self-determination of people with disabilities shapes the whole scenario, as it is based on the UN Disability Rights Convention. Therefore, it is essential to ensure participation and inclusion in the implementation of this scenario.

The neighborhood could be included in the inclusion process by buying and using socially and ecologically sustainable products and services in the social institutions, markets or horticultural inclusion companies. The population must be well informed about the activities in good time and, if interested, be included in the participatory planning process.

The social institution with occupational therapy and a slightly large garden could be a place where people with disabilities from such institutions who are interested in horticultural activities but currently do not want to work in a company or—due to systemic barriers—are not allowed to gain experience in this domain have the opportunity to spend time and work in a garden. There could be a small sales room on the premises where social-ecological products from urban agriculture in Vienna can be offered by various social institutions. The possibility of the cooperation between different institutions offer-

ing occupational therapy is given and could be strengthened by a jointly designed shop and/or garden.

The new inclusive company with a focus on horticulture could be based on the principles of Universal Design, according to which it must be accessible to all people with and without disabilities.

Historically, inclusive companies are not a new idea. They have spread since the 1970s, especially in Germany, when the dehospitalization processes in the psychiatric field made it necessary to create more jobs for people with mental illnesses. A special feature of these companies are the inclusion-friendly work structures. In Germany, they are legally anchored "companies in the general labour market with a social mission" [53,54]. In contrast to institutions with occupational therapy which provide only some pocket money in Austria, they are more inclusive as they offer an employment status that is subject to social insurance with at least a minimum wage, and—unlike in social enterprises in Austria—people with and people without disabilities usually work together in such companies. The proportion of people with severe disabilities is between 30% and 50%. The aim of inclusive companies is to pave the way to the open labor market and to promote it through its activities [54,55]. Therefore, this model is very well suited for this study, as Claudia Rustige, the managing director of the "Bundesarbeitsgemeinschaft Inklusionsfirmen e. V." (Association of Inclusive Companies), stated in an interview (2018) that it also is in accordance with the UN Disability Rights Convention, which is central to this scenario: "Inclusive companies assume an exemplary function for the inclusive labour market and for the inclusive society. We have been proving for more than thirty years that economic activities combined with social responsibility (. . .) can be a model for success. In the Constitutional Law of Austria it says that nobody may be disadvantaged because of their disability. The UN Convention on the Rights of Persons with Disabilities also formulates the requirement that people with disabilities must be able to earn their living by working in an open, inclusive labour market and work environment that is accessible to people with disabilities. This is exactly what inclusive companies take care of" [54] (p. 1). Inclusive companies have the potential to promote social acceptance and enable inclusion in the world of work, especially for people with mental illnesses. The example of inclusion, which is seen as a successful model in Germany, can also be interesting for Austria, where the need for jobs for people with disabilities is very high [55] (p. 107). Already existing companies—small and medium-sized enterprises in the domain of horticulture—have the potential to become inclusive companies in the future if the necessary conditions are being created and a pathway to social-ecological transformation is in this way envisaged. In the implementation of this innovation, the role of the state should not be underestimated. The economist Mazzucato (2013) argues, for example, that the state should create a system for national innovation that works together with the private sector [56]. This can be helpful in solving crises, such as the COVID19 crisis or the climate crisis in the future. This approach is also promising in the field of inclusion, which in this work is closely linked to the biodiversity crisis and the climate crisis. As in the social institution for people with disabilities, in the inclusive company with a horticultural focus, the concept of Green Pedagogy is the pedagogical concept that significantly influences the various activities and educational offers in this sector. In the field of agriculture, there has so far been no integrative or inclusive operation in the Austrian capital. In this new and—by public transport—easily accessible inclusive company, it would be possible to gain practical experiences, which can be helpful for later work on the primary labor market, and to acquire new skills. A return from the inclusive company to the social facility is possible at any time. The inclusive company would strive for inclusion in the primary labor market, and the necessary transitions are to be well designed and supported. The inclusive business also would fulfil a role model function in the field of sustainable agriculture, which is both social and ecological. The range of high-quality niche and other products could also create an economic advantage. Moody [57] (p. 5) mentions among the options given by

employers to improve the situation, the possibility of visiting best practice examples. This could be facilitated in urban farms through the implementation of this scenario.

With the following figure (Figure 7: Multi-perspective approach of social-ecological inclusion in urban agriculture), the authors would like to briefly indicate the potential for sustainable development and the achievement of the "Sustainable Development Goals", which is provided by processes of social-ecological inclusion.

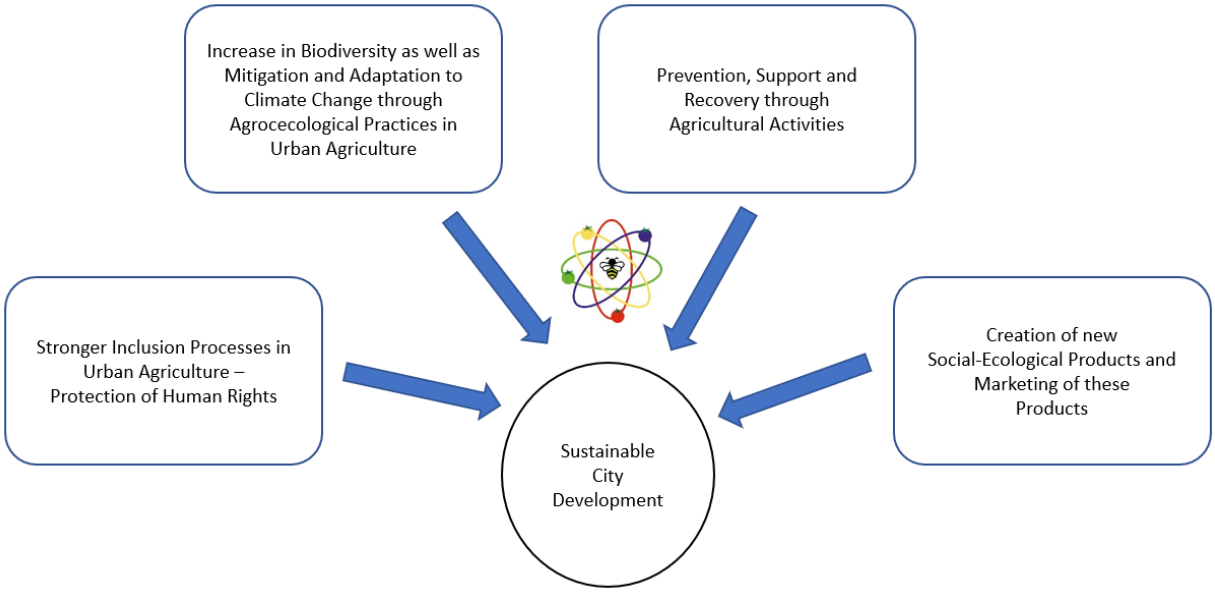


Figure 7. Multi-Perspective contributions of social-ecological inclusion processes in urban agriculture to sustainable city development [7].

3.6. Limitations of the Study

Complex topics, such as inclusion in horticulture—that are encompassing fields like work, education and self-determination of people with disabilities—require an interdisciplinary approach in order to be able to answer the research question that has already been presented. Research approach and survey methods as well as data evaluation have to be very diverse for the same reason. The low level of participation of people with disabilities can be seen as one of the most important limitations of the study. People with disabilities took part in discussions and were given a little more control in the research process through methods, such as photovoice, but there was no real cooperation between the employees of the research project and people with disabilities who were active in institutions with occupational therapy at the time of the investigation. One solution for future studies would be to involve co-researchers (people with disabilities) in order to make research on this topic really participatory—and inclusive as well—in the sense of the UN Convention on the Rights of Persons with Disabilities and according to the definition of Walmsley and Johnson [58].

According to Chappell [59], inclusive research has the following characteristics:

- The research problem may be identified by disabled people or non-disabled researchers who then bring it to the attention of non-disabled people.
- Disabled people and researchers work together to achieve a collective analysis of the research problem.
- Alliances are formed between disabled people, researchers and other experts, although these alliances must be under the control of and primarily in the interests of disabled people [59] (p. 38).

Walmsley and Johnson's definition is as follows:

- The research problem must be one that is owned (not necessarily initiated) by disabled people.
- It should further the interests of disabled people; non-disabled researchers should be on the side of people with (. . .) disabilities.
- It should be collaborative—people with (. . .) disabilities should be involved in the process of doing research.
- People with (. . .) disabilities should be able to exert some control over process and outcomes.
- The research question, process and reports must be accessible to people with (. . .) disabilities [58] (p. 64).

Schönwiese [60] recommends a process-oriented triadic cooperation for such inclusive research in the sense of Disability Studies, which, among other things, should aim to ensure that processes of appropriation and mainstreaming do not dominate.

Furthermore, it would be advisable for future projects to cooperate more intensely in an interdisciplinary way—e.g., with scientists from occupational medicine and environmental psychology.

4. Conclusions

The shift of attention from the individual to society and with it the development of the social model of disability was an important step in a good direction from the perspective of Disability Studies. It is argued at this point that it is necessary to expand the social dimension of this model of disability and to include the ecological dimension as well (see Figure 8: Social-ecological inclusion processes in the world of work in urban agriculture), since climate change and biodiversity loss can have serious consequences for many people—and especially for people with disabilities.

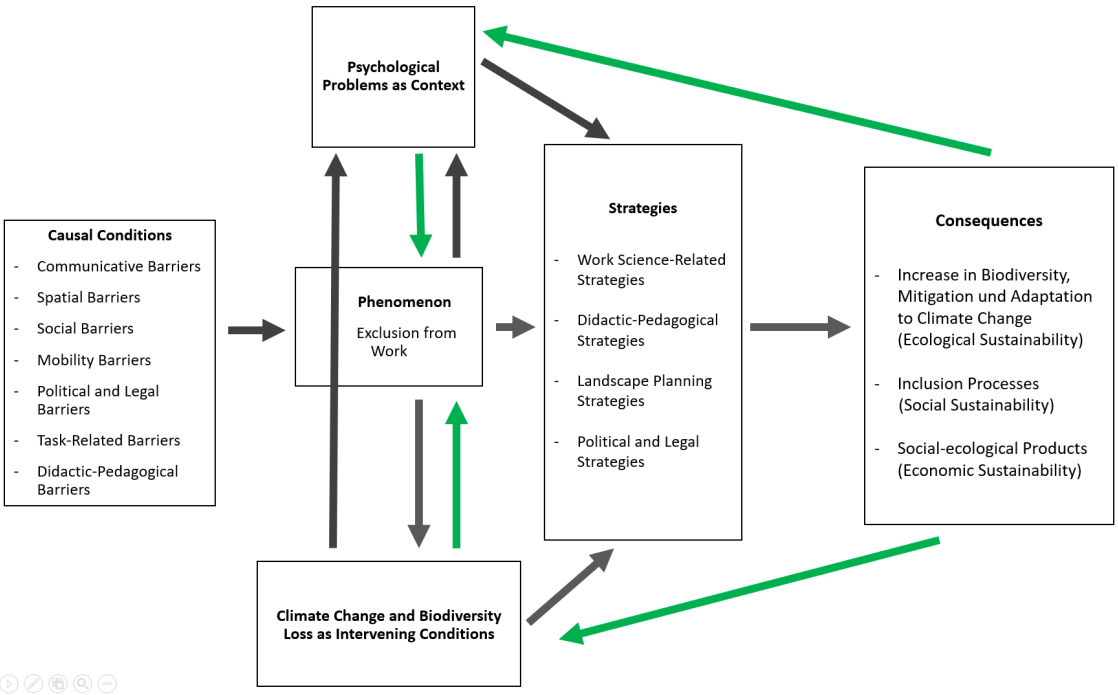


Figure 8. Necessity for social-ecological inclusion processes in the world of work of urban agriculture [7].

Technical, organizational and personal measures, among others, play an important role for inclusion processes in the world of work and must be taken into account when collaborations between social institutions and horticultural companies are being implemented so that inclusion has the opportunity to be socially sustainable. In order that inclusion processes are not exclusive, the offers in the field of agriculture must go beyond pure collaborations. Different stakeholders—e.g., neighborhood, people with disabilities,

politicians, educational institutions, gardeners and farm managers—have to be considered, who network and develop new concepts together. A participatory and social-ecological scenario in the context of urban agriculture seems reasonable and has been elaborated based on thirteen working hypotheses that have been formulated in the course of the survey.

The authors would like to briefly indicate the potential for sustainable development and the achievement of the "Sustainable Development Goals", which is provided by processes of social-ecological inclusion. People with disabilities and/or inclusion processes are explicitly mentioned in the following goals of the "Sustainable Development Goals".

- Goal 3—Good Health and Wellbeing: Promote a healthy life for all people in all ages and facilitate their wellbeing;
- Goal 4—Quality in Education: Ensure inclusive, equitable and quality education and promote lifelong learning opportunities for all;
- Goal 8—Decent Work and Economic Growth: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
- Goal 10—Reduce Inequalities: Reduce inequalities within and between countries;
- Goal 11—Sustainable Cities and Settlements: Make cities and settlements inclusive, safe, resilient and sustainable [61];

The aspects of education, work, reduction of inequalities and sustainable urban development are addressed through the inclusion scenario of the pilot project. By implementing it and establishing one or more innovative and inclusive companies in the context of urban agriculture in terms of the UN Convention on the Rights of People with Disabilities in Vienna, the city could come a little closer to reaching the Sustainable Development Goals 3, 4, 8, 10 and 11. At the same time, Goals that are related to Climate Change (Goal 13) and Biodiversity (Goal 15) are being addressed through the proposed social-ecological perspective.

Author Contributions: Conceptualization, S.K.S.; methodology, S.K.S.; formal analysis, S.K.S. and E.Q.; investigation, S.K.S.; data curation, S.K.S.; writing—original draft preparation, S.K.S.; writing—review and editing, E.Q.; visualization, S.K.S.; supervision, E.Q.; project administration, E.Q.; funding acquisition, E.Q. All authors have read and agreed to the published version of the manuscript.

Funding: This research article, which has been written in the framework of the project IRMA (Socially sustainable inclusion of people with disabilities in horticulture), was funded by "Bundesministerium Landwirtschaft und Forstwirtschaft, Regionen und Wasserwirtschaft", 101192 BMNT—LE.1.3.2/0032-PR/8/2017" and supported by horticultural farms and daily care institutions in Austria.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data is not available publicly due to privacy restrictions.

Acknowledgments: We would like to thank the Federal Ministry of Agriculture, Forestry, Regions and Water Management for the financial support and all stakeholders involved in the IRMA project, especially the horticultural enterprises and social institutions, for their participation und cooperation.

Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

Abbreviations

HORTF1	horticultural farm 1
HORTF2	horticultural farm 2
SOCINST1	social institution 1
SOCINST2	social institution 2
SOCINST3	social institution 3

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