



**Universität  
Zürich** <sup>UZH</sup>

Institute of Education  
Department of Vocational Education and Training

Schnittstelle Berufsbildung – Wirtschaft. Welches Potential haben  
Lehrlinge, den ökologischen Wandel mitzugestalten?

Veranstaltung Erasmus + VET Teams Austria, 13.12. 10:30-12.30 Uhr

Mit Berufsbildung den ökologischen Wandel mitgestalten. Blicke über den Tellerrand

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2. Greening and green skills in VET
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# 1. Introduction – Green, green, greener

- My starting point: green skills and apprenticeships
- Greenification and Greenwashing
- Critical appraisal about this new speak: in order to avoid important reforms and being away from discussions about technical issues and structures there is a shift towards incentives and market-based instruments. These are profiled against prohibition and constraints. Furthermore there is a focus on consumers (although it is more difficult to modify millions of consumer decisions) instead of improving production i.e. make production less harmful. Nevertheless as individuals we have today a lot of chances, (and often get nudged) to act “green” ... in order to save the planet



Hotel towel and a reminder

# 1. Introduction – How to learn to be or act green

- It seems very likely that we do not modify ourselves immediately. On the other hand: with one single act the problem of climate change or long-term sustainability is not solved: the economy is still based on paying little attention to social needs and nature. Furthermore to act greener does not guarantee that we (or human mankind) will be successful
- So education seems to be a possibility to modify our behavior: but is sustainability really learnable?



(1989)

# Sustainability

- „...development that meets the needs of the present ...  
«without compromising the ability of future generations to meet their own needs.»

(Brundtland Commission 1987)

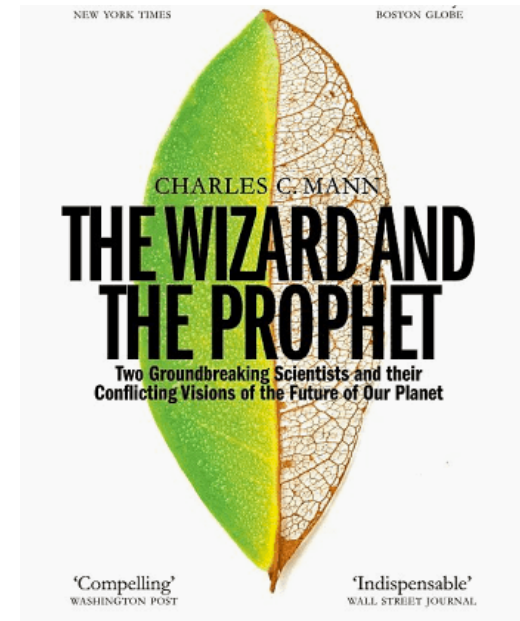
«...while safeguarding Earth's systems,  
on which the welfare of current and  
future generations depend»

- Nature 495, 305–307 (21 March 2013) doi:10.1038/495305a



# Contested aims

- Agenda 2030 is probably not realistic and based on a compromise
- Climate Action Plan (CAP) would be more science –oriented and aims at measureable results: zero emissions till 2030
- Not expecting technological miracles
- Leon Tikly: (Un-)Sustainable development:  
western construct, floating signifier, however global reach  
Mix of economic, rights based and environmentalist discourse  
Gap between policy intentions and what is going on



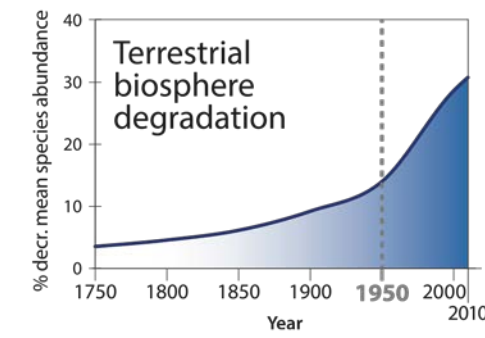
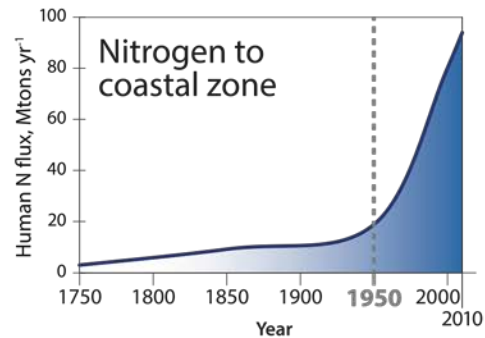
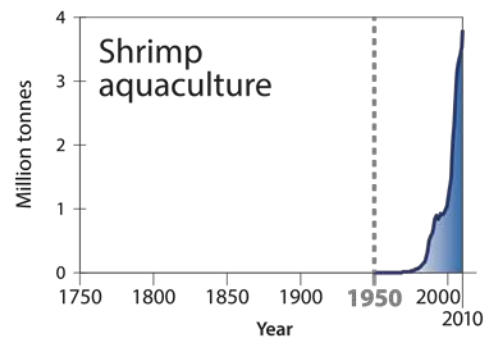
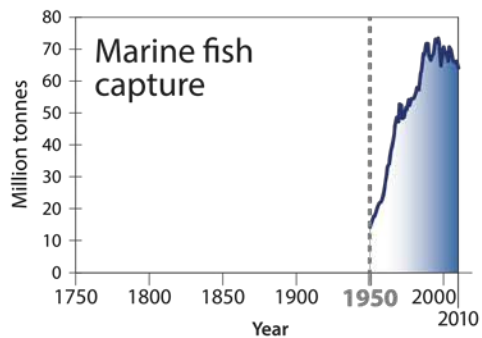
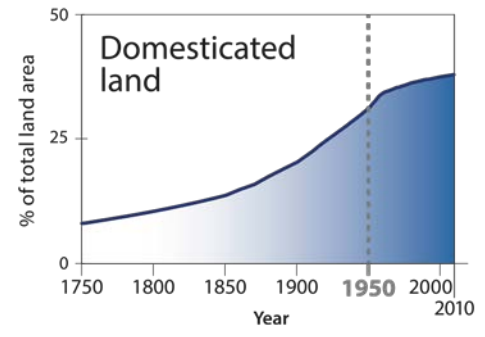
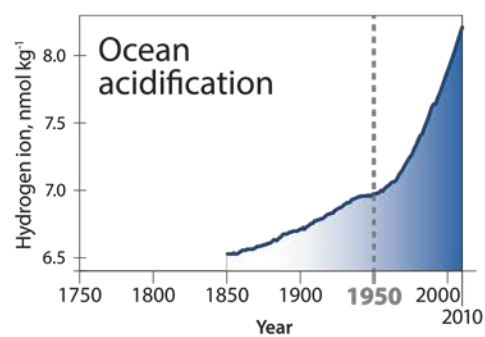
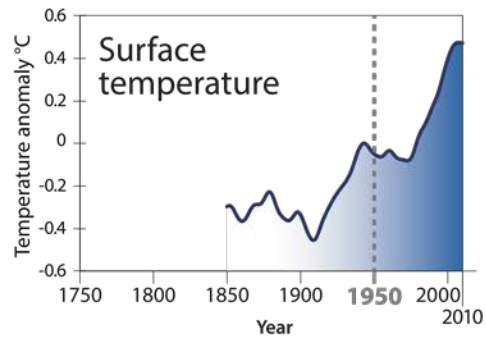
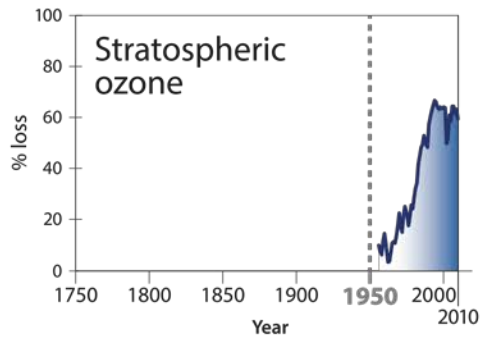
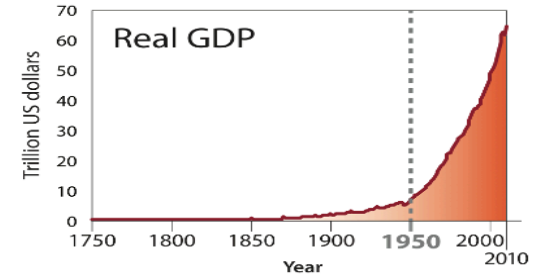
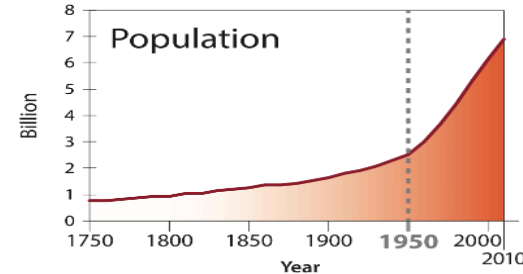
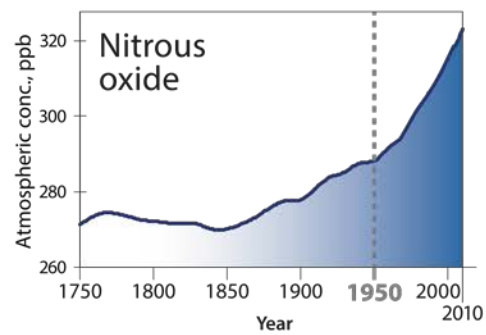
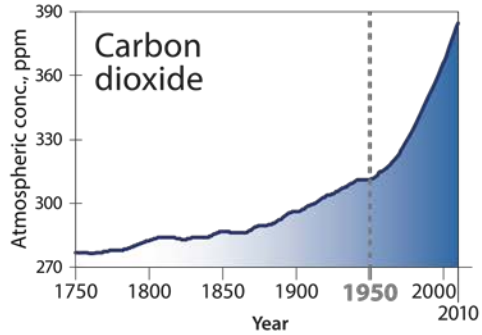
(Charles Mann 2018)

# Is greenification sufficient? Do we have enough time? „Our house is on fire“



<https://www.youtube.com/watch?v=U72xkMz6Pzk>

# The Trajectory of the Anthropocene



Steffen, W. et al. (2015). The trajectory of the Anthropocene: The Great Acceleration.



# Is there anything like « green » VET or apprenticeship?

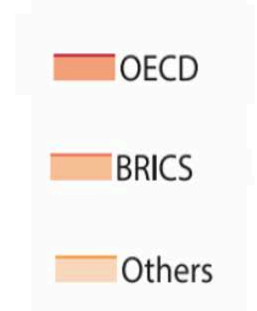
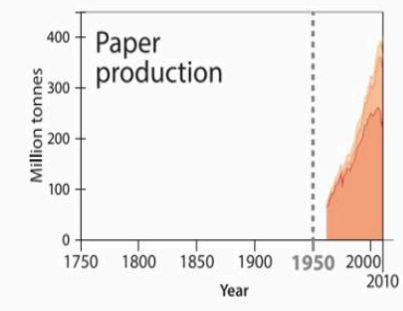
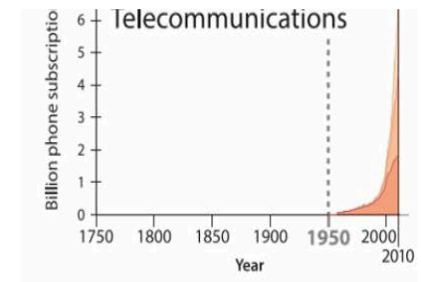
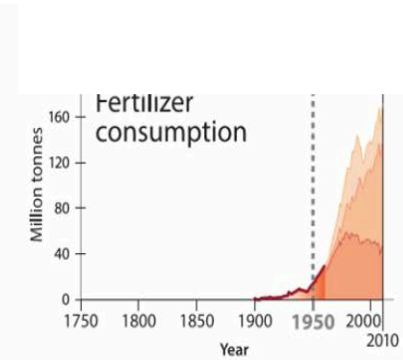
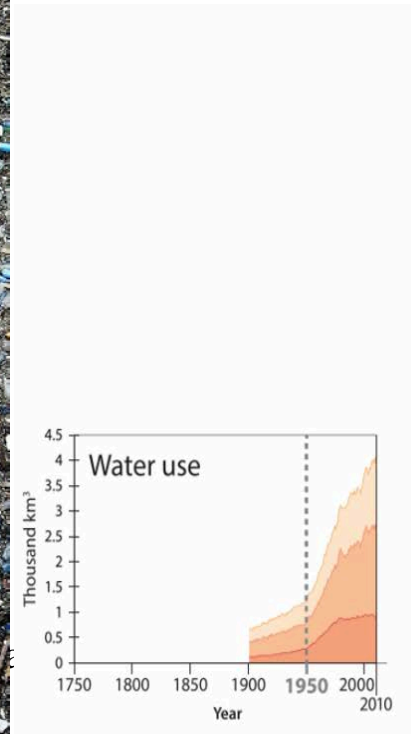
- Apprenticeships are part of the production, or stay in between education and production. Thus changing products - questions about less harming goods should or could help to greenify production and consumption, but also behavior is adaptable

. What has been done

(plastic waste)

so far?

Most people in the aera of VET and education focus on **greenification**



# Green skills, green competences for green (and other) jobs

Green skills are defined as 'the knowledge, abilities, values and attitudes needed to live in, develop and support a sustainable and resource-efficient society'\*

Green skills are the skills needed to adapt products, services and processes to climate change and the related environmental requirements and regulations.

Terms used (Cedefop 2021, ILO 2011)

“Green jobs” are jobs that reduce the environmental impact of enterprises and economic sectors, ultimately to levels that are sustainable. This definition covers work in agriculture, industry, services and administration that contributes to preserving or restoring the quality of the environment (UNEP/ILO/IOE/ITUC, 2008).

Sern et al 2018: (Literature review)

**Green skills:** procurement skills, energy skills, communication skill etc

G. de Haan: **Green competences** (ability to use... Language, Technology, Forward-looking

## 2. Greening and green skills in VET

- Greening as a perspective of small measures
- Green is important for the (new) prestige of VET, of apprenticeships
- To appear green means to attract attention, to attract learners
- Green is a selling factor
- Green is an incentive for modernizing VET
- Defining green skills and identifying green skill gaps
- Green skills have to be learned through VET and apprenticeships

# Greenifaction as a strategy to make professions attractive (again)



## GREEN APPRENTICESHIPS ADVISORY PANEL

Report looks to exciting future for agriculture and animal care training

### Who we are

- Institute Board
- Committees
- Operational plans and frameworks
- Our senior management team

### OVERVIEW

The green apprenticeships advisory panel will help focus efforts to make sure the right skills are in place for the future workforce to deliver the green technology shift the UK needs.

The panel will advise on two main areas:

- enhancing our current apprenticeships to ensure that they meet the needs of the employers within the growing green economy
- creating new apprenticeship to reflect new occupations to meet the challenge to reach net-zero carbon

**3. Diversity and inclusion:** Employers are concerned about their ageing workforce. The average age of farmers in this country is for example around 60 and they want technical education to encourage more diversity across the board.

<https://www.instituteforapprenticeships.org/about/how-we-do-it/green-apprenticeship-advisory-panel/>

# Prestige of apprenticeships

- Celebrities: persons who started as apprentices (UK examples)



### 3- Stella McCartney



McCartney spent a few years as a tailoring apprentice at Savile Row and once she had finished her apprenticeship, was made Creative Director of Chloe within 2 years.

An apprenticeship is a program that combines hands-on working with learning and training, all while in full-time employment. Learning while on the job helps an apprentice understand and master their trade, while getting paid.

The seven celebrities listed in this article all started as apprentices, and used the skills and expertise they developed to gain success, prominence and prestige.

### 2- Jamie Oliver



<https://greenlabyrinth.co.uk/apprenticeship-legends-week-1/>

# Greenification as a marketing strategy

- (Digital) Apprenticeship in Construction features lessons identifying the latest sustainable materials, avoiding waste. Aims like how to comply with energy efficiency or installing zero-carbon-buildings (AUS example)

## Green Apprenticeships

The Green Building Institute, in collaboration with [Edubytes](#), has created on-line apprenticeship trade courses with a focus on sustainability.



<https://www.greenbuilding.org.au/Green-Tradies/Green-Apprenticeships.htm>

# Greenifaction as a strategy to modernize VET

Announcement of a BIBB-workshop 10.11. 2021

How can vocational education and training contribute to the realization of the sustainability goals and how can trainers as key actors in vocational education and training shape the implementation of the modernized standard vocational training position "environmental protection and sustainability"?

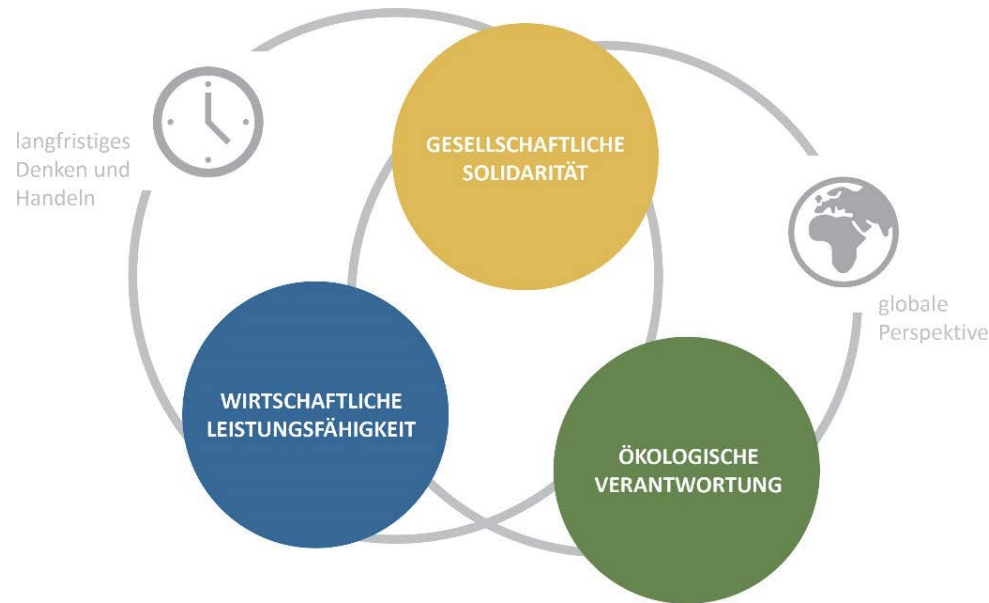


# 3. VET manuals and policy papers for greening

- Orientation for the instructors and VET teachers (SBFI 2020)

Sustainability as cross-sectional task including environmental, economic and social aspects:

Offering an analytical tool for VET practice





# VET papers and greenification

- **Cedefop, ILO based on 21 country studies: green transformation needs new skills (2011)**
- **Greening TVET and reforming teacher education for competences in sustainable development(Vietnam 2016)**
- **MacLean et al (2017) Education and the greening of economies in Asia**
- **Green skills for a transition to a low carbon economy (Melbourne, M. Brown 2015)**
- **Developing sustainable (green) skills for specific areas & professions:  
e.g. developing new abilities for bakers by including all actors  
(FH Münster bwp@2020)**



# Reforms and greening VET

- (IPPR 2011) Rethinking apprenticeships: more green economy....
- Transition to a green economy requires new skills (HM Government 2011)
- Emerging energy efficiency market and apprenticeships (green jobs US 2012)
- Stronger implementation of green skills/topics in secondary 2 education (Malaysia 2017)
- Generic green skills in order to enrich employability (M Pavlova, Griffith 2012)
- German Report (GIZ) on green skills/sustainable-oriented education: often unconnected and VET often not included in national strategies (2013)

# VET papers and green skills

- Green skills agenda and greening of occupations as an EU policy aim works better in CME than in LE (Evans/Stroud 2013 Greening steel work )
- Greening of registered apprenticeships: new & innovative programmes for green economy (US 2009)
- Skills for green jobs (based on environmental restructuring of the economy (Economix 2010, Germany)
- Enabling green skills in order to support skill planning entities (2017, SA, Dep. of Environmental Affairs).
- Greening Technical VET: transferable modules in the steel industry – European Framework for Green Skills (Germany 2013)

# VET papers and green skills

- European Alliance for Apprenticeship (EC, Meeting Report European Skills Week 2020)

While digitalisation has been often tackled, sustainability and green transitions need further exploration.

Green skills are rather acted than learned, that's why cooperation with SME and others is seen as important

- CBI submission 2021: green economy and (established and new) apprenticeships
- Green skills (Vona et al 2015) in an empiric study:  
green skills are highly demanding



# 4. Apprentices as greeners

- The uncertainty and complexity of green issues is a chance for learning
- It gives newcomers and younger persons who are supposed to live for a longer time in a changing environment another political weight (Climate Strike, Friday for Future)
- Participatory dimension and competence-based approach in the foreground
- e.g. VET school Learners union “Kauflust” (P: Jünke “Fairdays, bwp@2020) or apprentices replace plastic cups (activity supported by a Swiss foundation)



(Zürich 24.9.21)

(Germany, Spiegel 20.10.21)



Schon bei den Sonderungsverhandlungen waren die Klimaschutzaktivisten vor Ort. FOTO: IMAGO

# Role of the apprentices, learners: a pilot project (Germany)

**-Pilot Project “NAZUBI” (2015-2019)** ( source: Zinn, B./Tenberg, R. & Pittich, D.: Sustainability – Audits with Trainees. In: Journal of Technical Education, 6,2018, 3,13-24)

The contribution of the companies is to identify **company-specific audit events** and prepare them and to accompany the trainees in the further course of the auditing, so that sustainability can be experienced

A consortium of two universities, five companies, three vocational schools in Hesse and North Rhine-Westphalia(NRW), the German Federation of Trade Unions and the Chamber of Industry and Commerce inNRW and **participating trainees develop sustainability audits** and test them in practise.

The overall objective of the pilot project is to 1) **transform** the participating companies into sustainable learning environments with educational training structures which offer access to sustainability topics ensuring learn effectiveness and 2) design and **implement audits** in the context of sustainability which are education and training related.

# Role of the apprentices: strengthening the participatory part of the learners (2)

- **In this and in other pilot projects the focus** is on domain-specific knowledge on the one hand.
- The other aspect is the focus on integrating the 2 learning sites: firms and schools, both play an important role.
- What is in the foreground however is, that the learners themselves have an important role, as agenda setters but also as auditors, who assess the change which has been triggered.



[tps://www.istockphoto.com/de/fotos/apprentice](https://www.istockphoto.com/de/fotos/apprentice)

Melzig et al. 2021: Berufsbildung für nachhaltige Entwicklung: die Modellversuche 2015-2019 auf dem Weg vom Projekt zur Struktur BIBB

# What apprenticeship-countries are doing

**Germany:** in spring 2020, the standard vocational training positions were updated as minimum standards for all vocational training occupations. In the future, competencies from the areas of digitization and sustainability will be taught in all vocational training courses.

- BIBB-project “**Green competences for all apprentices**” (BMBF 2020)
- **Clean-Tech Switzerland** (Heinimann 2013): including in all syllabi and all 230 training regulations topics like renewable materials and energies, efficiency and storage of energy, efficiency of water management, eliminating waste etc.)
- **Green skills for green jobs:** analyzing 172 VET and further education programs (Austria 2015, prospect)



## 5. Apprenticeships against other VET programs

### - Systemic view

**What could be the place of apprenticeships in the landscape of a green transition (systemic point of view)**

1. The place of apprenticeships is depending on the role they play in a country. The DACH-countries with a high share of apprenticeships are not per se better in innovations than other countries
2. Neo-corporatist systems which are the ones with strong apprenticeship traditions (referring now also to the CME-approach) have a deeper, and more established cooperation between state, local authorities and interest groups.
3. The weakness is/was that they are not much looking forward, reacting more on external shocks. Even in the strategy project “VET 2030” in Switzerland (which is/was a common project of involved actors) sustainability was hardly mentioned

## 5. Apprenticeships against other VET programs (2)

**Which features of apprenticeship systems represent points of strength in promoting green transition (compared to other forms of VET)?**

1. Nature of the skills of young people: vocational and general competences
2. Two (or more) learning sites as an advantage
3. Engagement of a multitude of cooperating actors
4. Didactical and pedagogical advantage of the orientation towards professions
5. Support of the public in dual apprenticeship countries

# Conclusion

Rediscovering the (green) categorical imperative: (Hans Jonas 1979)

For learners, for firms and for policy makers

« Act in such a way that the effects of your actions are compatible with the permanence of real human life on earth »



Thank you for your attention!

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