

The Nexus of CSR, Creative Education, and Direct Democracy

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There is a prima facie argument –intergenerational equity – that those who are affected by a decision should be involved in its taking. Currently, experts devise and shape transition pathways and their management (TPM) that hopefully deliver greater sustainability, however, do so in a governance void and direction that the youth destined to live (in) these futures find it difficult to loosen and/or share the control over these processes. 105 pupils were asked to write an essay about their future visions within the frameworks of TPM and Corporate Social Responsibility (CSR). The paper outlines these visions, evaluates the adopted solutions (i.e. pathways), and presents, how creative education and giving voice to the youth in a system of direct democracy could be an implementation facilitator regarding CSR.

Keywords: intergenerational equity, governance deficit, CSR, transition pathways, sustainable lifestyles

INTRODUCTION

The paper outlines Swiss pupils' visions and perception of the future and evaluates their suggested solution. These solutions are seen from the viewpoint: "options to save the earth step by step" – in other words, as potential pathways to change, e.g., today's lifestyles, laws, political rules, etc. (all belonging to the individuals' environment, as defined by Bronfenbrenner (1981)). The research should evaluate differences between the identified pupils' visions and those who today shape and define long-term pathways towards future lifestyles in 40 years. The latter are often of an age that typically precludes them living in these futures. This turns into incomprehension regarding the obvious, but at the same time not questioned *intergenerational inequity*.

However, given the socio-cultural context, and the youth's approach to media, technology, communication channels, and related attitudes, etc. young people are likely to have very different notions of their specific future, and the way sustainability is evolving within this. This opens the distinct possibility for ("older") experts to adapt and shape their current, often standard or past-oriented solutions – or pathways – to unconventional solutions that might be of greater sustainability. Such an effect can be traced back to the youth's ability to anticipate its own future even if it is fully loaded by issues of any kind. To make this a success, both parties should meet (e.g., in the form of a roundtable), with the result that standard experts have approach, could listen carefully to, and might have then the courage to implement the innovative, creative, even trailblazing, and sometimes (at first glance) very unusual solutions pupils or young people have developed and come up with.

To understand how young people, conceptualise their future within the wider theoretical framework of Transition Management (i.e. solution pathways) and the role of promoting sustainable lifestyles (primarily in first sector companies), they were asked to write an essay. In general, future visions and their own preparedness for a transition to a low carbon economy were focused by the research. The corresponding investigation of the implications of this for the private and particularly for the public sector followed suit.

Overall, this makes a compelling case for the inclusion of young people in decision-making processes that affect their futures: The private sector should recognise the young people's transitions as potential consumers, whereas the public sector as future citizens (i.e., voters). The youth must be taken as serious agents of change for the former as well as for the latter.

One of the most viable pedagogic principles to implement morale very early in a child's life is "Reggio-pedagogic", which is highly relevant here, since its goal is infant development with regard of not only recognising unfairness, discrimination, isolation – but to intervene, protect, and care for weaker children. *The implementation of this pedagogical principle in many Swiss Day Cares, Primary Schools, etc. to have an early approach to societal, social, and environmental issues, enables incredible options to establish Transition Pathways driven by virtues (such as justice, consideration, and sustainability as well) at very young ages and shows results as this study will reveal.*

After the overall compliance with the United Nations Sustainable Development Goals that must be filled by the year 2030, different *Swiss villages decided the implementation of a Transition Management agenda that should manifest intergenerational justice as a central principle of public management* (Looser et al., 2017; Looser et al., 2019, Looser and Schwabach, 2019). In other words, with regard to certain topics the inclusion of young people in decision-making processes is already established. For instance, the strategy to enlighten citizens' concerning environmental issues – e.g., recycling options – was mostly developed, implemented, and communicated by young people. Thus, the implementation of **related pedagogic principles**, which particularly means **creative lesson plans**, projects outside the former curriculum, environmental town theme weeks, round tables with politicians, businesses, and the media, etc. This project and the related measures contrast with most current draft concepts of transition strategies (Rotmans et al., 2001; van de Kerkhof and Wieczorek (2005); Mander et al., 2008) developed by (often expensive) experts and specialists only to end as paper tiger in a drawer.

Thus, in a first step, an extensive literature review was conducted focusing on studies about future visions, sustainability education (e.g., in primary schools, Universities of Applied Sciences, or universities, etc.) especially in the German speaking part of the world (dgsa, 2019; Assnas, 2019). The in-depth exploration this paper strives for, requires a research framework that is as complex as the topic it tries to grasp. As a consequence, this research's approach is primarily "going wild", qualitative and exploratory and follows grounded theory rules to refine and keep track of ideas in order to generate hypothesis and comparative power retrospectively (Patton, 2002). It is epistemologically linked to social constructivism since it assumes that reality is constructed by human beings. These are interacting in a cultural setting (Scott, 1995). These latent social patterns should be revealed by conceptualising codes from collected data (Creswell, 2007).

Current Research Status

On a first glance, the literature review gives the impression that previous research's target group were not primarily young people, thus they might be only a side aspect or sometimes even excluded from decisions about the shape and content of their future and the related tasks. This is contrary to well-established principles of influential traditional sectors with a long history of honour and morale (e.g. the trade market) (Dafoe, 1839; Devinney et al., 2013), policy-making especially of *participatory decision-making*. On the one hand, in contradiction but also in common to earlier research, this research significantly showed the high awareness and capabilities young people embedded in young people not only to articulate cogent and realistic future visions, but also to develop viable pathways towards their realisation (Kaufmann-Hayoz and Künzli, 1999). In Switzerland, these studies were mainly conducted on

young people between 14 and 24 (SUB, 2011) and showed very clearly that it is important to legitimise and involve those affected and myopically ignored yet (COCON, 2006).

Hence, one of the primary goal of this study was to look at 10-12-year-old people; on the one hand because they are involved as well. Further, such research is quite rare (if even currently not existent) not just in Switzerland but in general. Thus, to include even younger pupils affected to the same extent (a follow-up study (Looser et al., 2019) will go further and includes primary classes of ages between eight and ten) allows longitudinal insights into future visions of young people of all ages. There is an issue within developmental psychology to suggest the 10-12-year olds find it difficult to articulate their futures, and, even more so, to frame pathways suitable towards their achievement (SUB, 2011). By contrast, a detailed evaluation and understanding of the current shape with 10-12-year olds, although they may find it difficult to come by such background knowledge and might often feel let alone to comprehend its full complexity, revealed their profound but also anxious interest (Looser et al., 2019). Thus, following Brodbeck (2012) or many other studies, to get the most out of every change process the crucial factor is to involve as early enough those affected.

This paper sheds light at Swiss specifics that might make the difference in managing and especially including the youth in future sustainable decisions (i.e., the power of youth parliaments in the most direct-democratic system in the world). Furthermore, the development of moral and an ecological understanding are scrutinized in detail.

Others (e.g. van de Kerkof and Wieczorek, 2005) specifically ask questions about the evolution and complexity of ethics and moral behaviour by children of that age group. However, this is a consideration for the data gathering methodology – if the project can come up with visions and pathways, then such ideas should have a say in the deliberations of the future, given intergenerational equity. The long-term transitions, i.e., are congruent with the research questions, particularly, with the essay's leading questions. As current futurology is oriented at indicating a focus change within the candidates – firstly, they have to look into the future from their current status, the section question “throws” them as some sort of “futuresologists” into this future and by this their sociologically vantage point is supposed to give insights into change-making. Thus, the success factor to find applicable, viable solutions, also known as transition pathways.

To answer the question of what are Swiss pupils' anticipations and projections of their futures, implications for long-term transitions the remainder of this paper is structured in a theoretical section outlining the concepts applied. Further parts are: the data gathering methodology, results, first insights, the results' discussion as well as conclusions in the final section.

THEORETICAL FRAMEWORKS

As argued above, there is an urgent need to develop a better understanding and conceptualisation of “the future” and different viable pathways (Geels, 2002; 2005). These processes are by necessity and by design inclusive, exploratory, and deliberating. This ranges from traditional forecasting processes in a fundamental way, as these are evidently unreliable in fast-changing societal contexts, and are unsuitable if a continuation of the past is to be avoided – to only few (totally stuck in old-system thinking) targeting at a continuation of the present by x% p.a.

Transition Pathways and their Management

This has also been recognised by the many inclusive processes that have taken place over the years (Martens and Rotmans, 2002), such as national foresighting exercises (notably in South Africa, the UK, and Germany, the Netherlands, but also in Jamaica, Mozambique and the Seychelles) (Mander et al., 2008). In addition, the EU roadmap clearly calls for such visions of the future to be developed and appropriate transition pathways to be conceived and promoted (Geels and Schot, 2007; Carlsson-Kanyama et al., 2008; Commission of the EU, 2011, 2013; Iacovidou and Wehrmeyer, 2014). Thus, the target of this study (including follow-up studies mentioned involving younger ages as well as older ones at voting age) are to identify viable transition pathways, their set-ups, management, and most

important, to be included in hands on, practical implication for daily routines (i.e. they are included in political programmes).

Though, according to Rotmans et al. (2001) transitions are transformation processes in which society changes fundamentally, governments are crucial actors in bringing structure and a stepwise manner to these complex transformation procedures. In other words, likewise the approach of the Department for Societal, Social, and Environmental Issues, public policy in transition management processes could provide – if implemented in a meaningful, participative, and transactional way – coherence and consistency and can be the spur or a case to sustainable development. However, participants reported from the inclusion of the youth as some sort of “farçe” (EU Commission, 2011).

Yet young people who do live in these futures and are tasked with their attainment over time are typically excluded from the decisions about their shape and content. This is contrary to first principles of participatory decision-making and contradicts earlier research that shows that young people are very well able to articulate cogent and realistic future visions and develop viable transformation processes towards sustainable, responsible, ethics- and virtue-based future setting (Reed, 2008).

To fully understand the development of comprehension of the mentioned abilities to realize, distinguish, understand, to imagine, and to transfer potential future phantasies into viable, possible and needful Transition Pathways (TPs) (i.e., aforementioned “solutions”), so to manifest as genuinely sustainable settings, it is necessary, in the next section, to look at the development of morale in children.

The Development of Moral and Ecological Understanding

Regarding the establishment of morale and ethics, the concepts of Kohlberg (1971) and Piaget (1932) are of great importance. Thus, they need to be looked at in detail. The latter discovered different stages of moral development in children: the short scope targeting egoistic benefit, the medium or mid scope aspiring to mutual benefit, and the broad scope seeking for universal benefit.

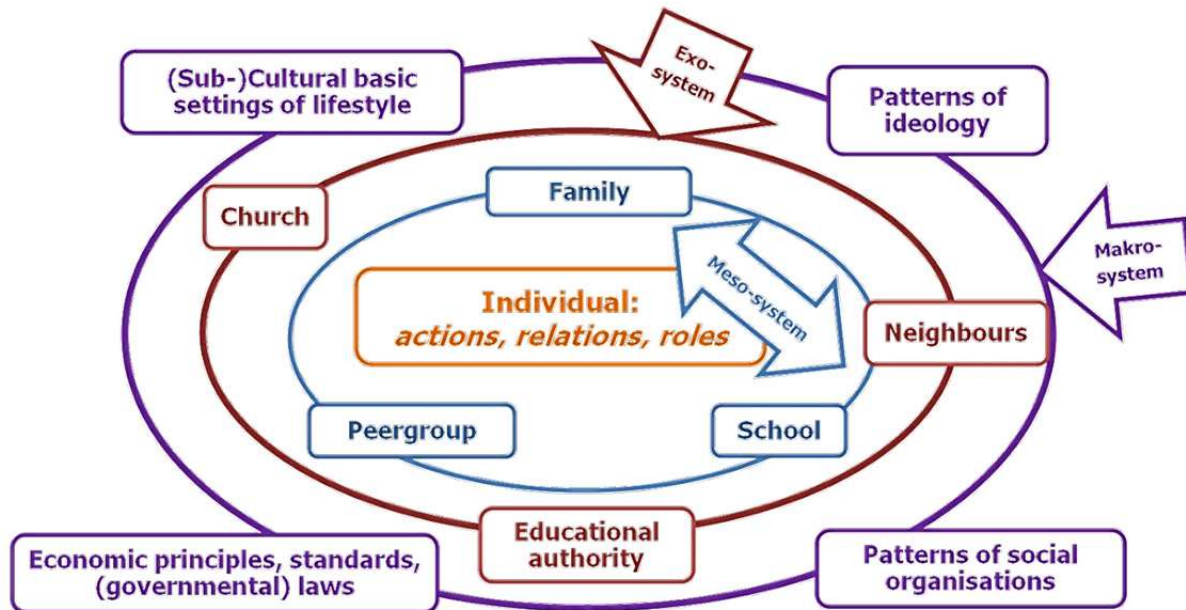
Kohlberg (1971) complemented these definitions and defined three main stances of ethical behaviour: pre-conventional, conventional, and post-conventional. While pre-conventional behaviour (comparable to Piaget’s (1932) short scope) is egoistically and extrinsically responsive, in other words driven by obedience, punishment, and self-interest, the conventional (medium scope) level is steered by interpersonal accord and conformity, authority and social order obedience, regulations and conventions (Kohlberg, 1971). The latter requires a “thin” or “weak” ethical system, at least.

By contrast, only post-conventional behaviour (comparable to Piaget’s (1932) broad scope) is based on intrinsically motivated ethics and universally ethical principles apart from regulations (Kohlberg, 1971). This stance is to some extent congruent with virtue ethics, which may, initially, be identified as the one that emphasizes the virtues, or morale (Hurka, 2001), an approach to ethical values and practices that emerge from the cultivation of particular skills, qualities, and habits and characteristically comes only with experience of life (Toner, 2010). This is in some tension with more potentially universal and rationalised systems of ethics, e.g. an approach emphasizing (Kantian) duties or rules (called deontology), or the calculus of utility (utilitarian), or with ethics, which is steered by consequences of actions (consequentialism) (Slote, 2011).

These different understandings of morale play fundamental roles in the development of values or even virtues of sustainability, as described by Bronfenbrenner (1981), as well as for the development of a lifeworld concept (Habermas, 1981). Figure 1 shows the different impact factor on the development of responsibility, morale, and appropriate actions regarding sustainability and an ecologic groundwork: the Meso-system (e.g., family, school, etc.), the Exo-system (i.e., educational institutions, churches, etc.), and the Macro-system (e.g., laws, patterns of ideologies, society, settings of lifestyles, economy, etc.).

By this it is obvious to listen carefully to children (to learn very early more about their attitudes towards their ecologic future, their future visionary transition pathways, where they see them-selves in this system etc.). All these “stakeholders” should be considered – especially the actors of the **Makro-system** (e.g. politics and economy).

FIGURE 1
IMPACT FACTORS ON THE ENVIRONMENTAL PERSONALITY
(ADAPTED FROM BRONFENBRENNER, 1981)



People following virtue or post-conventional ethics might be, from a profit-seeking point of view, largely unreasonable. The still unresolved question is what makes them unreasonable? What are their attributes, their personalities that compel them to follow other rules, to internalise socially sustainable values and perhaps to go down a bumpy road to an uncertain financial situation?

What are in the end the values, culture and lifestyle models of these people? If we now think about the assignment of these questions to our research aim – to find implications for long-term transitions based on pupils’ anticipations and projections of their futures – we have to think about their involvement as stakeholders as well. Since only with an increased involvement, in particular with (pro-)active participations of young people in current stakeholder processes the implementation of their TPM is viable, it is inherent to look also at stakeholder processes.

The involvement of stakeholders is important since their objective to generate profit that is based, inter alia, on their stakeholder relationships. These relationships encompass many interests, primarily of which are social and environmental issues (Russo and Perrini, 2009). Thus, companies should consider their responsibility towards several societal stakeholders, which regarding the future and in particular prospective customers (i.e., young people), who do live in these futures and are tasked with their attainment over time, suddenly in companies’ focus. However, many companies typically exclude young people from the decisions about the shape and content of future movements, developments, and particularly of products.

By contrast, there are other companies – in particular Swiss SMEs –, which identified the obviously *intergenerational inequity* many years ago and are tackling this issue to some extent. Thus, since many years these principles are firmly fixed in Swiss school plans – for instance in thematic project weeks. The explanation for this heightened awareness for future threats and thus activities of change in Switzerland may lie in its political/historical background.

Swiss Direct Democracy: Youths’ Pathways in Action

Switzerland has a long tradition of people and stakeholders as agents of change following principles of ethics and morale (Berger et al., 2012; Gentile, 2012; Gentile and Lorenz, 2012; Christen Jakob, 2012)

as “implicit part” of Swiss (business) culture (Matten and Moon, 2008). Many companies tackle a myriad of responsibilities in terms of protecting the environment, developing the community, corporate volunteering, or conserving resources in the pursuit of universal benefit (van Schie et al., 2012).

Switzerland, officially known as the Swiss Confederation, is a federal parliamentary republic, and hence **federalism is one of the most influential features** in the Swiss state. The central government must pay respect to 26 individual cantons, with regard for their budgets, languages, unique geographies, social practices, etc. (Linder, 2005). Switzerland is characterized by a form of direct democracy (indeed Switzerland is the most direct democracy in the world) where the federal constitution itself and any of potential changes have to pass popular referendums where every citizen is allowed to vote. Furthermore, the Swiss people retain the civic right to challenge by referendum any law passed by parliament and introduce by initiatives supplements to cantonal or federal by-laws and/or regulatory statutes (Kriesi, 1980). And this is the anchor for perfectly implement intergenerational equity and participatory decision-making – at the moment, seemingly the most directive democracy and opportunity for the youth to implement their solutions and pathways. Thus, even, if they had not reached voting ages, they are allowed to initiate a referendum etc., only somebody over the age of 18 has to hand over the boxes with the signatures to the executive. And lastly, the *souverain* – this means every citizen has the right to vote on this solution pathway.

Although predominantly German speaking (the other linguistic and cultural regions are French-, Italian-, and Romansh-speaking), Switzerland is not bound by a sense of common ethnic or linguistic identity. Instead, the strong sense of identity and community evolves from a common historical background, traditionally common values, its direct democracy and federalist system, and from “Alpine symbolism” (Federal Administration, 2008). Moreover, the principles of subsidiarity and liberalism determine the relationship between state, economy, and third sector (professional associations). As the state is traditionally weak, there is a strong incentive for the other sectors to organise themselves. Thus, Switzerland has a strong third sector and philosophical, economic, political, and social independencies are very important to the Swiss (Helmig et al., 2010). As another facet of economic and political neutrality, Switzerland is notably not a member of the European Union (EU) or the European Economic Area, and business is mainly embedded in local value chains (Federal Administration, 2008).

Thus, to underpin the inclusion of the youth as serious stakeholders, it is to mention that many Swiss SMEs have very early recognised that the involvement of children at different ages into their product design (e.g. school furniture etc.) is like a “cookie jar” of innovative, out-of-the-box, never have seen, and often sustainable solutions, without any extrinsic impetus.

Swiss children are quite aware of the world’s biggest future challenges. Swiss educational lesson plans that cover topics of water, earth, air pollution, sustainability (e.g., recycling), etc., foster general awareness. Further, many of them are confronted with war very early in their lives, due to the direct integration of refugees into Swiss schools, or in many cases by their own background of migration (e.g., as refugees of the Yugoslavian War, nowadays from Syria, Afghanistan, etc.), Referring to Post et al. (2002) and Campbell (2006), to include and/or involve these stakeholders in decision-making processes – even if they are of ages never considered before – would help to adjust the mentioned issues of *intergenerational inequity, information asymmetry, governance deficits as well as implementation challenges*.

This does not mean that they have better visions, however their visions are shaped by individual experiences, which makes them sources of problem-related TPM – if only they were listened to, *taken for real, brought to political and economic leaders so that their trailblazing solutions find their way into practical, political, and economic implications* (Looser and Wehrmeyer, 2015).

The previous sections explored the research status with regard to the youth’s future visions and potentially related transition pathway (as well as their management), the important role ethics and morale should play, the salience (i.e., significance) and the chance of the youth’s stake to be heard in a direct democracy as Switzerland. The next section outlines the methodology applied.

METHODOLOGIES

This study, which is primarily based on essays written by pupils at ages from ten to twelve, is, as said, epistemologically linked to social constructivism since it assumes that reality is constructed by human beings interacting in a cultural setting (Scott, 1995; Bogner et al., 2015). Grounded theory (i.e., a going wild approach) is the appropriate approach to research such settings since it enables to seek out and conceptualise the latent social patterns by using an inductive approach of generating substantive codes from collected data (Mitchell and Jolley, 1992; Creswell, 2007). Later, it is possible to develop theories leading to a next sequence of data collection increasingly focussed on the deduction of further questions (Patton, 2002). Considering this hermeneutical integration of rival theories, new insights and additional third-party sources are consulted and included whenever useful, achievable, and/or necessary. Table 1 describes the individual working steps.

**TABLE 1
WORKING STEPS**

<i>Working steps</i>	<i>Orientated at</i>
1) Orientation, i.e., scanning the essays for signalling words and statements	Legewie, 1994
2) Activation of context knowledge, i.e., remind situation in the class rooms, explaining remarks that were necessary, etc.	Legewie, 1994
3) Working through the texts, i.e. careful reading and marking significant statements in regard to future concepts, TPM and management (Appendix A)	Legewie, 1994
4) Structural content analysis, i.e., categorise themes and contents; thereafter sequence and arrange statements to concepts (Appendix B)	Mayring, 1996, 2003
5) Concentrating content analysis, i.e., paraphrasing, generalising (Appendix B)	Mayring, 1996, 2003
6) Summarise text and support by quotations (e.g., in Appendix B)	Legewie, 1994
7) Compare the identified concepts of the two coders, redefine concepts, calculate the inter-rater-reliability (Appendix A)	Hasson et al., 2000
8) Analyse the texts by Leximancer, search for congruities and non-conformities (Appendix C and D)	Leximancer, 2017

Firstly, a stakeholder analysis based on the salience model showed that the youth is – regarding future challenges – a “definitive” stakeholder group, as it possesses power, urgency, and by the theoretical analysis about the content and implication of TPM, also legitimacy. Just remember the importance of involving those affected first (see Looser and Wehrmeyer, 2015). These findings are a result of an extensive literature review and the discussions taking place at different roundtables (e.g., The Sustainable Business Roundtable (SBRT)) (Looser, 2018).

The next sections describe the gathering and analyses of the aforementioned essays. As anonymity was requested by parents, teachers, as well as by the ethical code of University of Surrey’s ethical committee, every pupil got a Code ID.

Sample Description

The classes included 105 Swiss pupils, at ages between 10 and 12 (while the 10 years old went to the 4th primary class, the 11 years old attended the 5th and the pupils at the age of 12 the 6th class). Appendix A shows a detailed sample distribution including a lot of information used later.

Essays

As described in the introduction section, the essays were based on pretested guiding questions. Thus, the pupils were asked to write an essay about “**how the world looks like in 2040**” (i.e., the health of the environment, human lifestyles, the setup of towns, etc. = Question 1). The answers should also include their own life (e.g., daily life, job, where/how to live, hobbies, transportation means, (in)dispensable things = Question 2), problematic topics (Question 3), things that bring sorrow, and their personal engagement to solve the problems so to abolish sorrows (Question 4).

By structuring the essays (see Appendix B, by Mayring (1994); Legewie (1996)), it was possible to align the questions and potential answers to Bronfenbrenner’s (1981) framework:

- 1) *answers given to family constitutions, lifestyle conditions and living set-ups are aligned with **Bronfenbrenner’s Meso-system**;*
- 2) *answers related to the **Exo-system** are concerned about future jobs, hobbies, interests;*
- 3) *whereas questions about the world in 2040 and particularly its environmental, social, global, etc. condition target on answers aligned with the **Macro-system**.*

This encouraged responses that were not biased by any judgements of expected behaviour to reveal underlying feelings and attitudes, to avoid socially desirable responses, and to undertake estimates about young people future visions. The essays were written during class time with duration of 45 to 50 minutes.

The Concept of Creative Education, Inclusive Democracy, and CSR

Current research suggests that intrinsically motivated CSR – the only way CSR or their manifestation in UN SDGs must be achieved by considering the voices of multiple stakeholders (Looser and Wehrmeyer, 2015) – which, by definition, should include children as future citizen, voters, consumers, and decision-takers. Especially regarding legitimacy, Foxton et al., (2009), Foxton et al. (2010), and Frajy (2015) have elaborated that the key challenges of today’s companies is to provide viable transition pathways to a more sustainable future (Quist and Vergrat, 2006). And, this study will show that the latter are often already manifested as ideas in the youth’s visions of their future life. “Give children voice”, is one of this research’s goals and see the viable, expiring, at the same time practical, however sometimes on a first glance “crazy” solutions they present (Frajy, 2015).

Beside Swiss SMEs also other countries (as mentioned, e.g., Germany (Schwalbach, 2015)) have very early recognised that the involvement of children at different ages into their product design (e.g. school furniture etc.) is like a “cookie jar” of innovative, out-of-the-box, never have seen, and often sustainable solutions, without any extrinsic impetus. The public sector followed suit, so that these solutions found their way – over direct democracy – to society.

Swiss children, by creative education, including lesson plans that cover self-organised workshops on topics, e.g., like water, earth, air pollution, sustainability (e.g., recycling), further their early confrontation with war, due to the direct integration of refugees into Swiss schools, or in many cases with their own background of migration (e.g., as refugees of the Yugoslavian War, nowadays from Syria, Afghanistan, etc.), are quite aware of the world’s biggest future challenges.

This does not mean that they have better visions, however their visions are shaped by individual experiences, which makes them sources of problem-related transition pathways and management – if only they are listened to, taken for real, brought to political and economic leaders and their trailblazing solutions find their way into practical, political, and economic implications (Looser et al., 2019). Thus, educational methods like Reggio Pedagogics, switched classroom, political debates, etc., seem to manifest in inclusive democracy, and could lead to better pathways, e.g., to less CO₂ emission.

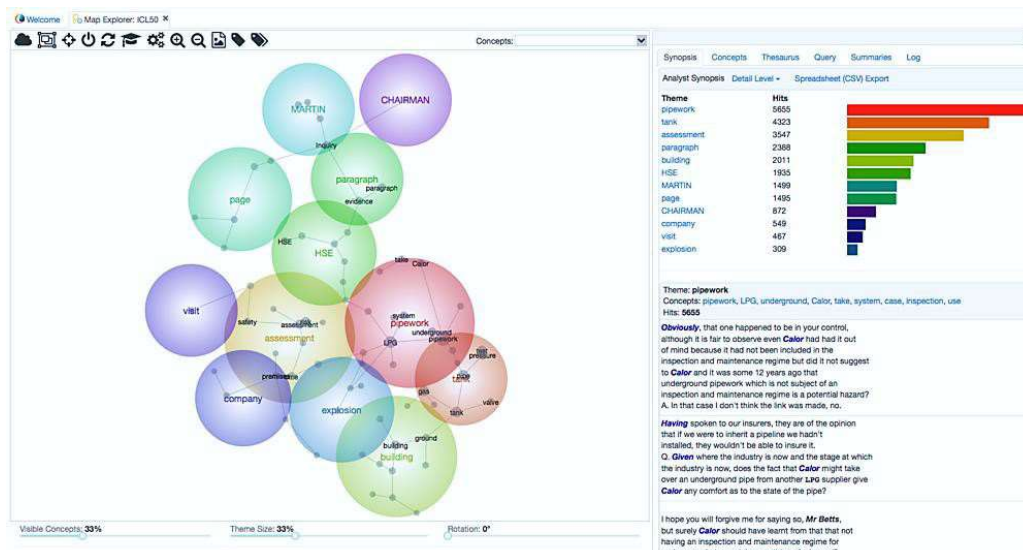
Qualitative Content Analysis

This study is based on qualitative content analysis by sensitising concepts as defined by van den Hoonaard (1997). Qualitative analysis, or to be precise, qualitative coding is defined as “the process by which segments of data are identified as relating to, or being an example of, a more general idea, for instance, theme or category” (Lewins and Silver, 2007).

In a first step, the essays were analysed by Legewie's global analysis (1994) and Mayring's (1996; 2003) qualitative content analysis (see Appendix B and C). This process allowed cross-case comparisons to identify patterns and construct typologies as suggested by Patton (2002). This helped to relate the identified patterns to other observations or research results, e.g. from document analysis. Two independent coders were responsible for the content analyses, searching for common future visions (i.e., concepts). This allowed the calculation of the inter-rater reliability, also known as concordance. In general, inter-rater reliability calculates a score of how much consensus, or homogeneity, is in the analyses of the coders (Rössler, 2005). It is useful in refining, for example, the concepts, conceptualise the latent social patterns, or for identifying the latent variable (Flick, 2007). For this purpose and in this study, the Holsti formula was applied (Rössler, 2005). Notably, reliability can range from a value of 1, if the analyses are identical, to 0, if they totally differ. The calculated reliability herein was 0.94, which makes this research's identification of concepts quite reliable and heightens at the same time the objectivity and internal validity of the study.

Until that stage, the methodology is interpretative at several levels. This might be a drawback on the study's objectivity. To tackle these weaknesses and further heighten the quality of this study the results and conclusions gained from the qualitative content analyses of the essays, were further analysed by software, since this allows an independent, objective, systematic, category-based examination of individual statements. The decision here fell in favour of Leximancer because this software also allows visual analysis of texts to mirror concepts (see Figure 2).

FIGURE 2
EXAMPLE OF A VISUAL ANALYSIS BY LEXIMANCER (LEXIMANCER, 2017)



Leximancer is an automated, statistical approach that avoids researcher bias (following the rules of grounded theory). It provides a first-cut analysis for pure discovery of concepts.

It links evidence words, allows the manual deepening of concepts, reveals (unknown) relation between concepts, so that in the end categories might be built as well. A cross-analysis with the concept/categories retrieved from the analyses by Legewie (1994) and Mayring (1996; 2003) allow deeper exploration and/or documentation of findings.

FIGURE 3
METHODOLOGICAL PROCESS AND OUTCOMES

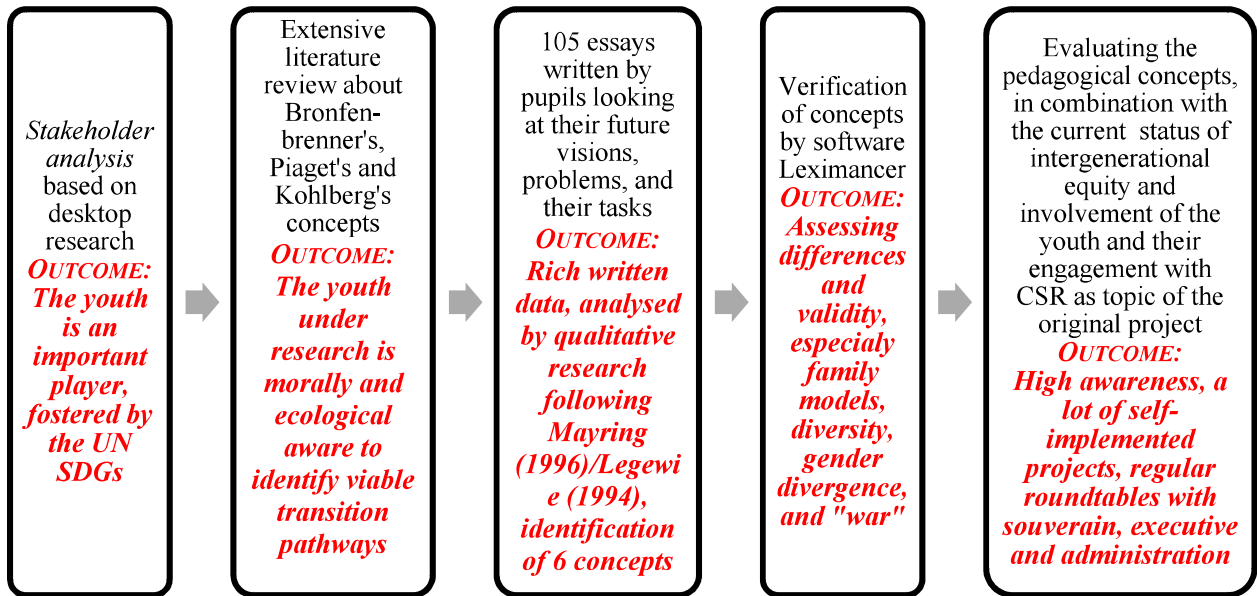


Figure 3 – in addition to Table 1, that describes the single working steps – demonstrates the methodological process as flow chart with the outcome of every step as the research concept is quite complex, which is dedicated to heighten the overall quality of the paper.

The combination of a software tool like Leximancer (with an approach to some extent similar to grounded theory) with a qualitative content analysis yields useful information for further research.

FINDINGS

In general, the results show little variations in attitudes towards the future. However, there were large differences in the ability to deal with the task: While the year 6 classes could formulate their essays properly some of the year 4 pupils found the challenge too hard, thus the researchers had to explain the task in more detail to few pupils.

Finding from the “Traditional” Analyses

By reviewing the data collected by Legewie’s (1994) and Mayring’s (1996; 2003) approach, repeated ideas, concepts or elements become apparent, and are tagged with codes, which have been extracted from the data and could be scrutinized in Appendix B. The following were: 1) The combination of more data; 2) the review of the identified codes (e.g. by a second coder), 3) grouped codes that led to concepts, and 4) into categories. These categories may evolve new theories, or to be precise, innovative TPM based on Bronfenbrenner’s (1981) systematic ecological concept. Appendix B summarises codes/concepts, and underlying theories (Bronfenbrenner, 1981), with **blue codes** represents the 30 pupils at age of 10, **red codes** 39 pupils at age of 11, and **green codes** 36 pupils at the age of 12. The related sources (i.e. guiding questions of the essay) are mentioned in the last row.

To summarise, technology and robots as integrated parts in daily routines turned out to be an important factor for progress as well as for their potential impact on the environment and on job options resulting for instance in high redundancy rates (answering question 1 and 3). A quite pessimistic attitude is prevalent among all pupils mainly based on their concerns about environmental pollution, climate change, and overpopulation, etc. (related to question 3 and 4) (see Appendix B, C, D).

However, the most distinct differences with regard to particular attributes (i.e., gender, age, religion and by parents' educational level) are based on the conducted global and content analyses. The following chapter will shed light on these findings and comes up with opportunities for international comprehensive studies. Some of them are already running, e.g., with Iran, Andorra, Rumania, etc.

Female Vs. Male Future Visions

The results from Legewie's global analysis (1994) and Mayring's (1996; 2003) qualitative content analysis can be summarised as the following concepts:

TABLE 2
RESULTS FROM LEGEWIE'S (1994) AND MAYRING'S (1996; 2003)
QUALITATIVE CONTENT ANALYSIS

Visions/Concepts		Male in%	Female in%
1) Family setting visions	Traditional	25	78
	Non-traditional	66	12
2) Visions related to materialism (e.g., high income, big house, expensive car, etc.)	Important	18	56
	Not important	8	56
3) Job visions (e.g., housewives vs. ambitious men)	Traditional	22	64
	Non-traditional	85	12
4) Visions about residence	Traditional	34	89
	Non-traditional	71	6
5) Anticipation of problems	Rich, concrete, considered	24	29
	Poor, standard answers	45	49
6) Identification of sorrows	Realistic, rich, considered	67	12
	Fantasy, standards facts	17	57
7) Own contribution for problem solving	Rich, concrete, non-standard	45	39
	Standard, not innovative ideas	12	17

Regarding **Question 2**, one part of female pupils (20 out of 50) wrote texts as follows:

[...] I am living with my husband in our beautiful house. The house looks like built from soap. Our children are smart, cheeky, and play many pranks [...]
[...] to have two dogs is the most important thing in my vision of my individual future [...]
[...] by the age of 23 I will be married, sell bread and sweets. In my leisure time I will bake, tease, and knit [...]
[...] with healthy husband and children [...]

Only four of them want to change town. The answers of the other 30 girls showed inconsistencies. E.g., they want to live abroad in quite exotic places – e.g., Ghana, Myanmar, Cook Island, Ummanz, Rügen, Zadar, Vilm (islands in the German East sea), Uyuni (in Bolivia), in the desert of Tabernas (in Andalusia, Spain), Singapore, at Lake Powell (USA), or in Jalanka (a land not yet existing). However, at the same time, they chose very traditional jobs, like nurse, secretary, teacher, flight attendant, old peoples' nurse, governess, etc. Furthermore, girls with a migration background, today living in quite small flats, visioning their future living condition either “on my own” or “in a living community”.

Thus, girls showed a more traditional vision of their future (e.g., “to be a mother”, “having a house of my own with garden and dog”) than boys.

One explanation for the diversity and apparent contradiction amongst female pupils' visions and between female and male concepts might be the default effect: In social settings, for example, both groups might adopt the normative choice (what others are doing) unconsciously as a social default effect.

It might be that the female pupils were more likely to choose what they observe other choosing, even if they do not believe that another person is the more knowledgeable person. People are also more likely to treat choices that require less justification as defaults. There are many different explanations for how default setting causes a change in the choice distribution (i.e., Cognitive Effort, Switching Costs, Loss Aversion, Recommendation, and Change of Meaning).

Most of the latter are not interested in materialistic belongings while the formers do not want to sacrifice their motherhood for career or job opportunities at all. In sum, this raises questions about gender typing of recruitment, motivation, and loyalty for businesses that are not actively voiced in the transition towards a more sustainable future.

Future Visions by Ages

The differences between age groups are not significant and vary among kinds of visions. The study identified comparable visions regarding lifestyles, job opportunities, infrastructure, thus, similar concepts and underlying theoretical constructs.

**TABLE 3
DIFFERENT VISIONS BY AGES**

Visions	10 years-old	11 years-old	12 years-old
	in %	in %	in %
Family setting visions	27	21	42
Visions related to materialism (e.g., high income, big house, expensive car, etc.)	17	27	56
Job visions (e.g., housewives vs. ambitious men)	34	15	51
Visions about residence	45	27	28

All age groups showed little consciousness, or to be precise, little concrete and/or individual measures regarding sustainable attitudes.

Future Visions by Religion

What might be an important impact factor e.g., for differences related to religion is the world's widely critical political, geopolitical etc. situation often mingled with religious reasons or rooted in their variety and (mis)understandings, etc.

**TABLE 4
DIFFERENCES BY RELIGION**

	Muslim	Russian Orthodox	Catholic	Reformed	Others
Visions	in %	in %	in %	in %	in %
Family setting visions	43	12	8	12	25
Visions related to materialism (e.g., high income, big house, expensive car, etc.)	29	33	12	5	21
Job visions (e.g., housewives vs. ambitious men)	22	13	44	12	9
Visions about residence	3	5	45	23	24

The aspect of diversity based on religion needs further research, in particular, regarding future family settings, residence, job prospects, and attitudes related with materialism etc.

Future Visions by Parental Educational Level

Partially, different levels in parental education seem to have an impact on future visions. Interestingly, pupils, whom parents did an apprenticeship so to have a national certificate, had many visions with regard to family settings (56%). A tertiary level education seems to have less influence on visions regarding family settings (12%). Regarding visions about job market, career, materialism, etc. were mostly present in the “tertiary level”-group (65%).

TABLE 5
DIFFERENCES BY PARENTAL EDUCATIONAL LEVEL

	National level certificate	Bachelor’s degree	Master’s degree or higher
Visions	in %	in %	in %
Family setting visions	56	32	12
Visions related to materialism (e.g., high income, big house, expensive car, etc.)	34	22	44
Job visions (e.g., housewives vs. ambitious men)	23	12	65

Pupils with parents holding a national certificate wrote 23% of all job visions. Interestingly, children with parents with a Bachelor’s degree came up with 22% of materialism and 12% of job visions.

However, as education plays a crucial role, e.g., further (quantitative) research will shed some light on this nexus. Admittedly, further research is needed regarding this condensation of different layers (Looser et al., 2019). However, it became apparent that children from parents with some higher and/or continuing education showed more enthusiasm in filling the task (i.e., to write a meaningful essay) and had quite concrete ideas on how their future should look like.

Synthesis by Leximancer

Table 6 represents the 13 concepts issued by Leximancer (ranked by their frequency). Leximancer’s *auto concept identification* yielded roughly the same concepts – however the automatically generated concept seeds needed many adaptations to prevent concepts like “and” or “I”. Nevertheless, besides others the most interesting concept clustering was reached by using the function of the “Sentiment Lens”.

Hereby, it was possible to verify the pessimistic – or to be precise “sad” (this was the sentiment Leximancer identified) – basic setting of Swiss pupils at ages between 10 and 12. Thus, age had no impact on their sentiment. The finding from the qualitative content analysis was mostly confirmed by a quantitative method.

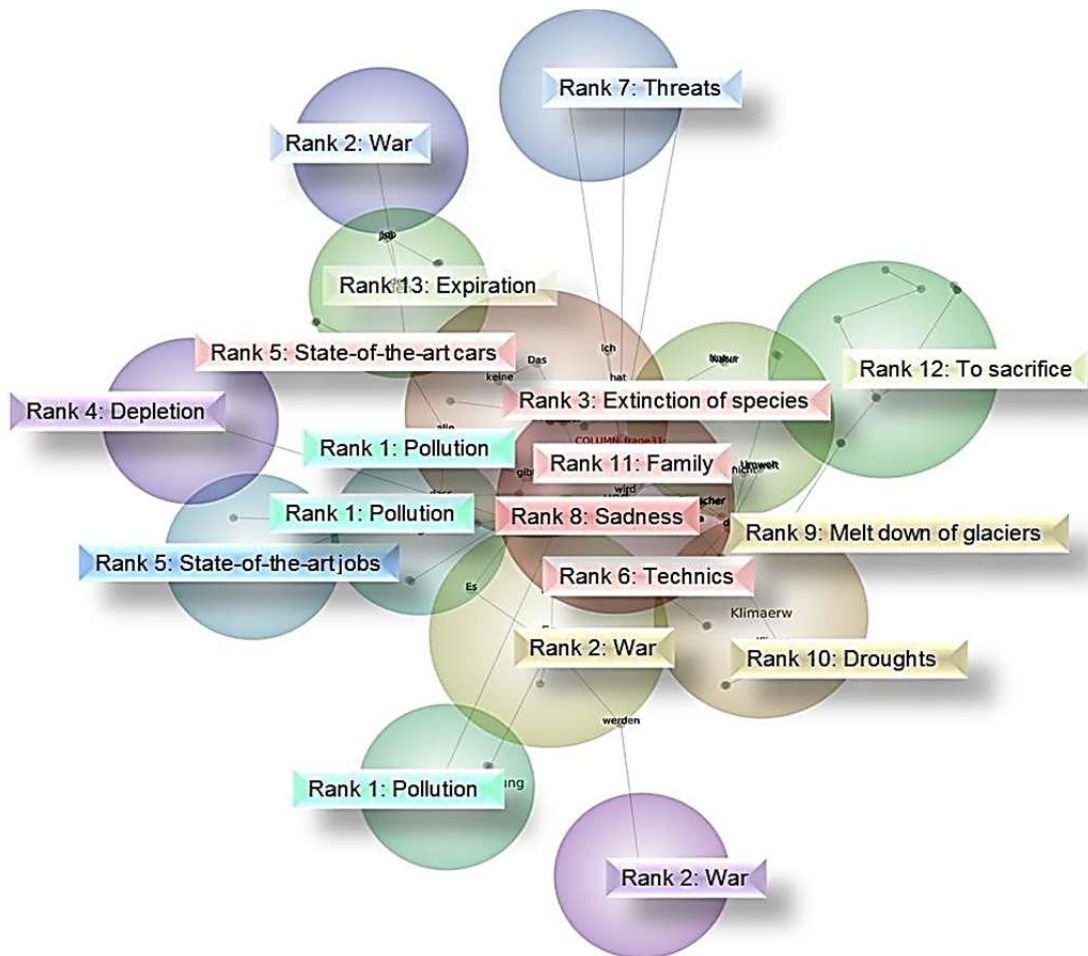
However, Leximancer revealed other sentiments, that could be summarized by “cynicism” and “sarcasm”, which need further research, since no other study ever found pupils at that ages to be cynic or sarcastic. This could be traced back to several pupils distinctly expressed their indignation to do anything against pollution, racism, poverty, or take on responsibility for future or current social, economic, or environmental tasks.

By contrast to the concepts identified in Table 2 (i.e., “standard” analysis), the concept of “war” loaded high in the software-based analysis, particularly in the male group. As well as the “house-child-dog”-construct was only identified by Leximancer regarding the female participants. These discrepancies need further research.

TABLE 6
RANKED CONCEPT LIST ISSUED BY LEXIMANCER

<i>Concepts</i>	<i>Count</i>	<i>Rank</i>
1) Pollution (water, air, earth)	910	1
2) <i>War (World war)</i>	874	2
3) Extinction of species and mankind	197	3
4) Depletion (of resources)	168	4
5) State-of-the art (cars, jobs, houses)	139	5
6) Technics (e.g. robots)	132	6
7) Threats (for nature, humans, animals)	117	7 </td
8) Sadness and desperation (about the world's constitution)	168	8
9) Melt down of glaciers (Antarctica, Switzerland)	110	9
10) Droughts (in Switzerland and elsewhere)	92	10
11) <i>Family (i.e. the constitution of two children, house, dog)</i>	89	11
12) Sacrifice (to fly, to drive, to consume etc.)	75	12
13) Expiration (of human life, world's existence)	56	13

FIGURE 4
CONCEPT MAP ISSUED BY LEXIMANCER
(WITHOUT ANY ACTIVATED FILTER FOR GENDER, RELIGION, QUESTION, ETC.)



Explanations for many congruent concepts as well as the matching of both methods with Bronfenbrenner's framework are discussed on the one hand, however will get more attention accompanied with the obvious divergence also in the discussion and concluding section.

Figure 4 represents the full text concept map, which means that no filter (e.g., religion, gender, status etc.) was applied, just because each filter reduces the data set, which often inhibited Leximancer running any analysis at all.

Since the texts are in German and to prevent any bias by translation, this full text analysis was run three times, so to ensure objectivity, reliability (which was reached for the qualitative content analysis by the inter-rater reliability), as well as internal validity also within this cross-content analysis of qualitative and automated approaches. Later, for the extraction of TPM it was dealt with double-checked translated texts.

TPM Identified by Leximancer

By contrast to the qualitative content analysis, giving the impression, that pupils at that ages have no concrete solutions for problems they named before, by the "reclustering"-option "*change to social network map*" Leximancer indeed identified pathways related to concrete problems mentioned by the group under research. For instance, "to spare", "abandonment" or "not to travel by plane" (see Figure 5). In other words, Leximancer restructured the map so that viable TPM became apparent, which was not that obvious after the "traditional" content analysis. Appendix D matched codes (first row) with TPM (second row) as well as – were available and useful – with practical measures and implications (see third row).

In particular, TPM matched practical measures and implications. Again, to consider Bronfenbrenner's concept, each transition pathway in combination with its management, realisation and quite concrete measures for governments, watchdogs, families, citizens, everyone, researchers, funding agencies etc. has (Looser and Schwalbach, 2020) its counterpart in the Macrosystem of Bronfenbrenner.

ANALYSIS: THE NEXUS OF CSR, CREATIVE EDUCATION, AND DIRECT DEMOCRACY

However, the pupils under research identified concrete TPM, such as:

- "*BAN ALL OTHER THAN FUEL CELL, ELECTRIC ETC. CARS*" (also suggested by van den Bosch et al. (2005));
- the *CRADLE-TO-CRADLE PRINCIPLE* as coercive production standard (Sondeijker, 2005),
- to immediately *STOP "UNCONTROLLED AND BY POLITICAL ENCOURAGEMENT PUSHED CONSUME"* as well as;
- an "*ADVERTISING-FREE WORLD*" (MEA, 2005).
- Further, the crucial need for global change in behaviour with regard to the wasteful *DEPLETION OF RESOURCES* (Tukker et al., 2008) seems to be a generally aware issue.
- These are topics related to Bronfenbrenner's (1981) change management targeting at (Sub-)Cultural basic settings of life-styles.
- Further, these far-reaching modifications of various behaviours on different Bronfenbrenner's layers need:
 - *governmental steering;*
 - *with the definite aim to re-educate people.*
 - *this might include fines for polluters;*
 - *bans of unsustainable products;*
 - *illegalisation of fur wearing;*
 - *hunting and eating of species under threat;*
 - *standardisation of products and production processes (e.g., Minergie-Standard in the house-building sector);*
 - *the establishment of laws and rules with regard of only allowing financial support (i.e., funding) for the development or research of sustainable new technologies etc. was another concrete TPM.*

The Latter Is Quite Controversial in The Youth’s Eyes:

- On the one hand, new technologies might be *A THREAT FOR TODAY’S SET-UPS* (in particular for job markets).

However, New Technologies Need:

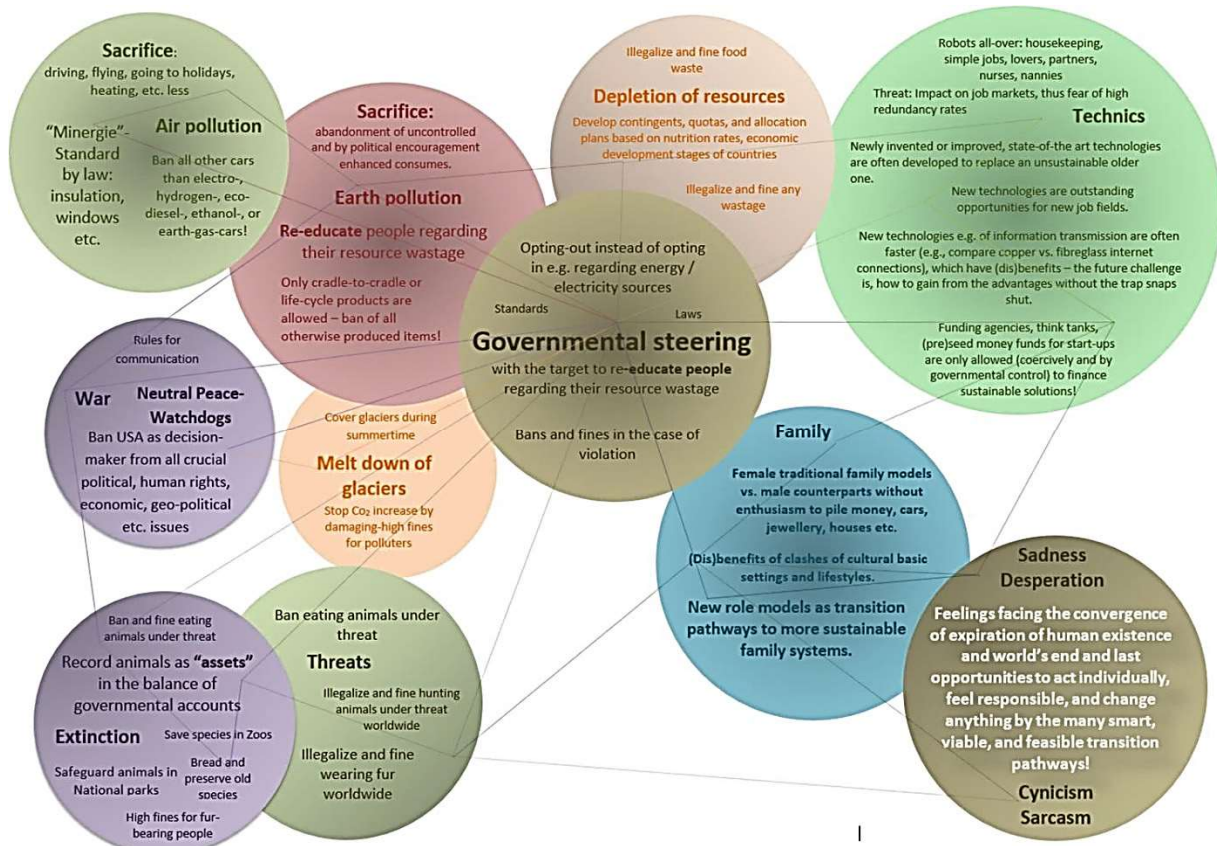
- *new expertise* (i.e., jobs);
- are often more sustainable as their contemporary counterparts;
- *new technologies* (e.g., robots) could change lives positively (e.g., nursing robots in elderlies’ homes).

However, new technologies bear huge (dis)benefits, depending again on how these processes are success-fully steered by governmental influence, to:

- *establishing or deeply embedding „the environmental personality”* (Bronfenbrenner, 1981) *is tightly dependent on radical and quick adaptations of:*
- *today’s standards;*
- *laws;*
- *economic principles* (Looser and Schwalbach, 2019).

Thus, the realisation of pathways is a *question on how reasonable or apposite the taken measures or solutions really are*. Furthermore, this must be a process of continuing adaptation ranging from single-, over double-loop to evolutionary learning!

**FIGURE 5
TPM (IDENTIFIED USING LEXIMANCER)**



DISCUSSION AND CONCLUSIONS

To sum up, Figure 6 show the aggregated results of the study. The first distinctly demonstrates that for Swiss pupils the public sector carries the core responsibility to launch a transition from status quo to a sustainably new set. By laws, coercive standards, prohibition and bans, by illegalization, by crucially high fines for violators, by monitoring of particularly decisive pathways, by fostering sustainability research while supervising the distribution of e.g. seed money only for research related with new technologies that replaces unsustainable old-fashioned products/solutions. State steering is by contrast what neoliberalism, which is the market concept most of the developed countries follow and payshomage to.

However, it is a well-known fact that neoliberalism refers primarily to laissez-faire ideas: These include economic liberalisation policies such as privatization, fiscal austerity, deregulation, free trade, and reductions in government spending to increase the role of the private sector in the economy and society (Rip and Kemp, 1998). These market-based ideas and the policies they inspired constitute a paradigm *shift away from the post-war Keynesian consensus*.

There are negligible differences between the three age groups. On the one hand, this might be the consequence of the data gathering method (i.e., guided essays) aiming at comparable texts or an effect of the “*in-group / out-group*” effect. Many Swiss villages have strongly social and historical roots and traditions so that the related in-group might influence pupils’ essays. Furthermore, the answers given might be influenced by the *salience effect*, since they cover topics daily present in the news, newspapers, or, as an instrument the Swiss sovereign could apply, in several even-present referendum procedure (Linder, 2005) – e.g., The National Energy Strategy 2050.

As the analysis by Leximancer identified “war” as a worry and concern of pupils’ under research this need deeper insights. Further, religion, spirituality, individual experiences of war, torture, etc., are delicate topics. Furthermore, taking into account that some attending pupils’ migration status was still not clear at that time.

However, the follow-up study (i.e., workshops, to identify very concrete TPM) with pupils at ages between 13 and 15 included the 12 years old participants of this study. During these workshops, afore mentioned influencers, such as religion, spirituality, war, geopolitical issues, individual experiences, etc., were discussed and their importance regarding any transition into a more sustainable future became apparent.

The long Swiss tradition to establish and involve youth parliaments’ voice into decision-making processes might have an impact as well. Thus, the political elite of Switzerland supported, from the first point, on the one hand the project, the related adjustments, and any further research, e.g., to look at kids’ visions aged 7 to 9 as well as pupils, apprentices, students, etc. above the age of 12.

Furthermore, some members of *Switzerland’s political leadership* transported this approach to the *cantonal executive*, whereas the youth work members of the entire Canton were eager to contribute their insights.

Above all, the innovative, rich, and concrete visions might be the result of implementing creativity into educational settings. Thus, creativity, or to be precise, lectures fostering imagination, visioning, and individuality instead of just reading standard scripts seems to be more important as pure imparting of knowledge. To conclude, creativity must be an integrated part at all ages, levels, and/or stages of educational processes, ranging from primary class to University classrooms and from education to ongoing education.

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APPENDIX A
SAMPLE DESCRIPTION

Attribute	Manifestation		Pupils		
			Count	Code ID	
<i>Gender</i>	Male	Female	Count	55 50	
<i>Age</i>	10	30	Male / Female	17 / 13 19 / 20 19 / 17	M1001 – M1017 / F1001 – F1013 M1101 – M1119 / F1101 – F1120 M1201 – M1219 / F1201 – F1217
<i>Nationality</i>	Belgian			1 / 0	M1001
	German			5 / 6	M1017 / F1001_F1012
	English			0 / 2	M1101 / F1101
	Eritrean			1 / 1	M1201
	Indian			3 / 2	M1219_M1014
	Iranian			1 / 1	M1118
	Italian			0 / 2	F1201_F1005
	Congolese			1 / 0	M1105_M1116_M1216 /
	Kosovan			0 / 2	F1217_F1006_F1012
	Croatian			1 / 1	M1113 / F1119 M1208
	Portuguese			1 / 0	M1014_M1218
	Scottish			2 / 0	
	Swedish			0 / 1	F1114
	Swiss			1 / 0	M1117
	Slovenian			2 / 0	M1214_M1215
	Somali			2 / 2	M1116_M1003 / F1109_F1120
	Spanish			1 / 1	M1217 / F1013
	Sri Lankan			0 / 1	F1117
	Czech			2 / 2	M1114_M1216 / F1107_F1213
	Turk			1 / 1	M1219 / F1009
	American			0 / 1	F1011
<i>Religion</i>	Hindi			0 / 1	F1114
	Muslim			3 / 4	M1117
	Russian-Orthodox			0 / 1	M1214_M1215
	Catholic			9 / 12	M1116_M1003 / F1109_F1120
	Reformed			13 / 18	M1217 / F1013
	Others			4 / 3	F1117
	None / no answer			9 / 9	M1114_M1216 / F1107_F1213
<i>Interests</i>	Football			2 / 2	M1001
	Tennis			3 / 1	M1017 / F1001_F1012
	Animals			2 / 8	M1101 / F1101
	Nature			9 / 4	M1201
	Cooking			8 / 2	M1219_M1014
	Baking			6 / 4	M1118
<i>Parental Educational level</i>	National level certificate			8 / 3	M1116_M1003_M1214_M1215
	Bachelor's degree			5 / 8	M1116_M1003_M1117
					M1017 / F1001_F1012_F1114

	Master's degree or higher	10 / 10	M1116_M1003_M1214_M1215 M1116 / F1201 – F1209 M1101 – M1111 / F1001_F1011
<i>Desired career</i>	Foot ballplayer	7 / 0	M1116_M1003_M1214_M1215
	Architect		M1116_M1003_M1117_M1017 /
	Electronic related	1 / 3	F1001_F1012_
	Mechanic		F1114 M1117_M1114_M1216 /
	Craftsman	3 / 3	F1107_F1213_F1011
	Scientist		M1214_M1215
	Nurse	2 / 1	/ F1109_M1217 / F1013
	Doctor Health care Teacher	1 / 5	F1117_F1107_F1213_F1011
	Fashion/design related	4 / 3	M1114_M1216_M1117_M1114 / F1107_F1213_F1114 F1001 – F1003
		0 / 3	M1114_M1216 / F1107_F1213 F1006_F1012_M1114_M1216 /
	2 / 2	F1107_M1114_M1216 /	
	0 / 2	F1107_F1213_F1001_F1012_F1114	
	2 / 1		
	2 / 5		

APPENDIX B
EXCERPT OF THE “TRADITIONAL” QUALITATIVE ANALYSIS OF THE ESSAYS
FOLLOWING LEGEWIE (1994) AND MAYRING (1996; 2003)

Categories																		
MODERNITÄT	MATERIALISMUS	Erfindungen / Entdeckungen	TECHNOLOGIE	VERKEHRSMITTEL	UNVERÄNDERT	Bevölkerung/wachstum	GLETSCHER	WASSER/SPIEGEL	NATUR/Umwelt	LUFT	Tiere	INFRASTRUKTUR	GELD/KONSUM	MENSCH-ROBOTER	Land-Stadt	KRIEG		
moderne Häuser und Autos	iphones und Uhren	neue Schrift	Technologie: interessante Maschinen	Verkehrsmittel: moderne Autos	Unverändert: Nahrung													
			Technologie: Maschinen, Roboter erleichtern das Leben			Bevölkerungswachstum: mehr Menschen	Gletscherschmelzung: Gletszer sind geschmolzen	hoher Wasserspiegel: Städte verschwinden	Künstliche Natur:									
			Technologie: fliegende Autos mit Flügel ohne Benzin	Verkehrsmittel: fliegende Autos					bessere Natur: mehr Tiere/Pflanzen, neue Tiere			Infrastruktur: keine Strassen	Geld: es gibt kein Geld mehr					
Modernität: moderne Welt			Technologie: selbstfahrende Autos	Verkehrsmittel: selbstfahrende Autos		Bevölkerungswachstum												
	Materialismus: Alle haben ein Iphone oder Ipad vor dem Gesicht		Technologie: Elektrohund, Roboter im Spital						Natur: Keine Bäume, künstliche Büsche					Liebe zwischen Menschen und Robotern				
				Verkehrsmittel: Mehr Autos					Natur: weniger Wald, verschmutztes Wasser									Stadt: grössere Städte und mehr Häuser
			Technologie: fliegende Autos, Hoverboards, andere Kleider						Natur: weniger Bäume, künstliche Bäume									
Modernität: Fortschritte			Technologie: Roboter mit Kameras										Geld: nach wie vor relevant					
				Verkehrsmittel: mehr Autos					Natur: weniger Bäume			Infrastruktur: mehr Häuser, Hochhäuser, mehr Strassen						
			Technologie: Roboter im Restaurant oder als Raushälter, sprechende Fernseher	Verkehrsmittel: fliegende Autos														
					Bäume, Dorfleben				Natur: gleiche Bäume									
	Alle hatten ein Handy	neue Planeten, Maschinen, damit man sofort einschläft	fliegende Autos, Weltkugeln, fliegende Schuhe			Mehr Leute							höhere Häuser	mehr Banken, mehr Geld				
moderne Häuser									Abfall am Boden	Nicht sauber		höhere Häuser						
moderne Zukunft								Verschmutzt	es wird immer heisser, weniger Wald, verschmutzt	verschmutzt		mehr Häuser						Mehr Städte, weniger Dörfer > zugunsten Natur
		neue Erfindungen kommen						status quo	mehr Natur, keine Abholzung	bessere Luft								Mehr Land statt Stadt
					alles gleich ausser: mehr Häuser und Parks				mehr Nationalparke			mehr Häuser						Land bewahren

APPENDIX C
THE NEXUS OF QUALITATIVE ANALYSED CODES, CONCEPTS AND
BRONFENBRENNER'S DIFFERENT LAYERS OF INDIVIDUALS' ENVIRONMENT

Codes	Concepts	Macro-system	Micro/Meso/Exosystem	%	Que.
State-of the art houses State-of the art cars	Trendiness	(Sub-) Cultural basic settings of life-styles	Individual roles	20	1, 2
State-of the art houses State-of the art cars			Status in the family/peer group	13.5	1, 2 2
State-of the art houses State-of the art cars			Relation to neighbours	20	2 2
Having my own house and garden Married, two children, dog Family breakfast, lunch and dinner iPhones, iPads More shops More consumes	Materialism / lifestyle	Economic principles, standards, (governmental) laws	Individual roles	20	1, 2
High-end products Unabated importance of money Unabated importance of consume Prosperity by growth Having my own house and garden Married, two children, dog More iPhones Less consume Having my own house Family breakfast, lunch and dinner			Status in the family		1, 2 1, 2 1, 2 2, 3 2, 3
			Individual status "Keeping up with the Joneses" Importance of religion Individual status / abandonment Importance of family life	2 20	2, 3 2, 2 2, 3 2, 3 1, 2 1, 2 1, 2 3.2 1, 2 1, 2
Living on the Mars	Innovation	Patterns of ideology	Status in the peer-group	12	1, 2
Living on the Mars More epidemics and sicknesses			Importance of religion	20	1, 2 1, 2, 4
Robots (home, office, restaurants) Flying cars Hoovering streets	Technology	(Sub-) Cultural basic settings of lifestyles	Status in the family	40	1, 2 1, 2, 3 2, 3
Robots (home, office, restaurants) Negative impact on job markets as result: high redundancy rates – Pollution by robot-trash			Importance of religion	27	1, 2, 4 3, 4 3, 4 3, 4
Robots (home, office, restaurants) Technology as progress Technology in schools			Status in the peer-group	23	1, 2 2 2
More cars Flying cars Hoovering streets Invent a non-polluting car	Transportation	Patterns of social organisations	Individual status Status in the peer-group	36	1, 2, 4 2, 3 1, 2 3.2
More cars Very fast trains instead of cars			Status in the family Status in the peer-group	27	1, 2 1, 2, 3.2

More cars Non-polluting cars			Status in the family Status in the peer-group	34	1, 2, 4 1, 2
Sky scraper Too many houses	Infrastructure	Patterns of social organisations	Individual status	36	1 4
Sky scraper Too many houses			Individual status	40	1, 2, 3 4
More houses Artificial islands			Status in the peer-group	34	1, 2, 3 3.2
Overcrowded cities Rural exodus	Cities and rural communities	(Sub-) Cultural basic settings of lifestyles	Individual status Importance of family life	40	1, 3, 4 4
Overcrowded cities Rural exodus			Individual status Importance of family life	48	1, 3, 4 4
Overcrowded cities Rural exodus			Individual status Importance of family life	54	1, 3, 4 4
Overpopulation Overcrowded cities	Demographic growth	Patterns of social organisations	Importance of family life	30	4 4
Too high-density Danger of epidemic			Importance of family life Individual status / abandonment	24	1, 3, 4 3, 4
Over aging			Importance of family life Individual role Importance of religion	22	1, 3, 4
Water pollution Air pollution Land degradation Droughts Glacial melting	Nature	Patterns of ideology	Individual and peer-group abandonment Importance of religion	73	4 4 2, 4 1, 2, 4 2, 4
Less Nature/wood Extinction of species Droughts			Individual status / abandonment Status in the peer-group	54	4 3, 4 3, 4
Floods Grassland Water pollution			Individual status / abandonment	62	3, 4 3, 4 4
Unabated importance of money Unabated importance of consume	Money / Consume	Economic principles,	Individual status / abandonment	20	3 3
Unabated importance of money Stop consume			Status in the peer-group	5	3 3.2

Rising inequality Increasing online shopping		standards, (governmental) laws	Individual status / abandonment Importance of family life	17	3, 4 1, 2
Everything remains the same Only air pollution will be a problem	Preservation of the status quo	Patterns of social organisations	Individual status / abandonment	20	3 4
Everything remains Air and water pollution increase			Individual status / abandonment	16	3 4
Everything remains Increased air pollution			Individual status / abandonment	17	3 4

APPENDIX D
TPM AND THEIR PRACTICAL MEASURE AND IMPLICATIONS
IDENTIFIED BY LEXIMANCER

Concept	Transition pathway	Practical measures & implications
Pollution (water, air, earth)	Sacrifice: driving, flying, going to holidays, heating, etc. less Sacrifice: abandonment of uncontrolled and by political encouragement enhanced consumes Globally: Advertising-free world	“Minergie”-Standard by law: insulation, windows etc. Ban all other cars than electro-, hydrogen-, eco-diesel-, ethanol-, or earth-gas-cars! Re-educate people regarding their resource wastage Only cradle-to-cradle or life cycle products are allowed – ban of all otherwise produced items!
War (World war)	Governmental steering: Rules for communication Neutral Peace-Watchdogs	Ban USA as decision-maker from all crucial political, human rights, economic, geo-political etc. issues
Extinction of species and mankind	Governmental steering: Save species in Zoos Safeguard animals in National parks Bread and preserve old species	Record animals as “assets” in the balance of governmental accounts High fines for fur-bearing people Ban and fine eating animals under threat
Depletion (of resources)	Governmental steering: Opting-out instead of opting in e.g. regarding energy / electricity sources Illegalize and fine food waste Illegalize and fine any wastage	Develop contingents, quotas, and allocation plans based on nutrition rates, economic development stages of countries
State-of the art (cars, jobs, houses)	Prosperity without growth Re-educate people that money makes not happy	New values, virtues: 1) practical wisdom (i.e., prudence); 2) justice (i.e., friendship); 3) courage (i.e., fortitude); and 4) moderations (i.e., temperance),
Technics (e.g. robots)	Robots all-over: housekeeping, simple jobs, lovers, partners, nurses, nannies Newly invented or improved, state-of-the-art technologies are often developed to replace an unsustainable older one. Threat: Impact on job markets, thus fear of high redundancy rates But: New technologies are outstanding opportunities for new job fields.	Funding agencies, think tanks, (pre)seed money funds for start-ups are only allowed (coercively and by governmental control) to finance sustainable solutions! New technologies e.g. of information transmission are often faster (e.g., compare copper vs. fibreglass internet connections), which have (dis)benefits – the future challenge is, how to gain from the advantages without the trap snaps shut.
Threats (for nature, humans, animals)	Save species in Zoos Safeguard animals in National parks Bread and preserve old species	Illegalize and fine hunting animals under threat worldwide Ban eating animals under threat Illegalize and fine wearing fur worldwide
Sadness and desperation (about the world’s constitution) / Cynicism and sarcasm as reaction	Re-educate people regarding their values (being rich, having a house, three cars, a plain etc.: show them virtues such as: 1) practical wisdom (i.e., prudence); 2) justice (i.e., friendship); 3) courage (i.e., fortitude); and 4) moderations (i.e., temperance),	Feelings facing the convergence of expiration of human existence and world’s end and last opportunities to act individually, feel responsible, and change anything by the many smart, viable, and feasible TPM!
Melt down of glaciers (Antarctica, Switzerland)	Governmental steering: Bans and fines in the case of violation	Stop Co ₂ increase by damaging-high fines for polluters! Cover glaciers during summertime
Droughts (in Switzerland and elsewhere)	Governmental steering: Opting-out instead of opting in e.g. regarding water sources Standards and laws	Develop contingents, quotas, and allocation plans for water based on nutrition rates, economic development stages of countries

Family (i.e. the constitution of two children, house, dog)	New role models as TPM to more sustainable family systems.	Female traditional family models vs. male counterparts without enthusiasm to pile money, cars, jewellery, houses etc. (Dis)benefits of clashes of cultural basic settings and lifestyles.
Sacrifice (to fly, to drive, to consume etc.)	Standards and laws: abandonment of uncontrolled and by political encouragement enhanced consumes	New values and virtues: 1) practical wisdom (i.e., prudence); 2) justice (i.e., friendship); 3) courage (i.e., fortitude); and 4) moderations (i.e., temperance),
Expiration (of human life, world's existence)	Governmental steering with the target to re-educate people regarding their resource wastage Abandonment of uncontrolled and by political encouragement enhanced consumes	Stop Co ₂ increase by damaging-high fines for polluters Develop contingents, quotas, and allocation plans for all recourses that might become scares