Article

To Bridge Sustainability Research, Primary Education, and Creativity

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ABSTRACT

The aim of this research paper is to gain insight into pupils' conceptualization of their future within the wider theoretical framework of Transition Pathways and Management (TPM).

Background: It stands in a row of papers about "Visioning Futures" and related potential measures to be taken regarding today's design of (continuing) education. For the first time in futurology, the group of interest was at ages between seven and nine. The reason why, could be traced back to the United Nations (UN) Sustainable Development Goal (SDG) regarding intergenerational equity and related issues, e.g., governance deficits as well as implementation challenges.

Methods: 73 Swiss pupils at ages between seven and nine were asked to draw a picture about their future visions, fraught with problems, as may be the case. Secondly, this paper applied—as a quite rare but creative research methodology—"Storytelling" (ST).

Results: This led to 73 recorded explanations, or to be precise, stories, about the content, aim, meaning, etc., of the drawings and how they relate to potential transitions as well as corresponding implications for the private and public sector. Above all, this research inspired pupils' confidence of conveyed interest in their awareness and future visions.

Conclusions: This research shows links between sustainability related research, education, ST as SDG implementation facilitator by fostering entrepreneurial skills, decision making in early ages—for the benefit of next generations, thus, the survival of human mankind.

1. the identification of best practice educational trends;
2. sustainability, social, economic and ecologic responsibility;
3. creativity as potential key success factor;
4. awareness of ethical issues in research and education, etc.

KEYWORDS: primary school education; sustainability; creativity; storytelling; Sustainable Development Goals (SDGs); Visioning Futures; Transition Pathways (TP); governance deficits; implementation challenges

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ABBREVIATIONS

SDGs, Sustainable Development Goals; UN, United Nations; CSR, Corporate Social Responsibility; TP, Transition Pathway; TPM, Transition Pathway Management; ST, Storytelling; WEF, World Economic Forum

INTRODUCTION

Obviously, there exist a classical information asymmetry and—to some extent—a problem of agency emerging as a democratic paradox. People affected by decisions should be informed about the effects of those decisions and must have a say, or even better, a veto in them—for instance which energy or sustainability pathways should be implemented, adapted or even sacrificed, and how [1]. A series of studies showed that young people have a different notion of their specific future and the way, ***especially sustainability should be embedded within*** [2,3]. As such, not involving young people (i.e., intergenerational inequity) in the management of Transition Pathways (TP) agendas represents a governance deficit, as well as an implementation challenge, as shown for instance by a series of research about Children' Visioning Future Storytelling [1–3].

To avoid the former (i.e., governance deficit) as well as the latter (implementation challenge) the United Nations (UN) issued declared Sustainable Development Goals (SDGs) signed, among many other countries, also by Switzerland [4].

On a first glance, the literature review gives the impression that previous research's target groups 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 many European Small and Medium-sized Enterprises (SMEs) with a long history of including the youth particularly by the apprenticeship set-up fostering honor, morale [1,5], and participatory business decision-making [6].

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 realization [4].

In Switzerland, these studies were mainly conducted on young people between 16 and 24 (e.g., [2,3,7]). They clearly showed the importance to legitimize and involve those affected, in other words, those dedicated to living in afflicted and/or sustainably shocked time spans, have been myopically ignored yet [7].

Hence, one of the primarily goal of this study was to look at even younger 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 [2] will go further and allows, by this, longitudinal insights into future visions of young people at all ages). There is an issue within developmental psychology to suggest, the seven-year old pupils find it difficult to articulate their futures, and, even more so, to frame pathways suitable towards their achievement [3]. By contrast, a detailed evaluation and understanding of the current shape with 10–12-year old pupils, 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 [2]. Thus, following [2,3,5,8,9]) 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 idiosyncrasies 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 morale, ethics, virtues, and an ecological understanding are scrutinized in detail. By doing so, several of the 2019 World Economic Forum's (WEF) "Top Stories" [10] came across, mirroring a generic as well as intergenerational equal "bottom-up" approach. In addition, this research demonstrates viable approaches to overcome governance/ implementation issues.

Other studies specifically ask questions about the evolution and complexity of ethics and moral behavior by children at that age. However, this is to consider regarding 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 question. Current futurology is oriented at indicating a focus change within the candidates. Hence, one of this research's goals was to "throw" the pupils (as some sort of "futurologists") into the future of 20040 and by their visualized future vision their sociologically vantage point is supposed to give insights into change-making. The latter was identified as success factor to find applicable, viable solutions, also known as ***Transition Pathways***.

Today's older people (e.g., experiencing or getting closer to the status of retirement), on the other hand, seems to show attitudes, potentially also bounded values as well as virtues, that mirror their experienced cultural shift into consumerism [5]. The so-called "baby-boomers", currently, in the tourism as well as event management related sectors better known as "silver-agers" are often portrayed as engaging in excessive levels of consumption, which are counter to notions of sustainable living and to intergenerational harmony [11,12].

Research Aims and Questions

This paper focuses, firstly, on the contribution to a documentation and analysis of environmental opinions, values and attitudes of school

children (7–9-years-old). This is part of a project in Switzerland, extending to include The United Kingdom (UK), Germany, Denmark, Italy, etc. To demonstrate, how applicable "Storytelling" (ST) as methodology for research as well as future education might be, data on the pupils' aspirations were collected as well. A favorable ethical opinion was provided, the project had the full cooperation of the participating schools.

Secondly, this paper is a trial to work out the mechanisms, e.g., the consumption patterns of silver agers regarding their tourism and event activities [5]. This part was another set-up of ST application in order to understand related everyday practices and habitudes that have the potential to give greater clarity to patterns of consumption regarding, e.g., global travel.

Lastly, this paper evolves ST as method with a wide range of application—i.e., for marketing and communication reasons, as educational method in order to foster creativity as the way future decisions should be influenced. Further, ST, as research methodology, seems to be appropriate undependable from demographics (e.g., age, race, geographic and/or religion related backgrounds, etc.). Additionally, it is applicable regarding a wide range of research questions.

The next section shortly sums up some theoretical insights regarding the mentioned research aims.

Theoretical Background

Generally, it is often argued that young people across Europe do not engage in large numbers with the overall societal transition towards a sustainable, innovative Europe to the level and significance they arguably should, given that young people will live in these future societies [3]. The Sustainable Energy Youth Network [13], Slow Food Youth Network [14], the Student Network for Ethics in Economics (SNEEP) [15], the World Student Environment Network (WSEN) [16], CliMates [17] and rootAbility [18] represent few of the multiple international or European networks led by youth groups. Additionally, at local and city level many innovative initiatives, NGOs and social entrepreneurs with young people as its frontrunners are increasing and spreading in many European contexts. These transition initiatives seek to address different challenges dealing with different topics (e.g., food system, human rights, energy system, waste management, mobility, etc.). Thus, these existing initiatives, networks and organizations driven by young people, represent opportunities to achieve sustainability and to solve current socio-ecological problems. This might be one reason for pupils' wish to become an "Entrepreneur"—specifically shown in follow-up studies, such as [2,3], however also discussed in the "**CONCLUSION AND IMPLICATION**" Section.

Theory of ST in intergenerational comparison research

In addition, everyday consumption attitudes underwent and are still undergoing substantial changes regarding individuals and their way as a

means of encouraging engagement with more sustainable lifestyles [11,12]. Silver agers'—or the so-called baby-boomers'—consumption practices are regarded as substantially unsustainable in comparison with other generations. Thus, they experience scrutiny in academic writing, the press and social media [12] where they are regarded as currently lackadaisical in sustainability, social, environmental, economic responsibility, as well as intergenerational equity [16]. Moreover, they are described as "those who grew up spending freely earlier in life are more likely to continue to spend freely later in life" [17]. Hence, their consumption choices and practices are expected to continue or even grow into retirement. By forecasts regarding global travel, over tourism [12] and mass consumerism [13,16] silver agers are regarded as greedy and selfish individuals [13] who are characterized to continue engaging in self-actualizing lifestyles.

ST in educational as well as methodological applications

Linear as well as nonlinear approaches facilitate children to develop stories in different ways. Thus, children's perception towards linear and nonlinear approaches may be different, which may affect their motivation and ultimate success in collaborative storytelling [9]. However, research which has empirically documented the children's perception of linear and nonlinear approaches is scant. In order to explore whether children's perception and learning behaviors about linear and nonlinear collaborative storytelling approaches are different, a Web2.0 storytelling platform featuring animated picture books is designed for the study [8,9].

ST, as a fascinating methodology, attracts many researchers from a variety of disciplines, which is related to the third research aim. Of interest is the power of ST, both on an educational [18] as well as methodological level. Nevertheless, its components and implications on the people and their behavioral intentions (i.e., word and mouth, visit intention) within travel marketing are limited [19]. With the fast development of natural language processing and web technologies in recent years, the amount of knowledge/data available for everyone to explore has grown exponentially [20].

Narrative and storytelling techniques are used for engaging the audience and helping the audience digest and remember the content [9]. Collaborative storytelling is an imperative and innovative pathway to children's learning. Collaborative storytelling can be developed in linear and nonlinear approaches. Linear stories contain exactly one begin, one middle and one end. All children collaborate on a shared story in the form of relay and no branches can be developed. Children deeply rely on evaluating the relationship, continuality, and coherence of story path before sequentially participating in building up the story [9]. By contrast, nonlinear stories enable children to link and orchestrate different ideas. Children can thus integrate other's episodes to develop different branches of stories [20].

ST's multidisciplinary: From heritage to care of end of life patients

Another ST setting focuses on the topic of "heritage" [19]. Thus, this and related topics are where the first and second research aims intersect. For many, the remains of the past provide a sense of security in an uncertain world, serving as the thread of timelessness, which runs through a rapidly changing environment [19]. Hence, heritage is about a special sense of belonging and of continuity. The significance of meaning of cultural heritage is an integral part of heritage management—the care and continuing development of a historical item, so that its significance is retained, revealed, and its future secured [21]. One of many stakeholders in heritage management are museums—non-profit making, permanent institutions in the service of society and of its development, with the roles to acquire, conserve, research, communicate and exhibit for the purposes of study, education [21] and enjoyment, as well as material evidence.

A last example of the multi-disciplinarily character of ST, the sector of care education should not be unmentioned. As this discipline needs a profound education, so the students are equipped with psychological as well as physical skills to provide high quality care (e.g., for end-of-life patients [22] and their families), their scholars apply state-of-the-art methods (i.e., ST) as traditional lectures hardly reveal the patients' experience and psychological needs. The lectures' methods should prepare students about essential knowledge and skills to meet patients' physical needs, but also truly understand the psychological and social needs of patients and their family members. Traditional lecture [8] can exactly tell students about the concrete physical characteristics of end-of-life patients and related medical and nursing care techniques, but it does not mirror real-life situations. Storytelling is a teaching method [1,2], which is based on a carefully chosen story to illustrate and explain the things that teachers want students to know. This teaching method also helps students think further from the story about the insights, ideas, feelings, and experiences that remain in the story [1,2]. Storytelling seems to impact the sharing of feelings and experience [1–3].

Thus, the next section describes the methodological setting, followed by the result, discussion, as well as concluding sections.

MATERIALS AND METHODS

This study, which is primarily based on descriptive "Stories" about drawings, as said, is epistemologically linked to social constructivism since it assumes that reality is constructed by human beings interacting in a cultural setting. Grounded theory (i.e., a going wild approach) is the appropriate approach to research such settings since it enables to seek out and conceptualize the latent social patterns by using an inductive approach of generating substantive codes from collected data [23]. Later, it is possible to develop theories leading to a next sequence of data collection increasingly focused on the deduction of further questions.

Considering this hermeneutical integration of rival theories, new insights and additional third-party sources are consulted and included whenever useful, achievable, and/or necessary.

Regarding the first research aim, 73 Swiss pupils at ages between seven and nine were asked to draw a picture of their imagination "how the world looks like in 2040". The author kept the instruction open, though "2040" might be narrowing. However, several pretests showed enhanced ST-activity regarding the description of the drawing, which is the manifestation of the pupils' ideas, beliefs, guessing, etc. the pupils' mind was crossed during drawing.

Qualitative Content Analyses

In order to apply ST—as a quite rare but creative research methodology, especially combined with topics, such as "Visioning Futures", "The Involvement of Those Affected", "Transition Pathways succeeding SDGs", as well as the age group of primary school pupils—the 73 pupils, who delivered the aforementioned drawings, were further asked to explain their drawings as the story that inspire the former.

This led to 73 recorded explanations, or to be precise, stories, about the content, aim, meaning, etc., of the drawings and how they relate to potential transitions as well as corresponding implications for the private and public sector. Above all, this research inspired pupils' confidence of conveyed interest in their awareness and future visions.

The stories were transcribed followed the rules of qualitative analysis [23] (using MAXQDA as coding software).

Secondly, 30 research papers, containing stories, partially the application of ST as method, quotes of silver agers and their attitudes, values, virtues regarding sustainability, consumption, investments, etc. were analyzed accordingly the aforementioned rules [23] and, thus, coding system.

Lastly, a meta-analysis of the 50 most cited and best rated papers regarding ST (taken from the rankings by Thomson and Reuters, Scopus, Web of Science, and Web of Knowledge) were qualitatively examined applying the same method [23] (e.g., coding tree, density, code colors, etc.) all over the paper.

Table 1 demonstrates the analysis process in order to shed light on the density as well as broad and at the same time condensed approach. Condensed, as any step was conductive to validate, verify the insights already gained.

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 different 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 [23]. It is useful in refining, for example, the

concepts, conceptualize the latent social patterns, or for identifying the latent variable [23]. For this purpose and in this study, the Holsti formula was applied. 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 establishes, to some extent, objectivity and internal validity.

Table 1. Research steps.

Research Steps
(1) Orientation, i.e., scanning the transcripts for signalling words and statements (i.e., codes)
(2) Activation of context knowledge, i.e., remind situation in the classrooms, explaining remarks that were necessary, etc.
(3) Working through the texts, i.e., careful reading and marking significant statements about future concepts
(4) Structural content analysis, i.e., categorise themes and contents; thereafter sequence and arrange statements to concepts
(5) Concentrating content analysis, i.e., paraphrasing, generalising
(6) Summarise text and search for specific references to SDGs
(7) Compare the identified concepts of at least two coders, redefine concepts, calculate the inter-rater-reliability
(8) Analyse the texts by Leximancer, search for congruities and nonconformities
(9) Regarding 30 research papers about "values, virtues, attitude" towards sustainability, etc.: following Steps 1–8
(10) Meta-analysis of 50 ST related "best papers": following Steps 1–8

Combining Tradition with State-of-the-Art Visualization

Regarding research quality, different experts recommend bringing appropriate software tools into action (e.g., to enhance objectivity, reliability, and validity) [23]. Thus, to specifically augment objectivity, at this stage, the decision fell in favor of Leximancer because this software allows visual analysis of texts so to mirror concepts.

To sum up, the research setting allows a triangulation of qualitatively content analyzed research papers, transcribed and content analyzed descriptions of 73 drawings (of pupils at ages between seven and nine), and a (re-)visualization of the latter by a software-tool. In addition, Leximancer is programmed not to only count words, but to build clusters, to semantically analyze texts, so to identify pupils' pathways regarding the context of SDGs [4], creativity in education, political freedom, sustainability, and their internal manifestation, i.e., the development of belongingness to society and nature.

RESULTS

In general, at this stage of research it is quite difficult to assess the "genuine" capabilities of ST regarding this research's broad approach, as mentioned in the introduction section. Some first results are on the one hand significant, nevertheless, not yet perfectly objective, valid, nor reliable. Despite missing verification, e.g., by a Delphi process, the findings are appropriate while astonishing at the same time. Hence, they are

worthwhile to be presented to a wider audience in their current stage, however, they should be examined by further research.

The next sections only concentrate on results, already filling traditional research standards [23].

Research Focus: ST as Meaningful Additional Research Set-up?

Figure 1 is a seven-years old male pupil's drawing; Figure 2 resembles the future vision of an eight-years old female participant, and Figure 3 shows ideas/beliefs of a female pupil at the age of nine (all participants were anonymised due to ethical reasons).

Figure 1. Visioning Future: Drawing Example (seven-year old male pupil).

Figure 2. Visioning Future: Drawing Example (eight-year old female pupil).

Figure 3. Visioning Future: Drawing Example (nine-year old female pupil).

This picture examples the visions different by gender reasons, as could be seen from Table 2 as well:

> [*Robots and technical stuff determine our life in future, but I like this vision as I like technics*]... (F37/8)

Table 2. Future visioning concepts.

Age	**Age of 7**		**Age of 8**		**Age of 9**		**Total**
Gender	Male	Female	Male	Female	Male	Female	
Concepts	Counts per age, gender, and concept						
Technics, Robots	32	22	36	19	42	31	182
- positive statements	11	5	12	10	11	11	60
- negative statements	21	17	24	9	31	20	122
Future Visions: Environment	45	51	48	56	63	65	328
- hope in recovery	12	33	23	35	28	41	172
- fear about pollution, clime change	33	18	25	21	35	24	156
Future Visions: Species (Animals, Plants, etc.)	39	54	41	61	33	46	274
- preservation in e.g., Zoos	8	32	11	42	12	28	133
- fear regarding extinction	31	22	30	19	21	18	141
Artificial Food	22	26	29	32	37	42	188
- positive statements	13	12	20	21	31	20	117
- negative statements	9	14	9	11	6	22	71
Future Visions: Health	23	31	46	39	59	61	259
- trust in health research, innovation, etc.	5	3	13	19	20	37	97
- fear regarding pandemics, sicknesses	18	28	33	20	39	24	162
State-of-the-art Cities	11	9	34	17	49	28	148
- positive statements	9	4	13	8	22	9	65
- concerns about overcrowded cities	2	5	21	9	27	19	83
Future Visions: Employment, Social Security	9	13	19	37	28	39	145
- hope in new job markets, e.g., by technical innovation	5	7	9	29	12	11	73
- fear of losing jobs e.g., by replacement by robots	4	6	10	8	16	28	72
Future Visions: Global Situation	29	18	54	41	59	51	252
- hope in peace	7	4	17	9	25	19	81
- concerns regarding war, violence, revolution	22	14	37	32	34	32	171
Total	**210**	**224**	**307**	**302**	**370**	**363**	**1776**

This female participant's statements regarding her picture were all family related, for instance:

> [*I like to have a house of my own, two children with my boyfriend, we are married and rich*]... (F37/8)

The explanation for the half-side blank sheet was:

> [*The world will be overcrowded, skyscraper are determining my future vision…thus, I have no other vantage point as I cannot see the rest of the world*]... (F15/9)

As a first finding: ST as "novel" research method delivers adequate, meaningful, however, as well "broad" results. Broad, in the meaning of fruitful, rich, but qualitative in its core sense. This means, on the one hand, the analysed explanations/stories contain astonishing perceptions of pupils' future lifestyles and event-oriented imaginations. On the other, the processes of a sharp analysis, hermeneutical categorizing, grounded theory-based sorting, as well as the deduction of concise conclusions/implications need a qualified, experienced, as well as highly integer team of experts. There was no extrinsic motivation in any kind regarding the drawings. Any promised benefit [24], "prompts" regarding drawing, even the presence and/or specific persons' attendance to a familiar classroom might create severe distortions.

In general, many sources have shown similar effects regarding entrepreneur-, leadership, education, and any creativity-related habits [25–27], etc.

Further, regarding the topic of education, the team's multidisciplinarity is a must.

The paper shows the meaningfulness of analysing visual data by visual methods. On a first glance, this seems not to be a significant insight. Nevertheless, similar approaches are still rare, often due to missing methods and/or software tools. Thus, to be creative by crossing-over research questions and not standard methods might be suitable regarding research topics following hermeneutical integration, or to be precise, grounded theory.

Further, to demonstrate the suitability of ST as the origin of qualitative data—in its original meaning—seems to be trailblazing and will be further discussed in the next sections. The following list represents some examples of often described—by ST—drawn picture (-parts)—in other words "codes".

(1) Robots (home, office, restaurants)
(2) Negative impact on job markets of robots
(3) Pollution by robot-trash
(4) Technology as progress
(5) Technology in schools, iPhones, iPads
(6) Flying cars, Hoovering streets
(7) Invent non-polluting cars, very fast trains instead of cars
(8) Overcrowded cities, rural exodus, more houses
(9) Artificial islands
(10) Overpopulation
(11) High density, danger of epidemic
(12) Water, air pollution
(13) Land degradation, droughts
(14) Glacial melting, floods, grassland
(15) Having my own house and garden, married, two children, dog, family brunch and dinner
(16) Unabated importance of money and consume

(17) Rising inequality
(18) Increasing online shopping, more shops, consume, and cars
(19) State-of the art houses and cars
(20) Everything remains the same
(21) Living on the Mars

Hence, these codes cover many topics, ranging from environmental (3, 7, 12, 13, 14), social/socio-economic (2, 10, 11, 17), financial (15, 16, 17, 18, 19), housing (8, 9, 10, 11, 15, 19, 21), technology (1, 2, 3, 4, 5, 6, 7), family (11, 15) related as well as superseding (20) statements to "outliers". The latter were either not able to describe its picture or the sheet was blank. Notably, a "blank sheet" must not be an outlier, on the contrary, it could be a genuine statement. Enhanced creative and/or less standard script education, a direct democratic order, having a voice in political discussions: this setting could be an explanation. Further, as children are well informed about the world's struggling (e.g., by media, etc.), their future vision might be a blank sheet—or in the case of Figure 3, a half-side blank sheet. Therefore, Leximancer is a suitable support to reveal underlying clusters by the "reclustering"-option "change to social network map" (see Figure 4) as well as hidden feelings by the "Sentiment Lens" see Tables 2 and 3).

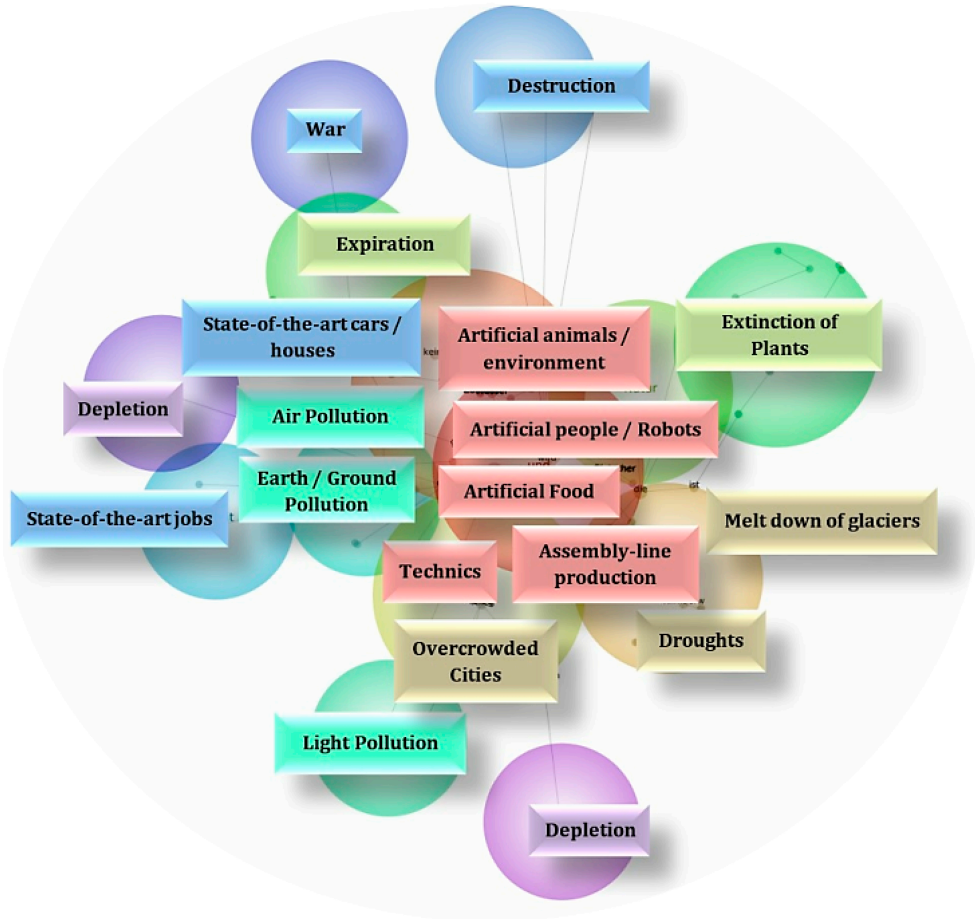

Figure 4. Visioning Future: Visualization of ST (using Leximancer).

Table 3. Effects of ST as educational method.

School Level	Elementary	Pre-intermediate	Sixth Form	Total
Potential Effects				
Increase of Creativity	19	21	23	63
Increase of General Interest	14	25	30	69
Increase of Interest in Politics	16	23	33	72
Decrease of Racist Tendencies	17	17	22	56
Increase in an Overall Equity Feeling	19	7	2	28
Increase in Interest in Job Opportunities	9	12	40	61

By categorizing of common topics more general concepts could be selected. Thus, Table 2 demonstrates the concepts filtered from the codes that are demonstrated in Table 2. The former is aligned with the latter. Further they are sorted by gender and age. How often each group (age/gender) named a concept and made positive and/or negative statements is indicated by the exact count.

Figure 4 is the transformation/visualization of the stories told as mirror of the all-over discovered concepts (see Table 2).

In general, the statements build four clusters:

1. future visions (concepts),
2. related opportunities (positive statements, hopes, trust),
3. worries (negative statements, fears),
4. potentially problematic issues (concerns).

ST Seen from an Educational Point of View

ST as toolkit for future professions regarding experience- and event-orientation education, processes, and operations, seems to have a striking impact as seen from different research papers e.g., [8,9,19–21].

Table 3 represents the counts for ST related effects in the educational context—ranging from elementary, pre-intermediate to the sixth form school level. As already mentioned, the coding was following the same code tree for the 30 research papers focused on creativity as influencer of values, virtues, morale as well as on the meta-analysis regarding ST as SDG implementation related “best-case-scenarios”.

DISCUSSION

The observations to analyze visual data by a visual method is a trailblazing set-up. Further, to demonstrate the suitability of ST as the origin of qualitative data—mostly not distorted by different well-known biases, such as the Anchoring, Correspondence, Belief, Impact, Blind Spot Bias, as well as the Halo Effect, the Hot-Hand-Phenomenon, and/or Illusion of Control—is a finding of some importance.

The latter are related to the topic of Managerial and/or in general Human Decision Making [28]. Particularly in uncertain times—as the

globalized world is shaken by since many years, either by financial or state crises, wars, geopolitical conflicts, pandemic diseases, general uncertainty and doubts about social, economic, ecologic security, over population and its effects—the avoidance of common biases has become more and more importance [28].

ST seems to be a suitable additional method to identify biases emanating from availability, representativeness, as well as confirmation heuristics.

This is of specific significance regarding the rising field of futurology, especially if the sample of examination consisted of children and/or pupils—who are this society's future managers, entrepreneurs, decision takers/makers. Thus, by using ST as research as well as educational tool it might be possible to demonstrate and strengthen the general awareness regarding the boundaries of human rationality.

Especially considering emotional and motivational influences on human decisions, ST mirrors exactly these aspects. Despite, by being aware of this "bias", research results or educational practices based on ST are (by definition) attentionally "blind", therefore a suitable strategic setting in avoidance of short-sightedness and/or focused illusion settings.

To sum up, the presented issue might be a powerful Decision-Analyzing-Tool, as it sheds light on others' stories (including hidden biases) by the option of taking an outsider's view, to acquire expertise, and, thus, reason analogically. Regarding SDG related "best-case-scenarios", ST could increase rationality in negotiations and decisions, fairness, ethics, and morale.

CONCLUSION AND IMPLICATIONS

To conclude, this research covers many currently "burning" topics, e.g., the identification of best practice educational trends, especially about primary education, creativity, ethical issues in education, and showed links between education and research, precisely regarding the method of ST in the context of sustainability research and education, as powerful facilitator regarding the implementation of creativity as general value, virtue concerning decision taking of future responsible leaders, managers, entrepreneurs. To establish a set-up where creativity is demanding is the seat for a general, deeply rooted in morale, ethics, family businesses, in individuals meso-, exo-, and makro-system [21].

In the following, this study's concrete effects, results, benefits, as well as TPs/TPM are mentioned in detail. Particularly, the influence on policy, politics, polity, as well as—already mentioned several times—education, research, and practitioners' day-to-day business are focused.

Implications: Sustainability Related Education, Research, Policy, Politics, etc.

From the oral analyses, the public sector seems to take care of core responsibility to launch a transition from status quo to a sustainably new

set—by opinions of the sample under research. 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 pays homage to.

However, it is a well-known fact that neoliberalism refers primarily to laissez-faire ideas: These include economic liberalization policies such as privatization, fiscal austerity, deregulation, free trade, and reductions in government spending to increase the role of the private sector regarding economy and society [29]. These market-based ideas and the policies they inspired constitute a paradigm shift away from the post-war Keynesian consensus.

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.

Implications: The Nexus between Creativity based Education and Sustainability Awareness

As mentioned, 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.

Above all, this research demonstrates that innovative, rich, and concrete visions are the result of implementing creativity into educational settings—for instance by ST, however, also by flipping classrooms. 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.

As there are a variety of options, e.g., ranging from flipped learning, virtual learning, enquiry-based learning, gamification, blended learning, inclusive education (e.g., by serious video games), design thinking labs, audio-visual education, problem-based learning, etc. [2,3]. Practical tools

might be “the parliamentarian debate, jig saw method, quizzes related to online modules, etc. [1,16,19].

Implications: ST Leads to More SUSTAINABILITY in Practice as well as Enhanced Entrepreneurship

As shown above, creative education, e.g., of future leaders, entrepreneurs, etc., related to environmentally as well as socially less sustainable sectors has the power to foster change-makers, outside-the-box thinkers, revolutionaries, rebels regarding standard day-today job-scripts. Furthermore, as different movements—i.e., responsible management, responsible leadership, Principles of Responsible Management Education (PRME) [32], Responsible Research in Business and Management (RRBM) [33], particularly SDGs [4], the next EU research call “Horizon Europe” [34]—ask for more “action-taking”, self-responsibility, involving of communities and local businesses, creativity as fostered by ST seems to be a valuable, genuine, crucial, and feasible way for society’s and earth’s survival.

This vantage points of “collective, practice-, as well as societal action-based knowledgeable doing”, hence, should be manifested in collaboratively structured bodies, heterogeneous institutions, “theory-practice-action” constellations targeting at a “synergy-approach”. Nevertheless, there are hurdles, like invincible disparities be-tween industries, countries, societies, as well as related values, and/or cultural, religious, motivational, etc., issues. Therefore, this research’s goal is the integration of ST as basic logic and success factor regarding the implementation of SDGs/sustainability, while enhancing social capital [35].

However, to enhance responsible entrepreneurship, weak ties are playing a crucial role. The latter guarantee a certain degree of autonomy, as they are characterized by deeper intimacy and less emotional boundaries, i.e., more honest criticism may be raised to benefit innovations, products, particularly, regarding education. Such “ricochet shots” can not only increase, but, explicitly, broad knowledge. On contrary, in very close networks barriers are high to potentially “use” others’ knowledge etc. for own purposes (e.g., in fear of sanctions). The absence of scruples in informal networks is an advantage for the knowledge transfer highly needed regarding the transfer of SDGs from business to business as well to society [35]. Networks, institutions, practitioners, researchers, entrepreneurs, etc., can, as an additional side-effect, benefit from lower transaction costs, as they are not hindered by excessive personal involvement. These informal and/or weaker emotional bindings initiate a vast “traffic” of information, knowledge, experiences, skills, advices, etc. [35].

Regarding education, this could be fostered by incentivizing the use of ST in online/distant, etc., learning, resulting multi-sectorial roundtables by which awareness can be ex-changed without spatial and emotional proximity. This broadens the network tremendously. Extensive,

heterogeneous weak ties lead to a high rate of transdisciplinarity due to—regarding RML implementation hurdles—actors' information gap maintained in various forms and multi-organizational fields without tying up much human and financial resources. Thus, this paper conceptualizes the following synergy-approach regarding the nexus of ST, entrepreneurship, and education: Informal collaborative transdisciplinary practices integrate disciplinary knowledge (interdisciplinarity from the fields of, e.g., ethics, responsibility, sustainability) and inter-sectoral knowledge for solving shared complex overarching problems regarding fostering, implementing, and educating sustainability—starting already at primary school.

Conclusion: ST—A Multi-Tasking Toolkit

In sum, though the broadness of the paper's research aim was "tightened" to some extent by discussing the results, the need of further research is obvious. However, first insights gained are promising. Topics to be worked out in more detail are: the impact of parental educational levels, religion, heritage, culture, socio-economic status (see [21] to get an impression on the current research status), political environment (related current results could be found in [21,26]), countries' capitalistic orientation, level of futurology in science ([2,3] show effects similar to the insights gained in this paper), scholarship, and research, as well as the overall interest in fulfilling the SDGs' requirements till 2030 (e.g., impacts shown in [4,8,21,22,27,30]) are a good groundwork to carry on to have a close look on intergenerational equity, its positive power on a global understanding and implementation of sustainability in education, research, and as TPs and TPM in practice.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest.

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