.61

Vision(s) of the University.
Applying Participatory Backcasting to Study the Future of Higher Education.[1]

Zsuzsanna Géring
Budapest Business School
Hungary

Gábor Király
Budapest Business School
Hungary

Sára Csillag
Budapest Business School
Hungary

Gergely Kováts
Corvinus University of Budapest
Hungary

Alexandra Köves
Corvinus University of Budapest
Hungary

Tamás Gáspár
Budapest Business School
Hungary

Abstract

The future of the higher education sector in general, and that of higher education institutions in particular is both troubling and uncertain. At the moment, it seems that there are several social, political, economic and technological trends which really test the sector's and the institutions' adaptive capacities. These challenges have brought forth a

number of papers and reports about the changing role and organisational structure of these institutions. We would like to contribute to this discussion by summarising the results of our participatory project concerning the future of higher education. The project started in 2014 and included two participatory backcasting workshops involving lecturers and students. The aim of our paper is to discuss the results of the participatory research project that involved key stakeholders on envisioning the future of higher education. The differences between the views of the lecturers and the students stress the importance of involving different stakeholder groups in the discussion about the future of higher education. As far as the different perspectives are concerned, two key points are worth highlighting: the open vs closed nature of higher education and in relation to this an inward looking, organisational vs an outward looking, network-focused perspective. These opposing viewpoints not only show differing visions of the future but also reveal current tensions between key stakeholders about what role should higher education institutions play in the social and economic environments.

Keywords: Future of higher education, Backcasting, Participation, Participatory research, Differences between student and lecturer perspectives.

Introduction

The future of higher education is a highly relevant and challenging topic in our societies. Therefore, in recent years a number of reports and research projects have focused on this issue (Ithnin, Nor, & Yusoff, 2017; OECD, 2008; Redecker, et al. 2011; Schuck, Aubusson, Burden & Brindley 2018; Theisens, Benavides, & Dumont, 2008). Most of these documents suggest that the higher education sector is (or should be) undergoing a fundamental transformation in terms of its role in society, its mode of operation, and its economic structure and value.

We would like to contribute to this discussion by offering a methodological arrangement – under the auspices of the participatory backcasting approach – for doing research into the future of higher education (henceforth: HE) and by giving a detailed overview of our project's results. This research process started in 2014 and included two participatory backcasting workshops involving teachers and students. The aim of our paper is twofold. Firstly, through explaining the research process it shows how different participatory methodologies can be combined in order to do participatory research involving the key stakeholders when researching the future of higher education. Secondly, through the discussion of the results, especially by the comparison of the visions, it aims to demonstrate how and why the engagement of key stakeholder groups in the discussion about the future of HE is relevant and topical.

The approach we utilised in the process, participatory backcasting (Carlsson-Kanayama, Drebork, Moll, & Padovan 2008), is a method that implies that the vision of the future can influence our current actions (Boulding & Boulding, 1995; Quist & Vergragt, 2006; Ziegler, 1991). Accordingly, when employing backcasting methods rather than using the current state of affairs as a starting point in envisioning potential futures, it creates the vision of an ideal future and works its way back to the present exploring what actions could lead towards that desired state.

Our paper is structured as follows: In the first section we give a brief empirical overview of those studies which utilise participatory methods for doing research about HE – highlighting those which focus on the future of HE. The research process section gives an overview of the research and introduces the special methodological combination developed for this project. The next three parts discuss the results of the three main phases of the participatory workshop, namely framing, visioning and backcasting. All subsections of the results part give a short overview of the methodology applied in the given phase and the differences and similarities of the constructed

results in the two backcasting workshops by the two different groups. As this paper aims to focus on analysing the visions, the visioning phase will have a more in-depth analysis. The paper also touches upon the possible drawbacks and merits of this special methodological combination. As a final note, we draw some conclusions regarding the possible reasons behind the differences and similarities of the visions.

Participative Methods in Higher Education Research – a Short Literature Review

The term deliberative participation[2] covers all kinds of participatory mechanism and processes based on debates, discussions and dialogues (in short, deliberations) between the participants. These processes are meant to allow for stakeholders to discuss and occasionally decide about complex issues which significantly affect their lives (King, Feltey & Susel, 1998; Kiss, 2014; Laird, 1993). The idea of participation is based on the presupposition that members of these groups are able to form opinions and decide about issues important to them even if they do not have extensive expert knowledge on the given subject.

As far as higher education is concerned, the issue of participation is particularly relevant since higher education plays an important role in the development of democratic cultures in society.[3] Furthermore, while many different stakeholders of HE can be identified at different levels of social reality, those who are directly affected (i.e. university students and staff) usually have strong opinions concerning policy, organisational or curriculum changes. Moreover, from a theoretical perspective on organisations, it can be stated that considerable influence and knowledge are concentrated at the lower levels of the organisations of higher education: Clark described higher education institutions as "bottom-heavy" organisations (Clark, 1986, p.132), and Mintzberg typified them as professional bureaucracies (Mintzberg 1991). Therefore, without the consent of university employees it is especially hard to make any 'sustainable' policy reforms or organisational development initiatives (Hargreaves & Fink, 2004) since the stakeholders concerned have the power to 'make or break' (or even simply ignore) them. That also means that those processes which can enhance the ownership of the affected parties in relation to solutions to problems higher education institutions have to face nowadays can play a very important role.

In the case of students and external stakeholders, however, the participation frequently became formal, precisely because of the bottom heavy nature of higher education institutions. Involvement at the top does not necessarily mean change at the bottom. As a result, in addition to the constant search for new means to facilitate involvement in university governance and to transform it into a more meaningful and deliberative practice (e.g. Diaz & Gilchrist, 2010; Planas, Soler, Fullana, Pallisera, & Vilà 2013), an additional discourse on how to enhance "student voice" in fundamental institutional processes (teaching, research) has also emerged recently.

A review of current literature[4] on participation in higher education is summarized in the following table in which we grouped the literature into 6 main themes according to the main issues discussed and the methods utilised (Table 1).

Table 1. *Summary of literature review of the participatory issues and methods in HER*

		Methods proposed or used				
		Backcasting	Delphi	Action research (collaborative, participative, change oriented etc)	Other (structured dialogue, roundtable reflective inquiry, open forums, wikitextbook, etc.)	Participation in general (no specific method mentioned)
Themes	Curriculum & course evaluation/ design / creating learning environment			Gardner and Hammet (2014); Santos, Ali, & Hill (2016)	Williams (1997); Bruch & Reynolds (2012); O'Neill & McMahon (2012); Diaz & Gilchrist (2010)	Bron & Veugelers (2014)
	Teaching in a participative way / teaching participation / the role of technology	Quist et al. (2006)		Congdon & Congdon (2011)	Ravid, Kalman, & Rafeli (2008); Brandenburg (2013)	McLoughlin & Lee (2007); Milligan (2003); Taylor & Fransman (2004)
	Staff development (teacher training, leadership training)	Schuck et al. (2018)		Geltner (1993); Kekäle & Pirttilä (2006)	Shaeffer (1993); Brandenburg (2013)	
	Governance & student participation	Ithnin et al. (2017)			Diaz & Gilchrist (2010)	Seale (2009); Planas et al. (2013); Mallory (2010); Seale et al. (2015)
	Policy & strategy formulation / future of HE	Our backcasting approach	Rieckmann (2012); Huisman, Boer and Bótas (2012); Horizon Report (2014); Maxey and Kezar (2015); Kezar and Maxey (2016)		Johnson (2014)	
	Local engagement			Harkavy & Hartley (2012)		

Based on the table, we can make some observations. Firstly, governance and student voice are still important topics, but the majority of current literature on participation seems to be concerned with teaching and learning processes, that is, stakeholder involvement in evaluation, (co-)design and development of courses/programmes and enhancing learning experience through participatory

pedagogy methods. There are some subthemes which can be connected to the topic of teaching and learning as well as institutional management and governance. Secondly, it can be stated that most of the research projects focus on the evaluation/development of current practices rather than defining the desired future in a collaborative way. Thirdly, although several different participative methods are applied or proposed (e.g. experimental methods, Roundtable Reflective Inquiry, workshops, wikitextbooks and backcasting), among these collaborative/participative action research and Delphi technique are the most frequent.

Our approach can be placed in one of the less discussed niches in current academic discourse as the table above shows (*Backcasting / Policy & strategy formulation - future of HE* niche). This is because it is built on the logic of backcasting, which is rarely used in HE related participative inquiry. In line with this, while most future-oriented HER papers attempt to forecast present trends, we proposed a future-oriented approach focusing on collaborative formulation of a vision which can be used in policy and strategy-making processes. Since this 'reverse methodological logic' is relatively rarely utilised when thinking about the future of higher education in a structured way, the next section discusses it in detail.

The research process

The participatory backcasting process was at the centre of our research project concerning the future of higher education. As we opted for a viewpoint that imaging the future by major stakeholders is of the upmost importance in the historical development of any institutions (Polak, 1973), we developed our research design based on the so-called 'backcasting' approach (Robinson, 2003). Backcasting served as an overall methodological framework for the project because of its future-oriented characteristics and out-of-the box thinking style. It aims to construct an ideal future vision about the analysed phenomenon and then attempts to elaborate the necessary steps for reaching this imagined future state (Quist & Vergragt, 2006).

Usually there are three phases of a typical backcasting process (framing, visioning and backcasting phases [Király, Géring, Köves, Csillag, & Kováts, 2016a]), to which we applied three different participatory methods respectively (see in Figure 1):

1) the *framing phase* aims to identify the key factors of the higher education system, so for this we applied 'participatory systems mapping' (Sedlacko, Martinuzzi, Røpke, Videira & Antunes, 2014);
2) in the *vision-construction phase* a normative vision is developed (in our case the vision of HE in Hungary in 2050), so in order to do so we utilised the 'world café' method (Bache, 2008)
3) the *backcasting phase* serves as a closing session, where participants identify the necessary steps to reach the ideal vision - from the future to the present. At this phase we draw on a modified version of the 'futures wheel' methodology (Glenn, 2009).

Figure 1. A visual representation of the participatory backcasting process

Throughout the process, there was an 'oscillation' between different levels of the social reality (systems mapping: *macro*→ world café: *micro*→ futures wheel: *meso/macro*), as well as a mental shift concerning the time horizon of thinking (systems mapping: *present*→ world café: *future* → futures wheel: *from future to present*). Table 2 below summarizes these characteristics in a comprehensive way.

Table 2. *Main characteristics of the applied methods*

characteristics	**systems mapping**	**world café**	**reverse futures wheel**
thinking style	causal analytical	free and creative	structural analytical
output	system map of variables and their connections	value-laden text	systematic groups of policy steps
level of focus	macro	micro	meso/macro
time-horizon	present	future	from future to present

This participatory method-combination was applied in two 2-day backcasting workshops. The first workshop involved 12 lecturers and/or researchers from different Hungarian HE institutions, while in the second workshop we worked with 16 students also from different Hungarian HE institutions. The workshops were organised in 2015 and in 2016 (Géring, Király, Köves, Csillag, & Gáspár, 2017).

As far as sampling is concerned, the research team applied the strategy of purposive sampling (Weiss, 1994; Maxwell, 2013) to find participants for our research. According to Devers and Frankel (2000), this approach can be utilised in order "to enhance the understanding of selected individuals or groups' experience(s)" (Devers & Frankel, 2000, p.264). In line with this, we invited teachers who can be considered experts in relation to higher education issues. We attempted to create a balanced sample in terms of gender as well as institutional affiliation. As a result, 12 people participated in the backcasting event (6 females and 6 males) representing 4 different institutions.

As for the students, we utilised a slightly different approach for the sampling. Firstly, we sent messages to student organisations asking students to participate. After we had the first group of potential participants, we used a snowball sampling technique in order to have a bigger panel. As a result, the student sample consisted of 16 undergraduate students (11 females and 5 males) from 2 institutions.

Framing phase

Methodology: systems mapping

For framing the future of higher education and identifying the most important factors in the *present* HE system, we decided to use participatory systems mapping. *Participatory systems mapping* (Király, Köves, Pataki, & Kiss, 2016b) is basically an analytic process (based on causal loop diagramming [CLD] see: Morecroft, 2010). During this process participants focus on finding the most important variables of a given problem or situation (in our cases the system of higher education), and attempt to establish a web of interconnections among them (Haraldsson, 2000). This could be a rather lengthy and mentally challenging process, especially when it is difficult for the group to reach consensus on what factors are important and in what way those factors are interconnected.

Systems mapping emphasises variables and causal relationships between them. By identifying variables and delineating their relationship, the structure of a given system underlying everyday events and problems are also revealed and visualised.

As a main task, participants were asked to develop a system map of the *present* operation of the Hungarian higher education sector. In order to do so, firstly, a facilitator introduced the building blocks (variables, causal connections, feedback loops) of this visual language. After this short introduction, the panel members received a simple task when they had to 'translate' an argument into CLD in order to see whether they properly understood the logic of the diagramming exercise. Then, with the help of the facilitator, the panel members identified the most important variables in the system of higher education and wrote them on sticky notes. Utilising sticky notes is quite useful in systems mapping since it allows the spatial rearrangement of the factors and their relationships as the system gradually takes shape. After collecting a considerable number of factors (around 25-30), participants started to delineate causal relationships between variables by drawing arrows on a big sheet of paper. At this point, it was still possible to add further factors if the panel felt that they were necessary to properly convey their understanding. Lastly, participants were asked to identify the most important factors in the system, that is, those variables which play a key role by counting their relationships (see Appendix).

Results: Comparing and Analysing the Two Systems Maps

Although it was not possible to give in-depths analyses during the events, by back-office activities our research team was able to work further with the maps elaborated. There can be several ways to analyse the results of participatory systems mapping (see Király, 2017), here we describe and compare the maps by quantifying the number of their relationships. This approach allows us to form arguments about the internal structure of the maps, as well as to gauge the respective weights of specific factors assigned by the stakeholder groups. So, by ranking variables, we can gain an understanding about what kinds of variables the different stakeholder groups find significant and in their perspective which factors determine the behaviour of the system.

The table (Table 3) below shows the list of main variables in both groups. We only indicate here those factors which have at least 4 causal relationships. Those factors which have the same number of connections are ordered in an alphabetical order.

Table 3. *The order of different factors based on the number of assigned relationships (variables having at least 4 connections)*

Lecturers' system map			Students' system map	
Variable	**Connection**		**Variable**	**Connection**
Level of funding	14		Quality of education	11
Number of potential students	13		Students' motivation level	10
Lecturers' motivation level	11		Institutional prestige	8
Lecturers' level of preparedness	6		Number of applicants	7
Accessibility of lecturers (in a labour-market sense)	4		Money allocated to higher education	6
Diversity (level) of pedagogical methodology	4		Lecturers' motivation level	6
Lecturers' wage	4		Recognition of degrees (by labour market)	6
Level of talent management	4		Utility of knowledge	6
			Number of corporate liaisons	5
			Resources allocated for research	5
			Monetary contribution of corporate actors (to the university budget)	4
			Possibility of finding a job	4

Even if this table does not do justice to the richness and complexity of the system maps (for this see Király, 2017), it allows the comparison of the similarities and differences between the perspectives of the two stakeholder groups. Starting with the similarities, we can see that the factors related to the number of potential students and the funding of the HE sector are important for both groups. In a similar fashion, the lecturers' level of motivation is also highly relevant for both panels. Nevertheless, quality of education emerged as a key variable only for the students. It has not appeared on the lecturers' map in this straightforward manner. Instead, this group covered this phenomenon with several factors (such as lecturers' level of preparedness, diversity level of pedagogical methodology and the level of talent management). So, we can argue that both groups view factors such as funding, lecturers' motivation level and the quality of education as relevant and important as far as the operation of the HE sector is concerned.

Apart from these points, there are key differences between the two lists. If we read through the key variables only focusing on one or the other stakeholder groups' list, we can see that the lecturers' presuppose a closed HE system, while the students see it as an open system connecting with several links to its environment. The lecturers' factors – apart from the ones related to funding and potential students – characteristically point inward, inside the walls of the institutions (4 variables are about lecturers and 2 are about teaching). Based on this, it seems that for lecturers the internal operation and internal structure of the institutions are more important than the political, economic and social context in which these institutions are embedded. In contrast, the perspective of students is more open. Variables related to the external validation of knowledge (recognition of degrees, utility of knowledge and the possibility of finding a job), to the external assessment of the

institutions (institutional prestige) or to external liaisons (number of corporate liaisons, monetary contribution of corporate actors) seem to be much more relevant for students. As we can see below, the differences emerging in the framing phase remained significant for the rest of the process.

The outputs of this framing phase also served as inputs for the next visioning phase as it gave the participants focal points they could use in their vision-construction discussions. These focal points were rephrased as questions for the world café exercise, which we have utilised for the visioning phase of the participatory backcasting event (see Appendix).

Visioning phase

Methodology: world café

Compared to systems mapping, the *world café* method (Bache, 2008) used in the visioning phase invokes a very different type of contribution on behalf of the participants. It is a deliberative and creative process in which participants are encouraged to think in an associative way in relation to the focus of the world café (in our case the future of higher education) and look for connections between their ideas and the ideas of others. In this technique the emphasis is on the exploration, elaboration and innovation of issues in relation to the main topic rather than on some kind of analysis or problem-solving. The rules of the world café serve only to ensure this free communicative space and to catalyse the collection and 'networking' of ideas instead of limiting or rationalising discussions in any way.

The social constructivist approach of the world café method turns the attention to everyday reality and, in this exercise particularly, to how this reality might look like in the future. Consequently, elements such as values, attitudes, interactions, behavioural patterns and – based on them – institutional aspects are usually at the centre of participants' discussions. Causal relationships and social structures are rarely mentioned by participants. Instead, they usually utilise a micro perspective and often create imagined narratives, story-lines and lived experiences located in the future to discuss the topic at hand.

In our process, participants were given a short introduction about the world café method and how the process would unfold. Based on the systems mapping and the most important factors identified, six questions were formed in both groups (see Appendix). During the process there were two rounds, each consisting of 3 questions and hence three tables to sit at. Participants were subdivided into three groups and each group was asked to discuss one of the three questions, then they changed tables twice. So, each time there were a new question to discuss with a different group. It is also important to mention that there was a host (a member of the research team) at every table, who remained seated throughout these changes. This way every participant was able to contribute to every theme, and the hosts were able to collect all the ideas provided to a given question. In the second round, the other three questions were discussed in a similar fashion. As a result of the discussion rounds, each question (each table) had a summary of the main topics covered and conclusions reached by the participants. From these notes and conclusions, a draft vision-text was created, which was again discussed with all the participants until the version was developed which all involved could agree with.

Results: Comparing and Analysing the Two Visions

In order to compare the two HE visions we draw on Richard Scott's (2003) theoretical framework of organisations. We utilised this framework as an *a priori* template for data analysis (King, 2004), which served as guidelines guided us and highlighted important elements in the vision texts. The main dimensions of Richard Scott's (2003, p.18) theory for interpreting organisations are: participants, social structures (intra-organisational), goals, technology/tasks, and the environment influencing all of these elements.

69

As Table 4 shows there are elements of the visions which are similar (they are mentioned first in each dimension), and there are aspects which are different (with italic after the similarities). Both the similarities and the differences are important in their own right.

Table 4. *Comparison of the two visions among Scott's five organisational dimensions (edited by the authors)*

Teachers' vision	Elements	Students' vision
- supplying open and accessible knowledge - providing inspiring experiences - developing special skills and competencies - providing place for social relations - being socially responsible - *reaching large pool of social groups* - *verifying knowledge* - *knowledge-broker role* - *fostering mobility* - *high level of internationality* - *training conscious students (citizens)* - *mediating among the stakeholders demands (i.e. students, economy, society etc.)*	*goals of HE*	- supplying open and accessible knowledge and information - providing inspiring experiences - developing special skills and competencies - providing place for social relations - being socially responsible - *supporting personal fulfilment and self-awareness* - *high level of interactivity* - *providing protected area for project-ideas (incubator-role)* - *connecting HE with employees through mentor-programmes* - *supporting social initiatives* - *being socially embedded both locally and internationally*
- high autonomy concerning both the method and the content of education - highly flexible structure and modularity of education - flexibility regarding teachers' role (teacher, researcher, practitioner, or some combination) and performance-evaluations - feedback at every level among participants - project-based learning and learning-by-doing forms - inspiring and experience-based learning and teaching - motivated teachers and students - active, self-conscious and goal-oriented students	*structure of HE*	- high autonomy concerning both the method and the content of education - highly flexible structure and modularity of education - flexibility concerning the role of the teachers and the form of their job (changing specialty, working at companies, sabbatical etc.) - frequent and detailed feedback among participants - project-based learning and learning-by-doing forms - inspiring and experience-based learning and teaching - motivated teachers and students - active, self-conscious and goal-oriented students

Teachers' vision	Elements	Students' vision
- *large number of students* - *high diversity in age, gender, social status and nationality* - *'master-disciple' relations meaning an intensive personal learning experience* - *financing at the student level* - *financing based on four main pillars: governmental, personal, corporate, communal*		- *"gap year": special orienting period between secondary and tertiary education to participate in pre-university education or volunteering programmes or professional trainings* - *high level of interactivity in education* - *projects and ideas from inside – incubator role of HE* - *high level of cooperation among universities ('world-university')* - *increasing significance of social skills at the expense of lexical knowledge* - *HE as a place for ideas and project-tests (incubator-role), incorporated into curriculum and training* - *trimester form of education*

- parallel virtual and face-to-face education
physical infrastructure:
- small rooms for teaching
- new, especially representative and social functions of buildings and large spaces
virtual infrastructure:
- significant technical background for information technology and services
	*technology/
	infrastructure*
		- parallel virtual and face-to-face education:
		  o places for small-group personal training sessions and social experiences
		  o providing online space for huge scale education
		both:
		- *institutional incubator-houses*

- students - teachers/researchers - state - companies (labour market) - society	*participants (stakeholders)*	- students - teachers/researchers - state - companies (labour market) - society - *NGO-s* - *alumni groups* - *domestic and international institutions* - *the whole world*

Teachers' vision	Elements	Students' vision

- socially appreciated and financially remunerated teachers
- active role of the companies:
  o field of practical experiences
 	
  o *corporate universities*
  o *articulate special educational demands*
- *international competition*
- *life-long learning as general attribute of society*
	environment	- socially appreciated and financially remunerated teachers
		- active role of the companies:
		  o field of practical experiences
		
		  o *close cooperation throughout education (case studies, real problem-solving etc.)*
		  o *mentor-programmes*
		- *international cooperation among HE institutions ('world-university')*
		- *certification of education by graduate and alumni student and independent teachers*
		- *increasing relative importance of education compared with research as a result of certificated education*

As Table 4 demonstrates, both visions are interesting in themselves. Analysing only one of them in detail would provide ample material for a separate research paper. Therefore, in the following pages we will only highlight some of the most interesting similarities and differences between them.

Similarities

When we look at the similarities of the HE visions, the first aspect is its *role as a free and open knowledge-provider*. This aspect has been emphasised in both visions. However, it was closely followed by the need for HE to be inspiring and provide special skills and competencies. Both visions look at the online platforms as the source of 'mass-produced pieces of knowledge' without borders or constraints. At the same time, it was also emphasised that the personal aspect of pedagogical work would not disappear but would be transformed into small-group and project-based learning forms.

Other important parallels were the *flexible and modular forms of education*, which were recommended by both groups. In this sense, flexibility characterises not only the form of education but also the role of the teachers. In both processes all participants considered flexibility and modularity as a basic requirement. (Although there were some differences, because the teachers talked mainly about the trade-off between teaching and doing research, while the students considered the possibilities of even working in the private sector for a while to gain practical experience or frequently going on sabbatical as part of an ordinary carrier track of HE teachers.)

According to the visions, these factors mentioned above all shape the conditions of the future provided that in 2050 the *lecturers as well as the students will be highly motivated and committed* to be actively involved in HE. They are supposed to be interested in their own development and make deliberate plans both about their paths through the years of HE and about their relations with the broader social environment.

Differences

As for the differences, it is clearly noticeable that in the lecturers' vision direct or indirect references to the *inner-structure of the higher education* (and the institutional aspects) are much

more frequent than the references to HE's connections to its environment, just as it could be seen in relation to the systems mapping (framing) phase. Furthermore, this vision mainly concentrates on relationships and principles of operation inside higher education or even inside of a specific HE institution (like a given university). Conversely, in the students' vision the relationships with *HE's environment and with external actors* are emphasised much more. In this vision even the very borders of a given HE institution are challenged (see for example the concept of 'world-university'), thus, the whole system is presented as a much more open entity.

Another interesting aspect of the two visions is the *role and importance of technology*. According to the lecturers, in the ideal status of HE, technology plays a crucial role. In line with this, during the process the lecturers spent a considerable amount of time and energy on developing their ideas on this issue. By contrast, the students rarely even mentioned the technological aspects during their workshop. We asked some of the students after the process about the reason for this 'neglect'. Did they omit topics of technology from the discussion because they do not see it as an important factor, or, alternatively, because they see it as a given factor? Based on the answers of the students, it seems that the second explanation is the correct one. In other words, the students look at technology as something omnipresent and ubiquitous, always at their service and at hand. This disparity regarding the role and importance of technology could be explained by the often-cited 'digital gap' phenomenon (DiMaggio & Hargittai, 2001), or the so-called generation-theories. These theories presuppose considerable differences between younger (digital natives) and older generations (digital immigrants). In the case of our project, the older group brought up and considered the role of technology in HE several times, while the younger one took it for granted.

Nevertheless, the most striking difference was the issue of *inclusivity/exclusivity* of HE. While teachers presented an inclusive vision emphasising the need for an international, diverse student population from all age categories, students developed a vision in which HE is a much more selective and exclusive culture. These strikingly different vision elements about the nature and composition of the student body are rooted in different concerns. Teachers expressed their concerns about the dwindling demand for HE services, which push institutions to find additional prospective groups of students either based on international students or on the more mature segments of society. This concern was present in the whole process in discussions and debates. In contrast, students' concern was about the massification of HE, which resulted in masses of students present in institutions who do not have any motivation to study and do not know what they want to do with their lives. They emphasised that student motivation is also dependent on the motivation and dedication of their peers. In other words, students who lack motivation and dedication not only sap the energy of their teachers but also reduce the possibilities of the more motivated ones to develop and fulfil their potential. That is the reason why the students involved in the process stressed the importance of pre-university programmes and the institutionalisation of a so-called 'gap year' so that only the students register for a particular HE programme who are enthusiastic and committed to the area they have chosen.

Last but not least, the students' vision can be described as much more 'relational' compared to the teachers' ideas. Students often speculate about interaction among people, and they discuss the relationships of different participants in detail. They put particular emphasis on the possible connections between HE institutions, delineating a very interesting system (loosely linked institutes around the world, from which the student can freely choose topics and classes). Moreover, they also pay special attention to the question of how universities can connect with organisations outside the HE sector, especially with potential employers. The access to potential employers during the years of HE was a highly important issue to them. This highly interactional and relational perspective and globe-level connectivity gives a special character to their vision. This outlook cannot be found in the teachers' normative vision of HE.

At the end of this phase, the most important elements of the visions created during the world cafés were identified and they served as the 2050 state of play in the futures wheel (see Appendix).

Backcasting

Methodology: futures wheel

When backcasting the steps that may lead to such a desired future, we asked the participants to construct a futures wheel. *Futures wheel* is a method (Glenn, 2009; Inayatullah, 2008; Gordon & Glenn, 2003), which involves systematic and analytic thinking. During a typical futures wheel process, participants define a central phenomenon and subsequently identify its consequences. This set of direct consequences constitutes the first layer of the wheel. By speculating on the consequences of these consequences participants establish the connections to the second and, in turn, to the third layer. The result is a complex web of interconnecting implications which are structured in layers. We utilised this logic during our process but reversed its direction. This means that participants started from a future vision and identified policy preconditions of the vision elements backwards in time moving towards the present – instead of analysing the future consequences of an event or trend to be found in the present.

The method of futures wheel brings causal connections and structural elements to the forefront of participants thinking again. Nevertheless, the approach is different from systems mapping since a different type of temporality is emphasised by asking participants to identify the policy preconditions of the vision in different points of the time (starting from the future vision and mentally moving back toward the present).

During our process, participants were asked to choose the most important aspects of the vision created. Then we subdivided the groups again and they discussed these topics in smaller groups. During these discussions they defined the most important policy steps which should be implemented ten years prior to the given vision in 2050. After that they moved further and identified the next 2 most important preconditions to reach these policies ten years prior to the previous point in time. They followed this logic until they had reached 2020. It might be important to mention that for the sake of manageability we asked participants to focus only on a limited number of policy preconditions, that is, 3 in 2040, 2 in 2030 and 2 in 2020.[5] After this small group exercise, the participants introduced their respective futures wheel slices and pinpointed the synergies and contradictions among the policy steps elaborated.

Results: Comparing and Analysing the Two Futures wheels

The output of this futures wheel procedure is a structured diagram which contains the whole range of the defined steps and conditions needed to reach the projected future of the vision in ten-year circles (for a slice of the lecturers' futures wheel see Király, 2016a). Here, we focus on the main similarities and differences between these diagrams.

As it could be seen from the comprehensive table of the Appendix, the starting points of the two futures wheels were much more different compared to that of the visioning or framing phases. Therefore, we can barely find any similarities between the elaborated structures of the necessary policy conditions of the two stakeholder groups.

The futures wheel of the students dealt with the requirements of a very flexible and modular system with project-based, interactive, small-group teaching. This is complemented with the conditions necessary for institutionalising the practice of gap-year and for creating brands for HEIs based on social values. This vision requires the reform of the whole education system, because not only lecturers have to change their attitudes and approaches to adjust to this form of education, but students also have to acquire competencies and to have strong motivation to be able to participate

fully in such a system. Furthermore, the policy steps identified presuppose that external actors (like representatives of the labour market) need to be involved very early in the system of HE, which, in turn, presupposes the existence of legal and financial incentives. Lastly, according to students, project-based learning and development should be incorporated into the programmes of HEIs mirroring the social values and commitment of these institutions.

Nonetheless, these policy steps contain some contradictions, as the students themselves concluded at the end of this exercise. One of the tensions is between the demands of project-based and flexible education and of small-group teaching, because it leads to tremendous logistical and organizing problems. Another tension is between the idea of centralisation of the HE system (in order to deal with coordination issues), and at the same time providing decentralised and less formal learning experiences. The students attempted to solve this contradiction by regarding centralisation rather as a basis for the infrastructure and coordination not as central governance of the educational process.

The demand of a flexible system and the reshaping of the infrastructural background also appeared in the lecturers' futures wheel. In order to reach the desired level of motivated teachers, quality student service and external relationships, both political willingness and societal support is needed. According to the lecturers, participation based approaches and discussions are the preconditions for the re-definition of the student-lecturer relationship based on partnership. The futures wheel of the lecturers mainly focused on the duality of cutting-edge online education and supportive off-line personal relationships, which require the elimination of the digital gap between students and lecturers. These conditions could prevail only in HE, which has high level of autonomy and social prestige.

As the lecturers emphasised, there are contradictions in this futures wheel as well. Like the difficulty, for instance, in providing infrastructure both for 'multiplex-like buzzing' and for cosy, small-group discussions. Another inconsistency can be found between the 'master-disciple' role-model and the 'student as customer' perception. This is even more pronounced when we compare lecturers' responsibilities, values and authority in the role of a 'master' to being a simple 'knowledge-provider' in a student-centred education.

As can be seen even from this very short discussion of the two futures wheels, the backcasting phase made initial differences even more pronounced and nuanced as the thinking process of the different stakeholder groups unfolded. However, some of the basic similarities remained present throughout both processes, like the clearly expressed demand for autonomy and the insistence on a more flexible education system.

Discussion of the possible merits and drawbacks of this methodological combination

As it was demonstrated in the previous sections, the different methodologies render different aspects and values about the future of HE visible. Therefore, in the following section, we share our experience in relation to special methodological combination specifically developed for this project. The first thing to be mentioned is that all of these techniques are participatory in nature or, at the very least, can be also utilised in a participatory context. That characteristic of the methods is quite important since this allows for their successful combination. In general, these methods can be seen as so called structured thinking processes and as such they all amplify certain elements out of the complexity and messiness of social reality. Consequently, the strength of utilising these methods together lies in the fact that they shift the attention of the participants towards different types of elements, structures and relationships.

Another important methodological lesson to be learned is that even if participants turn their attention to the future, their thinking is still partly anchored in the present. This is also reflected by the text of the visions – for example they presuppose that key actors of the present HE system will also remain key actors in the future or their images of the future are strongly framed by the present

technological/infrastructural conditions (for example they did not mention totally out-of-the-box ideas such as the model of teacher-free education or of a completely virtually organised HE system). This 'present form of the future' effect might be due to the limited time horizon characterising the process (only 35 years) or to the fact that the process starts with a focus on the present conditions (systems mapping). This present focus can orient the thinking of participants in a way that they are partly stuck in the present even when they speculate about the future. Another explanation might be that participants do not want to imagine a future where their social position and prestige deteriorates (i.e. it is less likely that lecturers create a normative future vision without lecturers).[6]

When integrating these three methods, one has to be aware that they involve different thinking styles: systems mapping can be described as systematic and analytic; world café as creative and innovative; and futures wheel as systematic but at the same time innovative. It could happen that people enjoying the freedom of world café might find the process of the futures wheel or system mapping too analytical. Apart from these difficulties, the combination of these methods also offers the opportunity for individuals with different thinking patterns (again, analytic vs. associative, systematic or inspirational) to find their preferred communicative space and means of communication, through which they can express their thoughts.

It is also important to note that the three methods are different in terms of whether they can be applied in groups with varied socio-economic backgrounds. While systems mapping is not extremely difficult for participants with high knowledge capital, it may require a level of abstraction that cannot be expected from less educated groups. Reasoning skills could also be very important at this phase. As for world café, those with lower knowledge capital can also be encouraged to share their thoughts due to the provision of an inclusive and safe environment. In this regard, futures wheel is a kind of mixture, and we should mention that in the students feedback this method was the least appreciated.

Last but not least, the results draw attention to the fact that this type of methodological combination strengthens and enlarges relatively minor initial differences between the two groups' ideas and visions. This characteristic might be attributed to the process itself, which steers participants' thinking into going deeper and deeper into the world that they envisioned. Due to this procedure, at the end of the whole program the initially slight differences could lead to significantly different world-views and action-plans. Like in our case, where the differences in the two system maps, which were detectable but not strikingly contrasting, got more emphasis in the visions and led to considerably divergent futures wheels at the end.

Conclusion

As a conclusion, we would like to turn our attention to some of the most notable insights we gained when analysing the outcomes constructed in this backcasting process. As can be seen in this paper, the different groups involved utilised different perspectives to understand HE's present and create its possible future by putting themselves, their needs and roles at the centre. This difference in perspectives might be attributed to well-known socio-psychological effects such as the egocentric bias (overemphasising one's role in changes – especially positive ones; Gilovich, Medvec & Savitsky, 2000) or self-referential encoding (people recognize and organize information in relation to themselves; Klein & Loftus, 1988). Nevertheless, the very existence of this difference teaches an important lesson, namely, that it is paramount that in participatory processes all stakeholders are involved since they turn their 'attentional spotlight' on different factors and facets of reality due to their specific position and role in the system. Taking this attentional difference into account, it is both crucial for understanding the present situation and for planning the future. They highlight points around which conflicts of interest and potential tensions might arise between different stakeholders.

Our results show that these potential tensions might arise from two interrelated issues: the openness and inclusiveness of the university of the future. The first concerns the question of how open universities should be in relation to the demands of external institutions and forces. While letting market forces and demands dominate teaching and learning in HE and this fact might enhance the employability of students (student vision), it also undermines the idea of the university as a relatively independent and autonomous entity (teachers vision). The second issue raises questions about the access to HE services and the composition of the student body. While teachers, taking into consideration demographic changes and a dwindling number of young students, opt for a vision where barriers to HE are lower and the student body is much more diverse in its composition, students emphasise the need to only select the most motivated, committed and dedicated students, who also create a favourable learning environment for each other.

The differences emerging which became more and more pronounced and detailed during the process, could be explained – at least partly – if we take into account that the lecturers had to plan a future for their life-long workplace, while the students were asked to ponder upon a field where they spend only a relatively short period of their life. This difference in 'personal involvement' leads to very different frameworks, because in the first case the solidity and dependability of the system is valued higher, while in the latter case participants tend to require constant challenges and new experiences to develop themselves and their professional networks. These are of course not mutually exclusive frames, but they could diverge into very different future visions.

Accordingly, these differences in the visions of the stakeholder groups are not only related to the future but help us to understand how these groups understand their present conditions and why they are dis/satisfied with them.

Correspondence

Zsuzsanna Géring
Address: Budapest Business School.
29-31.Markó u.
1055 Budapest,
Hungary
Tel.: (+36) 1 301 3428
Email: gering.zsuzsannamargit@uni-bge.hu

Acknowledgement

Endnotes

1. This article is an extended and rewritten version of the paper given at UNIKE: University Futures Conference; June 15 - 17 2016 [Danish School of Education, University of Aarhus].
2. In this paper we use the expressions 'participation' and 'participatory' in the sense of deliberative participation. When the concept participation is utilised with a different meaning (such as formal political interest-aggregation channels) it will be indicated in the text.
3. See the special issues of Journal of Public Deliberation (Issue 1, 2010) and the New Directions for Higher Education (Winter 2010)
4. It is difficult to identify relevant articles because the term „participation" is used in a number of

meanings, not just in the sense of deliberate participation. We have searched various academic databases (ERIC, SAGE, EBSCO, Science direct, Google Scholar and JSTOR) without any time limitation using the combination of the following keywords: higher education, participatory research, deliberative, action research, backcasting, future, student voice, staff voice, academic voice. Based on their abstracts we selected and analysed 30 articles. Although the collection is far from complete, our purpose was not to provide a systematic in-depth review of the topic but to identify major issues and methods.

5. Even with this limit, the number of steps identified was around 72 (6×3×2×2).

6. Whatever the cause of this effect might be, it might be important to allocate more time between the systems mapping exercise (focusing on the present) and the world café method (focusing on the future) in planning a future-oriented participatory process. Another possible solution to this challenge might be allocating more time to the visioning phase. In this way, participants can create more than one normative vision, some of them more, some of them less radical from the present viewpoint. Then, at the end of visioning phase the given group can choose one which they can agree with.

References

Bache, C. M. (2008). *The living classroom: Teaching and collective consciousness*. Albany, NY: SUNY Press.

Boulding, E., & Boulding, K. E. (1995). *The Future: Images and Processes*. London: Sage.

Brandenburg, R. (2013). When their experience meets ours. Learning About Teaching Through Reflection and Student Voice. In R. Brandenburg & J. Z. Wilson (Eds.), *Pedagogies for the Future: Leading Quality Learning and Teaching in Higher Education* (pp. 13-26). Rotterdam: Sense Publishers.

Bron, J., & Veugelers, W. (2014). Why We Need to Involve Our Students in Curriculum design. *Curriculum and Teaching Dialogue*, *16*(1-2): 125-139.

Bruch, P. L., & Reynolds, T. (2012). Ideas in Practice: Toward a Participatory Approach to Program Assessment. *Journal of Developmental Education, 35*(3), 12-14, 16, 18, 20, 22, 34.

Carlsson-Kanyama, A., Drebork, K. H., Moll, H. C., & Padovan D. (2008). Participative backcasting: A tool for involving stakeholders in local sustainability planning. *Futures, 40*(1), 34-46. doi: 10.1016/j.futures.2007.06.001

Clark, B. R. (1986). *The higher education system: Academic organization in cross-national perspective*. California: University of California Press.

Congdon, G. J., & Congdon, S. (2011). Engaging students in a simulated collaborative action research project: An evaluation of a participatory approach to learning. *Journal of Further and Higher Education, 35*(2), 221-231. doi: 10.1080/0309877X.2010.548597

Devers, K. J., & Frankel, R. M. (2000). Study design in qualitative research--2: Sampling and data collection strategies. *Education for health, 13*(2), 263-271. doi: 10.1080/13576280050074543

DiMaggio, P., & Hargittai, E. (2001). *From the 'digital divide 'to 'digital inequality': Studying Internet use as penetration increases*. Princeton: Center for Arts and Cultural Policy Studies, Woodrow Wilson School, Princeton University.

Diaz, A., & Gilchrist, S. H. (2010). Dialogue on campus: An overview of promising practices. *Journal of Public Deliberation*, *6*(1).

Gardner, M., & Hammett, R. (2014). Living Action Research in Course Design: Centering Participatory and Social Justice Principles and Practices. *The Canadian Journal of Action Research, 15*(3), 5-21.

Geltner, B. B. (1993). *Collaborative Action Research: A Critical Component in the Preparation of Effective Leaders and Learners*. Paper presented at the Annual Meeting of the University

Council for Educational Administration (Houston, TX, October 29-31, 1993).

Géring, Zs., Király, G., Köves, A., Csillag, S., & Gáspár, T. (2017). Participatory methods in futures studies: A vision-construction process about the future of higher education. *SAGE Research Methods Cases*. doi:10.4135/9781473997226

Gilovich, T., Medvec, V. H., & Savitsky, K. (2000). The spotlight effect in social judgment: An egocentric bias in estimates of the salience of one's own actions and appearance. *Journal of Personality and Social Psychology, 78*(2), 211-222.

Glenn, J. C. (2009). Futures Wheel. *Futures Research Methodology (Version 3.0), AC/UNU Millennium Project,* Washington, D.C.

Gordon, T. J., & Glenn, J. C. (2003). Integration, comparisons, and frontiers of futures research methods. *Futures Research Methodology (Version 2.0), AC/UNU Millennium Project, Washington, DC*.

Haraldsson, H. V. (2000). Introduction to system and causal loop diagrams. *System Dynamic Course, Lumes, Lund University, Sweden*.

Hargreaves, A., & Fink, D. (2004). The seven principles of sustainable leadership. *Educational Leadership, 61*(7), 8-13.

Harkavy, I., & Hartley, M. (2012). Integrating a commitment to the public good into the institutional fabric: Further lessons from the field. *Journal of Higher Education Outreach and Engagement, 16*(4), 17-36.

Horizon Report. (2014). *The NMC Horizon Report: 2014 Higher Education Edition*. Austin: The New Media Consortium.

Huisman, J., Boer, H., & Bótas, P. C. P. (2012). Where do we go from here? The future of English higher education. *Higher Education Quarterly, 66*(4), 341-362. doi: 10.1111/j.1468-2273.2012.00532.x

Inayatullah, S. (2008). Six pillars: Futures thinking for transforming. *Foresight, 10*(1), 4-21. doi: http://dx.doi.org/10.1108/14636680810855991

Ithnin, F., Nor, M. J. M., & Yusoff, M. R. (2017). Futures Scenarios for Universiti Teknikal Malaysia Melaka (UTeM). *Journal of Futures Studies, 21*(4), 51-63.

Johnson, J. (2014). Divided We Fail: Why It's Time for a Broader, More Inclusive Conversation on the Future of Higher Education. *A Final Report on the 2013 National Issues Forums*. Washingon: Kettering Foundation.

Kekäle, J., & Pirttilä, I. (2006). Participatory action research as a method for developing leadership and quality. *International Journal of Leadership in Education, 9*(3), 251-268. doi: 10.1080/13603120600741359

Kezar, A., & Maxey, D. (2016). The Delphi technique: an untapped approach of participatory research. *International Journal of Social Research Methodology, 19*(2), 143-160. doi: 10.1080/13645579.2014.936737

King, Nigel (2004). Using templates in the thematic analysis of text. In: Essential Guide to Qualitative Methods in Organizational Research. Sage, pp. 256-270.

King, C. S., Feltey, K. M., & Susel, B. O. N. (1998). The question of participation: Toward authentic public participation in public administration. *Public Administration Review, 58*(4), 317-326. doi: 10.2307/977561

Király, G., Géring, Z., Köves, A., Csillag, S., & Kováts, G. (2016a). Constructing Future Visions about Higher Education with Participatory Methods. In Jeroen Huisman and Malcolm Tight (Eds.) *Theory and Method in Higher Education Research* (pp. 95-114). Emerald Group Publishing Limited.

Király, G., Köves, A., Pataki, G., & Kiss, G. (2016b). Assessing the Participatory Potential of Systems Mapping. *Systems Research and Behavioral Science, 33*, 496-514. doi:10.1002/sres.2374

Király, G. (2017). Rendszerek és kapcsolatok – A részvételi rendszermodellezés módszerének bemutatása a felsőoktatásról készített oksági diagramok példáján. [Systems and relationships. Describing the method of participatory systems mapping based on the causal loop diagrams elaborated in relation to higher education] *Vezetéstudomány, 48*(4), 67-83. doi:10.14267/VEZTUD.2017.04.09

Kiss, G. (2014). Why Should the Public Participate in Environmental Decision-Making? Theoretical Arguments for Public Participation. *Periodica Polytechnica*. *Social and Management Sciences, 22*(1), 13-20. doi: 10.3311/PPso.7400

Klein, S. B., & Loftus, J. (1988). The nature of self-referent encoding: The contributions of elaborative and organizational processes. *Journal of Personality and Social Psychology, 55*(1), 5-11.

Laird, F. N. (1993). Participatory analysis, democracy, and technological decision making. *Science, Technology & Human Values, 18*(3), 341-361.

Mallory, B. L. (2010). Practicing what we preach: Democratic practices in institutional governance. *New Directions for Higher Education,* 152, 91-97. doi:10.1002/he.417

Maxey, D., & Kezar, A. (2015). Leveraging the Delphi Technique to Enrich Knowledge and Engage Educational Policy Problems. *Educational Policy*. Published online: doi: 10.1177/0895904815585685.

Maxwell, J. (2013). *Qualitative Research Design: An Interactive Approach*. Los Angeles: Sage.

McLoughlin, C., & Lee, M. J. (2007). Social software and participatory learning: Pedagogical choices with technology affordances in the Web 2.0 era. In *ICT: Providing choices for learners and learning*. *Proceedings ascilite Singapore 2007* (pp. 664-675).

Milligan, A. (Ed.) (2003). Learning and teaching participation. *PLA Notes*, 48.

Mintzberg, H. (1991). The Structuring of Organizations. In H. Mintzberg, Henry & J. B. Quinn (Eds.), *The Strategy Process: Concepts, Contexts, Cases* (pp. 330-350). Prentice Hall.

Morecroft, J. (2010). System Dynamics. In M. Reynolds and S. Holwell (Eds.), *Systems approaches to managing change: A practical guide* (pp. 25-85). London – Dordrecht – Heidelberg – New York: Springer.

OECD (Organisation for Economic Co-operation and Development) (2008). Four Future Scenarios for Higher Education. OECD/France International Conference Higher Education to 2030: What Futures for Quality Access in the Era of Globalisation?

O'Neill, G., & McMahon, S. (2012). Giving student groups a stronger voice: using participatory research and action (PRA) to initiate change to a curriculum. *Innovations in Education and Teaching International, 49*(2), 161-171.

Planas, L. A., Soler M. P., Fullana N. J., Pallisera, M., & Vilà S. M. (2013). Student participation in university governance: the opinions of professors and students. *Studies in Higher Education 38*(4), 571-583. doi:10.1080/03075079.2011.586996

Polak, F. (1973). *The images of the future*. New York: Elsevier.

Quist, J., & Vergragt, P. (2006). Past and future of backcasting: the shift to stakeholder participation and a proposal for a methodological framework. *Futures, 38*(9), 1027-1045. doi:10.1016/j.futures.2006.02.010

Quist, J., Rammelt, C., Overschie, M., & de Werk, G. (2006). Backcasting for sustainability in engineering education: The case of Delft University of Technology. *Journal of Cleaner Production, 14*(9), 868-876.

Ravid, G., Kalman, Y. M., & Rafaeli, S. (2008). Wikibooks in higher education: Empowerment through online distributed collaboration. *Computers in Human Behavior, 24*(5), 1913-1928. doi:10.1016/j.chb.2008.02.010

Redecker, C., Leis, M., Leendertse M., Punie Y., Gijsbers G., Kirschner P., Stoyanov S., & Hoogveld B. (2011). *The Future of Learning: Preparing for Change*, European Commission, Joint Research Centre, Institute for Prospective Technological Studies, Luxembourg: 1-97.

Rieckmann, M. (2012). Future-oriented higher education: Which key competencies should be fostered through university teaching and learning? *Futures, 44*(2), 127-135. doi:10.1016/j.futures.2011.09.005

Robinson, J. (2003). Future subjunctive: backcasting as social learning. *Futures, 35*(8), 839-856. doi: 10.1016/S0016-3287(03)00039-9

Santos, I. M., Ali, N., & Hill, A. (2016). "Students as Co-designers of a Virtual Learning Commons: Results of a Collaborative Action Research Study." *The Journal of Academic Librarianship, 42*(1), 8-14. doi:10.1016/j.acalib.2015.09.006

Schuck, S., Aubusson, P., Burden, K., & Brindley, S. (2018). Uncertainty in Teacher Education Futures: Scenarios, Politics and STEM. Singapore: Springer Nature. doi:10.1007/978-981-10-8246-7_8

Scott, R. W. (2003). *Organizations*. Rational, Natural, and Open Systems. Pearson Education Inc. Fifth Edition

Shaeffer, S. (1993). Participatory approaches to teacher training. In J. P. Farrell and J.B. Oliveira (Eds.), *Teachers in Developing Countries*. *Improving Effectiveness and Managing Costs* (pp. 187-200). Washington: The World Bank.

Seale, J. (2009). Doing student voice work in higher education: An exploration of the value of participatory methods. *British Educational Research Journal, 36*(6), 995-1015. doi: 10.1080/01411920903342038

Seale, J., Gibson, S., Haynes, J., & Potter, A. (2015). Power and resistance: Reflections on the rhetoric and reality of using participatory methods to promote student voice and engagement in higher education. *Journal of further and Higher Education*, *39*(4), 534-552. doi: 10.1080/0309877X.2014.938264

Sedlacko, M., Martinuzzi, A., Røpke, I., Videira, N., & Antunes, P. (2014). Participatory systems mapping for sustainable consumption: Discussion of a method promoting systemic insights. *Ecological Economics*, 106, 33-43.

Taylor, P., & Fransman, J. (2004). Learning and teaching participation: Exploring the role of higher learning institutions as agents of development and social change. *IDS Working Paper 219*. Brighton: Institute of Development Studies (IDS).

Theisens, H., Benavides, F., & Dumont, H. (2008). *OECD Work on Future Educational Environments* (No. 2008/11). OECD Publishing.

Weiss, R. S. (1994). *Learning from Strangers: The Art and Method of Qualitative Interview Studies*. New York: Free Press.

Williams, B. (1997). *Initiating Curricular Change in the Professions: A Case Study in Nursing*. http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=ED411718

Ziegler, W. (1991). Envisioning the future. *Futures*, *23*(5), 516-527. doi: 10.1016/0016-3287(91)90099-N

Appendix

Comprehensive table of the two participatory processes

Elements connecting the different phases of the process	*Lecturers*	*Students*
Identified central variables in the system map	1. Level of funding 2. Level of lecturers' motivation 3. Potential number of students	1. Level of quality of curricula, classes taught 2. Level of lecturers' motivation 3. Level of students' motivation 4. Utility of knowledge (gained at HEI) 5. Level of money allocated to HE 6. Level of prestige of a HEI
Questions of the world café discussion – based on system map	1. What will be the number and composition of students participating in HE in 2050? 2. What will be the characteristics of the funding of the HEI in 2050? 3. What relationship of students and teachers will be characteristic in 2050? 4. How the infrastructure of HEI will look like in 2050? 5. What will be the content and methods of teaching in 2050? 6. What will be the main motivations of students and teachers in 2050?	1. What does quality mean in HE in 2050? What could guarantee this quality? 2. What characterises the relationship between HE and labour market in 2050? 3. How the funding of HE will look like in 2050? 4. What will motivate the students in 2050? 5. What will motivate the lecturers/researchers in 2050? 6. What does the prestige of an HEI mean in 2050? What could guarantee this prestige?
Topics of the futures wheel discussion – based on the vision-text	1. Motivated teachers 2. Quality student services 3. Supporting off-line relationships 4. Developed on-line teaching system 5. Complex (multi-pillar) funding system 6. Supporting external relations	1. Flexible and modular HE 2. Gap-year (pre-HE orientation period) 3. Project-based, interactive, small-group teaching 4. Social brand (social values included in the HEI's brands)