

The Use and Methodology of Scenario Making

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SUMMARY *In Europe the educational system is under constant revision. Based on the changes in society, education and teacher education are forced to adapt themselves to changing circumstances. Often these changes are lagging behind the changes outside schools and are motivated by the problems of today or yesterday. Forward-thinking strategies are hardly developed in education. Scenarios are powerful tools to create new perspectives on the future of (teacher) education, stimulating reflection, creativity and imagination. Scenarios can be helpful both for deciding on institutional or (inter)national policies on teacher education and for facilitating individual learning processes of teacher educators and organisational learning processes. From this point of view scenarios are not a goal in themselves, but by-products of a learning process. A methodology is presented for the development of scenarios, as used by the ATEE-RDC19.¹*

RÉSUMÉ *En Europe le système éducatif se trouve dans une situation de changement permanent. Les changements dans la société poussent les écoles et les instituts de formation d'enseignants à un effort d'adaptation constant. Souvent ces réformes dans le système éducatif sont en retard sur les développements qui ont lieu en dehors de l'école; elles concernent moins l'avenir que les problèmes d'aujourd'hui ou même ceux de hier. En éducation des stratégies de réflexion sur le futur commencent à peine à se développer. Les scénarios sont des instruments efficaces qui ouvrent de nouvelles perspectives en matière d'éducation et de formation des enseignants. Ils stimulent la réflexion, la créativité et l'imagination. Les scénarios peuvent aider à prendre des décisions concernant la formation des enseignants au niveau des institutions ou au niveau de la politique (inter-)nationale. Mais ils peuvent aussi promouvoir les processus d'apprentissage tant au niveau du formation de futurs enseignants qu'au niveau de cette formation. Vu sous cet angle les scénarios ne forment pas un but en soi mais des effets d'un processus d'apprentissage. Dans cet article la méthodologie de développement des scénarios est présentée telle qu'elle est pratiquée par le RDC19 de l'ATEE.*

RESUMEN *En Europa, el sistema educativo está en constante revisión. Debido a los cambios sociales, la educación y la formación del profesorado están obligadas a adaptarse a las circunstancias cambiantes. Con frecuencia, estos cambios están rezagados con respecto a los cambios que se producen fuera de las escuelas y están motivados por problemas actuales o pasados. Apenas se desarrollan estrategias de pensamiento avanzado en la educación.*

El uso de escenarios es una buena técnica para crear nuevas perspectivas sobre el futuro de la educación y la formación del profesorado, la reflexión estimulante, la creatividad y la imaginación. Asimismo, los escenarios pueden ser útiles tanto para tomar decisiones sobre la creación de políticas (inter)nacionales para la formación del profesorado como para facilitar procesos de aprendizaje individual de los formadores del profesorado. Desde este punto de vista, los escenarios no son un fin en sí mismos, sino el producto de un proceso de aprendizaje. Se presenta una metodología para el desarrollo de escenarios como la que se usa en el ATEE-RDC19.

ZUSAMMENFASSUNG *Das europäische Erziehungswesen ist einer ständigen Revision unterworfen. Die gesellschaftlichen Veränderungen fordern auch vom Erziehungssystem und von der Lehrerbildung Anpassungen, aber die entsprechenden Umstellungen bleiben oft hinter den gesellschaftlichen Veränderänderungen außerhalb des Schulsystems zurück und orientieren sich an den Problemen von heute und gestern. Vorausdenkende Strategien haben im Erziehungswesen kaum einen Platz. Szenarien sind ein wirkungsvolles Instrument, um für die (Lehrer-)Ausbildung neue Zukunftsperspektiven zu eröffnen, da sie zu Reflexion, Kreativität und fantasievollem Denken anregen. Szenarien sind nicht nur bei der (inter-) nationalen politischen Entscheidungsfindung über die Lehrerbildung nützlich, sie unterstützen auch das Lernen, und zwar sowohl auf der individuellen Ebene des einzelnen Lehrerbildners wie auf der Organisationsebene. Die Erstellung von Szenarios ist kein Ziel in sich, sondern ein Nebenprodukt des Lernens. Es wird ein Verfahren zur Entwicklung von Szenarien vorgestellt, das bei von der RDC 19 verwandt worden ist.*

Reflections on Tomorrow

National governments, European institutions such as OECD and international organisations like UNESCO issue papers on the future of education (e.g. OECD, 2001). The rapid changes in society demand radical new approaches in education if education wants to play its role in the development of people and therefore in the reduction of poverty, exclusion, ignorance, oppression and war. These changes in society concern globalisation, knowledge acceleration and the rise of the information society, growing cultural diversity etc. Given these changes, education of today cannot meet the demands of tomorrow. There seems to be a general consensus on the idea that education (including teacher education) needs dramatic changes to meet the demands of the near future (e.g. Buchberger *et al.*, 2000). The question is not whether changes are needed, but what changes are needed. And to answer that question, we must be able to know what the needs of tomorrow's society are.

In the dynamic society simultaneous changes take place on a political, social, economical, cultural, technical and demographical level. In this chaotic whirlpool it seems almost impossible to separate critical and non-critical developments and to make any serious statements about the future. It seems much easier to take the situation of today and yesterday as a point of reference for new policies in education. In many cases, innovation in education is motivated by the problems that exist today. However, the problems of tomorrow are different from those of today and the solutions of today will not fit on the problems of tomorrow. The result is an educational system that is lagging

behind with respect to the reality in other parts of society. Or, as Bob Hughes, senior manager of Boeing once said: 'Right now, you've got 30 little workers who come into a room, sit in rows, follow instructions from a boss, and can't talk to one another. School is the last time they'll ever see that model'.

Several international and European publications try to name the ingredients for the education of tomorrow (e.g. Delors *et al.*, 1996; OECD, 2001). However, often the translation of these international publications and observations into national or institutional policies is limited. In most cases, educational policies and innovations on a national and institutional level deal with experienced problems within the existing educational infrastructure: not the needs of tomorrow and the changes in society, but the organisational problems in our schools define the educational developments. So more or less, educational changes are a result of and an answer to the problems of today (or worse, yesterday). If that is the case, a fundamental rethinking of the goals of education is missing. In that way there is the risk that education will always be lagging behind the needs of society. 'The curriculum decisions necessarily have to project into the future, if we want active, intervening and participating citizens in the design of future societies' (Sousa, 1998). So, when we expect education to prepare children for the world of tomorrow, it is necessary to be more future oriented.

OECD's centre for educational research and innovation (CERI) supports this need: 'There is need for forward thinking methodologies for analysis and policy-making. Rapid change is both the reason why many want much better tools for forward thinking and why these are so difficult to develop. Surprisingly little progress has been made in the field of education. There is much to learn from other fields—science, technology, demography and social change, business—but education needs its own approaches and methodologies to forward thinking' (CERI website).

So, another perspective is needed. Maybe one of the most important competences for teachers, teacher educators and educational policymakers is to be future oriented and to be sensitive to changes in society.

Since most of the curriculum reforms are based on the problems that exist today, many changes are rather ad hoc. We believe that there is a lack of 'futurology' within teacher education policies. Changes within curricula must have a firm basis in expected and desired developments in the future. The leading question must be: What changes in society will influence (teacher) education and, based on these social developments, how could or should the curriculum for teacher education look like in 2010? With such a picture, policy makers and curriculum developers have an instrument, a compass to set course in the coming years.

Scenarios to Reduce Uncertainty

However, education will not improve if it is based on some obscure kind of future telling. Sensitivity to trends and changes does not automatically imply the skill to differentiate between important or minor changes. Trends are mostly non-linear, and looking into the future implies a lot of uncertainty. So to sit back and think about the future is not enough. Trends must be interpreted, probabilities of changes must be taken into account, and connections with other trends are necessary: so some kind of methodology is needed.

Dammers (1994) presented a typology for future research methodologies, using two variables: the number of theories and the number of facts that are available. This leads to four types of future research methodology:

		Theories	
		Many	Few
Facts	Many	Prognoses	Projections
	Few	Scenarios	Speculations

Unlike prognoses and projections, scenarios present alternative images instead of extrapolating current trends from the present. Since there are only a few facts on the future of education that future is not very clear yet. Different futures are still possible and scenarios represent those alternative environments in which today's decisions may be played out. In that way, they are not predictions. At the same time, there are many theories which can be used to make sense out of developments and trends. Educational changes do not represent a meaningless chaos that makes no sense at all.

The uncertainty of the future is taken into account by describing different possible futures. The realisation of each of these futures is dependent on several factors. By describing the scenarios, these factors can be identified, thus giving clues on how to influence these factors.

The use of scenarios has become increasingly popular in the last few years. The methodology of scenarios is used on a large scale by large organisations and industries in, for example, the USA (e.g. by the Global Business Network).

The use of scenarios is connected to views on the steering of changes in society. In the 1970s, the dominant view was that one can influence the future by measurements taken by the government. This approach is called the rational-central-rule-approach (van Gunsteren, 1976). The underlying idea was a constructible society that can be shaped according to our wishes. The more recent ideas on scenarios have a more reflective element. Scenarios are instruments to learn about the presumptions that are used by decision makers. This insight can be used to create consensus in the decision making process.

Scenarios are a tool for helping us to take a long view in a world of great uncertainty ... Scenarios are stories about the way the world might turn out tomorrow, that help us recognise changing aspects of our present environment ... Scenario planning is about making choices today with an understanding of how they might turn out. (Schwartz, 1991)

Proposing several alternative scenarios underlines that there is not one pathway into the future and that it should not be expected that a scenario will emerge in a 'pure' form. Most scenarios are described in their extremes, thus underlining the different variables and their relation. Reality is more blurred and probably elements of different alternative scenarios can be found in reality. However, reducing the complexity of reality into a limited number of polar types stimulates sensitivity to the strategic choices to be confronted (OECD, 2001). In this way, the result of scenario planning is not a more accurate picture of tomorrow but it might lead to better thinking and reflection on current trends and developments and an ongoing strategic conversation about the future.

The role that scenarios play can vary, depending on the type of scenario. Scenarios can focus on the context of a certain area of society, on the external driving forces that cannot be influenced. The ATEE-RDC19 scenarios (ATEE-RDC19, 2003) focus on driving forces in society, which are important for the context where teacher education

TABLE I. Six scenarios describing the possible futures for tomorrow’s schools

The ‘status quo extrapolated’	The ‘re-schooling’ scenarios	The ‘de-schooling’ scenarios
<i>Scenario 1:</i> Robust bureaucratic school systems	<i>Scenario 3:</i> Schools as core social centres	<i>Scenario 5:</i> Learner networks and the network society
<i>Scenario 2:</i> Extending the market model	<i>Scenario 4:</i> Schools as focused learning organisations	<i>Scenario 6:</i> Teacher exodus—the ‘meltdown’ scenario

has to operate, but that can not (hardly) be influenced by teacher education. Next to context scenarios there are policy scenarios, focusing on the way in which an organisation can reach its goals. These scenarios focus on variables that can be influenced. Often these policy scenarios are a reaction on context scenarios. For teacher education, the ATEE-RDC19 scenarios show the possible context for teacher education in the future. When a faculty wants to prepare itself for the future, it has to design policy scenarios, given the four context scenarios.

So, in this way, scenarios can give guidance to decision makers to take appropriate decisions. Educators do not have to wait passively to see what changes are taking place, but they can be much more actively involved in designing the future they think desirable or in responding on a possible future that is less desirable. The task for policy development is to bring the probable and desirable as closely together as possible.

Examples of Scenarios in Education

There is a long tradition in scenario making, especially for industry (e.g. Royal Dutch Shell). In the last few years several scenarios have been developed in the field of education. The Global Business Network (1995) published four inspiring scenarios for the future of public education. The scenarios are centred around a two-dimensional matrix, where the axes indicate two driving forces in the construction of society: hierarchical (traditional) versus participatory (radical) and inclusive versus exclusive. This matrix leads to four different scenarios. The scenario entitled ‘Orthodoxy’ (hierarchical/exclusive) represents a highly centralised, conservative picture of education. By contrast, ‘Orthodoxies’ (hierarchical/inclusive) depicts education in a world of many small, relatively autonomous communities. ‘Wired for Learning’ (participatory/exclusive) describes a highly privatised, high technology education environment. Finally, ‘The Learning Society’ (participatory/inclusive) describes a relatively optimistic education scenario in a healthy economy.

Last year the OECD published a book as a result of the ‘Schooling for tomorrow’ project, where six scenarios are presented, which describe the possible futures for tomorrows schools (OECD, 2001) (Table I).

There are hardly any scenario studies that focus on teacher education. However, the scenarios on education and schools in general can be related to teacher education. For example, the OECD scenarios have their parallels and are recognisable for teacher education (Snoek & Wielenga, 2002).

The first OECD scenario, stipulating the continuation of bureaucratic institutionalised systems, resisting radical change, is recognisable in the way in which:

- institutions for teacher education in different countries fail to solve financial problems, threatening the existence of teacher education;
- they fail to create national solutions to shared problems;

- many teacher educators are resisting the implementation of new approaches.

The second scenario which describes a future, in which market approaches to education are extended much further than today, can be recognised in the way in which commercial institutions are given access to the areas of both pre- and in-service teacher education, competing with the traditional, but not always efficient, institutions for higher education.

The third scenario, describing a future where schools have developed powerful social links and a community leadership function, is parallel with the strong bonds and regional educational partnerships that institutes for teacher education are creating with schools in their area.

In the fourth scenario, schools become learning organisations with strong knowledge focus and qualified and motivated teachers. Translated to teacher education this scenario is visible in the rethinking of the role of teacher education, positioning itself as an expertise and assessment centre for professional development of teachers.

In the fifth scenario, the role of the school minimises through the widespread establishment of nonformal learning networks. This might be the future for teacher education too, when schools organise the professional development of their staff within their own institutions, using organised networks for nonformal learning and professional development between colleagues in different schools.

The last OECD scenario is a pessimistic one: an exodus of teachers, unresponsive to the clumsy attempts to raise the status of the teaching profession, creates a 'meltdown' of school systems. Even this very pessimistic one has its parallels in teacher education: the low status of both the teaching profession and teacher education leads to an ongoing decrease of the number of students opting for teacher education and to the loss of confidence of society in the usefulness of institutes for teacher education, and to a declining willingness to invest in this part of higher education.

Each of these OECD-scenarios might be more or less recognisable from different national point of view. Snoek and Wielenga (2002) indicate that all six scenarios can be recognised in developments within Dutch teacher education.

The Making of Scenarios: selecting driving forces

The practice of constructing stories of the future has no single method. There are several techniques available to stimulate the reflective process and to come to inspiring stories of the future. In this section the method of ATEE-RDC19 is used as an example for scenario development (for more details, see Cautreels, 2003).

To develop scenarios for teacher education ATEE-RDC19 took four steps, based on scenario methods used by Art Kleiner (1999) and Van der Heyden (1996). These steps were taken during three meetings: February 2000 (Amsterdam), September 2000 (Barcelona) and March 2001 (London), resulting in the scenario-paper presented during the ATEE-conference in Stockholm in September 2001.

The practice of scenario development is time consuming. Kleiner indicates that five or six full-time days seem necessary, which corresponds with the time ATEE-RDC19 used.

Five Steps to Develop Scenarios (Table II)

The *preliminary step* to be taken is to reach consensus on the key question that needs to

TABLE II. Five steps to develop scenarios

Step 0: Deciding the key-question for the scenarios
Step 1: Identifying the fields of change
Step 2: Selecting the most important fields of change
Step 3: Identifying the scenarios to be developed
Step 4: Describing the scenarios and bringing them to life

be answered and the time-scale that is used. As a context for our work, ATEE-RDC19 agreed to focus on the future of teacher education in Europe, more or less using a timescale of 10 to 20 years.

Step 1 was to identify the most important fields of change that influence teacher education in the near future. One cannot know beforehand what the future will hold. But at present a number of (sometimes contradictory) trends can be identified which, moving on their present course, will change the shape of teacher education over the next 10 to 20 years. These trends are called fields of change. Developments in teacher education will in a large part result from changes in education in general which will be a result from changes in society. So, identifying fields of change for teacher education asked for a broad perspective on dilemmas and trends in society.

After step 1, where each participant of ATEE-RDC19 individually tried to list trends and uncertainties, a selection of the most important fields of change was made during *step 2*. This was done by exchanging the individual lists and discussing the importance of the different fields of change. For each change or dilemma mentioned two questions had to be answered:

- What impact does it have on teacher education?
- Can the outcome of the change be predicted?

This analysis made it possible to group the listed changes and trends:

- Changes or trends with small impact on teacher education were not relevant (e.g. environmental changes) for the scenarios to be developed.
- Changes or trends with a large probability or predictability were important elements in each scenario, but could not be used to differentiate between the different scenarios: Those predetermined forces are unchangeable destinies for all scenarios and had to be taken into account in each scenario (e.g. the rise of ICT).
- Changes or trends with a large impact on teacher education and with a large unpredictability were the key-elements for differentiation between the different scenarios (see Fig. 1).

In *step 3*, the fields of change in the third group were used to identify the scenarios to be developed. In the discussions the items were generalised and brought down to the most important dilemmas or critical uncertainties. The different scenarios can be derived in different ways. ATEE-RDC19 chose to use a two-dimensional model like that used by the GBN and the University of Michigan (University of Michigan, 1996). Although this approach can be criticised for being too restrictive (Kleiner, 1999) or for using dimensions that are not real dimensions in a logical or mathematical way (Linde, 2003), the advantage of such an approach is that it is easy to use, to understand and to communicate.

To design the two-dimensional model, two critical uncertainties were selected. Each of these uncertainties actually represented a continuum with two possible extremes.

Unpredictability

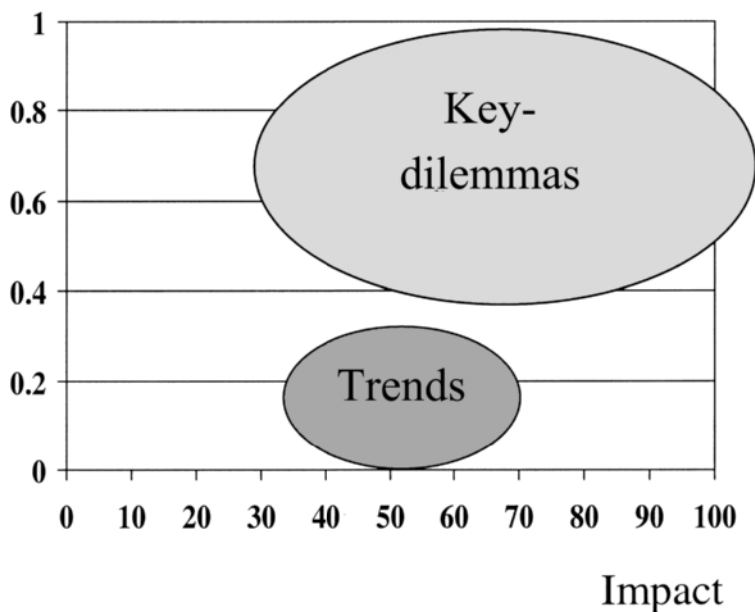


FIG. 1. Graph to identify key-dilemmas and common trends.

These two dilemmas could be represented as the two dimensions in a two-dimensional matrix. As the x -axis ATEE-RDC19 selected the continuum between pragmatism and idealism, indicating the driving force in society concerning the values that drive society. As the y -axis the continuum between individualism and social coherence was selected indicating the driving force in society concerning the importance of the group or the individual. (See Linde, 2003, for more explanation and a critical reflection on these dimensions). In this way, four different scenarios were identified as the quadrants of the two-dimensional matrix (see Fig. 2).

The *final step* was to bring each scenario to life. Often, scenarios appeal to certain feelings: we hate or love some scenarios. Thus, scenarios can be seen as normative. However, in the process of scenario writing it is important to be descriptive, without normative judgements on different alternative scenarios, since it might blur the actual driving forces and reduce the creativity. Since the critical uncertainties were part of society in general, the scenarios described were ‘context scenarios’: realities that might happen no matter whether we think them desirable or not. So it is necessary to avoid judgement in describing the scenarios. For this final step a subgroup around each scenario was made with the task to make a description of the scenario. This description should be consistent, plausible, challenging and recognisable. To differentiate between the scenarios, each of the scenarios was positioned on the extremes. At the same time, each of the scenarios had to take into account the rather predictable trends that influence each of the scenarios. In step 3 the following trends were identified:

- Expansion of ICT

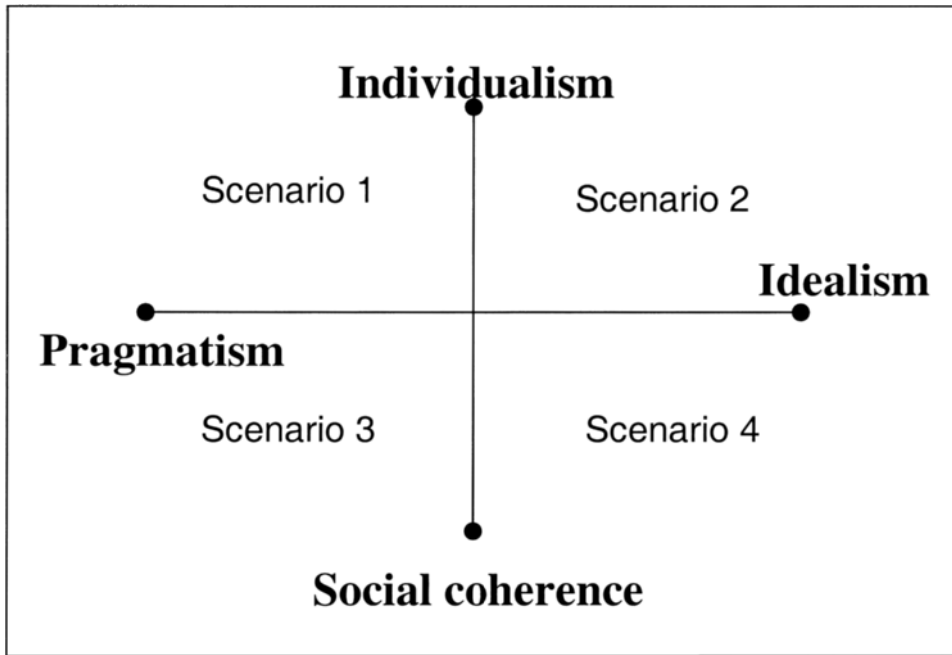


FIG. 2. Four scenarios for the future of teacher education in Europe.

- Cultural diversity
- Constant change
- Globalisation
- English as a dominant language
- Multilingualism
- Environmental changes

To make the scenarios comparable, a format for each scenario description was made (see Fig. 3).

To make the scenarios challenging and recognisable, each of the scenarios had to be brought to life, by visualising it, for example, by describing a day in the life of a student, schoolteacher or teacher educator, by describing or drawing the architecture of the school building, organisation models, role-plays, etc.

Conclusion

The result of all this work is presented in the next contribution in this issue (ATEE-RDC19, 2003). Step 4 is not yet finished. The descriptions and visualisations of the scenarios still have to be finalised to make them meet the format. However, the question can be raised whether it is necessary to make a final document. Next to giving descriptions of possible futures and providing a compass for future decisions, constructing scenarios has another important goal. It can make people aware of the important factors influencing the future, stimulating a more open attitude to external influences and challenging the mind maps that people use. In this way scenario writing is an instrument to facilitate learning. From this point of view the resulting scenarios are not a goal in themselves, but they are a by-product from a learning process.

	Contents	Topics to be discussed
1	Introduction	Underlying principles and values, keywords
2	Society	Role of the family, technology, diversity, steering-principles
3	The learning process	Characteristics, main aims
4	The centres for learning (= schools)	Characteristics of their role, function, goals, educational system, curriculum, type of centres, management/steering, buildings
5	The educators (= teachers)	Characteristics of the status, professionalism & expertise, professional development, type of educators
6	The education of educators	(Academic) status, will there be an institute for TE? Role of the learning centres in educating their educators? (see also 4)
7	The educators of educators	Characteristics of the status, professionalism & expertise, professional development, type of educators
8	The scenario coming alive	A day/a week in the life of ...
9	Contemporary indicators for this scenario	
10	Risks	
11	Opportunities	

FIG. 3. Format for scenario descriptions.

For ATEE-RDC19 the most inspiring part has been the involvement in the process, the learning community they became part of, the discussions they had and the fun that was associated with it. By making a final description of the scenarios, the scenarios themselves are given more emphasis than was wished. By presenting an unfinished product people might be challenged to get involved in the process of scenario writing. That even an unfinished product can inspire and stimulate thinking is shown by the contributions in this thematic issue. It has led to reflections on national situations and to renewed discussions between teacher educators in different settings and countries.

And that is the power of scenarios.

NOTE

1. This article is an elaboration of the paper presented at the ATEE Stockholm conference 2001 which is published in the conference proceedings: ATEE-RDC19 (2002) *Scenarios for the future of teacher education in Europe*, in: G. Linde (Ed.) *Proceedings from the 26th Annual Conference of the ATEE Association for Teacher Education in Europe* (Stockholm, Stockholm University Press).

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GBN: www.gbn.org
OECD: www.oecd.org
CERI: www1.oecd.org/cer

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