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School design policy as an integral part of education reform in Serbia: An architect`s perspective

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Abstract

Outdated school design policy, and a lack of its synchronisation with the changes of other segments of education are hindering the progress of education reform in Serbia. This study conducted a literature review and document analysis; identified common education reform areas in Serbia, England and Germany, used them as an analytical framework for comparison, and mapped the challenges posed by the desynchronised school design policy. Analysis of the connections, interrelations and implications of mapped education reform areas and school design policy as its integral part, led to series of recommendations for school design policy improvement in Serbia. Developing school design policy in a synergetic fashion with all the other segments of education could improve translation of education reform changes into feasible school building plans, thus contribute to the tempo and the quality of education reform in Serbia.

Keywords: Education reform, school design policy, Serbia, England, Germany.

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1. Introduction

In 2000 the socialist regime ended and new democratic era began in Serbia. Newly formed government started major reforms in the economics, politics and social domains, highlighting the education reform as one of the priorities. Education goals, teachers' training, curriculum and teaching/learning methods have been modernised and improved. However, observation of the newly built schools from 2000 onwards reveals that they rest on old socialist and standardised school building schemes. This is because the main documents regulating school building design have not been upgraded since 1990. This study argues that outdated school design policy, and a lack of its synchronisation with the updates of all other segments of education is hindering the progress of education reform in Serbia. Consequently, this study aims to create a roadmap for a better school design policy for Serbia from an architect`s perspective.

Dimmock (2000) calls for examinations of education reform, education change and school improvement in non-westernised and developing country contexts. The others like Zhao et al. (2008) point out that comparative studies could help a country to understand educational practices of other countries, evaluate its own educational outcomes, learn from other country's educational policy and practice, assess pros and cons of changes in education and map areas for future improvement. Yet, contemporary comparative analyses and evaluations are hard to find (Harris & Chrispeels, 2006); particularly the ones about Serbia.

Although very scarce, some studies showcasing (UNESCO, 2011), analysing the success and failure of educational interventions (Ivic & Pesikan, 2012) and reporting on the progress of educational reform in Serbia (MESRS, 2004; Ivić 2006) could be found. Studies exploring possible school designs and approaches relevant for Serbia are few. Yet, neither debate nor studies exploring future alternatives for 21st century school design policy in Serbia could be identified.

The challenges of education reform in a country are so complex that all relevant professions must give their contribution – architects as well. Architects who design learning environments are giving physical shape to a specific education idea and philosophy. Including architects is crucial as problems of restructuring education are related to the way updates in all segments of education are integrated with school design policy and interpreted through school designs. If architects in Serbia wish to contribute to the quality and the tempo of the ongoing education reform they should improve school design policy, which can consequently lead to improved school design, thus improved education.

2. Research Aim and Approach

Comparing and contrasting distinguishing areas of education reform in Serbia, England and Germany is a good way to learn and build on existing knowledge from the countries where education reform is much further developed. England and Germany are chosen to be compared with Serbia because both England and Germany are European Union members and Serbia is an aspiring candidate; meaning that Serbia should meet the same EU educational standards. While in England and Germany education reform updates have impacted school design policy, in Serbia it is still not the case. Lastly, comparative analysis of education goals of these three countries (see below) shows that Serbia has synchronised well education goals with England and Germany. If we consider the education goals as signs showing the main directions of education in a country, then all aspects of education, including school design policy, should be changed and adjusted according to them. Prior research has not examined school design policy as a part of education reform in Serbia, compared and contrasted it with England and Germany in order to draw out recommendations for improvement. Consequently, this study aims to: conduct a literature review and document analysis, identify common education reform areas and use them as analytical framework for comparing and contrasting education reform updates in these three countries; map the challenges posed by the lack of synchronisation of school design policy and updates in each identified education reform area; and ultimately, based on the analysis, develop a series of recommendations for school design policy improvement in Serbia.

Literature on education reform in Serbia is scarce, and studies exploring school design policy are non-existent. This study synthesised scant literature, drawing on policy documents, historical data, statistical and secondary data. Through a preliminary literature review an outline analytical framework was developed - a set of education reform areas useful for comparative analysis:

(a) Governance and regulations;

(b) Education goals;

(c) Teachers and teaching/learning methods;

(d) Curriculum;

(e) Equipment;

(f) School infrastructure and school building modernisation programmes.

This framework in turn informed the design and analysis of this study. The progress of Serbia related to each of these education reform areas was compared and contrasted with England and Germany. Then it was analysed whether previously identified education reform areas are addressed through school design policy. Challenges posed by the lack of synchronisation between education reform areas and school design policy were presented, and it was explained how this situation is hindering the progress of education reform in Serbia. Based on the analysis, recommendations to alleviate the identified problems have been developed at the end.

In order to develop recommendations for improving school design policy in Serbia this study built upon a holistic approach suggested by Ivic and Pesikan (2012), the eminent experts on education in Serbia. Such approach was important because their study evaluating the success and failure of education reform in Serbia, strongly criticised introduction of solutions for reforming the education which were not well synchronised with measures taken in other areas of education reform (Ivic and Pesikan, 2012). Exploring the connections, interrelations and implications of various education reform areas and school design policy as its integral part, could help Serbia to take a holistic approach to reforming the education system and consequently create logical education system where all the solutions proposed are compliant, compatible and work in a synergetic fashion. Serbia should also resist introducing ad hoc solutions borrowed from European countries (Ivic & Pesikan, 2012). Therefore, this study will not literally translate measures from England and Germany (e.g. each classroom should have x number of square meters per pupil), but develop recommendations and steps that could potentially lead to better local school design policy in Serbia.

3. Education Reform in Serbia, England and Germany at the Turn of the 20th into the 21st Century

When doing comparative research and producing relevant information from one context to the other, attention to context sensitivity should be increased (Crossley, 2012). According to Zhao et al. (2008); cultural, social and historical context around the problem under exploration should be well understood, thus explained. Restructuring education cannot be discussed separately and should be seen as a part of a complex set of circumstances. This paper will now describe important conditions at the turn of the 20th into the 21st century when education reform in Serbia, England and Germany commenced. In Serbia, England and Germany different social, economic, political and cultural conditions prevailed, thus making these three countries respond differently and at different paces.

3.1. Serbia

In the last fifteen to twenty years Serbia has had a turbulent history. An examination of the educational system in Serbia shows that the legacy of the socialist period (1945-2000) is still present. During that time much of the current educational system was created. Although, the system was largely successful (primary education was obligatory, enrolment rates were rather high, it was free of charge and very accessible) (Spasenovic, Hebib & Petrovic, 2007), problems existed, such as extensive,

rigid and ideologically coloured curricula. Centrally determined content and teaching methods led to lack of diversity and relevance. Some of these problems still exist today. In the 1990s military, political and economic conflicts between republics in the Socialistic Federal Republic Yugoslavia (SFRY) shook the system to its core. The conflict resulted in the formation of five new countries: Slovenia, Croatia, Serbia and Montenegro, Macedonia and Bosnia and Herzegovina. Severe war between 1990- 1994 was followed by the bombing of Serbia and Montenegro in 1999, destroying much of the education infrastructure. In 2006, due to irreconcilable political differences, Serbia and Montenegro separated and created two new countries.

In 2000, after the `October Democratic Revolution` the socialist regime ended, and a new democratic era for Serbia began. The newly formed government started major reforms in all domains aiming to liberalise, decentralise, and democratise the country. Improvement of education was said to be one of the priorities. The Government and the Ministry of Education tried to modernise regulations, curriculum and teacher education, repair very old and dilapidated school buildings, improve school infrastructure, and purchase new equipment. One of the factors that initiated the last education reform wave was Serbia`s candidacy for European Union (EU) membership in 2009. This wave commenced in 2010 when Serbia adopted the proposal for the Strategy of Education Development in Serbia to 2020+ (MESS, 2012). On the way to becoming a full and equal partner in the EU, a thorough reform of all sectors in the country was needed, as well as further development of all segments of Serbian society. Preparation for joining the EU meant new challenges for Serbian education – meeting the EU educational standards, trends and quality.

3.2. England and Germany

At the same time the political, social and economic climate in England and Germany was significantly different. Greater stability in all spheres in West Europe allowed these countries to thrive and concentrate on prosperity and further development. Education was one of them. The high Gross Domestic Product (GDP) of these European economic engines enabled large investments in education reform. England and Germany strived to set up high standards in education, develop advanced and innovative approaches for translating these standards into practice, implement information and communication technologies (ICT) in education, and adopt active learning approaches (OECD, 2010). They were among the first to modernise school design policy and start designing schools according to these changes.

The factors that sparked off reform of education in England and Germany were not completely the same as in Serbia. In Germany in 2000 the results of the first Programme for International Assessment (PISA) test showed that the German educational system was in the lower midfield (Stanat & Baumert, 2002). This stirred debate on what caused this underperformance, and acted as a sign that education must be re-examined. During the past decade education reform in England was characterised as rapid and ambitious. In 1997, the newly elected Labour Government started a series of major education reforms aiming to improve student literacy and math learning, educate a distinctively diverse population, improve failing schools, and teacher training (Mead, 2006). The results of these reforms today are worth mentioning. In England the reform paid off by the year 2000, as the lowest performing school outperformed the average one from 1997 (The Sutton Thrust, 2004). Pupils at age 15 in the United Kingdom and Germany are among the top EU performers in science, reading and mathematics. The United Kingdom has 4.6%, Germany 5.5% and Serbia only 0.1% of top performers in these areas (OECD, 2006). Looking through this perspective, various reforms and massive investments in education in the UK and Germany have paid off. If Serbia desires

to be an equal partner in the EU there is much to be learned from the education reform of these countries.

4. The Progress of Education Reform in Serbia, England and Germany - A Comparative Analysis

On the way to reform their education systems, due to the different social, economic, political and cultural circumstances, these three countries have not travelled the same distance. Yet, they have tried to tackle some similar challenges in the field of governance and regulations; education goals, teachers and teaching/learning methods; curriculum; equipment; school infrastructure and school building modernisation programmes. Understanding the challenges related to these fields of education reform is important because holistic approach to education reform means addressing these challenges also through school design policy. This section will map the progress of education reform in Serbia in comparison to England and Germany, as it is a good way to establish the changes in various segments of education to which school design policy should respond to. Deeper understanding of these changes could enable Serbia to develop modernised and better synchronised school design policy.

4.1. Governance and regulations

In 2000, Serbia inherited stiff and restrictive regulations, and centralised and overregulated system where schools were delineated as entities isolated from their cultural and social context (UNICEF, 2001). Today, the system was changed, the framework updated and determined at national level. There is more power for local and institutional level. Similarly to England and Germany within the framework local government and institutions can act more independently (Métais, 2003). The most important documents produced so far - the Strategy of Education Development in Serbia to 2020+, maps the challenges and proposes development goals for all levels of education and all segments (curriculum, teacher education, lifelong education, and standards) (MESS, 2012). This document states for the first time that school building standards and regulations must be revised, because the quality of the school environment has an impact on teaching and learning. Additionally, new standards for energy efficient buildings have been published (Official Gazette of the Republic of Serbia, No.61/2011, 2011), which legally bind all schools to have an energy certificate.

4.2. Education goals

One of the first steps at the beginning of the last wave of education reform in 2009 was modernisation of education goals. Comparative analysis of the education goals set by Serbia, England and Germany shows that Serbia successfully identified the largest majority of the contemporary education goals (Fig. 1.). It was hoped that in this way the trajectory of education reform could be directed towards the same education quality and efficacy as in European countries.

4.3. Teachers and teaching/learning methods

According to the UNICEF assessment from 2001 in Yugoslavia (at the time consisting of Serbia and Montenegro) formal teaching training was poor, teachers were educated to lecture, and their knowledge about new teaching/learning methods was not good enough. Teachers` knowledge was abstract, theoretical and hard to apply to everyday teaching. From 2000 a series of similar reforms were initiated in this area in all three countries. England in Germany reformed continual professional development, improved the quality of initial teacher training (which later resulted in improved teacher quality) (Bell, 2005), clearly defined the teacher qualification standards (Training and Development Agency, 2006); and supported teachers to develop their leadership skills (Clarke, 2003). At the same time Serbia established the Centre for the Professional Development of Teachers offering numerous courses, trainings, seminars and workshops for teachers (Ivic & Pesikan, 2012).

The UNESCO with the Ministry of Education of the Republic of Serbia and the NGO Education Forum started a program for educating teachers about active teaching/learning methods (UNICEF, 2004). Until 2012 nearly 30000 from a total of 49233 teachers in primary school finished the course (Education Forum, 2009).

4.4. Curriculum

During the socialist period the curriculum in Serbia was too extensive, it lacked meaningful structure, and it was connected neither horizontally nor vertically. Its academic character prevented children to connect it to everyday life. The curriculum was the same through the country, and there were no opportunities for adaptation to the local context. It lacked many important topics, such as the use of ICT and media, religious and civic education, education about democracy, tolerance, peace and human rights, and education about the environment and ecology (UNICEF, 2001).

The curriculum today is recommended on a national level. The Law on Primary Education empowers schools to adapt the curriculum to reflect local needs, use local sources, distinguishing features (historical, geographical or botanical features) to teach (Official Gazette of the Republic of Serbia 55/2013, 2013), and in that way introduce the country's economic, ethical, social and geographic diversity. Similarly to England and Germany (Sargent et al., 2012) there is a centrally-determined framework, but within that framework schools have the autonomy develop their own Operational Programmes, to adapt the curriculum to some extent to suit local conditions. The New Law on Textbooks and Other Teaching Material, supports teachers to work more independently, and enables them to have more responsibility when it comes to textbook selection, class organization, and adoption of various curriculum delivery methods (Official Gazette of the Republic of Serbia 72/2009, 2009).

EDUCATIONAL GOALS FROM ENGLAND AND GERMANY in 2009	EDUCATIONAL GOALS FROM SERBIA in 2009
Excellence/ raising standards	similar aim not found
Individual development	to develope self-awareness, personal initiative, the ability for self-evaluation and expression of one's oppinion
Knowledge/ skills/ understanding	to enable persons to solve problems, establish links and apply knowledge and skills in their further education, professional work and everyday life
Social development	to develop communication and dialogue skills, the sense of solidarity, quality and efficient cooperation with others, team-building skills and foster friendship and camarade
Special learning needs including gifted Emotional/spiritual development Personal qualities	to achieve full intellectual, emotional, social and physical development of every child and pupil in keeping with their developmental needs, abilities and interests
Environment/ sustainable development	to create awareness about the importance of sustainable development, protection and preservation of nature and the environment, ecological ethics, and animal protection;
Basic skills- literacy/ numeracy	to acquire quality knowledge and skills, and value, language, mathematical,scientific, artictic, cultural, technical and information literacy, enabling children and young people to live and work in modern society
Lifelong learning	to develop motivation for learning, enable persons to learn independently, engage in life-long learningand take part in international educational and professional processes
Scientific/technological skills	to develop the abilities to find, analyze, utilize and communicate information, while skillfully and effectively using information and communication technologies
Preparation for work	to develop key competences necessary for life in modern society, enable them to work and pursue their profession by developing vocational competences, in accordance with the given profession, through the development of modern science, economy and technology
Foundation for future education	to enable persons to make adequate decisions about their future education and profession, their development and future life
Health/ physical/ leisure	to develop and practice healthy life styles, raise awareness about the importance of one's own healthand safety, and the need to develop and foster physical abilities
Creativity	to develop creative abilities, foster creativeness, esthetic perception and good taste
Citizenship/ community/ democarcy	to develop the ability to become a responsible citizen, capable of living in a democratic and humane society based on the respect as the basic principles of justice, truth, freedom, honesty and personal responsibility; of human and civil rights, right to be different and care for others, as well as the basic principles of justice, truth, freedom, honesty and personal responsibility
Cultural heritage, cultural literacy	to form opinions, convictions and a value system, developing personal and national identity, creating theawareness and sense of belonging to the Republic of Serbia, respecting and language and one's language, the tradition and culture of the Serbian people, the tradition and culture offostering the Serbian language and one's language, the tradition and culture of the Serbian people, the tradition and culture of ethnic minorities and communities, other peoples', developing multiculturalism, and respecting and preserving national and world heritage;
Values/ ethics/ morals Equal opportunity/ multi-culturalism	to develop and respect racial, national, cultural, language, religious, gender and age equality, tolerance,and respect for differences.
National economy	similar aim not found
Parental participation	similar aim not found

Figure 1. Comparative analysis of education goals in England, Germany and Serbia in 2009.

4.5. Equipment

The lack of contemporary teaching methods is what forced teachers to use very old "chalk, blackboard and talk" methods. The scarcity of pedagogical equipment (audio-visual, maps, art, sports) was obvious: libraries were poorly stocked, there were 13,5 books per pupil (Mitric & Vukotic, 2007) and there was one computer per 230 children on average (UNICEF 2001). These factors contributed significantly to poor quality of learning environments. New data on the number of computers or the condition of libraries is scarce. Donations and programs such as "Partners in Education" sponsored by Microsoft, and "Education Innovation Program" (donation of $10 million for buying ICT) sponsored by the World Bank (2008) suggest that the current conditions are improving. For example, Microsoft`s report on pupils use of ICT from 2006 suggests that in 57.89% cases 2 pupils use 1 computer (Milanovic & Milosavljevic, 2007), which shows that ICT is more present in schools.

4.6. School infrastructure and school building modernisation programmes

The UNICEF (2001) assessment explained that the school infrastructure in Serbia is very old-on, average 42 years, and that:

- 4.2% of schools were built in nineteen century,
- 22% before Second World War,
- 28.3% from 1946 to 1960,
- 46.7% from 1960 to 1999, and
- 1.7% after 1990.

At that point of time there was an insufficient number of school libraries (62% of schools have libraries), laboratories (55% of schools do not have specialised classrooms), yards, gymnasiums, canteens (80% of schools have canteens of which 20% are operational) and similar facilities. Two thirds of schools provided less than 3 m^2 of school space per student which is the regulatory minimum; there was no reading space, space for individual study or group work, which prevented children to work independently, and to do research in the library (UNICEF, 2001). The lack of space forced schools to work in two and sometimes even three shifts which meant that pupils cannot use the facilities throughout the whole day. Urgent actions were needed to prevent further erosion of education.

In 2010 Serbia took 50 million Euros loan from European Investment Bank, and additional 50 million Euros will be provided from the Serbian government for the 2010-2014 School Modernisation Project (EUI, 2014), which aims to repair, expand and modernise school infrastructure. Similarly, in 2004 England started Building Schools for the Future (BSF) programme (DfES, 2003), and in 2003 German federal government started Investitionsprogramm Zukunft Bildung und Betreuung (IZBB) [Investment Programme The Future of Education and Care] (BBF, 2013). BSF, biggest school building program since the Victorian times, was not about refurbishing schools, repairing leaking roofs and replacing old windows, it was about initiating radical transformation of schools so they can accommodate 21st century learning; the greatest challenge was a transformation of the very standardised education system (DfES, 2003). This was tackled through introducing state of the art technology, replacing front-of-the class teaching classrooms with workshops suitable for group and individual learning, creating sustainable and flexible spaces that will be able to adapt to learning and teaching process that unpredictable future might bring. Due to a change of government, the investments are not at the same scale and have different aims (Pearman, 2010). In Germany, the IZBB investment program addressed the biggest problems of German education – better support for underachievers, especially for those with migrant background, the lack of all-day schools, extend existing schools and improve school quality. From 2003-2009 4 billion Euros were invested through

IZBB in 6918 schools throughout the country (BBF, 2013). The program was extended till the end of 2014 under the name Ideen für mehr! Ganztägig lernen / More ideas! All-day learning, supported with 4.3 million Euros annually (BBF, 2013).

5. Discussing the Challenges Posed by the Lack of a Modern and Synchronised School Design Policy in Serbia

As demonstrated in the previous section Serbia has tried to reform its education system in similar areas as England and Germany. While in England and Germany changes in various education segments have impacted school design policy, in Serbia that is not the case. In Serbia there is still not enough power at the local and institutional level; although system of governance has been changed and some responsibilities shifted from the Ministry of Education to local administration and institutions. The difference between rules and regulations written on the paper and what is happening in practice could be observed. Similar to the claims made in the Strategy of Education Development in Serbia to 2020+ (MESS, 2012), as well as by Ivic and Pesikan (2012), the impression is that the biggest problem is the politicization of all the positions in the process, and the lack of inclusion of acclaimed experts in the reform. The chain of responsibility is not working and the procedures for initiating various changes by schools, teachers or any other interested and relevant parties is not clear. This results in long procedures, slow or no response from institutions in charge; and ultimately poor quality of learning environments which is negatively affecting the progress in other areas of education reform.

The new education goals suggest using contemporary educational technologies, methods and approaches. Yet, the pupils are educated using the same methods and in the same spaces as a hundred years ago. Particularly important is the synchronization of educational goals and school design policy documents. In Serbia, using the words of Horne Martin (2006), the challenge is that "school buildings are often created without reference to changes in education, and changes in education do not adequately recognize the impact of the physical environment on any new approach". A step forward could be the integration of education goals with architectural design, spatial and furniture arrangements (Clark, 2002). However, Serbia is falling to see the improvement of school design policy, and consequently school designs, as an integral part of education reform. Outdated school building design documents - 'Regulations of the norms of school spaces, equipment and teaching aids for primary schools' (Official Gazette of the Socialist Republic of Serbia – Education Gazette 4/90, 1990) and `Regulations on detailed conditions of space, equipment and teaching aids for high school` (Official Gazette of the Socialist Republic of Serbia – Education Gazette 5/90, 1990), from 1990 are still in force. They are not synchronised with the changed education goals, the Strategy of Education Development in Serbia to 2020+, and energy-efficient school building standards (Author, 2013a). This results in outdated school building concepts and designs that do not provide adequate spatial support for modern pedagogic ideas which teachers are trained to apply in classrooms, i.e. active learning. For example, the situation in England is quite different. Although, the standards proposed by Department for Education and Skills (DfES), such as 'Building Bulletin 98: Briefing Framework for Secondary School Projects' (DfES, 2002a), and 'Bulletin 99: Briefing Framework for Primary School Projects' (DfES, 2002b), were criticised as inflexible and formulaic (CABE, 2006), they set the objectives for the forthcoming capital investment at the time - Building Schools for the Future. They delineated school design strategy, described how schools should be developed according to many education goals (flexibility and adaptability, safety, access and inclusion, use of new technologies and ICT, environmental impact), and stated that school design should be linked to the curriculum so as to provide teaching opportunities.

Discussions with some teachers during this research suggest that they were not applying active learning methods in the classrooms as much as they would like (although there is no official comprehensive research evaluating the suitability of school spaces for adopted active learning approaches in Serbia). School space and classroom furniture are just some of the factors making application of active teaching/learning in classrooms arduous. The classrooms are small, the tables are

made for two pupils, and both tables and chairs are very heavy, thus difficult to arrange and rearrange. This suggests that improving the way a teacher teaches is not connected solely to the teaching methods they were trained to apply. They should also have appropriate learning environments that can accommodate active teaching/learning, personalised learning, single and group work, flexible learning through experience and play. Teachers, together with architects should discover what spatial arrangements support which kind of pedagogy, so as to understand that the learning environment is an active medium contributing to the quality of education. In England and Germany there are numerous cross-curricular activities concerning environmental learning, ICT, social health and education, and the culture of a country or a region. This enables pupils to relate and apply their knowledge outside the classroom. Various spatial responses to the curriculum have been developed - ICT workstations, spaces for individual and group work in a library or mediatheque, and school gardens. Blackmore et al. (2011) provide some evidence suggesting that spaces supporting the learning needs seem to be an important factor affecting pupils' ability to comprehend curriculum. This could partly explain why the pupils from England and Germany on PISA tests are in the last ten years among top performers in math, science, and reading.

Changes in the curriculum are relatively new in Serbia. The teachers still struggle to transfer from very restrictive regulation to new possible approaches, to connect curricula to everyday life experience, and motivate pupils to use knowledge outside the classroom. They usually lack the appropriate facilities (libraries, computer rooms, gardens). Using the textbooks as the only source of knowledge, pupils are not educated to recognise problems and potentials of their local environments and contribute to them. For this reason the curriculum should be linked to a real life, and numerous cross- curricular activities should be introduced. Architects should start to research how school design with its spatial and furniture arrangements could better support curricular activities, and develop appropriate spatial responses to curriculum, support and even invite learning. Additional challenge is related to introduction of new equipment in schools, for example ICT. The problem is that the necessary changes in school design and school design policy were not made. Old classrooms (approx. 60sq meters) were just filled with 20 to 30 computers. This is causing the space to overheat, makes the air stuffy, and taints the teaching/learning atmosphere.

Comparative analysis School Modernisation Programme in Serbia, BSF in England and IZBB in Germany reveals significant difference. Investments in school infrastructure in England and Germany were based on a specific programme. Before any investments were made manifestos of the programmes were written, explicitly stating the goals, and the ways schools should be designed to meet them. According to these aims school building standards were updated. Architects actively contributed to the process. In England a group of 11 architect teams designed exemplar schools that were to serve as a stimulus and inspiration for the design of new sustainable schools (Power, 2003). The application procedures for funding were delineated. When the programmes started studies were carried out to examine the quality of refurbished and newly built schools (CABE, 2006a), as well as assessments of how the capital investments in school buildings relate to better performance and education improvement (PriceWaterhouseCoopers; DCSF, 2010; Fischer et al., 2011). It could not be claimed that BSF and IZBB were impeccably organised and executed (see criticism in Fulcher, 2010; Boys, 2011; Huebner **&** Lederer, 2009), but some good ideas were proposed and inspiring schools built.

Although, the new EUI investment in Serbia aims to improve the quality of learning conditions, there is no written programme, no clear vision of what school building quality means, and what kind of schools Serbia is aiming to build in the future. The tool for evaluating the quality for newly built schools has not been developed. The School Modernisation Programme is not connected to the new reforms in the area of education goals, the curriculum, or the teaching methods. Until today, many schools that came out of the programme have been announced as the contemporary ones, following all the latest European standards. This is paradoxical, because the school design standards, legally binding for all architects designing schools, have not been updated since the 1990. Two years after the programme started, with quite a few schools built in the meantime, the application procedures are

still not clearly and transparently delineated and selection criteria for schools to acquire the funds are not published. Review of the schools chosen to be financed reveals that only urgent construction, reconstruction, adaptation, repairs of very dilapidated buildings or the extensions for extremely overcrowded schools will be financed (MESS, 2014). Another challenge is the lack of inclusion of acclaimed experts and interested parties. Architects, as well as all the other relevant professionals, are approaching this issue from a less than critical position. There is apparently no critique, no interdisciplinary collaboration, no exchange of experience, or academic debate on this matter. In defining the education reform concept, and later its implementation, expert individuals and interested institutions did not participate. As Ivic and Pesikan explain (2012, p. 46) "the reformers arbitrarily and subjectively selected the experts and professionals who would implement the reforms".

6. A roadmap for Improving School Design Policy in Serbia: Conclusions and Recommendations

One of the reasons for this desynchrony between school design and various segments of education is the lack of deeply deliberated school design policy. The outdated school design documents, standards and policy, and newly built or refurbished schools which are not taking into consideration the updates of all other segments of education, are hindering the progress of education reform in Serbia. Before any new investments are made in school infrastructure, Serbia needs to create a roadmap, or a set of recommendations, that could lead to a successful 21st century school design policy. From the position of an architect, both researcher and designer, some of the recommendations are as follows (Fig. 2.).

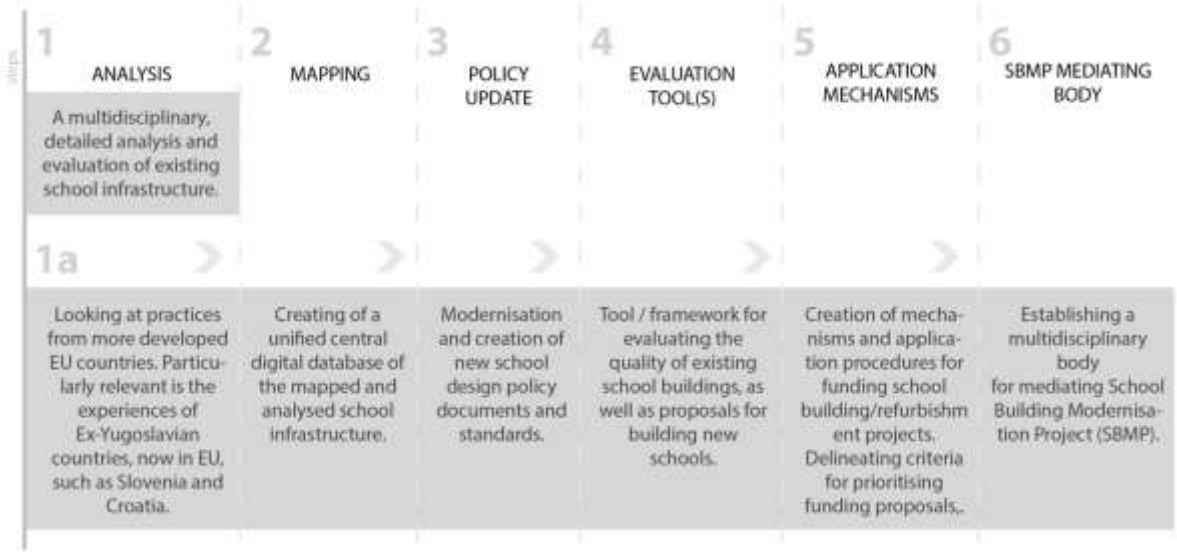

Figure 2. An architect's roadmap for improving school design policy in Serbia. Author`s compilation.

The biggest oversight is the lack of a serious research and analysis of the existing problems in all segments in Serbian education (Ivic & Pesikan, 2012). Serbia needs detailed analysis and evaluation of existing school infrastructure. Based on the analysis a unified central digital database should be created comprising of school plans, school sizes, descriptions of school building condition with photographic evidence, classification of schools (urban-rural, kindergarten, primary, secondary, post-secondary), and made available to all interested parties.

A multidisciplinary analysis of the mapped school infrastructure, existing school design documents and standards, should examine the extent to which they are synchronised with education segments outlined in the Strategy of Education Development in Serbia to 2020+ (MESS, 2012), education goals, and energy-efficient buildings standards (Official Gazette of the Republic of Serbia, No.61/2011, 2011). School design documents from the 1990s: `Regulations of the norms of school spaces, equipment and teaching aids for primary schools' and `Regulations on detailed conditions of space, equipment and teaching aids for high school` should be urgently modernised and updated. New school design policy documents and standards should be created in order to address new developments and trends in school design. For example, the EU highlighted criteria of inclusion and accessibility of the built environment for all (Pekelsma, 2010), should be integrated in schools design policy, so that the schools are made accessible for all citizens, especially the less able ones. Taking into consideration the new trend in Serbia of integrating developmentally challenged children in schools (and not separating them in special schools as it was the practice in the past); school design policy and standards should take into account this change, so that the future schools become inclusive environments able to support learning and development of all children, both gifted and developmentally challenged.

Of equal importance is creating of a tool or framework for evaluating the quality of existing school buildings, as well as proposals for building new schools. The work done in England by Price Waterhouse Coopers (2010) and Department for Children, Schools and Families (2010), and in Germany by Freiburg School of Pedagogy (Fischer et al., 2011), alongside many other (CELE-OECD, 2009; Design Quality Indicator; Cleveland & Fisher, 2014) can certainly offer useful approaches and methodologies from which Serbia can learn and develop a locally relevant tool. Clear mechanisms and application procedures for funding school building/refurbishment projects should be delineated, and a system for prioritising funding proposals should also be created. These systems should be transparent and public so that the schools interested in applying for funding could use them as guidelines. A body consisting of multidisciplinary experts in architecture, planning, education, pedagogy, psychology could be formed in order to mediate the School Modernisation Project in Serbia; and help the schools, their head teachers, teachers and pupils research their problems, develop plans for new school building or refurbishments, or for additional facilities for growing schools.

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