

## **Progressive Education in Georgia: Tradition or Reality?**

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### **Abstract**

Despite differences among progressive educators, they share the conviction that democracy means active participation by all citizens in the social, political, and economic decisions of their countries. The aim of this paper is to explore how Georgia is meeting goals and perspectives of progressive education by widely implementing civic education programs in schools and how its schools are developing a civic society. The paper highlights the 2010 inaugural national needs assessment, which studied conditions and attitudes towards civic education. The qualitative and quantitative results revealed the importance of civic education to diverse stakeholders. Civic education develops civic understanding founded on liberal and democratic values and helps students to comprehend their rights and responsibilities for their family, community, and state. Civic education developments in Georgia include adopting the diversity principle, empowering teachers to select and implement educational process, and using modern educational technologies and foreign pedagogical innovations.

**Keywords:** civic education, educational innovations, Republic of Georgia, democratic society, international development.

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### **Progressive Education in Georgia: Tradition or Reality?**

The Hebrew poet of Ecclesiastes sang the words, "To everything there is a season, and a time for every purpose under the heaven." As we move into new century, it is now a time to weave the fabric of our communities.

Georgia is a relatively new independent republic and just celebrated its 20<sup>th</sup> year in this process. A key component in Georgia's progress is social capital, which is a characteristic of social organizations that enables efficiency and gains in resources through connections among its members (Putnam, Leonardi, Nanetti, 1993). Problems and dilemmas that arise in democracies are often collective and require collective action to reach a solution. Studying democratic development in Italy, Putnam et al. (1993) found that social capital is critical to a high performance in government institutions and maintenance of democracy. Nevertheless, creating social capital is no simple task. In this new country a Progressive Era is being shaped as it creates new structures and policies (public and private) to facilitate civic engagement. Leaders and activists of Georgian life must seek innovative ways to shape this nation with collective action. Many Georgians would prefer a more vibrant community, a goal not accomplished on one's own power or initiative. Actions by individuals are not sufficient to restore community, but they are necessary.

The challenge Georgia faces for the 21<sup>st</sup> century requires both collective and individual initiatives. During a Fulbright stay at University of Georgia from Jan-May, 2012 in Tbilisi, one of the authors (Delwyn Harnisch) observed a concerted nationwide conversation modeled on the intensive interchange among scholars and practitioners to be civically creative in working together. Harnisch saw deliberations or Civic Engagement in Georgian schools and with youth that brought together thinkers and doers from many diverse Georgian communities to shape questions and to seek answers.

The civic clubs in Georgian schools sparked the civic imaginations of Georgian citizens to discover and invent new ways of connecting socially in their school communities that fit their changed lives. The civic clubs seek to develop the civic potential (Chow, 2012) of youth to influence their civic participation into adulthood.

Philosophers including Aristotle, Rousseau, James, and Dewey have discussed civic education of youth. Nation building understands this process of pondering the essential virtues and skills and knowledge and habits of democratic citizens and how to instill them. It is clearly the obligation of all Georgians of all ages to help rekindle civic engagement among the generation that come of age in the early part of the 21<sup>st</sup> Century.

One of the authors (Harnisch) observed a challenge being set forward by Georgian parents, educators, and the youth to find ways to increase the level of civic engagement among Georgians in a meaningful and purposeful manner. The nation had an election on October 1<sup>st</sup>, 2012. The strong, 61% election turnout is an indicator of their engagement (Georgian Central Election Commission, 2012). The goal of the project is to increase participation and engagement in more substantive and fine-grained ways from team sports, to choirs and performing art groups and from organized altruism to grassroots social movements.

Some action programs are already in place both in national school curriculum and in clubs that focus on community service projects (Ministry of Education and Science of Georgia, 2010). The lessons learned from the early civics clubs in Georgia confirms that community service programs really do strengthen the civic muscles of participants, especially if the service is meaningful, regular, and woven into the fabric of the school curriculum.

Well-designed service learning programs improve civic knowledge, enhance citizen efficacy, increase social responsibility and self-esteem, and teach skills of cooperation and leadership (Putnam, 2000). Another key element of such programs is having youth volunteer for these meaningful activities and this has been shown to be the strongest predictor of adult volunteering. Another factor observed was intergenerational mentoring serving these civic ends as adult volunteers were working with youth on tangible after-school projects and summer camps like website building and informational mapping skill development.

What we need to move forward is something that is like an updated Scouting—a combination of values and fun with our new engaging approaches. We need to have powerful and enticing ways of increasing civic engagement for younger brothers and sisters of our current school-age community. New social technology may help: for example, an iPhone application or suite of tools to grow networked communities of learners and engaged circles of difference makers, and connected service learning teams that act locally and think globally.

### **Historical Educational Themes in Georgia**

During the most of the 20<sup>th</sup> century the term “progressive education” was used to describe ideas and practices that claim to make schools more effective agencies of a democratic society (Bruce & Pecore, 2013; Hansen, 2007). The word “progressive” was synonymous with “new” or “good” education. Although there are numerous differences of style and emphasis among progressive educators, they share the conviction that democracy means active participation by all citizens in social, political, and economic decisions of their countries.

Georgia has a long and profound history of education – whether considering ancient times, the Middle Ages, Soviet Georgia, or the modern day. Naturally, the system of education in Georgia has changed many times. The present status of education in Georgia is characterized as searching for new approaches. The shift into the past of an ideological monopoly, created a strong need of educational institutions to form self-sustainable educational systems. The education system in Georgia is evolving, as additional educational institutions are founded on different organizational and conceptual principles. The diversity principle now leads in modern education, giving teachers the ability to choose and build any model of educational process. A particular interest of teachers is the use of modern educational technologies. Georgian teachers have sought international perspectives on education. They have embraced the use of foreign pedagogical innovations. In Georgia, pedagogical innovation in general is a comparatively new practice, as educators have started talking about it only in the late 1990s. Today, pedagogical innovation as such and its methodology is in the process of its scientific adaptation and formation (Ministry of Education and Science of Georgia, 2011b).

### **Purpose and Research Questions**

The current period of educational evolution in Georgia presents unique opportunities for scholarly inquiry. The aim of this paper is to explore the civic education movement in Georgia through a framework of progressive education. It seeks to answer two research questions: (a) How is Georgia meeting goals and perspectives of progressive education by widely implementing civic education programs in schools and (b) How schools are developing a civic society? We sought to answer these questions through an overall theoretical framework of progressive education with a particular consideration of Dewey’s philosophy that education constitutes a gift to learn from experiences (Hansen, 2007).

### **Progressive Education**

Progressive education was a far-flung array of ideas and practices designed to enliven teaching and learning. As with other amorphous constructs, the meaning of Progressivism varied from person to person, place to place, and era to era. At its most diffuse, the word was synonymous with "new" or "good" education. Even so, there were several core ideas in this heterogeneous and influential movement that took shape in the late nineteenth century, spread rapidly and widely in the early twentieth century, and receded by the 1950s.

The most influential theorist of Progressivism, the philosopher John Dewey, regretted the anti-intellectual misinterpretations of his ideas. He never doubted the importance of a challenging academic curriculum. Dewey envisioned Progressive pedagogy as a means to, not an avoidance of, intellectual exertion. The curiosity of children and the flexibility of teachers should enhance, not diminish, the life of the mind. However, Dewey's prose was frequently so convoluted that his admirers misconstrued his ideas. The most egregious misrepresentations downplayed the ability and motivation of average students. Pseudo-Progressives claimed that most students could not, would not, or need not undertake serious academic work (Dewey, 1916).

### **Present Educational Themes in Georgia**

At the beginning of the 21st century, Georgia started a new reform in the existing system of education. Today, the reform in the system of general education is developing in different directions. Besides the system transparency, its democratization and education accessibility for everybody, the education quality improvement became one of the priorities. There are many problems to solve if we consider the improvement of education quality in Georgia. For most people, the fundamental reason to choose, or offer, a progressive education is a function of their basic values: a sincere commitment to democracy; a belief that meeting children's needs should take precedence over preparing future employees; and a desire to nourish curiosity, creativity, compassion, skepticism, and other virtues.

Traditional education refers to long-established customs found in schools that society has traditionally deemed appropriate. Some forms of education reform promote the adoption of progressive education practices, a more holistic approach that focuses on individual students' needs and self-expression. In the eyes of reformers, traditional teacher-centered methods focused on rote learning and memorization must be replaced with student-centered and task-based approaches to learning. However, many parents and conservative citizens are concerned with the maintenance of objective educational standards based on testing, which favors a more traditional approach.

Nearly all Progressives knew what they opposed and thus identified themselves by what they were not. Traditional education was the enemy. Students were required to memorize endless facts and formulas from a dreary academic curriculum remote from their own youthful interests. Most teachers defined good pedagogy as drill and practice; their job was to hear recitations, not lead discussions. Classroom life was austere. Teachers established unilaterally the rules and regulations, and they punished misconduct harshly.

Fortunately, what may have begun with values (for any of us as individuals, and also for education itself, historically speaking) has turned out to be supported by scientific research. An impressive collection of research has demonstrated that when students are able to spend more time thinking about ideas than memorizing facts and practicing skills — and when they are invited to help direct their own learning — they are not only more likely to enjoy what they're doing but to do it better (Bruce & Bishop, 2008; Dewey, 1977; Schwab, 1978). Progressive education is not just more appealing; it is also more productive.

### **Educational Goals**

Facts and skills do matter, but only in context and for a purpose. That is why progressive education tends to be organized around problems, projects, and questions rather than around lists of facts, skills, and separate disciplines. The teaching is typically interdisciplinary, the assessment rarely focuses on rote memorization, and excellence is not confused with “rigor.” The point is not merely to challenge students — after all, harder is not necessarily better — but to invite them to think deeply about issues that matter and help them understand ideas from the inside out.

In support of this philosophical shift, Georgia has established goals for general education. The system of general education aims at creating acceptable conditions for the formation of a free personality with national and common to all mankind values. Besides, the educational system develops in youth necessary mental and physical skills, gives timely knowledge, promotes to a healthy lifestyle. It forms in youth civic understanding founded on liberal and democratic values and helps them to comprehend better their rights and responsibilities for their family, community and state in a whole. Active participation of students and parents, teachers and school administration, as well as of an outside community - creates positive conditions for qualified and successful implementation of set goals (Ministry of Education and Science of Georgia, 2004).

### **National Needs Assessment**

In 2010 the first national needs assessment was carried out by Evaluation Association of Georgia. The assessment aimed at studying the conditions and existing attitudes towards Civic Education at schools in Georgia. The framework for this research work was the Civic Education and Teachers Training Program implemented by PH-International and funded by USAID. Data collection occurred from September 27, 2010, to October, 15 2010.

The methods of the national needs assessment were both qualitative and quantitative. The results of the assessment demonstrate that the frequency of use of civic education class knowledge at school is not high. For instance, only one third of the tested students think that the school environment gives them the opportunity to apply the civic class knowledge they had obtained.

Another domain assessed was the attitudes of school grade students, teachers, parents, and NGO and local administration representatives towards civic education class. Students from grade 4 through grade 12 (n = 1633) from 51 schools across nine regions in Georgia completed the questionnaires. Within the qualitative strand, the evaluators selected four categories of respondents:

- Civic Education class teachers
- NGO representatives
- Local Governance body representatives
- Students parents

Qualitative research was conducted using a focus group method. The evaluators held 33 focus groups throughout Georgia, including 11 teachers groups, 9 local administration groups, and 6 parent groups for a total of 272 respondents.

Half of the respondents were satisfied with the quality of teaching in the Civic Education class in Georgia. One finding of the qualitative research is that respondents could

not evaluate the effectiveness of the teaching in the Civic Education class. It is a comparatively new class in the National Education Plan, as civic education became an obligatory class starting in 2006-2007 academic years. As respondents explained, the time elapsed is not enough to draw conclusions. The qualitative assessment findings suggest that civic education in Georgia has room for improvement. Primarily, such attitudes relate to the fact that the mentioned subject is not included in the National Exams program.

Judging by the results of the needs assessment, a large majority of the students questioned (79.1%) agreed that teaching civic education classes in Georgia is necessary and timely. As explained by students and other respondents in the qualitative assessment, civic education classes promote students' formation into decent and active citizens. Furthermore, a majority of students consider civic education an interesting subject. However, relative to other Caucasus nationals, civic participation in Georgia is relatively low (Caucasus Research Resource Centers, 2008). The low participation coupled with the evident interest in civic education suggested Georgia was prime for intervention. An important consideration is the challenges that may arise in this community of learners. Notably, performance on the PISA measures used in Europe reveals that the 15-year olds in this study have scores on reading literacy measures below their counterparts in OECD countries (Walker, 2011).

To address these concerns in Georgia, various models of education are undergoing active study or application. The new approaches include constructive methods of teaching, the use of psychology in pedagogical practice, and empowerment of teachers. For example, the recent Progress in International Reading Literacy Study (PIRLS) assessment showed that Georgians teachers are among the most educated and most satisfied teachers relative to other nations (Mullis, Martin, Kennedy, & Foy, 2007). Georgia is striving to build on its strengths to implement a progressive model of education through experience.

## **A Georgian Civic Education Program**

### **Program Overview**

This movement is evident in a recent civic education program in Georgia. The Applied Civic Education and Teachers Training (ACETT) Program is implemented in Georgia by PH International (formerly Project Harmony). ACETT receives its funding from the United States Agency for International Development (USAID), with support from the Ministry of Education and Science of Georgia. ACETT works with 740 schools across Georgia, representing 30% of schools in the country. The 2010 nationwide civic education needs assessment provided a framework for program activities. Since then, supplemental civics textbooks have been produced and are being distributed to all ACETT partner schools in response to new and growing needs in the civic education sector. A sense of community and responsibility for others is not confined to the classroom; indeed, students are helped to locate themselves in widening circles of care that extend beyond themselves, beyond their friends, beyond their own ethnic group, and beyond their own country. Opportunities are offered not only to learn about, but also to put into action, a commitment to diversity and to improving the lives of others.

### **ACETT Program Goals**

The primary goal of the ACETT program is to improve the quality and scope of school-based civic education as a means to positively influence the knowledge, attitudes, and behaviors of youth (and, through their example, those of the broader community) as active participants in Georgia's democratic society. The expected outcomes of ACETT's efforts over a multi-year plan of four years are to be shown in the following ways:

- Georgian schools are equipped to better prepare students as knowledgeable, active and engaged citizens
- Increased citizen participation in democratic processes

The program is impacting youth and communities in all 11 regions of Georgia: Tbilisi, Adjara, Guria, Imereti, Kakheti, Kvemo Kartli, Mtskheta-Mtianeti, Racha-Lechkhumi, Samegrelo-Zemo Svaneti, Samtskhe-Javakheti and Shida Kartli.

### **Notable ACETT Outcomes**

The program has already achieved a number of important successes, including development of a 50-hour accredited training course for civic teachers. By spring 2012, ACETT led to teaching resources, the training of civic teachers and school leaders, a national teacher's forum, the funding of grants and professional internships and numerous web-based resources. The products of ACETT have reached educational leaders and learners throughout the nation.

**Instructional resources.** Four sets of supplemental civics textbooks, each comprised of student book and teacher manual, were developed and successfully introduced to 672 Georgian sector partner schools of ACETT nationwide. Civics teachers were trained on how to use the textbooks to increase teaching outcomes during the lessons utilizing the teacher's manual authored by Kopaliani (2006). Textbooks emphasize four priority areas that were identified in an assessment of civics curriculum and textbooks for grades 9 through 12. Priority areas for the modules include cooperation for social benefit, how to become an active citizen, participation in school governance, and collaboration with local government for meeting community needs. Each module includes practical assignments for student team work, teaches students how to identify and target problems in schools and communities, how to establish partnerships, and how to mobilize resources to solve the problems. In reaching out to the ethnic diverse schools of Georgia the following items were shared to grow civic-minded learners that included Azeri and Armenian versions of the four sets of ACETT's civics supplemental textbooks (each set comprised of a student book and a teacher manual) distributed to schools with Armenian and Azeri ethnic minority students .

**Professional development program for teachers.** Nearly 600 civics teachers were trained this past year by the use of ACETT's accredited teacher training program "Teaching Democratic Citizenship." These trainings helped teachers to master basic international concepts of civic education and efficient planning of lessons, develop learning goals and objectives, practice techniques for obtaining additional teaching materials and promote applied learning opportunities for students outside the classroom. Since the inception of the program, 703 civics teachers received training.

**Professional development for school leaders.** Efforts were made to provide academic leaders with practical steps in teaching democratic citizenship to learners across the country by offering an expert trainer's workshop to nearly two dozen selected experts. Professional training was targeted to school principals, reaching over 600 this past year in various workshops. The focus of the workshops was to increase their understanding and support of civic education in order to facilitate the development of an enabling environment for civic education in Georgian schools. Since the inception of ACETT, 679 principles received training.

**Annual professional civics teachers forum for Georgia.** Student and school posters along with club updates were shared with over 200 in attendance at the first National

Civics conference. The number of civics teachers currently enrolled in the National Forum is well over 500 at this time with nearly 40% in attendance at the first national conference.

**Student inquiry and competitions in civics education and democratic citizenship.**

Nearly 300 such grants have been awarded for promotion of civic participation by students, teachers, and school leaders. In addition, over 500 students and teachers have been trained in use of social media for collaboration and reporting. Professional internships were also provided to over 300 students for applying civic education knowledge into practice at local government offices as well as at different state and NGOs and other business and media organizations.

**Web resource sharing with students, teachers and school administration.**

Continuous updates regarding new print material and opportunities in civics education were shared at the civics and citizenship education website ([PH International, 2010](#)) the civic initiatives web portal (PH International, 2012a). These online resources were actively used by students, teachers and school administration officials throughout the duration of the program. Additionally these websites featured news about student civic initiatives from the different regions of Georgia and provided resources and information for students, parents, and teachers, such as books, textbooks and publications about democracy and citizenship. The e-library on the website was widely used by teachers and students. Furthermore, the Facebook page "Civic Initiatives" (PH International, 2012b) continued to connect civics club students from different regions of Georgia and facilitate exchange of information about civic initiatives by students. Over 1000 learners have connected with ACETT via its social network and thus allowing parents and teachers to share information and get involved in educational activities related to civic engagement (M. Ushveridze, personal communication, Sept 4, 2012).

**Other Activities.** To support professional development for civic education teachers in Georgia, ACETT established civics Resource Libraries within Education Resource Centers. One such library already exists at Teachers' House in Tbilisi. The program also developed a National Forum for Civics Teachers, which supports teachers' professional development through trainings, conferences, online discussions, and regional meetings. Other ACETT-led trainings included debate skills and public speaking for students.

**Impressions of Students and Teacher-Participants of the Program**

"A lot changed in my life after I became the leader of our school civics club. A new chapter of active citizenship began for me. I was able to bring new ideas to life with the support of the club. I realize now that as active members of society, we can solve problems that help make the world a better place" (Student, 14 years old).

" My participation in our civics club has changed my life. Trainings, events, advocacy campaigns, meetings with influential people, interesting discussions, small grants, participation in TV and radio programs - all these activities provide incredible opportunities for me and for all students seeking to find their role in democratic society" (Student, 15 years old).

"ACETT really helped to improve the depth and breadth of civic education in our school, making the courses more effective and interesting for students, and not only. It helped personally me to obtain new knowledge and experience, gave me a chance to be actively involved in my community life" (School civics teacher).



### Conclusion

Georgia has exemplified progressive approaches to education through its investment in civic education. The national has poured tremendous energy into civics education projects, reaching students, teachers, education leaders, and schools. The efforts are increasing citizen participation in democratic processes of Georgia. The transformations occurring in Georgia are evident in the outcomes of the ACETT program. Namely, the program has disseminated instructional resources throughout Georgia to grow a community of civic-minded learners. Focusing on the professional development of teachers and educational leaders further facilitated the process. Finally, ACETT directly assisted students through internships, training, and grants for civic projects. ACETT's outcomes reach multiple levels of the learning community, helping to develop the current generation's civic mindedness while also ensuring a sustainable process for generations to come. Additional research is needed to examine the extent to which civics education is active in Georgia. Understanding the engagement of the next generation of learners is critical to Georgian civics education.

### References

- Applied Civic Education and Teachers Training. (2012). *Needs assessment report*. Tbilisi, Georgia: Author.
- Bruce, B.C. & Bishop, A. P. (2008). New literacies and community inquiry. In (Eds.), J. Coiro, M. Knobel, C. Lankshear, & D. Leu. *Handbook of research on new literacies*, New York, NY: Lawrence Earlbaum, 699-742.
- Bruce, B. C., & Pecore, J. (Eds.) (2013). Progressive education: Antecedents of educating for democracy [Special issue]. *International Journal of Progressive Education*, 9(1), 10-13.
- Caucasus Research Resource Centers. (2008, October 20). Comparing civic participation: Caucasus data 2007 [Web log post]. Retrieved from <http://crrc-caucasus.blogspot.com/2008/10/comparing-civic-participation-caucasus.html>
- Chow, J. (2012). Establishing a general framework civic competency for European youth. *International Journal of Progressive Education*, 8(3), 140-150.
- Dewey, J. (1916). *Democracy and education: An introduction to the philosophy of education*. New York, NY: Macmillan.
- Dewey, J. (1977). The relation of theory to practice in education. In *The middle works of John Dewey, 1899-1924*. Vol. 3., *Essays on the new empiricism, 1903-1906*. ed. J. A. Boydston, 249-272. Carbondale: Southern Illinois University Press. (Original work published 1904)
- Georgian Central Election Commission. (2012). *Voter turnout throughout Georgia*. Retrieved from <http://results.cec.gov.ge/>
- Hansen, D.T. (2007). John Dewey on education and the quality of life. In D.T. Hansen (Ed.), *Ethical visions of education: Philosophies in practice*. New York, NY: Teachers College Press.
- Kopaliani, B. (2010). *Teachers' manual*. Tbilisi, Georgia: Universal Press.
- Ministry of Education and Science of Georgia. (2004). *National goals of education of Georgia*. Tbilisi, Georgia: Author.
- Ministry of Education and Science of Georgia. (2010). *Civil activity development program 2010*. Tbilisi, Georgia: Author. Retrieved from <http://www.mes.gov.ge/content.php?id=703&lang=eng>

- Ministry of Education and Science of Georgia. (2011a). *Educational reform in Georgia, 2004-2010*. Tbilisi, Georgia: Author.
- Ministry of Education and Science of Georgia. (2011b). Education priorities of 2012. *Newspaper 24 Hours*. Retrieved from <http://www.mes.gov.ge/content.php?id=3183&lang=eng>
- Mullis, I., Martin, M., Kennedy, A., & Foy, P. (2007). *IEA's progress in international reading literacy study in primary school in 40 countries*. Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.
- PH International. (2010). Civics education portal [website]. Retrieved from <http://www.civics.ge>
- PH International. (2012a). Initiatives.GE [website]. Retrieved from <http://www.initiatives.ge>
- PH International. (2012b). Civic Initiative [Facebook site]. Retrieved from <https://www.facebook.com/civicinitiatives>
- Putnam, R. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon & Schuster.
- Putnam, R. D., Leonardi, R., & Nanetti, R. (1993). *Making democracy work: Civic traditions in modern Italy*. Princeton, NJ: Princeton University Press.
- Schwab, J.J. (1978). The "impossible" role of the teacher in progressive education. In *Joseph J. Schwab: Science, curriculum, and liberal education*, ed. I. Westbury and J.J. Wilkof, 167-183. Chicago: University of Chicago Press.
- Walker, M. (2011). *PISA 2009 plus results: Performance of 15-year-olds in reading, mathematics and science for 10 additional participants*. ACER Press: Victoria, Australia.

## Appendix

Caption. Images from Georgia's civics education project. Bella Kopaliani (author) at center, project in action at edges.

