Evaluation of the Ilia Chavchavadze Program in Reforming and Strengthening Georgia's Schools

August 2007

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EXECUTIVE SUMMARY

The Georgian Ministry of Education and Science (the Ministry, hereafter) has undertaken extensive systemic reforms to school management and finance capacity as well as to systems supporting teaching and learning practices. These reforms may be unprecedented in their scope and ambitious schedule. The general direction and approach to most of these reforms lay squarely within a framework supported by the current consensus and research about appropriate goals for school reform and best practices internationally to develop supportive learning environments. The evidence from the evaluation indicates that the preliminary results include some major successes and, as with any major reform, some problems and issues of concern. Considerable additional work lays ahead if all involved wish to ensure the reforms continue, improve, and provide the improvement in ultimate outcomes desired – Georgian graduates and the country itself becoming increasingly competitive in a competitive international marketplace.

The World Bank's and Ministry's Ilia Chavchavadze Program have taken the courageous step to join a small, but growing, number of reform efforts that seek data from good external evaluations to help make adjustments to future activities. This evaluation covers many aspects of eight major reform efforts. The evaluation utilizes existing research and data; interviews with key informants, directors, and teachers; focus groups with boards of trustees and teachers; and surveys of directors and teachers selected randomly across 20 rayons and over 100 schools across most of the country. These data collection efforts allow both the ability to understand the context of schools in different regions as well as the ability to generalize broadly across all but the minority-dominated schools and schools in conflict zones. Where reforms have been occurring for a few years, the evaluation results can be seen as a measure of success mid-course as well as a diagnostic tool for potential changes. Where reforms are just underway, the evaluation may be seen more as a second baseline against which future evaluations may measure success of ongoing reforms.

The substantive part of the report is structured in two parts: reforms affecting most directly the learning environment and those affecting management and finance capacity. This is followed by detailed conclusions and recommendations. This executive summary provides highlights of the findings, conclusions, and recommendations made throughout this report. By request, it has been designed longer than typical executive summaries to provide interested stakeholders sufficiently comprehensive information across its many substantive areas that it is comprehendible and may stand alone and yet not be so comprehensive that it becomes overwhelming. Those interested in ***greater detail are encouraged to read at least section 5 with the complete conclusions and recommendations*** as well as the relevant subsection of findings from sections 3 or 4.

E-1.0 Learning Environment Reforms

E-1.1 Learning Environment Reforms: Teacher Training, Professional Development, New Curriculum, Assessment, Networking

The results indicate considerable successes by the Ministry, TPDC, and NCAC from the school-based teacher training efforts and the training efforts for new curriculum given how far they have come in very few years. The ministry and other stakeholders are on the right track and have made many strong choices, even if there remains much to be done.

Evidence uncovered by the evaluation suggests:

- ***Student learning, involvement, and motivation appear to have begun improving*** through the reforms.
- ***Acceptance and use of active teaching and learning approaches have increased considerably*** compared to the pre-reform period.
- As expected, ***attitudes towards and actual use of active teaching and learning processes are inconsistent*** and dominated somewhat by more traditional, didactic methods.

For instance, almost all the teachers surveyed report they use active learning methods in their classes to some extent – a major change from the past. Many teachers remain to be convinced, however, that the new methods are relevant and can be fully applied in their classrooms. Further, although there is evidence that Georgian teachers' use of active learning methods is increasing and improving over time, they still at least as often use passive methods, more often use traditional classroom arrangements, and use the methods mechanically or inappropriately many times. This is common in similar interventions across countries due to the difficulty in conceptualizing new methods without many opportunities for observable models, lots of written literature, and considerable support of colleagues.

Teacher training in active learning methods and the new curriculum has been widespread across all school types, although not universal in training all teachers. ***Teachers and directors generally approve of the training thus far, but they believe that the training and models provided are insufficient***. Additional focused training therefore is essential to maintain and increase use of active learning and creative thinking as well as comfort with the new curriculum framework. The evidence of the inconsistent, and sometimes incorrect, use of active methods also bolsters the need for continued support among teachers, directors, Educational Resource Centers (ERCs) and others, as planned by the Ministry.

As with any major reform undertaking, people perceive several obstacles to its effective employment. In addition to the need for additional training, ***the most notable obstacles to the use of active learning methods*** found are:

- A ***lack of appropriate equipment and materials***;
- ***Large class sizes***, especially in urban areas;
- ***Short class time periods***; and
- An ***unsupportive school atmosphere*** within some schools given lack of training of existing directors.

That only modest differences were found across school types suggests a need for broad-based training efforts rather than large specific needs with the exception of additional efforts needed in some cases in rural areas.

Similarly, the ***new curriculum framework is viewed positively*** by teachers, directors, parents, and ERCs with significant numbers of teachers noting that their freedom of choice has increased by its adoption. Most teachers understand that the new curriculum better facilitates their ability to teach all levels of students at the same time, but there remains room for training for those who do not. Most teachers indicate confidence about their level of preparedness to teach the new subject syllabi, although they also note a need for additional trainings and models.

In addition to these reforms, the Ministry and NCAC are beginning to institute an ambitious new assessment system to include summative and formative assessment. They also have changed the grading system to a 10-point scale. These are major changes, and ***many teachers and parents are unclear about the concepts and uncomfortable with the new assessment approach and 10-point scale and need training for appropriate use***. This is particularly true in using a new scale appropriately for formative assessments.

Were the Ministry, World Bank, and NCAC not committed to additional training, evidence from other countries' experience suggest that the new curriculum likely would not be adopted well and with understanding, and most teachers and directors would regress to their prior methodologies and teaching approaches. However, additional training is planned and ongoing.

The evaluation also studied ICT training for teachers. The ***Deer Leap program thus far has shown adaptability and a delivery model that appears to have a high probability of broad, if not deep, success***. The research indicates that the Deer Leap teacher training program has increased teachers' comfort with and use of computers across many dimensions, with higher levels of computer use in urban areas. Nonetheless, ***most teachers*** – including those trained under Deer Leap's current training program – ***still never or rarely use computers*** due to lack of comfort with computers, lack of understanding of how to make the technology relevant to teaching, and lack of access. As planned under Deer Leap's master plan, the impact thus far has been broad but not deep. Planned additional in-depth Deer Leap trainings for a limited number of teachers or of through less effective distance learning methods are unlikely to be able to meet the high interest level in greater training.

Additional key findings in terms of the learning environment on issues aside from teacher training include:

- ***Teachers generally approve of the new curriculum textbooks***, but a high percentage lack teacher manuals.

- Many ***ERCs still have insufficient resources, training, or background*** to appropriately support teachers.

- Establishment of ***subject faculties within schools has fostered teacher professional interactions within schools***, although the frequency of such meetings is variable and often low. ***Networking across schools*** appears to have increased significantly from the pre-reform period replacing inter-school isolation, although networking remains modest in scope.

- Preliminary, but untested, indications from focus groups that some upper grade students are studying only to tests, a common issue in countries instituting high stakes assessments. This problem is partially offset in many countries by requiring that the grade point average or other general indicator of consistent academic efforts is part of the university entrance formula.

E-1.2 Learning Environment Recommendations: Teacher Professional Development

Nonetheless, among the evaluation's ***key recommendations regarding teacher training*** follow:

1. ***Continued emphasis in training teachers on how to use the new methods*** effectively rather than mechanically and how to use existing materials and resources, drawing on established sources in other countries to maintain low costs. This should include training on how to teach ***active learning methods in larger classrooms*** – a clear need in urban and some rural classrooms.

2. Consideration by the NCAC in its training of how teachers can try to build active learning lesson plans within and across class periods to deal with the ***obstacle of short class periods***. On the other side, the Ministry and schools should consider methods such as allowing classes for longer blocks that could more easily facilitate the many steps involved in many active learning approaches.

3. Support for planned ***training in formative assessment using the new 10-point system***, which should take into special consideration ways to do such assessment given large class sizes found in many urban areas. The needs here are strong, and it is unclear whether planned trainings will be sufficient.

4. Consideration of providing ***curriculum pilot school*** top teacher cohort members release time or pay in exchange for providing ***more direct training on weekends or mentoring*** to colleagues within their schools, if not with neighboring schools. Both involve costs that suggest other difficult programmatic trade-offs.[1]

5. Consideration of more frequently and widely held (more easily accessible) ***regional exhibitions and demonstrations of best practices*** in active teaching, assessment, and adoption of the new curriculum across schools, building on work done previously by the TPDC.

6. Efforts should be made to ***make directors*** (and potentially ERC education staff) ***more involved in future in-service training of teachers***. This would increase the potential for deepening the effect of trainings, provide them greater training than planned currently, signal administrative commitment and support to teachers, and help avoid failure in some schools.

7. Plans being developed for long-term ***in-service training*** appear to be considering appropriate incentive structures and should consider incentives for continued professional development over time. The Ministry should clarify for teachers what

[1] However, the fact that student to teacher ratios remain unchanged in some areas despite consolidation (see section on management and finance, below) implies ways to use excess staffing in some areas in such a way across schools as not to strain resources as heavily.

trainings do not count toward licensure especially while requirements have yet to be decided.

8. Critical changes in ***pre-service training*** are underway but envisioned as happening very slowly. A potential alternative would be to encourage universities to team with nongovernmental and private providers of in-service training for specific parts of the training. Other transitional countries in the Baltics and Balkans provide potential examples of how to speed up this process and still meet all the requirements of the Bologna process.

9. More widespread dissemination of support and training materials in Georgian and clear communication about where to find them. This recommendation is tempered by programmatic trade-offs due to higher costs. Although the understandable, cost-effective temptation will be to shift mostly to Internet dissemination once Deer Leap's Internet provision program is completed, teacher continued lack of comfort with computers suggest compelling reasons for continuation of providing as many hard copies as feasible.

10. If one of the roles chosen for ERC staff (see management and finance section) is to support reforms for teacher training, then recently rehabilitated ERCs will need to be better and uniformly equipped with resources and books for teachers.

11. Consideration should be given to making sure to further the modest success of school networking by building into implementation programming cross-school networking opportunities whenever feasible.

E-1.3 Learning Environment Reforms: Social and Physical Environment

It is well documented that the Georgian school system, neglected for many years during the early post-independence era, suffers from severe deferred maintenance and rehabilitation problems. These environmental problems can interfere with teaching and learning. The evaluation has uncovered evidence that the Ministry's efforts at consolidation and construction have ***begun to improve the average condition of school facilities and their maintenance***, which can be counted as a success of the reform. Nonetheless, considerable additional problems remain. To address them, the Ministry cannot rely solely on the Bank's contribution in completely repairing a few key schools in emergency condition nor continuing *ad hoc* consolidation. It will have to follow through with its planned rehabilitation program for another over 1000 schools to at least an adequate level and others also in emergency condition.

Key findings for the social and physical environment section of the report include:

1. ***Improvement in consistency of electricity*** in schools, although in-class lighting was judged insufficient in nearly half of larger schools.

2. Additional physical ***challenges to active teaching and learning include large class sizes in urban areas***, improper or insufficient classroom furniture in a small but significant minority of classes observed, especially in urban areas; low attendance due to bad weather or lack of transportation in mountainous areas.

3. In about a quarter of classes, a significant number of ***students may not have the new textbooks***.

4. Although teachers feel more positively about the ***newly designed teacher manuals*** than in prior research, a quarter would like more lesson plans, and about 40 percent claim not to have the new manuals when available for their classes, although it is unclear why.

5. A remaining ***shortage of supplemental learning materials*** to support active learning.

6. Only half of schools offer ***extracurricular opportunities*** to their students, an important aspect of comprehensive educational quality. In some urban areas, fees are charged, which could preclude participation by poorer students.

7. Estimated annual average costs for ***tutoring*** ranged between 250 and 1000 Lari, representing a potential barrier to equal learning opportunities for poorer families.

In addition to these findings, the evaluation uncovered measurable but ***modest improvements in the resources available in rural libraries*** due to the School Library Program. Nonetheless, ***library spaces and resources remain weak points*** in supporting the changes desired, especially in urban areas and teachers' access to the libraries appears inconsistent.

Computer and Internet access for students during and after school is increasing considerably with the successful implementation of the Deer Leap program – a sharp contrast to problems encountered in some countries. Teachers having received Deer Leap's basic level of training have greater comfort with computers, use them more frequently, and get more frequent assistance from school IT managers. Most teachers – even those trained by Deer Leap, however, still lack confidence in their IT skills and indicate a need for further training. ***Teacher access to school computers remains limited*** but higher in Deer Leap schools. Overall, computer and Internet access remains limited in many schools with greater access in urban than rural areas especially in schools not yet involved in Deer Leap's computer provision program. Schools need to be clear about the need to have a computer maintenance budget after computers are provided.

E-1.3 Learning Environment Reforms: Recommendations Regarding Social and Physical Environment

In addition to any reprioritization implied by the challenges and findings above, many specific recommendations are made in section 5 to create improvements in the social and physical environment in Georgian schools. Among them are:

1. Programs from the Ministry and Bank are simply insufficient to overcome the ***shortage of supplemental learning materials***, and the central institutions are focusing on other priorities currently. Individual schools over time therefore should consider purchase development of ***supplemental learning materials*** in setting school budgetary priorities when extra funds are available. The Ministry and Centers however may want to expand the work the TPDC did in teaching about using available resources by looking at resources on this issue developed in other countries. The USAID Development Experience Clearinghouse website is but one way to locate such resources.

2. Continued focus by the Ministry and NCAC on establishing or improving library resources. All involved should work toward making sure schools themselves understand the importance of improving ***libraries*** as places where students can find

resources and study as a priority in all schools, even potentially combining them with computer labs to increase access. Schools with surplus space should consider setting up a large extra classroom as an open library. Where space is at a premium in schools without excess capacity, satellite libraries or small learning centers to be shared by schools within close walking distance may be useful. The ERCs and Ministry could provide advice perhaps hiring appropriate regional or international consultants to understand how best to do so.

3. Schools should consider drawing on parents, community members, and businesses for ***donations of materials for libraries and school supplementary materials***. The Ministry or national centers could consider how to identify international donors that might be helpful at least for resources in English or other languages.

4. Clarification by Ministry and NCAC to school administration that ***libraries and their resources must be readily accessible*** perhaps providing all teachers keys to the libraries or keeping them open. Administrators must understand that it is better to have damaged or lost resources whose contents have been used for learning than overly protected educational resources whose purposes never met.

5. Encouragement by the Ministry and others to school boards to ***expand opportunities for a variety of extracurricular activities*** that can foster team work and learning. To try to reduce potential barriers to equal learning for students of poorer families, schools should be encouraged by the Ministry to offer ***extracurricular scholarships*** or other devices to if extracurricular activities cannot be made free of charge.

6. Suggestions are provided in the document's conclusion regarding potential ***problems with textbooks***. In addition, the NCAC could host a website where teachers and directors could discuss their views on strong and weak points about texts as feedback for future editions or to help schools make future decisions about book choices.

7. The NCAC should encourage providers of ***teacher manuals*** to provide lesson plans to help teachers know how to use active teaching for the lessons. Textbooks should be made available, even if in draft form, well before the school year. One of the future studies proposed includes understanding better why about 40 percent of teachers claim not to have the new manuals when available for their classes.

8. The Ministry should consider structural disincentives to tutor a teacher's own students to prevent conflicts of interest. Licensed teaching collectives and other options should be considered to standardize amounts charged and conditions for service.

9. Schools should be encouraged to broaden access to school computers to teachers and ensure that IT managers are easily accessible to increase teacher comfort with and use of computers.

10. Changing school foci from computer classes on teaching basic programming skills (informatics or keyboarding) should be considered as an element in Deer Leap's future plans, as well as a potential project for their teachers trained in the more advanced In-Tech training, if not already a part of the immediate future work plan.

E-2.0 Management and Finance Capacity Reforms

E-2.1 Management and Finance Capacity Reforms: Findings Related to Capacity and Information

The Ministry has undertaken extensive systemic reforms to school management and finance capacity that may be unprecedented in their scope and ambition. Although not even mid-way through its course, the evaluation's research reveals major successes already as well as areas where continued efforts are required for future success. One example of a major success that could be easily overlooked due to its mundane nature is the success in instituting an entirely new approach to funding that reduces the potential for corruption and leads to ***schools receiving efficiently all funds disbursed to them***. Because the subsection below discusses a wide variety of issues, the achievements and challenges are presented primarily in bullet point sentences or short paragraphs.

Key progress and achievements identified regarding capacity and information include:

- ***High receptiveness among stakeholders of school autonomy*** in budget planning and more freedom of decision in general. Involving teachers in budgeting expands the principle of transparency and participatory decision-making.

- ***Successful formal establishment of Boards of Trustees*** across Georgia's schools and active involvement and contributions in some schools.

The Ministry has expanded the democratic process prodigiously since such a large number of board members are experiencing democracy in action in that they are making decisions about serious and consequential matters. They also can reduce the probability of corruption through oversight to the extent that they are properly capacitated.

- ***Increased parental involvement***.

Parents as a whole have been more encouraged to be involved in school life than during the pre-reform period mainly due to the introduction of boards of trustees and also interest or concern regarding the new 10-point grading system.

- Demonstrated ***capability in some schools on school budgeting, management,*** information collection and overall strategic planning.

We note that the Kakhati School and Tbilisi School 51 are among those recognized for their effective budgeting, suggesting that their procedures might be utilized as a model in the ERC training. As discussed below, the more limited capability of many schools is discussed as a weakness.

- ***Positive attitudes towards ERCs*** and motivated ERC staff.

ERCs are principally perceived as supportive organizations to schools and serve as intermediary institution between school management and the Ministry of Education and Science. Schools show high expectations and positive views toward ERCs functions relative to the old district center structure, and motivation of ERC heads, if not staff, is high.

The evaluation also uncovered many challenges to the ongoing reform efforts. Key challenges and concerns identified regarding capacity and information include:

- ***Critical training needs*** for directors, administrative staff, board members, and ERCs.

A lack or insufficiency of training of board members is causing misunderstanding and needless conflicts with school administrations. In addition, more training and capacity building among board members would help them fully utilize their responsibilities and authority and play a more active role in school management matters as well as in the improvement of the learning environment at schools. This will be critical as schools have to address the future issue of accreditation.

- ***Insufficiently active and prepared boards of trustees*** in many schools, particularly in rural areas.

The degree of activity and achievement varies considerably from school to school, with many. More training and capacity building among board members would help them fully utilize their responsibilities and authority and play a more active role in school management matters as well as in the improvement of the learning environment at schools. This will be critical as schools have to address the future issue of accreditation.

- ***Insufficient information sharing*** and undemocratic decision making in some schools;

- Despite generally positive appraisals of the ***director election system***, other concerns about negative outcomes.

Some directors as well as some other key stakeholders raised strong concerns that under the new scheme, some directors will no longer have as strong ties and networks with the local community.[2] While reducing opportunities for corruption, this also could reduce their ability to raise funds locally.

- ***Ambiguity in definitions of roles and responsibilities*** between boards and directors, again causing considerable misunderstandings and conflicts with administrations.

- Goals and ***criteria for consolidation require*** clarification, especially as it pertains to total school size.

E-2.2 Management and Finance Capacity Reforms: Recommendations Related to Capacity and Information

Recommendations related to capacity and information issues include:

1. The Ministry should consider approaches to ***training directors (and boards) with a more permanent organization,*** looking at other countries – especially similarly sized countries – for models.

[2] The Ministry has responded that this concern may be exaggerated, since the schools were being put in territorial units based on proximity.

To reduce costs and encourage diversity, the Macedonian ministry recently decided to take a "free market" approach to future training or continued professional development of directors by allowing them to be conducted by nongovernmental organizations or universities. The Slovenian model of director training is based on the idea that in smaller countries, a single, governmentally sanctioned, provider might best meet training needs for directors and boards (and possibly some ERC members).

2. Consideration of ***regional and national networks or organizations*** of school boards to assist in identifying and potentially organizing long-term capacity building needs.

Following the model of some other countries and US states, a Georgian National School Board Association in order for the boards to communicate and to develop in-service and educational programs as a group. Such associations can help professionalize these systems. Other nations have developed regional associations for just such purposes and provide models. Other countries also have developed handbooks of procedures that could serve as potential models for long-term in-service plans.

3. Promotion of ***greater professionalization of school boards***.

Boards should be encouraged to establish sub-committees to conduct their business more efficiently and effectively, and should consider devoting meetings focused on educational matters only. Highly effective boards in other nations do this in order to educate themselves about the main issues about which they function, namely instruction and learning. Expanding the number of meetings a year beyond three or four will become universally necessary, if not required, as school boards find their way and improve their functioning and crucial to meet future accreditation needs.

4. Schools will face major challenges associated with the ***upcoming school accreditation*** in 2009-2011.

Since currently the capacities of independent management bodies is still quite weak, there is the urgent need for intensive and dedicated training efforts based on a well-planned and prepared strategy to meet the challenges of school accreditation procedures. The Ministry will need to conduct a separate investigation probably in 2008-2009 regarding whether the dates chosen are realistic.

E-2.3 Management and Finance Capacity Reforms: Findings Related to Resources and Finance

Key progress and achievements identified regarding financial and resource issues include:

- ***Efficient operation of the per capita funding*** with timely disbursement.

A per capita financing system has been introduced, which has been efficient at eliminating the delay of disbursements and teacher salaries, which plagued the early independence period. This is a major achievement of the newly designed system.

- Under the per capitation scheme, ***fiscal improvement in larger rural and mountainous schools*** and ***moderate improvements in middle-size schools.***

The per capitation system has brought about a significant positive impact on the financial status of rural and mountainous schools generally (although note the relevant challenge later in the section), as their financial situations have become substantially more comparable to that of urban schools, a goal of the reform. The detailed analysis on which these statements are based, is provided in the text.

- ***Fair distribution of teacher salary.***

The new pay scheme for teachers was found to have made salaries much more comparable across the three geographic school types. No complaints were identified regarding transparency of the salary calculations.

- Beginning of ***improvement in allocation of resources to maintain schools***.

In terms of capital repairs such as repair of classrooms, in most schools the amount of school budget from per capita financing remains insufficient to cover their repair needs, although significantly improved over former years.

- ***Incentive bonuses*** have become more common as a way to attempt to encourage teachers to improve their teaching skills and class management skills, and directors view them as a strong motivator. Despite the lack of satisfaction with salaries, ***teacher turnover remains low***, with a slight declining trend.

- The ***problem of student attendance due to difficulties of transportation*** has been exacerbated by consolidation, especially when they have not been provided school buses. Interest in consolidation remains high among school directors and is not confined to rural areas.

There are many key challenges and concerns identified and recommendations regarding school resources and finance. These include:

- Severely ***constrained financial status among small size schools*** and

- Lack of improvement in ***human resource management despite consolidation***.

Improvement in the financial equity for smaller schools has been extremely limited or non-existent even accounting for school consolidations, discussed later. Small schools, especially those eligible for small school subsidies, many of which may not be candidates for consolidation, still face severe financial difficulties. Further, the small school subsidy is not applied perfectly consistently. It would be better to include within the per capita formula an explicit element that can better accommodate for the needs of small size schools. Schools in rural and mountainous areas are not actively exploiting the opportunities of applying to outside funding sources to supplement their school income, and need assistance with the process.

School consolidation or "optimization" has been undertaken on a massive scale. It has resulted in a dramatic decrease in the number of schools and probably the proportion of schools in high levels of disrepair. A limited positive impact of consolidation is found in terms of physical resource efficiency, but no impact – in our survey – was detectable for

financial status.[3] Improvement in the student/teacher ratio has been very limited. This is explained by the fact that in most cases, schools have been consolidated only administratively as opposed to actual physical consolidation. Directors of physically consolidated schools are extremely reluctant to restructure the teaching workforce especially in rural and mountainous areas, where the local community is small and alternative employment opportunities are limited. On the other hand, some positive impact in physical resource efficacy was found in terms of the average student/classroom ratios of consolidated schools.

- ***Ambiguity in the overly broad roles and responsibilities*** of ERCs.

- Inadequate human, physical and financial ***resources in ERCs*** and ***insufficient autonomy of ERCs as functional units***.

- Low capability of many schools in data transmission.

Too many stakeholders are hoping for ERCs to play too many roles given their size and resources. Effort should be made to clarify priorities among different duties and responsibilities that ERCs have on their shoulders. Closely related to this, the shortage of human, physical and financial resources available considerably undermines the efficient and effective operation of ERCs. In addition, ERCs are hampered by the requirement for getting permission for expenditures down to the level of low-level budget line items. This is a surprising paternalistic and bureaucratic approach given the otherwise broadly democratic nature of the reforms.

Too many schools show low capability in data transmission, which thus preoccupies the time of newly formed ERCs and results in unreliable EMIS data and hampering the switch to more data-informed planning. Some uncertainty has been expressed about budgeting processes and principles, which may be dealt with by further training by ERCs.

- Improved but ***continuing unfavorable level of teacher wages*** and concern about how the class size coefficient in the teacher pay formula penalizes teachers with larger workloads from larger class sizes. It also provides directors an incentive to pack classrooms above sizes that allow teachers to feel comfortable using active learning methods, potentially affecting learning outcomes.

- ***Potentially negative impacts from consolidation*** on student attendance due to transportation difficulties and student learning due to larger class sizes.

A worrying sign of consolidation is the potential for negative impacts on student learning given larger classes when physical consolidation is undertaken between large schools or middle size schools especially in urban areas. More attention is needed during the course of consolidation (as explained later in the section) to reduce the negative impact on student learning.

[3] The Ministry notes that, outside of our analysis, the consolidation resulted in one region in a large decrease in the number of the schools that were subject to additional subsidies. We were not provided corroborating information as part of or in time for this report.

E-2.4 Management and Finance Capacity Reforms: Recommendations Related to Resources and Finance

Recommendations related to resources and finance issues include:

1. Effort should be made to ***clarify priorities among different duties and responsibilities for ERCs***. This could be done by convening a facilitated workshop of stakeholders to set mutually agreed upon and realistic priorities. Consideration should be given to the possibility of expanding ERC staffs in order to cope with the growing demand as well as getting stakeholders to conference together to prioritize a realistic set of responsibilities.

2. The Ministry should consider providing ***greater budgetary autonomy and flexibility to ERCs*** to promote efficient financial management and experimentation in meeting rayonal needs.

3. Consideration of ***including classroom size into the teacher salary determination*** process in the reverse direction as done currently.

4. To determine whether consolidation should be promoted generally in specific areas – particularly urban areas – or allowed in specific instances, ***consideration to setting consolidation criteria based on potential effect on learning environment and outcomes***, such as expected student to teacher ratio or number of students per administrative units. One approach to reducing school size in existing large schools is to decentralize into schools-within-a-school, also called halls.[4] Consolidated schools with school buses have fewer problems with student attendance; therefore, it would be helpful to prioritize school bus provision to consolidated schools without school buses.

5. More structures should be established for schools to ***cooperate and share their experiences and best practices*** regarding fund-raising, writing project proposals, and monitoring and evaluation and other issues. ERCs may be used to work with schools to establish more formal regional networks and communicate to each other the specific successful practices and approaches they have used. Regional models could be set up of the best performing schools to provide additional support.

6. Consideration should be given to ***adding elements that accommodate for the needs of small size schools and special needs students as criteria for calculating the amount of per capita funding***. Despite the improvement in finances through the small schools subsidy, schools indicate they use the funds for salaries only, and are therefore limited in improving their operation. Further analysis should be done to identify key factors that contribute to the financial difficulty of those small size schools. Alternatively, school size can be directly included as a criterion for calculating the amount of per capita funding. The per capita formula also would be improved by offering a different rate of funding to schooling children with special needs, as educating such children involves greater costs.

[4] See for instance Dewees (1999) for early evidence regarding school-within-a-school models and learning outcomes, and George and Lounsbury (2000) or French, Atkinson, and Rugen, (2007) for examples for practitioners of how to structure the schools. These are discussed further in the text.

E-3.0 Recommendations for Further Research

A large number of research efforts are discussed throughout the document and particularly in the recommendations section. Some key recommendations include:

- Replicating parts of this study in two to three years.
- Conducting similar research in minority regions if not in conflict zones to be able to generalize to the entire nation.
- Conducting additional research with the data collected as a part of this evaluation.
- Additional research on effects of consolidation to more carefully define criteria acceptable to stakeholders and that make sense in terms of outcomes.
- Surveys of students about use of new teaching methods, access to computers, extensiveness of tutoring by a student's own teachers, and assessments about the adequacy of the national examinations.
- Surveys of parents on perceptions regarding active learning, attendance problems, availability of textbooks, communication with school administration, and level of interactiveness of teachers.
- Training needs assessments, particularly for board members.
- A study to identify best management practices, potentially identifying specific schools to serve as rayonal/regional models for networks to share experiences.
- A brief study of why many teachers claim not to have the new manuals.
- The performance of and threats to the use and continuation of the recently designed Education Management Information System (EMIS). In addition, identification of additional information required from EMIS for policymaking and rationalization of the data collected currently, if reduction in reporting burden can be achieved.
- A study of international models for improved school-locality cooperation.
- A study on improvements to the new director election systems.
- A study to identify key underlying factors that contribute to financial difficulties of small school subsidy recipient schools and examine how best to incorporate them directly into the per capita financing formula.
- In the long-term, research to fine tune changes to the subject-specific curriculum, integration of ICT into the curriculum, certification, and the effective functioning of boards and directors.

In terms of additional data needs identified, a transparent system is needed to provide data on school expenditures and revenues to augment the current study.

1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

The World Bank has been providing support for the reform efforts of the Government of Georgia, with strengthening and realignment of the education system of Georgia playing a central role in the Government's reform agenda. The stated goal of these transformations is to empower individuals and to render them flexible, innovative and autonomous, in order for them to be better prepared to meet the demands of a market economy and a democratic society. The Ministry of Education and Science of Georgia (MoES, or "the Ministry") launched the "Ilia Chavchavadze" Project for reforming the education system.

The transition from a centrally-planned economy to a market-based economy has rendered many aspects of the educational system inherited from the former Soviet Union obsolete. In a rapidly changing global labour market, an educational system should help students to be flexible, innovative and critical thinking team members. The first phase of the Education System Realignment and Strengthening Program, launched in 2001, is part of a three phase Adjustable Program Loan (APL). The Program's broad goals are to improve the quality and relevance of general secondary students learning outcomes to better prepare them to meet the demands of the market economy and the democratic society. The first phase of the Program was planned to support 1) the development of the policy and institutional framework required for an effective realignment of the system objectives, and 2) development of capacity to meet those new objectives and manage physical, financial and human resources more equitably, efficiently and effectively.

The World Bank's and Ministry's Ilia Chavchavadze Program have taken the wise step to join a small, but growing, number of reform efforts that seek data from extensive external evaluations to help make adjustments to future activities. This evaluation covers many aspects of major reform efforts agreed upon with the World Bank, as well as separate projects requested to be reviewed by the Ministry, such as Deer Leap, financed by the state budget and donor contributions. In this report, they have been divided into two broad areas – reforms affecting most directly the learning environment and those affecting management and finance capacity. The eight areas are presented below and discussed in brief fashion later in section 1. Relevant World Bank documents on each component provide greater detail on these issues.

Learning Environment Projects or Elements Studied

- Teacher professional development, including
    - School based teacher professional development
    - Curriculum-based teacher training
- Deer Leap and Information Communication Technology training and computer/Internet provision
- Provision of supplementary learning materials
- School Network Program

Governance, Management Capacity, and Finance Elements Studied

- Decentralization structure including ERC capacity

- School optimization/consolidation
- New finance and per capitation system
- New teacher pay scheme

1.2 Structure of Report

Section one provides background information about the reform divided into sections on the learning environment, and management and finance capacity. Section two describes the study methodology including issues covered, research design, sampling, comments on data issues, a description of the datasets created, and study limitations. Sections three and four of the report discuss research results for the two research areas reforms to the learning environment and those to management capacity and finance. Each section is divided into subsections organized thematically that provide evidence regarding relevant indicators. Both quantitative and qualitative information is presented. Most quantitative information generalized to the national level across all respondents is presented in tables that show confidence intervals. This generally is followed by results compared by category, presented in tables with chi-square or t-tests, as describe in section 2.6. At the end of each major subsection (e.g., 3.1, 3.2, etc.), bullet point conclusions are provided. Section five provides overall conclusions and recommendations presented in text format, organized by report sections. This is followed by recommendations regarding additional research.

1.3 Learning Environment

1.3.1 School-based Teacher Professional Development

According to the Director of the Teachers' Professional Development Center (TPDC), Marina Zhvania, the school-based teacher professional development (TPD) program was designed following a needs assessment conducted by international consultants who examined 10 schools (Sancho and Hernandez et al., 1999). This and a related study (Shahriari, 1999) concluded that teachers emphasized teaching-centered didactic presentation of facts rather that on student learning and participation and that preferred learning styles focused on memorization and repetition rather than encouraging analysis, problem solving, and critical thinking. The main areas of the school-based professional training program included effective teaching environment; monitoring, evaluation and review; creating an effective teaching culture; classroom management; establishing an effective teaching and learning environment. The model chosen for the 2003-05 school-based teacher training included initial training by 100 "top trainers" for a cohort of 5 teachers (2004-05) or 10-15 teachers (2003-04) per school across different subject types every other weekend.

According to our information, training sessions themselves were taught through modeling active learning practices. At each training session, teachers were provided special practical assignments and materials that they had to practice in classroom. Afterwards, practical application teachers were encouraged to promote that other teachers apply the acquired methodology through attending open lessons and materials sharing. School directors were asked to select teachers for training based on the criterion of including some teachers from different subjects. Center representatives admit the selection mechanism to assure that teachers were sufficiently committed was weak, and in a few cases not all subject types were trained. Multiple schools were taught at once, so that it was structured to augment cross-

school collaboration with the plan to develop capacity within a district. Overall, 1800 schools were covered within the framework of TPDT initiative.

The training covered a wide variety of subjects some with limited breadth. They included theories of learning; class management; establishing an effective learning environment; monitoring, assessment, evaluation and review; materials and resources to support active learning; extracurricular resources and class visits; and planning, among others. The center director believes that the issues covered were too limited in terms of issues of theories of learning, assessment using active learning, the use of portfolios of student work, and outcome-based learning.

The direct mechanism for the spread of learning to teachers who were not trained was not designed explicitly, and Center representatives noted the difficulty for these few teachers in spreading the learning since no additional budget or time was allocated for those teachers to formally teach or mentor others. The project did, however, provide an annual regional conference for teachers involved to share their experiences and exhibit their examples for project participants and non-participants who chose to attend. Further, all participating schools received a copy of all training materials in addition to those provided to the trained cohort. Directors were not explicitly required or encouraged to attend the trainings.

1.3.2 School Network Program

The School Network Program, as a part of the school-based Teachers Professional Development program was designed and implemented to promote collaboration and information sharing among schools. This was designed to begin to break down the barriers of inter-school isolation that characterized the Soviet and early independence eras. The schools that succeeded in the School Grant Program Phase I, were involved in both the school–based teachers professional development cycle and establishment of school networks. The idea was to support the idea of fostering further professional development of teachers within and across school communities. The main task implied that appointed members of two schools had to identify on their own, a teaching and learning process-related problem to work on. Then the school network member schools collaboratively were supposed to brainstorm and develop an action plan regarding how to solve it. Schools determined their own frequency of these meetings.

One of the main tasks was to encourage as many teachers at school as possible to become part of school network initiative and start communicating and sharing their ideas how to overcome different challenges associated with the teaching and learning process. The duration of the program was a year. The number of schools was not expanded after the initial involvement, and no formal follow-on activities were designed, although anecdotal evidence indicates that some schools continued networking activities.

The School Grant Program was established as a related program to the School Network Program. Its goal was to assist schools with teaching and learning within the school as a part of teachers professional development effort through providing grants that would allow the schools to develop novel learning programs. The TPDT found it was necessary to assist schools in developing appropriate project proposals. 210 schools received school grants of $1,000 for the improvement of quality of teaching and learning as a result of participation in the first round of School Grant Program and additional 213 schools were awarded with grants of $3,000 during the second round of competition. These grants provided the potential for a

small improvement material conditions for teaching and learning in those schools. The TPDT representatives believe that as a result of the School Grant Program and TPD training implementation, the notion of school improvement and teaching and learning was more widely accepted among the teachers and schools involved. Because the School Grant Program is being studied in depth separately by the Bank, it is not evaluated explicitly here.

1.3.3 Curriculum Reform-based Teacher Professional Development

The first formal efforts that followed on the school-based teacher professional development program are the current curriculum-focused training efforts. The curriculum-focused training built off the capacity built under the earlier school-based teacher professional development. It also attempted to improve through building upon some of the lessons learned by those involved. It also added more discussion on theories of learning, assessment, standards for each subject, portfolios and outcome-based learning added to curriculum training.

The model chosen for the teacher training focused on the new curriculum was similar to that for the school-based TPD although with some differences. The training was divided into pilot and non-pilot schools. In 100 pilot schools, 51 of which were TPD training schools, five core teachers across each subject area in each school were trained in specific grades each year. In 2005-06, these were grades 1, 7, and 10. Subsequent years were designed to train four grade levels, each one grade above the levels trained the previous year. Similar to the TPD training, the program asked schools to pick the more creative and open teachers, and teachers involved were not paid except for transportation and a per diem.

The evaluation team's information is that the previous year's pilot training was divided into four modules:

1) New curriculum standards by subject (focusing on each subject)
2) New assessment system
3) Class projects
4) Reflective practice

Participants involved were provided manuals, and their schools were provided four additional manuals. The training program requested that participants model their learning for other teachers, and some exchanges were also arranged across schools. The training program included one weekend workshop per month across each of about 70 participating rayons to facilitate school exchange regarding their experiences and problems. These monthly workshops were designed for participants, but non-participants were permitted as well. The evaluation's understanding is that the intended value of the pilot schools is, in part, to learn how to make adjustments in the curriculum for the remainder of the schools to implement in the next year.

Non-pilot, implementation schools follow a different model of training. The project trains any teachers interested at monthly (except December and January) sessions that are taught in a modular fashion, as the trainees were not a coherent cohort. The sessions are not identical to those piloted the previous year. Trainees do not receive full manuals, but are given six-page handouts of key activities during the training. According to Nana Dalakishvili, Implementation Coordinator for the NCAC, approximately 20 percent of teachers in non-pilot schools attend any given session. The evaluation does not have comparable figures for

similar trainings in other countries, but anecdotal evidence indicates that unpaid, voluntary trainings tend to have similarly low participation rates.

The report attempts to differentiate between curriculum pilot and curriculum implementation school groups in its analysis. The interpretation of some findings depends on whether one assumes that training has been broader and deeper in the pilot schools or the non pilot schools. This is an empirical question that the evaluation was not tasked to study directly, but it makes inference about the potential differential impact of each.

Center officials indicate that they plan on using incentives to augment the number of teachers receiving training through requiring professional development for licensure by 2013, a normal requirement for effective systemic change. This should serve as a strong incentive and can deepen the quality and impact if the Centers include accreditation of training providers, as indicated to the evaluation team. Center representatives also indicate they plan on using incentives to augment cross-school collaboration by providing licensure credit for inter-school collaboration perhaps through ERCs. The understanding of the evaluation team is that the still developing accreditation requirements will be for a one-time only accreditation requirement for teachers.

1.3.4 Supplemental Learning Materials Exhibitions

Acknowledging the severe shortage of supplemental learning materials at schools that can be used to support the intended reforms, the Bank's Education Reform program included exhibitions of supplemental learning materials. Two exhibitions were held in 2002 and 2003 to help fill the gap of supplemental materials in their schools. The main goal of the initiative was to provide the schools all over Georgia with supplemental learning materials that would support active teaching purposes. A committee with representation across subjects and including the NCAC selected materials they believed was appropriately supportive of the newer methods in terms of cognitive quality as well as quality and longevity of the products. The list of products was distributed in catalogues to schools. School representatives attended the exhibitions. For the second exhibition, the specific budget was calculated for each school at 200 USD plus 2 USD per student. The list of supplemental learning materials covered in the first exhibition included primarily printed materials. For the second exhibition, additional types of materials were included to cover all compulsory subjects under the national curriculum including posters, audio-video cassettes, various lab equipment, microscopes, subject-specific visual aids, physical training equipment, handicraft, and others. Schools representatives visited the exhibition and submitted their list of ordered materials. The lengthy process of order processing and receiving the goods was delayed by some of the 71 foreign distributors indicating that too few of their products were ordered to make it realistic to deliver the goods to Georgia.

Ultimately, the vast majority of materials chosen were posters followed by and books and then educational games and maps in part due to their lower cost per item. Materials chosen less frequently but still in quantities above 10,000 included sports equipment, theme portfolios, lab equipment, dictionaries, visual aids, paint, and models and tools.

1.3.5 Deer Leap Teacher Training Program

Program representatives of Deer Leap indicate they are at an early stage of their teacher training process. This process will involve three levels of training. The first is a basic level of IT proficiency with 24 hours duration. This was explained as teaching such tasks as starting and using a computer, transferring files, basic word processing, and searching the Internet. The training level depends on the abilities of those who attend each session and is adjusted at the time of the training itself, which requires a relatively high level of facilitation skill. The evaluation was informed that the goal is to reach 70 percent of teachers.

The second level, whose training is scheduled to begin in September, is aimed at enabling 10 percent of those trained in the first level to integrate ICT into courses and the school curriculum. The second level of training involve 40 hours of training generally in two hour blocks with days between. This course is designed according to the American "InTech" methodologies, that emphasizes the methodology of integration of ICT into the curriculum. A third level would involve a Master's degree program for which Deer Leap can provide technical and consultation support but not conduct.

Deer Leap also is involved in developing trainings for the new school directors in how to use computers for management purposes. The evaluation was told that these are designed as modular two day seminars totaling 24 hours over a month with a goal of raising directors' awareness. Program representatives indicate that they will assess learner levels before the seminars and adjust the program accordingly.

The level of ICT skills of teachers in Georgian schools before Deer Leap is not known. The evaluation team was informed that the trainings have achieved greater coverage in urban than rural areas. Thus, the evaluation findings in rural and mountainous schools that have not had Deer Leap interventions yet might be seen as somewhat of a baseline for Deer Leap activities.

The Deer Leap program has encountered some of the same problems as the other training programs in asking directors to select trainees. This selection mechanism does not assure motivation of teachers, as directors may chose teachers for reasons other than interest in computer use and intent to use computers for academic purposes. The program uses locally-based trainers in most towns when possible and mobile trainers in more difficult to reach locations.

1.3.6 School Library Program

Although most schools have libraries, reform leaders were concerned that much of those resources were old, traditional in their approach, from the Soviet era, and thus were inadequate to aid active learning activities. This was the motivation for the School Library Program, which directed its resources toward rural schools due to concerns with equity. It began initially with about 600 schools and is intended to assist another similar sized set of rural schools. A committee developed evaluation criteria for selecting materials age range, technical quality, educational value, and price to be broadly aligned with education national goals and practical.

1.4 Management and Finance

1.4.1 Decentralization and Management

Under the Georgian education reform since 2003, financing and governance of the general education system has undergone substantial and extensive renovations within a relatively short period of time. The education reform, which is embodied in the Law of Georgia on General Education approved in April 2005, has entirely altered the conventional approach of school management and funding. These will be examined in more detail in the later section, but in essence they decentralized decision-making and management structure of the education system, established Board of Trustees and Education Resource Center, introduced per capita financing principle, and raised teacher salary scale instituting a new calculation formula.

All general schools – primary, basic and secondary schools - in Georgia have been converted into Legal Entities of Public Law (LEPL) – autonomous bodies under the Ministry of Education and Science. General schools are now funded directly from the Ministry of Education and Science and equipped with the right of independent decision-making. The conventional practice of allocating and approving budget to schools by local governments in line items has been abolished. Schools are now receiving the lump sum amount of per capita funding directly from the Ministry of Education and Science deposited in schools' individual bank accounts twice a year. The disbursement process with bank transfer has contributed to improving transparency and to timely disbursement of funds. Most importantly, as autonomous LEPLs, schools are now fully entitled to plan all of their own expenditures – from assessing and prioritizing needs to developing and approving budgets. Schools are also allowed to engage in fund-raising activities to supplement schools' income, either in the form of donations or from commercial activities, without any restriction as long as they do not inflict negative impacts on students, and all the revenues gained are spent for the benefits of schools (Law on General Education, art. 51).

The decentralization initiative includes efforts aimed at raising the level of community participation in school management as well as in the issues of students learning environment. The core of the effort in this view is the introduction of Board of Trustees. Boards of Trustees consisting of representatives of teachers, parents, students, and in some cases local authority have been established in all general schools. Boards of Trustees are the highest representative bodies at school level responsible for overseeing, advising and approving school budget, school's annual work plans, internal regulations, school's curricula and textbooks selected by the teachers' council. Boards also bear the authority to exercise monitoring and control over the management of funds by school administration (Law on General Education, art. 38).

Another major initiative in terms of decentralization is the establishment of the Educational Resource Centers (ERC), which replaced the previously existing education district offices. ERCs are intermediary institutions facilitate schools' activities, functioning as a focal point for providing administrative information, organizing training for school management and teacher professional development, and collecting school statistical data for the Educational Management Information System.

1.4.2 Per Capita Financing

The financing principle of general schools underwent a fundamental change as well. After the introduction of per capita funding model in October 1, 2005, schools now receive an amount

per student from the central budget. The objectives of the change were to improve fairness and equality in distribution of budget across school categories, and at the same time to encourage schools to offer more diversified and quality educational programs so that to attract more students. The per capita financing formula is currently based on a simple single criterion: geographical location of schools. Urban schools are getting the lowest rate of per capita funding, rural schools receive medium rate and highest rate is set for the schools in high-mountainous regions. Such differentiation in funding rates was planned to make the financial status of schools of different geographic characters more comparable and equal. Since per capita formula has not taken into account the difference in size of schools, small size schools with financial sever financial difficulty are entitled to receive additional subsidies to supplement the amount from per capita financing.

1.4.3 New Teacher Pay scheme

Together with the introduction of per capita financing, the Ministry of Education and Science introduced a new teacher salary scale and calculation formula that raised the teacher wage level significantly – on average twice as much. The minimal salary level was set equal to the minimum of state employee. The new formula is based on three coefficients: years of professional experience, educational qualifications, and the size of class taught. The formula only calculates the minimum salary amount for each teacher, which all the schools are obliged to maintain. Apart from this minimum level regulation, schools are free to offer any amount of top-up payments or incentive bonuses depending on their financial conditions.

1.4.4 Optimization

Optimization, or consolidation, of general schools was the major effort taken with the purpose of increasing efficiency of human, physical and financial resources available in general education system. Consolidation involved two stages: the first was centrally planned aimed primarily at more rural areas or where school sizes were very small, and the second occurred through *ad hoc* decision making by schools themselves based on incentives created by the per capitation system. Criteria for centrally planned consolidation included quality of school stock, student-to-teacher ratios, and distances. According to the evaluation's information, no specific school-by-school or rayonal targets were set.

Within the scope of the two-stage optimization procedure, the number of schools in Georgia has contracted by about one thousand to approximately 2300 as of the time of the evaluation. One motivation was that a sharp downward demographic trend had resulted in extremely non-efficient use of school facilities that could have accommodated much greater numbers of students. In some cases, where physical consolidation of schools caused transportation problems among students, the MoES has provided school buses to offer free transportation service for students. At this point, administrative optimization, where schools will retain existing buildings and facilities but institute only one school governance body, has been more widely adopted method than actual physical optimization.

2.0 STUDY DESIGN AND METHODOLOGY

2.1 Issues covered

In order to conduct a proper assessment of the breadth and number of evaluation questions listed in the TOR, ideally the evaluation would have needed a considerable amount of time to carefully discuss and identify all evaluation questions and indicators, develop and pilot test instruments, conduct extensive field work, and produce a comprehensive report similar to the timelines required for previous assessment studies conducted for this project.[5] Due to the impending end of the school year and end of the project, only about two months were available.

Therefore, in designing the technical approach, the consultant team carefully considered the inherent tradeoffs among 1) breadth of reform activities/inputs involved in the program, 2) breadth of locations and respondent types to maximize generalizability, and 3) quantity of and variety of types of information gained across the many program activities/outputs. The consulting team considered many approaches and methodologies as well as what other research already was being undertaken. Given the time constraint, the evaluation decided that the best results would be focusing on maximizing validity and generalizability of results across selected key activities that cover most reform activities undertaken. It was agreed with the Bank that the evaluation would cover the activities below, which fall under two main areas: Projects and elements concerning the learning environment, and governance, management capacity, and finance.

Learning Environment Projects/Elements

- Teacher professional development (school-based teacher training and curriculum-based training)
- ICT training (Deer Leap)
- Provision of learning materials
- School Network Program

Governance, Management Capacity, Finance

- New finance and per capitation system
- Decentralization structure including ERC capacity
- School optimization/consolidation
- New pay scheme

A set of nearly 200 indicators were developed across these eight interventions. The report, however, is organized thematically rather than by indicator. Further, some indicators are basic and discussed in passing while others have considerable attention devoted to them.

2.2 Study Methodology

Comparisons are made to the extent feasible with pre-reform conditions, as presented in qualitative baseline studies. In some cases, however, reform processes are just beginning or

[5] For example, See Shariari (1999) which took 15 months after the field work began and Sancho and Hernández *et. al*, (1999), which required at least 10 months between field implementation and final report. These two reports covered only one of the many reform areas asked to be covered in this evaluation.

are early in their implementation. Therefore, this research sometimes will be able to evaluate impact and other times will represent a second baseline for future changes.

Data collection elements decided on in agreement with the Bank PCU included:

1) Collection of available data sources and relevant baseline studies.
2) Discussions with key stakeholders.
3) Focus groups of Education Resource Centers from 15 rayons:

   Focus groups were conducted with heads of ERC from 15 rayons: Batumi, Qobuleti, Ozurgeti, Chokhatauri, Samtskhe-Javakheti, Akhaltsikhe, Borjomi, Aspindza, Adigeni, Isani-Samgori, Mtatsminda-Krtanisi, Sighnagi, Akhmeta, Marneuli, Mtskheta. Topics included available human and financial resources, physical equipment, availability and provision of schools with the new handbooks, the support ERCs provide to school management and BoTs, trainings for teachers, advantages and disadvantages of ERCs compared to old educational centers, challenges ERCs face and other issues were discussed to gain clear understanding of on-going processes and challenges ERCs do encounter at this stage of establishment. (See annex for focus group protocol.)

4) In-depth contextual studies of schools across western, eastern, and central Georgia including

   a) Interviews with school directors

      15 school directors were interviewed in schools of Tbilisi, Samegrelo and Kakheti regions. They were asked questions about their understanding of new roles and responsibilities of directors and BoTs, financial issues, trainings, consolidation, implementation of the new national curriculum and supplemental materials. (See annex for protocol.)

   b) Focus groups with teachers

      In addition to the interviews with directors, 12 focus groups were conducted with teachers. There were ten schools selected from Samegrelo and Kakheti regions and two from Tbilisi. Questions such as benefits of implemented teachers' trainings, needs for further professional development opportunities, support by ERCs, teachers' awareness of National Goals, students learnings outcomes, teachers participation in school management issues, curriculum and programs, etc were discussed at focus groups. (See annex for focus group protocol.)

5) In-depth focus groups with a few school boards of trustees in central Georgia across urban and rural areas without the principals present,

   Focus group were implemented with seven Boards of Trustees without the presence of school directors to learn more about their understanding of roles and responsibilities, specific aspects of school life they were involved in terms of decision-making, frequency of their meetings, means and ways of communication with school directors, etc. Nonattendance of school directors at discussions was designed to generate more straightforward and more sincere answers from board members.

6) Questionnaires for Directors and Administrators

Surveys for school directors were structured in a way that facilitated getting straightforward answers. Apart from asking for directors' outlooks and opinions concerning various reform initiatives, it also aimed at getting a significant amount of factual information and therefore contained a number of open-end questions balanced by close ended yes/no responses to avoid an overly long survey. The data obtained from surveys gives the evaluation team ground to claim that directors' understanding of the questions asked in the survey was in almost all the cases appropriate and yielded adequate responses. Follow-up calls were conducted in some cases to gather missing information.

7) Questionnaires for Teachers

A survey for teachers was conducted in the same schools as the director and administrator survey. Questions were formulated so that teachers could demonstrate their understanding and attitudes towards new curriculum, textbooks and subject syllabi, teachers' manuals, grading system, Teachers professional development and instructional trainings, etc. Some questions focused on exploring obstacles teachers may face in practice. In addition, questionnaires ensured data provision on initiatives like school computerization program, teachers attitudes towards school decentralization and its outcomes, understanding of role of Boards of Trustees and ERCs, etc.

The survey emphasizes multiple choice questions to ensure sufficient time to obtain information on the wide variety indicators. Questions and items generally were limited to no more than four response options to increase reliability of responses.[6] The survey covered a sufficiently wide number of interventions that the survey was divided into two parts to keep each form under 30 minutes to improve response rate, increase reliability of responses, and reduce item non-response.

8) School visits to assess school physical environment

Data collectors were trained and sent to all sampled schools to conduct school physical environment assessment based on school observation forms provided.

9) Short classroom observations.

The evaluation was unable to observe classes in depth and in a representative way because there was insufficient time to train a cadre of observers before the end of the school year. Further, observation of classes in these cases often leads to "testing effects" of teacher "performing" for the observers. However, data collectors conducted 15 minutes observations of five to six classes at each sampled school to explore the dynamic of classroom practices, teachers/students involvement in teaching and learning processes, availability of textbooks and supplemental materials, etc. These relied on basic, mostly checkmark, lists that could provide basic measures of active or passive learning methods.

[6] Due to the limited time to proofread the final surveys in two languages before printing and sending them to the field, there are a few examples where questions are repeated, allowing one to consider the reliability of responses to the same questions. The evaluation did note some differences in teacher responses on repeated questions. The rate was slightly more than one would expect in a country where teachers are more familiar with taking such surveys, but was not more than expected for this system.

2.3 Sampling

The part of the research plan that uses surveys or school or classroom observation uses a multi-stage clustering approach to allow the evaluation to generalize its findings to most parts of the country excluding areas under hostilities and entirely minority areas. The plan clusters by rayon to increase the number of schools that can be visited. Rayons and schools were chosen using a stratified sampling approach that oversamples to assure that key sample characteristics are represented sufficiently.

Three sampling stages were used and are discussed in greater detail in the Methodological Annex. The first sampling stage is a stratified random sample of rayons in order to provide a wide geographic variety across Georgia. The second sampling stage is a stratified random sample of schools within the rayon. The third stage is a random sample of teachers or classes within selected schools. The result was the selection of 110 schools, five of which were consolidated between the time the data was collected by the PIU monitoring and evaluation team earlier in the year and the time the data collectors arrived.

2.4 Categories Considered, Development of Indices, and Comments on Survey Questions

The evaluation sought to understand complicated issues such as attitudes towards new methods or complex behaviors such as the use of new methods. To do so, it relies on the use of multiple questions or items to develop composite measures, or indices. For instance, in the teachers survey form 1, the evaluation asked six items to learn more about teachers attitudes towards active learning. Each question had four options. Each was scored from 0 to 3 based on their congruence with the newer methods. The scores were summed up for each teacher and then divided by number of questions answered to calculate an average score per teacher. The same was done for teacher use of the new methods and for use of assessment methods. Only three items were included for the latter suggesting it should be used cautiously. We added these three items to the index involving use of active methods due to their close relationship and to increase internal consistency of that measure.

Comparisons analyzed and presented in the tables included only those of substantive interest to each specific question. The analysis does not include analysis by gender because of the low proportion of male teachers and the lack of policy relevance since it is unlikely that the reform would consider gender-related efforts such as trainings specifically for female teachers.

The evaluation chose different thresholds of school size differences based on the number of respondents available in each category to provide feasible statistical comparisons as well as judgments about what constitutes small or large schools. The analysis generally treats fewer than 100 students as a very small school, which represented about a quarter of the school population. It uses thresholds of 555 or 750 students to represent large schools. The number 555 students represented the 75 percentile threshold for all schools in the EMIS dataset. This number is not considered particularly large by the standards of most countries. Therefore, the number 750 was determined to be a size closer to which schools in many countries find a need for changes in administrative structures. We alternate between them depending on the extent to which there are enough schools or teachers available in the "large schools" group (around 25 percent of the sample) to generate statistically significant findings.

Teacher respondents were able to choose more than one subject taught, but few did so. For ease of analysis and presentation, only respondents who fit within a single category are analyzed in the relevant analyses. A statistical test (the Kolmogrov Smirnov) showed that there were no statistically significant differences between the responses of science and math teachers on any question of interest, and so they were combined into one category to reduce the number of categories of subjects into 1) math, science, and computers; 2) humanities and social sciences; and 3) general primary classes. Due to errors in inputting data, subjects were available for fewer than half of the respondents. The evaluation was unable in time for the analysis to correct this error.

The report uses the period decimal system used by the World Bank in the report rather than the Georgian comma system to designate decimals.

2.5 Description of Datasets

This section provides basic descriptions of the respondent samples before and after weighting up to national proportions excluding areas in conflict zones or minority schools. Almost all statistically significant relationships found in the analyses in sections three and four are in the directions expected bolstering the confidence in the reliability and validity of the questions and items.

2.5.1 Description of School Sample

The final sample of schools contains 105 schools, although not all information was collected for all schools. Tables 2.1 – 2.4 provides the school location type before and after weighting. The schools selected include more rural and urban than mountainous areas. Twenty-nine schools have been consolidated with most consolidated administratively, and 26 receive small school subsidies.

Table 2.1: School type

School type	Frequency (Unweighted)	Weighted (%)
Urban	42	29
Rural	42	43
Mountainous	20	28

Table 2.2: School consolidation

School consolidation	Frequency (Unweighted)	Weighted (%)
Yes	29	20
No	72	79

Table 2.3: Physical and administrative consolidation

Consolidation type	Frequency (Unweighted)	Weighted (%)*
Physical consolidation	7	22
Administrative consolidation	23	74
Physical and administrative	1	3
Not Consolidated	70	

*Weighting among consolidated schools only.

Table 2.4: Funding/subsidy for small size schools

Subsidy as small size school	Frequency (Unweighted)	Weighted (%)
Yes	26	31
No	78	69

2.5.2 Description of Teacher Respondent Sample

The dataset of teacher respondents is predominantly female with an average distributed between 31 and 60 years, but most having more than 10 years of experience as teachers and teaching classes mostly with fewer than 25 students. They are widely distributed across subject types and grade levels they teach, with many teachers teaching multiple grades across the grade categories described below. See tables 2.5 to 2.11 below.

Table 2.5: What is your gender?

	Frequency (Unweighted)	Weighted (%)
Male	201	16
Female	1,082	84

Table 2.6: What is your age?

	Frequency (Unweighted)	Weighted (%)
30 years	186	12
31-40 years	329	23
41-50 years	396	30
51-60 years	303	22
61 year	200	13

Table 2.7: What is your highest level of schooling?

	Frequency (Unweighted)	Weighted (%)
Secondary	68	4
Higher	1,285	92
Vocational	71	4

Table 2.8: How many years have you been a teacher?

	Frequency (Unweighted)	Weighted (%)
0-5	191	12
6-10	169	12
11-20	402	28
21 years	644	48

Table 2.9: Which subject do you teach?

	Frequency (Unweighted)	Weighted %
Mathematics	96	9
Natural sciences	263	22
Humanities (e.g. history, literature, arts)	332	30
Social sciences and languages	152	13
Informational technologies	81	6
Primary classes	207	17
Other	24	4

Note: Weighted percentage is greater than 100, as teachers could select more than one grade.

Table 2.10: What is the size of most of your classes?

	Frequency (Unweighted)	Weighted %
15 or less	577	32
16 – 24	574	44
25-29	308	26
30-34	116	10
35-39	44	04
40 or more	18	01

Note: Weighted percentage is greater than 100, as teachers could select more than one grade.

Table 2.11: Which grade/ levels do you teach?

	Frequency (Unweighted)	Weighted %
1-4	427	29
5-6	653	44
7-9	907	62
10-12	619	44

Note: Weighted percentage is greater than 100, as teachers could select more than one grade.

2.6 How to Interpret Data Tables

In order to provide as much useful information as possible for those involved in the reforms and to make the findings discussed as transparent as possible, this document includes many tables of survey responses in the text of the report. Because the surveys were designed to allow the evaluation to generalize nationally (among Georgian language majority areas outside of conflict zones), the values included in the tables represent estimates of the proportions or averages that would be found nationally.

To maximize transparency, these tables include not only these best estimates of average values and proportions; they also include either 1) 95 percent confidence intervals around our best estimates, or 2) statistical tests of differences among categories compared. The confidence intervals can be interpreted as lower and upper bounds of the estimates for the average or proportion had we surveyed the whole Georgian speaking population. If the test is of the difference of averages for two comparison groups – such as urban and all rural areas – the report provides t-test statistics and a measure of the probability that the difference shown is due to the fact that the respondents are part of a sample rather than all teachers. For comparisons across three or more groups – such as urban, rural, and mountainous areas – chi-square test statistics are provided to show differences in proportions as well as a similar measure of probability. In some cases, comparisons across two of the three categories is shown instead using a t-test statistic if a specific difference is discussed in the text.

Both statistics can be interpreted similarly, but most readers should focus on the probability statistic. The lower that statistic is, the lower the probability that the difference between averages or proportion has happened due to the fact that the survey was conducted among a sample of the population rather than the whole population. Traditionally among World Bank projects, a probability lower than .05 – or a 5 percent probability the findings is due to being a survey rather than the whole population – is considered statistically significant. This report sometimes considers as worthy of discussion probabilities approaching the .05 level, and but it discusses findings only if they are both statistically and substantively of interest and relevant for policy purposes. For transparency, all tables and relevant statistics are presented even if not of statistical significance.

2.7 Study Limitations

The report and data collection, while extensive, display several noteworthy limitations. The study's sampled population includes only Georgian language speaking schools and areas not in conflict. The analysis of the effect of training does not have objective measures of the extent of training for each respondent under each intervention type. Because surveys are anonymous to increase reliability of responses, it relies on either 1) whether the school as a whole has received training or computers or 2) self reports from teachers of whether the respondent has received any training from a give program, which sometimes could be unreliable. Further, given the potential for teachers to change schools due to consolidations, training received as school units is less reliable than it might be in many other countries. This could contribute to the infrequency of finding that the training variables are statistically significant.

Another limitation is that due to the unusually short period of time under which the survey had to be prepared to beat the end of the school year, some questions might have been better designed in retrospect or with additional time for pilot testing and with less overlap between the qualitative and quantitative data collection periods. We discuss in the final section of the report where relevant additional research could be used to understand better some of the findings.

3.0 RESULTS: LEARNING ENVIRONMENT

This chapter discusses two broad sets of related issues. The first are reforms involved in both the school-based and teacher professional development trainings and trainings conducted for the new curriculum. We include in that section changes to the curriculum and assessment processes. Immediately preceding that section is a brief discussion about the new curriculum framework relative to the previous framework and approach to education. The second section includes the conduciveness to the reforms of the physical and social environments as well as the provision of materials to support the goals outlined in the national law on education.

3.1 New Curriculum Framework, National Goals, and Outcomes

This section discusses the evidence regarding whether the new curriculum framework better meets national goals than the older framework and traditional methods. The evaluation interprets this question broadly to cover active learning methods generally rather than the subject matter of the individual new curriculum subject syllabi, which was not included within our agreed upon scope of work. Evidence is suggestive that student learning outcomes have improved as a result of implementing the new curriculum and introduction of new methods during last two years, although more wide-ranging direct assessment should be conducted before this conclusion can be solidified.

The international literature on the ways that students learn best does support the direction the Ministry has decided upon. The evaluation has been informed that preliminary results from PIRLS suggests some increases in reading scores that do not appear to be clearly attributable to other causes. This data was unavailable for the current research, and the schools selected were unlikely to map to the schools selected for this sample.

There is qualified evidence from teachers in the evaluation surveys and from parents at the board of trustee focus groups that student learning has improved as a result of the reforms. Eighty-seven percent of teachers in the survey stated that they agree or strongly agree that student learning has increased using the new methods. The vast majority of these responses, however, are not strong agreement.

Table 3-1 : Techniques I learned through TPD improved my pupils' learning. (Form 1, q 37b)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Strongly disagree	5	2	7
Disagree	9	6	11
Agree	72	67	77
Strongly agree	15	10	20
Total	100		

Note: N = 630

Table 3-2: Techniques I learned through TPD improved my pupils' learning. (Form 1, q 37b)

Respondent Category	Strongly disagree	Disagree	Agree	Strongly agree	Chi-Sq. Value	Probability
Urban school	4	9	71	15	0.74	0.90
Rural school	5	8	72	14		
Mountainous rayon	3	7	78	13	0.62	0.640
Not mountainous rayon	5	9	72	15		
Urban school	4	9	72	15	5.04	0.645
Rural school	4	9	71	16		
Mountainous school	9	6	72	13		
Curriculum pilot schools	4	2	87	7	3.31	0.208
Not curriculum pilot schools	5	9	71	15		
School-based teacher training	5	9	72	14	1.65	0.776
Not school-based teacher training	4	8	72	16		
Curriculum pilot or school-based teacher	6	9	72	14	1.96	0.74
Not curriculum pilot or school-based	3	8	72	16		
40 or Younger	1	8	73	18	10.76	0.067
41 or Older	6	9	72	13		
50 or Younger	4	8	70	18	8.38	0.120
51 or Older	6	9	75	10		
Taught 10 or fewer years	1	10	72	17	6.46	0.229
Taught 11 or more years	6	8	72	14		
Secondary or both	3	7	73	17	1.57	0.704
Primary grade teacher	5	9	72	14		
Use active methods in some-none classes	5	12	70	12	6.40	0.249
Use active methods in many-all classes	4	7	76	16		
Low-average use of active methods	5	12	70	12	12.74	0.119
High use of active methods	4	5	74	18		

Teachers also note that pupil involvement has increased when using the new methods. Seventy-one percent of teachers agree that pupil involvement during lessons has increased with another 18 percent strongly agreeing and 10 percent disagreeing. (See tables below.) The evaluation team suspects that there is a correlation between the level of increase in pupil involvement and the unmeasured effectiveness with which teachers are able to apply the new methods when used.

Table 3-3: Individual pupil involvement during lessons has improved due to techniques I learned through TPD or other projects (Form 1, q 37c)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Strongly disagree	2	1	3
Disagree	8	4	12
Agree	71	67	76
Strongly agree	18	14	22
Total	100		

N= 634

Table 3-4: Individual pupil involvement during lessons has improved due to techniques I learned through TPD or other projects (Form 1, q 37c)

Respondent Category	Strongly disagree	Disagree	Agree	Strongly agree	Chi-Sq. Value	Probability
Urban school	3	12	70	16	13.85	0.042
Rural school	2	4	73	21		
Mountainous rayon	0	5	73	23	1.52	0.414
Not mountainous rayon	2	8	71	18		
Rural school	2	5	71	21	15.15	0.269
Urban school	3	11	70	16		
Mountainous school	0	3	78	20		
Curriculum pilot schools	1	11	53	36	6.17	0.060
Not curriculum pilot schools	2	8	72	18		
School-based teacher training	3	9	72	16	3.16	0.413
Not school-based teacher training	2	7	71	21		
Curriculum pilot or school-based teacher training school	3	9	71	17	1.78	0.597
Not curriculum pilot or school-based teacher training school	2	7	72	19		
40 or Younger	1	7	69	23	8.07	0.150
41 or Older	3	9	73	16		
50 or Younger	2	10	67	21	17.20	0.002
51 or Older	3	4	80	13		
Taught 10 or fewer years	1	6	68	25	6.64	0.196
Taught 11 or more years	3	9	72	16		
Secondary or both	2	9	73	16	0.72	0.893
Primary grade teacher	2	8	71	19		
Use active methods in some-none classes	3	12	70	16	5.84	0.244
Use active methods in many-all classes	2	7	72	19		
Low-average use of active methods	2	11	72	15	7.57	0.243
High use of active methods	2	5	71	22		

Parents at the board of trustees focus group discussions pointed out that students are more motivated and that they observe improvement of their children learning outcomes. The survey reinforced the above statement based on teachers responses. Most teachers (81 percent) agreed that student learning outcomes improved while implementing the new curriculum during last 2 years. The responses do not significantly differ by school location. Curriculum pilot training school teachers tend to respond more positively about changes in learning outcomes, while no significant difference was found across whether teachers were in schools with school-based TPD training.

Table 3-5: Have learning outcomes improved while implementing the new curriculum during last 2 years? (Form 1, q.32)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	81	77	84
No	9	6	13
Do not know	10	7	13
Total	100		

N = 697

Table 3-6: Have learning outcomes improved while implementing the new curriculum during last 2 years? (Form 1, q.32)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability
Urban school	90	0.17	0.764
Rural school	89		
Mountainous rayon	93	0.37	0.420
Not mountainous rayon	89		
Rural school	90	0.22	0.912
Urban school	90		
Mountainous school	88		
Curriculum pilot schools	99	2.26	0.004
Not Curriculum pilot schools	89		
Curriculum pilot or school-based teacher training school	90	0.00	0.959
Not curriculum pilot or school-based teacher training school	90		
40 or Younger	90	0.10	0.852
41 or Older	89		
50 or Younger	90	0.90	0.584
51 or Older	88		
Taught 10 or fewer years	90	0.05	0.895
Taught 11 or more years	89		
Primary grade teacher	89	1.15	0.344
Secondary or both	92		
Science / Math	91	0.19	0.871
Humanities	92		
Primary	93		

One potential area of concern with the new national curriculum is whether smaller schools, particularly those in mountainous areas that are unlikely to consolidate recognize sufficient flexibility in the grade-by-grade approach to the curriculum to become more efficient. That is, the curriculum focuses on curriculum to be presented by individual years rather than across grades. For small, mountainous schools, potentially greater efficiency could take on the nature of using a phased curriculum across a few grades each year and teaching multiple grades in the same classrooms. This approach to increasing school efficiency could serve as an alternative to consolidation in some cases. (The issue of consolidation is discussed further in section 4.) Although the director of the NCAC indicated that the curriculum was designed such that small schools could consider doing so, such concepts do not seem to be discussed commonly in Georgia. Some small schools in the United States and other developing countries have used this "phasing" device to increase their curricular offerings. Instead of trying to offer courses every year or semester, courses with small enrollments can be scheduled every two years. Another approach is for small schools to share specialty teachers

(often done with music, physics, chemistry teachers, etc.). This is an approach that could be considered by boards, ERCs, the NCAC, and the Ministry.

Another issue of concern to some teachers and parents in focus groups is that upper grade students headed to university are studying only to the university entrance tests. This is a common issue in countries instituting high stakes assessments. It is partially offset in many countries by requiring that the grade point average or other general indicator of consistent academic efforts is part of the university entrance formula – an issue the Ministry may wish to consider.

3.2 Teacher Training and Professional Development

This section involves the issue of whether the system supports teachers contributing effectively in creating a supportive learning environment. The analysis discusses the new curriculum itself in one of its sub-sections for two reasons: one of the key issues for the new curriculum is teacher attitudes and preparation to teach the new curriculum. In addition, it appears that the new curriculum is focused at least as much on changing the method of teaching subjects as on changing the substance of what is taught. Although the analysis attempts to separate the effects of the TPD and curriculum training, some questions do not allow for such differentiation. Further, efficiency requires that TPD and curriculum pilot school categories be examined at the time that each question below is discussed. Conclusions for all sub sections are provided at the end of the section.

3.2.1 Adequacy and Impact of Trainings

This section discusses the results of the training according to data collected. Because there is considerable overlap in terms of the measurable impact from these two training efforts and the difficulty sometimes in parsing the effects at times, they are discussed together in many cases. A basic discussion of the models and delivery systems for school-based and curriculum trainings as well as the Deer Leap program are provided in the introductory section.

3.2.1.1 Adequacy of Trainings

This sub-section explores whether teacher training is effective in supporting teachers and implementing changes in active learning. The first step in doing so is examining teacher responses regarding whether they feel adequately trained. Results show that a significant proportion of teachers are dissatisfied with the examples and models provided on how to teach active learning and the new curriculum

The teachers in the focus groups centered their discussions repeatedly around the most recent set of curriculum-based trainings rather than the school based TPD, and those who attended emphasized the high professional level of the trainings. The teachers indicated they were open and motivated to share their practical work outcomes of new classroom practice models, although the presence of some trained in the pilot cohort may have limited the comfort of others to respond negatively.

In understanding the responses from teachers regarding involvement in school-based teacher professional development trainings, there are two potential confusions by teachers – if they

cannot discriminate between the different types of teacher trainings when they respond about what trainings they have received and appropriate ways to indicate a "no" response. The general interpretation of non-response to items when teachers have experience in filling out surveys is to not count non-responses. Due to the large number of non-responses among these teachers, who have less experience in responding to surveys than their counterparts in many more developed countries, non-response probably means many teacher intended to indicate that the correct response should be "no." If one counts non-respondents to the question of whether they have received school-based teacher training as not having received training, only 44 percent of teachers indicate they had received training with lower percentages among those who teach only primary grades. Excluding non-respondents, the proportion indicating they received training was considerably higher at 61 percent.

Table 3-7: Teachers professional training course conducted at my school under TPD program (Non respondents counted as No) (Teacher Form 2 q.48b)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	44	38	50
No	56	50	62
Total	100		

N= 1430

Table 3-8: Teachers professional training course conducted at my school under TPD program program (excluding Non-respondents) (Teacher Form 2 q.48b)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	61	55	66
No	39	34	45
Total	100		

N= 1047

Table 3-9: Teachers professional training course conducted at my school under TPD program (Non respondents counted as No) (Teacher Form 2 q.48b)

Respondent Category	Yes	No	Chi-Sq Value	Probability
Rural school	42	58	2.56	0.322
Urban school	46	54		
Mountainous rayon	49	51	0.86	0.592
Not mountainous rayon	44	56		
Urban school	41	59	5.20	0.372
Rural school	45	55		
Mountainous school	50	50		
School-based teacher training school	42	58	2.54	0.453
Not school-based training school	46	54		
Primary grade teacher	42	58	10.89	0.0006
Secondary or both	53	47		
Use active learning in many or all classes	43	57	4.80	0.121
Use active learning in some or none classes	51	49		
Low to average use of active methods	47	53	3.57	0.023
High use of active methods	55	45		

Table 3-10: Teachers professional training course conducted at my school under TPD program (excluding Non-respondents) (Teacher Form 2 q.48b)

Respondent Category	Yes	No	Chi-Sq Value	Probability
Rural school	62	38	0.362	0.530
Urban school	60	41		
Mountainous rayon	60	40	1.80	0.371
Not mountainous rayon	69	31		
Urban school	59	41	2.47	0.404
Rural school	64	36		
Mountainous school	60	40		
School-based teacher training school	57	43	9.01	0.111
Not school-based training school	66	34		
Primary grade teacher	58	42	12.77	0.005
Secondary or both	71	29		
Use active learning in many or all classes	62	38	2.59	0.234
Use active learning in some or none classes	56	44		
Low to average use of active methods	51	49	3.06	0.043
High use of active methods	58	42		

One key informant pointed out that the region Samtskhe-Javakheti was not covered by the reform program's school-based teacher training program. The explanation was that by the time the implementation of the initiative was planned in that region, the school-based teacher training program format changed and new methodologies and approaches were integrated within the curriculum instructional trainings framework. Aside from that region, the evidence suggests that training was roughly evenly distributed across the different school types and areas.

According to the sector baseline studies, teachers had been deprived any professional development opportunities for years that reflected in a very traditional, didactic practice. The research showed that this need was addressed countrywide since the implementation of reform program. Nonetheless, given the stage of training at this point, about half of all teachers still indicate that insufficient trainings generally in the new teaching methodologies represent an obstacle to their ability to apply the new teaching methods. The proportion of all teachers who state that they lack sufficient trainings is higher among teachers from urban areas, those who teach general primary class subject matter only, and from those in curriculum-based training schools. Despite the latter finding, the difference between the proportion stating that training was inadequate among those individuals who claim to have received curriculum-based training and from those who claim to have received school-based TPD training both are only slight and statistically insignificant from that for teachers overall.[7] These findings, while representing a limitation of the reform trainings, also can be interpreted from the impact side as an increase from what might have been nearly universally insufficient training previously.

[7] The study was unable to track teachers by specific grades taught by which school or whether the person was actually trained and so relies on self-reported responses regarding curriculum training.

Table 3-11: Have any of these been obstacles in using new instructional practices? Inadequate teacher training support on how to use many of the newer instructional practices in the classroom. All teachers. (Teacher Form 1 q. 134 e)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
No	51	42	60
Yes	49	40	58
Total	100		

N= 633

Table 3-12: Inadequate training support on how to use new instructional practices (Teachers form 1 q.34e)

Respondent Category	% Yes	T-Value	Probability
Urban school	58	2.83	0.013
Rural school	39		
Mountainous rayon	56	0.48	0.638
Not mountainous rayon	49		
Rural not mountainous school	39	-2.08	0.055
Mountainous school	43		
Urban school	57		
Rural school	39		
Mountainous school	43		
Curriculum pilot schools	71	2.49	0.025
Not curriculum pilot schools	48		
School-based teacher training	53	1.59	0.134
Not school-based teacher training	44		
Curriculum pilot or school-based teacher training school	54	1.94	0.134
Not curriculum pilot or school-based teacher training school	42		
40 or Younger	45	1.18	0.255
41 or Older	51		
50 or Younger	48	0.71	0.491
51 or Older	51		
Taught 10 or fewer years	47	0.96	0.353
Taught 11 or more years	50		
Primary grade teacher	48	-0.16	0.878
Secondary or both	49		
Science / Math	47	7.71	0.117
Humanities	48		
Primary	65		

Table 3-13: Have any of these been obstacles in using new instructional practices? Inadequate teacher training support on how to use many of the newer instructional practices in the classroom. (Only teachers who claim to have received school-based training.) (Teacher Form 1 q. 134 e)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
No	48	36	59
Yes	52	41	64
Total	100		

N= 353

Table 3-14 Have any of these been obstacles in using new instructional practices? Inadequate teacher training support on how to use many of the newer instructional practices in the classroom. Only teachers who claim to have received curriculum-based training. (Teacher Form 1 q. 34 e)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
No	54	44	64
Yes	46	36	56
Total	100		

N= 392

Table 3-15: Have any of these been obstacles in using new instructional practices? Inadequate teacher training support on how to use many of the newer instructional practices in the classroom. Only teachers who claim to have received curriculum-based training. (Teacher Form 1 q. 34 e)

Respondent Category	% Yes	T-Value	Probability
Curriculum pilot schools	68	3.73	0.074
Not curriculum pilot schools	45		

A potential indirect measure of the adequacy across all the trainings discussed throughout this section is teacher attitudes towards their own professional development and knowledge levels. While improvements are visible in the teacher reforms, some teachers remain unconvinced that they are progressing in their professional development and knowledge. This is evidenced in part by teacher response to a question about their feeling about their professional knowledge level. More than half of teachers agreed that their knowledge level has increased during past 5 years. However, 42 percent disagreed. No difference was found across categories analyzed. (See table 3-16.)

Table 3-16: Teachers knowledge level has increased during past 5 years? (Teacher form2 q.14a)

Respondent Category	Strongly disagree	Disagree	Agree	Strongly agree	T- or Chi-Sq Value	Probability
Curriculum pilot schools	9	23	50	18	8.15	0.155
Not curriculum pilot schools	6	36	51	7		
School-based teacher training school	6	37	51	6	4.64	0.554
Not School-based teacher training school	6	33	51	10		
Curriculum pilot or school-based teacher training school	6	37	51	6	4.83	0.514
Not curriculum pilot or school-based teacher training school	6	33	51	10		
Science/Math	8	40	47	5	5.134	0.597
Humanities	8	35	48	9		
Primary classes	4	37	48	11		

The latter is a very indirect measure not attributable to any individual training. Other measures of the adequacy of different trainings are changes in attitudes toward and use of the newer teaching methods, assessment methods, and ICT in teaching. These subjects are discussed in the following sub-sections.

3.2.2 Attitudes Towards and Use of Newer Teaching Methods

One implicit logic underlying the model of change in teaching methods is that the trainings first have to change teacher attitudes towards what types of methods are best for teaching and learning before new methods are likely to be adopted widely and appropriately. If attitudes change, then one would expect increased use of and more appropriate use of the methods. We discuss conclusions about this subsection on attitudes and use of the newer methods at the end of the section.

3.2.2.1 Attitudes Towards Newer Methods

Interviews with the director of the TPDC and the director and implementation coordinator for the NCAC indicate an impression that teacher training has been effective at least for some teachers. These key informants also indicate that the implementation of the new curriculum has been more successful at schools that were involved in the school-based teacher professional development training program. This would suggest that at least some teachers from the schools involved in both sets of training were more aware than teachers at other schools of the new approaches and find them easier to use with the subject syllabi within the new curriculum.

Survey results and classroom observations provide evidence that teachers already do practice new methodology in their classes to some extent and demonstrate some openness towards the new practices. This can be viewed as a significant success of the teachers professional development efforts across both teacher training programs. Further, a large proportion of teachers give positive appraisals of the techniques acquired through TPDT. Eighty-nine percent of teachers agree, or strongly agree with the statement that the techniques they learned through the reform's school-based teacher training program have helped them improve their teaching. There is no statistically significant difference between teachers responses from pilot and non pilot curriculum training schools. As might be expected, teachers representing age group 50, or more are less positive about the extent to which the acquired techniques helped them to improve their teaching relative to their younger colleagues. Teachers who claim to use active learning methods more frequently in their classes more positively assess the help from the school-based teacher trainings than teachers applying active learning methods less frequently.

Table 3-17: Index of how highly they value TPD training. (Teacher Form 1 q.37.)

Respondent Category	Mean	T- or Chi-Sq Value	Probability
Urban school	8.8	-1.02	0.324
Rural school	9.1		
Mountainous rayon	9.3	1.84	0.085
Not mountainous rayon	8.9		
Urban school	8.8	1.04	0.313
Rural school	9.1		
Mountainous school	9.2		
Rural not mountainous school	9.1	-0.21	*
Mountainous school	9.2		
Curriculum pilot schools	9.2	0.53	0.603
Not Curriculum pilot schools	8.9		
School-based teacher training	8.9	-1.03	0.321
Not School-based teacher training	9.1		
Curriculum pilot or school-based teacher training school	8.9	-0.93	0.367
Not Curriculum pilot or school-based teacher training school	9.1		
50 or Younger	9.1	-1.94	0.071
51 or Older	8.7		
Taught 10 or fewer years	9.4	-2.7	0.017
Taught 11 or more years	8.8		
Primary grade teacher	8.9	0.35	0.728
Secondary or both	9.0		
Class size 24 or less	9.0	-1.25	0.231
Class size 25 or more	8.8		

N=610. *Unable to calculate probability values for this subsample to generalize nationally.

Table 3-18: Techniques I learned through TPD have helped me improve my teaching. (Teacher Form 1 q.37a)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
strongly disagree	3	1	5
Disagree	8	5	10
Agree	71	64	78
strongly agree	18	13	23
Total	100		

N= 637

Table 3-19: Techniques I learned through TPD have helped me improve my teaching. (Teacher Form 1 q.37a)

Respondent Category	strongly disagree	disagree	agree	strongly agree	T- or Chi sq-Value	Probability
Rural school	3	5	75	16	5.99	0.266
Urban school	3	9	67	20		
Mountainous rayon	0	3	79	18	2.31	0.1596
Non-mountainous rayon	3	8	71	18		
Urban school	3	9	67	20	8.97	0.409
Rural school	4	6	73	17		
Mountainous school	1	6	82	12		
Curriculum pilot schools	1	4	77	18	1.08	0.383
Not a curriculum pilot schools	3	8	71	18		
School-based teacher training	4	5	71	20	4.52	0.415
Not school-based teacher training	3	9	71	17		
Curriculum pilot or school-based teacher	3	9	71	16	5.08	0.373
Not curriculum pilot or school-based	4	5	71	21		
50 years or younger	4	10	76	11	14.20	0.010
51 or older	3	6	68	22		
Taught 11 or more years	4	8	71	17	5.30	0.193
Taught 10 or fewer years	2	5	71	23		
Primary grade teacher	3	8	70	18	3.27	0.374
Secondary or both	3	4	73	20		
Class size 25 or more	2	9	71	17	2.60	0.443
Class size 24 or less	4	7	71	19		
Use active learning in many or all classes	4	5	70	21	24.12	0.003
Use active learning in some or none	2	14	73	11		
High use of active methods	4	6	67	23	9.33	0.107
Low to average use of active methods	2	8	75	15		

In one of the teacher survey forms (form 1), we asked six items to learn more about teachers attitudes towards active learning. Each question asked the teacher's level of agreement with different key dimensions of the reform's approach to active methods in order to create a single combined index. In order to get as accurate a response as possible to questions where teachers might suspect the "right" answers are those in congruence with the newer methods, these questions were worded so that the answer assumes that the traditional methods are the "right" response. The individual responses are provided in the following tables.

Table 3-20: Classroom learning actually is most effective when based primarily on lectures with students responding when called on. (Teacher form 1 q.7a)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Strongly agree	2	1	4
Agree	21	15	27
Disagree	63	57	69
Strongly disagree	13	10	17
Total	100		

Note: Totals do not add to 100 due to rounding N = 684

Table 3-21: It is best when students work on assignments alone to show how much they know. (Teacher form 1q.7b)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Strongly agree	30	25	35
Agree	64	60	68
Disagree	3	2	4
Strongly disagree	3	1	5
Total	100		

Note: N = 697

Table 3-22: Teachers know more than students and should just explain the facts directly. (Teacher form 1q.7c)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Strongly agree	13	10	17
Agree	50	45	54
Disagree	29	26	33
Strongly disagree	8	5	10
Total	100		

Note: N = 681

Table 3-23: Classes should be focused on problems with specific, correct answers and ideas that students can grasp quickly. (Teacher form 1q.7d)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Strongly agree	17	13	21
Agree	67	64	70
Disagree	13	11	15
Strongly disagree	3	1	4
Total	100		

Note: N = 669

Table 3-24: Students generally interrupt the flow of class and the learning of other students when they talk with each other about the lesson (Teacher form 1q.7e)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Strongly agree	7	5	10
Agree	35	30	40
Disagree	50	45	55
Strongly disagree	8	5	11
Total	100		

Note: N = 689

Table 3-25: Teachers should provide feedback to students on assignments to show them how to improve their work (Teacher form 1q.7f)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Strongly agree	2	1	4
Agree	2	1	4
Disagree	60	55	65
Strongly disagree	35	31	40
Total	100		

Note: Totals do not add to 100 due to rounding N = 693

Teachers are most strongly clinging to traditional attitudes regarding concepts of individual work (versus group work), that teaching should be centered around correct answers and presentation of facts, and whether the teacher's role should provide feedback so students can improve. Mixed responses are found regarding the value of a didactic approach.

In order to form an index from these six, we coded each from 0 to 3 based on their congruence with the newer methods, ranking more highly greater use of congruent assessment methods. In this case, all questions were scored 0 for strong agreement. This general approach to generating an index is the same used for the other indices created. The scores were summed up for each teacher and then divided by number of questions answered to calculate an average score per teacher. The possible average score range is 0-3, with higher scores indicating the teacher tends to have more positive attitudes towards active learning methods. The average score for all teachers is in the middle at 1.48.

Table 3-26: Index of use of attitudes toward use of new methods

Respondent Category	Mean	T- or Chi-Sq Value	Probability
Urban school	1.49	0.83	0.421
Rural school	1.46		
Mountainous rayon	1.51	0.40	0.698
Not mountainous rayon	1.47		
Urban school	1.49	-1.43	0.173
Rural school	1.51		
Mountainous school	1.38		
Rural not mountainous school	1.51	-1.36	*
Mountainous school	1.38		
Curriculum pilot schools	1.33	-2.36	0.032
Not Curriculum pilot schools	1.48		
School-based teacher training	1.45	-1.38	0.187
Not School-based teacher training	1.50		
40 years or fewer	1.46	0.59	0.562
40 years or older	1.48		
50 or Younger	1.49	-1.54	0.146
51 or Older	1.44		
Taught 10 or fewer years	1.45	0.78	0.445
Taught 11 or more years	1.48		
Primary grade teacher	1.46	2.55	0.022
Secondary or both	1.54		
Class size 24 or less	1.48	-0.07	0.944
Class size 25 or more	1.47		

*Unable to calculate probability values to generalize nationally.

The research suggests a significant shift in teachers' attitudes compared with the World Bank baseline study reports illustrating teachers' negative attitude towards active learning (Sancho and Hernández, 1999; Shahriari, 1999). Interestingly, teachers from pilot schools have a lower score than teachers from non pilot schools (1.33 and 1.48 respectively).[8] The difference between teachers involved in the school-based teacher training program and those who had not, on the other hand, is not statistically significant. Teachers who teach only primary school grades have slightly less positive attitudes towards active learning than those who teach secondary school grades or both.

Overall, teachers have a generally positive attitude towards active learning practices that they have become increasingly familiar with through the many reform efforts. Fifty-six percent of teachers find possible to apply active learning in their classroom with no significant difference between rural and urban teacher responses.[9] Teachers younger than 50 give more positive responses than their older colleagues to the new curriculum for promoting active teaching practice in their classes. These are substantial findings supporting the effectiveness of the reform process.

[8] Because we are interested in the net effect of the training within these schools and due to limits in the sample and self-reporting data, we have not differentiated between those who directly received training in each school under these methods.

[9] This survey question does not define active methods specifically.

A potential attitudinal problem is when teachers think that the new instructional practices do not apply to their courses. The survey asked teachers two questions on this subject. The first is "How well can the new curriculum's preference for active learning be applied to your classrooms?" 56 percent of teachers responded think that the new curriculum's preference for active learning can be fully applied to their classrooms, while 41 percent think that it can be applied partially. Only 3 percent of teachers think that the new curriculum's preference for active learning cannot be applied to their classrooms. A higher percentage of teachers (77 percent) from pilot schools claim that the new curriculum's preference can be fully applied to their classes relative to 55 percent of teachers from non pilot schools. The teachers responses do not differ according to whether they teach only primary or secondary grades.

Table 3-27: How well can the new curriculum's preference for active learning be applied to your classrooms? (Teacher Form 1 q.14)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Not possible	3	1	5
Somewhat possible	41	35	46
Possible	56	51	61
Total	100		

N=**698**

Table 3-28: How well can the new curriculum's preference for active learning be applied to your classrooms (Teacher Form 1 q.14)

Respondent Category	Not possible	Somewhat possible	Possible	T- or Chi-Sq Value	Probability
Urban school	3	41	56	0.1	0.961
Rural school	3	40	57		
Rural not mountainous school	3	39	57	0.08	0.990
Mountainous school	3	39	58		
Rural school	3	40	57	0.24	0.993
Urban school	3	39	57		
Mountainous school	3	39	58		
Curriculum pilot schools	6	17	77	6.63	0.124
Not Curriculum pilot schools	3	42	55		
Curriculum pilot or school-based teacher	4	41	56	1.55	0.511
Not curriculum pilot or school-based teacher	2	40	57		
50 or Younger	3	42	54	0.61	0.748
51 or older	3	40	57		
Taught 11 or more years	2	44	54	12.63	0.016
Taught 10 or fewer years	6	30	64		
Teaches only primary grades	4	40	56	3.18	0.336
Teaches secondary or both	0	42	58		
Class size 25 or more	5	39	57	3.25	0.336
Class size 24 or less	2	42	56		
Science / Math	1	43	56	8.67	0.161
Humanities	2	44	54		
Primary	4	27	69		
High use of active methods	3	36	62	2.72	0.614
Low-average use of active method	3	42	55		
Use active learning in many or all classes	2	33	65	47.44	0.0003
Use active learning in some or none classes	5	59	37		

A separate question item was asked specifically about this issue with a less neutral tone to test the consistency of teacher beliefs on this issue. The specific item is whether the teacher agrees that "These new instructional practices do not apply to most of my courses." With this wording, 44 percent of teachers agreed that the new instructional practices do not apply to most of their courses. Because this set of responses from teachers to some extent contradicts the prior one, it suggests that teacher attitudes are not fully formed yet.[10] This is a fairly common finding for new reforms and shows the instability of the reforms were no additional follow up and support planned.

Table 3-29: Have any of these been obstacles in using new instructional practices? These new instructional practices do not apply to most of my courses. (Teacher Form 1 q.34b)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
No	56	50	61
Yes	44	39	50
Total	100		

N= 626

3.2.2.2 Use of Methods

Research from the evaluation and NCAC indicate that many teachers report using active learning methods to some extent, and that they more often use traditional, passive methods more often than active methods at this point in the reform. Nana Dalakishvili, Implementation Coordinator for the NCAC and previously involved in the school-based training, indicated that the impression among NCAC representatives that effective use of newer methods is just beginning to occur. They also suggest that many teachers use the tools of active learning mechanically without understanding their real meaning or purposes. An example provided was having students work in groups to do traditional memorization problems. This is typical for early stages of a wide-spread teaching methods reform but underlines the importance of instituting appropriate pre-service training as soon as possible. if teachers do not know the rationale behind active learning techniques, it is difficult to persuade them about the merit of its appropriate use.

The evaluation asked questions to assess teacher mental commitment to active learning methods. Overall, teachers have positive attitudes towards practicing active learning methods in their classes, and the survey provides indirect evidence of its practical application. Almost all the teachers (98 percent) surveyed claimed that they use the active learning methods in their classes at least some times (and to some extent), a claim supported by classroom observations discussed later. Thirty percent of teachers claim to use the active learning methods in some of their classes, 16 percent claim to use them in many of their classes and 52 percent claim that they use active learning methods in almost all of their classes. Responses were not significantly different depending on whether they were from pilot or non-pilot school. As expected, however, teachers under age of 50 indicated they tend to apply the active learning methods in their classes more often than teachers over 50. Teachers who indicate they teach only primary level classes indicate they use active learning methods in

[10] Responses are positively correlated between responses that these new practices apply to most of my courses and how well active learning can be applied to your classrooms. The correlation is not strong however, at 0.17, supporting the conclusion that the responses are not strongly reliable or still being formed.

their classes slightly more often than their colleagues who teach math, science or humanities subjects.

Table 3-30: What amount of classes uses active learning (Teacher form 1 q.15)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
In almost all	2	0	3
In some classes	30	24	36
In many classes	16	13	19
In almost all classes	52	47	57
Total	100		

Note: N=662

Table 3-31 : What amount of classes uses active learning (Teacher form 1 q.15)

Respondent Category	In almost all classes	In some classes	In many classes	In almost all classes	Ch-Sq Value	Probability
Urban school	2	24	21	54	18.13	0.007
Rural school	2	37	11	50		
Mountainous rayon	2	37	7	54	2.56	0.361
Not mountainous rayon	2	30	17	52		
Urban school	2	24	21	54	25.20	0.005
Rural school	2	41	11	46		
Mountainous school	1	29	11	59		
Rural, not mountainous school	2	41	11	46	6.19	
Mountainous school	1	29	11	59		
Curriculum pilot schools	0	24	32	45	5.53	0.379
Not curriculum pilot schools	2	30	16	52		
School-based teacher training	2	32	14	52	3.14	0.518
Not School-based teacher training	1	29	18	52		
Curriculum pilot or school-based teacher	1	29	18	52	3.51	0.512
Not curriculum pilot or school-based	3	31	14	52		
40 or Younger	1	28	17	54	1.09	0.8596
41 or Older	2	31	16	51		
50 or Younger	1	30	16	52	0.57	0.9099
51 or Older	2	30	16	52		
Taught 10 or fewer years	1	24	17	58	4.41	0.536
Taught 11 or more years	2	32	16	50		
Primary grade teacher only	2	30	13	54	18.78	0.012
Secondary or both	0	30	27	43		
Class size 24 or less	2	33	11	53	22.51	0.0398
Class size 25 or more	1	24	25	51		
Science / Math	1	31	21	47	11.57	0.283
Humanities	3	31	15	51		
Primary	2	30	5	62		
Low to average use of active methods	3	35	17	45	19.28	0.033
High use of active methods	0	23	17	59		

The evaluation asked additional questions of the respondents to more carefully gauge their frequency of use of various methods, both traditional and active using slightly more objective measures. In the teachers' survey form 1, we asked nine items about student activities in the class, rather than teacher activities, in order for the questions to appear as neutral as possible. Because of the complexity of asking for frequency of use across both primary and secondary school teachers and the need to measure changes over time in the future, these were kept as simple as possible. Thus, only four options for each question: rarely or never, 1 to 3 times a month, often, and almost always/very often.[11] The responses for the individual questions constituting the index are shown below.

Table 3-32: listen and take notes in whole-class settings (Teacher form 1q.8a)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Rarely or never	13	9	16
1-3 Times a month	55	50	61
Often	12	7	16
Very often	20	18	23
Total	100		

Note: N = 680

Table 3-33: Engage in discussions or debates with peers (Teacher form 1q.8b)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Rarely or never	10	6	13
1-3 Times a month	12	9	14
Often	60	56	64
Very often	19	14	23
Total	100		

Note: Totals do not add to 100 due to rounding. N = 686

Table 3-34: Projects that last more than one day (Teacher form 1q.8c)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Rarely or never	4	1	7
1-3 Times a month	15	13	18
Often	26	21	31
Very often	55	50	60
Total	100		

Note: N = 647

Table 3-35: Read silently (Teacher form 1q.8d)

[11] The question was designed in English to provide greater specificity in amount of times the activities occur in a class, but during pilot testing, was determined not to be contextually appropriate in Georgian. Many of these questions are designed so that they could be given to students as well in the future.

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Rarely or never	27	22	33
1-3 Times a month	7	4	10
Often	56	49	63
Very often	10	6	13
Total	100		

Note: N = 652

Table 3-36: Students work in small groups (Teacher form 1q.8e)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Rarely or never	11	9	14
1-3 Times a month	18	15	21
Often	58	54	63
Very often	12	8	16
Total	100		

Note: Totals do not add to 100 due to rounding, N = 666

Table 3-37: Make presentations to the class (Teacher form 1q.8f)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Rarely or never	19	14	25
1-3 Times a month	29	25	33
Often	41	34	48
Very often	10	5	15
Total	100		

Note: Totals do not add to 100 due to rounding, N = 669

Table 3-38: Work on problems or issues with no immediately obvious solution or answer. (Teacher form 1q.8g)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Rarely or never	21	15	28
1-3 Times a month	21	15	27
Often	50	44	56
Very often	8	5	10
Total	100		

Note: N = 666

Table 3-39: Engage in group discussions led by the teacher. (Teacher form 1q.8h)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Rarely or never	23	18	29
1-3 Times a month	9	6	11
Often	58	53	63
Very often	10	7	13
Total	100		

Note: N = 671

Table 3-40: Engage in discussions or debates with peers (Teacher form 1q.8i)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Rarely or never	11	8	15
1-3 Times a month	15	13	18
Often	58	53	64
Very often	15	11	20
Total	100		

Note: Totals do not add to 100 due to rounding. N = 686

The primary intended use of these questions, however, was to create a combined index.[12] We scored each from 0 to 3 based on their congruence with the newer methods. The scores were summed up for each teacher and then divided by number of questions answered to calculate an average score per teacher. The possible average score range is 0 to 3, with higher scores indicating the teacher tends to have more positive attitudes towards active learning methods. The average score for all teachers is 1.71 with a range of 0.7 to 2.5 and a standard deviation of only 0.28. This means that teachers on average claim to be slightly using the methods between 1 to 3 times a month and more often, with most response being tightly grouped around those responses. The only potential differences that might be apparent in teacher responses (at the 90 percent confidence level) are higher scores for teachers teaching fewer years and lower scores for teachers with larger classes. Even these differences are slight, at least as measured by these questions.[13] (See table 3-41.)

In order to try to ground truth these self-reported responses, the evaluation also made observations of classes and examined results from a study in 2005-2006 by NCAC on the use of newer methods in pilot schools using in-depth classroom observations over time. The report first discusses the results of the NCAC study followed by the results of its own classroom observations.

The NCAC study showed that teachers and students hold positive expectations towards overall school reform process and believe that it would bring many positive changes. Namely, it would improve manuals, increase students' motivation to study, would make the school more prestigious, etc. However, the teachers and students in the study considered as a challenge the limited applicability of the newer methods across all courses. Forty-eight percent of the teachers and even 36 percent of the students claimed that the new methodology did not take into account the specifics of each subject and each lesson's goals.

Follow up research by the NCAC (2007) provided to the evaluation in its last week of work suggest that the prevalence of didactic and monologue methods has decreased and the effectiveness of the use of the newer methods has increased somewhat over time. Their research from 2006 indicated that didactic and monologue methods were observed in about 37 and 13 percent of the classes, respectively (*ibid*., Figure 3). "Social" methods, the Socratic method, practical lessons, and independent work followed in 17, 12, 11, and 10 percent of classes in 2006. The research also suggests that when more active approaches are used, they are done so with slightly higher effectiveness in 2006 than in 2005.

[12] For greater reliability of the index, it was constructed to include as well the three questions discussed later on teacher use of the newer assessment methods. The resulting index had a chronbach alpha score (used to measure the internal consistency of indices) of 0.67, which indicates support of the interval consistency of the items and justifies their use in a summed scale.

[13] According to our abbreviated pilot research,

Table 3-41: Index of use of frequency of use of new methods (Teachers form 1 q.8)

Respondent Category	Average	T- or Chi-Sq Value	Probability
Urban school	1.69	-1.09	0.293
Rural school	1.71		
Mountainous rayon	1.72	0.63	0.541
Not mountainous rayon	1.70		
Urban school	1.69	1.20	0.247
Rural school	1.72		
Mountainous school	1.71		
Rural not mountainous school	1.72		
Mountainous school	1.71		
Curriculum pilot schools	1.74	1.12	0.281
Not Curriculum pilot schools	1.70		
School-based teacher training	1.69	-0.75	0.465
Not School-based teacher training	1.71		
Curriculum pilot or school-based teacher training school	1.74	1.12	0.281
Not curriculum pilot or school-based teacher training school	1.70		
50 or Younger	1.70	0.53	0.605
51 or Older	1.71		
Taught 10 or fewer years	1.67	1.80	0.092
Taught 11 or more years	1.71		
Primary grade teacher	1.70	1.49	0.158
Secondary or both	1.73		
Class size 24 or less	1.72	-1.79	0.094
Class size 25 or more	1.68		

As reported earlier, our self-reported survey results showed that almost all teachers claim to use the active learning methods in their classes at least some times, and 52 percent claim that they use active learning methods in almost all of their classes. Teachers across countries, however, are known for overestimating the frequency of use of desirable methods. A survey of student responses, linked either to teachers or schools, which was not possible in the time available, is one way to help ground truth the responses. Further, these simple questions cannot measure how effectively active learning is implemented in classroom practice. The survey results do, however, demonstrate some openness and positive attitudes of teachers towards active learning methodology relative to the pre-reform period.

The evaluation did not have the luxury of time to train people and conduct in depth observations. The observations for the NCAC study were made across a limited number of classes and do not provide information that can be generalized nationally. It was decided that the highest value added from evaluation efforts would be collecting data that could be generalized more broadly. The evaluation therefore collected more rapid and basic classroom level data through 15 minute observations of the classroom at the same time that data was collected on the classroom environment, supplemental materials and textbook availability and use, as discussed in section 4.3. Due to the desire to have anonymous survey data, the observational data is not linked with the teacher level responses and would not be reliable at the level of individual teachers or schools at any rate.

The Evaluation classroom observations include 15 activities the students in which may be involved. They also include five activities the teacher might be undertaking and four

descriptions of the classroom organization. Data collectors were required only to mark if the activity was conducted in the class. The observations include 11 items that indicate use of traditional methods and 12 that indicate use of newer methods and one deemed to be neutral (taking a test).[14]

The observations tended to note multiple activity types in the time allotted. In terms of individual items from this data collection, only 16 percent of classes were found to be organized in ways that best facilitates use of active learning methods – with students facing each other or in circles or semi-circles.

Table 3-42: Classroom arrangement

Arrangement	Percentage of classes observed	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
All desks in rows and columns with spaces in between (Traditional/Passive)	74	67	81
Chair/desks in circles facing each other (Active)	7	4	10
Chairs around a large table facing each other (Active)	3	1	6
Chairs in one big circle or semi-circle (Active)	6	1	10

N=484

The evaluation added together for each teacher the listed methods and class arrangements that were designed as indicators of active learning and, separately, those that are indicators of traditional, passive methods. The average number of passive activities observed is four, while the average number of active activities observed is 2.8. Thus, teachers on average are using more passive than activities. Given that most teachers arrange classrooms in the traditional manner, another interpretation is that teachers use only slightly more passive than active methods of teaching, but since they do so using traditional classroom arrangements, it may be questionable how active they actually are. No clear pattern of strong correlations across the sample was found between specific passive and active activities aside from students answering teacher questions about ideas/understanding and answering teacher questions about facts/memorization (0.48), individual recitation/fact recall and asking students their background knowledge about a subject (0.33).

[14] The combined index includes 23 items with a chronbach alpha scale reliability coefficient of 0.63, suggesting sufficient internal consistency for at least exploratory research.

Table 3-43: Student activities observed in class observations

Activity	Percentage of classes observed	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
	24	14	33
Individual recitation/fact recall (Traditional/Passive)	32	19	46
Listening (Traditional/Passive)	14	9	18
Taking notes or writing/practicing alone (Traditional/Passive)	21	9	33
Working (reading/writing) alone quietly (Traditional/Passive)	20	12	28
Reading out loud (one student at a time) (Traditional/Passive)	25	16	34
Answering teacher's questions about facts/memorization (Traditional/Passive)	15	9	20
Asking teacher questions about their ideas or understanding (Active)	6	4	9
Taking a test (Neutral)	39	9	60
Working with a partner (Active)	21	9	33
Working in groups (3-8 students, Active)	20	12	28
Answering teacher's questions about ideas/understanding (Active)	25	16	34
Playing games (Active)	15	9	20
Role playing (Active)	6	4	9
Student(s) speaking to rest of the class (Active)	39	18	60

N=484

Table 3-44:Teacher activities observed in class observations

Activity	Percentage of classes observed	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Lecture (talking or writing on board) (Traditional/Passive)	45	35	56
Marking book/papers at teacher's desk (Traditional/Passive)	22	12	33
Marking book/papers at pupils' desk (Active)	30	18	42
Demonstrating experiments (Active)	86	82	95
Ask students their background knowledge about subject (Active)	82	73	91

N=484

Table 3-45: Indices of passive and active learning indicators

Number of Passive or Active Indicators Observed	Percent of Teachers with Combined Passive Methods Index Score	Percent of Teachers with Combined Active Methods Index Score
0	9	11
1	2	15
2	9	18
3	17	21
4	25	14
5	15	14
6	12	4
7	9	3
8	1	0
9	0	0
10	0	0
Total	100	100

N=484

The evaluation then created another "net" index that adds together all active indicators for each class observed minus all traditional, passive indicators observed. The average score was -1.1, or 1.1 more passive methods than active. Comparisons across teacher categories indicate that teachers who teach only primary school classes and those from mountainous rayons use traditional, passive methods more frequently than their category comparison groups (see tables below). More research can be performed with this data.

Table 3-46: Combined "Net" Index of Active Minus Passive Methods

Number of Passive or Active Indicators Observed	Combined "Net" Index of Active Minus Passive Methods
-6	1
-5	1
-4	9
-3	13
-2	16
-1	18
0	22
1	9
2	4
3	1
4	1
5	2
6	0
Total	100

Note: Totals do not sum to 100 due to rounding. N=484

Table 3-47: Combined index of active minus passive learning indicators, by category

Respondent Category	Yes	T- or Chi-Sq. Value	Probability
Urban school	-1.49	-1.09	0.292
Rural school	-0.94		
Not mountainous rayon	-0.85	-2.23	0.041
Mountainous rayon	-1.95		
Curriculum pilot schools	-1.95	-0.35	0.733
Not curriculum pilot schools	-1.05		
School-based teacher training	-1.37	-0.77	0.451
Not school-based teacher training	-0.99		
School had TPD or pilot training	-1.40	-0.77	0.451
School did not have TPD or pilot training	-0.99		
Secondary or both	-0.81	-2.16	0.047
Primary grade teacher	-1.38		
Math, Science, Nature, IT	-1.18	0.82	0.426
Languages or Georgian language	-1.31		
History, social science, art	-0.77		
School size – small:<100 students	-1.54	0.82	0.424
School size - medium: 100-750 students	-0.90		
School size large:>750 students	-1.46		
School size < 555	-1.05	-0.23	0.822
School size > 555	-1.17		
Rural, not mountainous	-0.68		
Rural, mountainous	-1.80		

3.2.3 Information about, Attitudes towards, and Preparation for New National Curriculum Framework

Teachers and directors generally seem familiar and satisfied with the new curriculum framework, show some confidence about their preparedness to teach the new subject syllabi and think that these changes allow them to teach all levels of students at the same time and enable students to work more independently. The research does suggest there remains room for training for many teachers, however.

Teachers interviewed at curriculum pilot schools are familiar and relatively satisfied with the new curriculum framework and textbooks, although there were exceptions. Teachers stated that they are open and motivated to share with their classroom successful practices within the new curriculum framework.

The survey data support the conclusion that both teachers and directors generally are satisfied with the new curriculum. The surveys to directors showed nearly unanimous positive appraisals of the new curriculum relative to the previous curriculum, with 97 percent support. Across the range of schools surveyed, most teachers (70 percent) think that the new curriculum framework is better than the old one for meeting the educational goals of active learning and creative thinking (see Table 3-48).

Table 3-48: Teachers' Attitudes Towards New Curriculum Framework, All Teachers (Teacher Form 1 q.20)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
New is Better	70	64	77
About the Same	16	12	21
Old was Better	13	10	16
Total	100		

Note: Totals do not add to 100 percent due to rounding, N=697

Teachers from rural (72 percent) and mountainous (83 percent) schools responded slightly more strongly to the new curriculum than urban teachers (65 percents). The research did not reveal a difference in teacher responses to this question from schools involved in the pilot curriculum training from those not involved in the pilot training, but teachers who teach secondary grades were slightly more positive about the new curriculum framework than primary grade teachers.

Table 3-49: Teachers' Attitudes Towards New Curriculum Framework, by Category (Teacher Form 1 q.20)

Respondent Category	New is Better	About the Same	Old is Better	Chi-Sq. Value	Probability
Urban school	65	20	15	9.80	0.016
Rural school	76	12	12		
Mountainous rayon	70	14	16	0.42	0.798
Non-mountainous rayon	70	17	13		
Urban school	65	20	14	13.62	0.106
Rural school	72	13	14		
Mountainous	83	10	7		
Curriculum pilot schools	73	14	13	0.10	0.956
Not a curriculum pilot schools	70	17	13		
School-based teacher training	70	16	13	0.01	0.998
Not School-based teacher training	71	16	13		
40 or Younger	74	17	9	5.51	0.038
41 or Older	68	16	15		
50 or Younger	74	16	10	11.22	0.019
50 or Older	64	17	19		
Taught 10 or fewer years	78	13	9	5.57	0.079
Taught 11 or more years	68	17	14		
Primary grades only	68	18	14	9.83	0.027
Secondary grades or both	81	11	8		
Use active learning in many or all classes	56	24	20	31.96	0.002
Use active learning in some or no classes	77	13	10		
Low to average use of active methods	66	19	15	6.54	0.057
High use of active methods	75	14	11		

Teachers also provided generally supportive responses regarding the structure of the new curriculum. Almost all surveyed teachers (81 percent) indicate that the new curriculum is neither too restrictive nor too loose for their teaching. Responses were slightly lower (69 percent) regarding the new curriculum's level of specificity. Those teachers who most frequently apply the new teaching methods in their practice find new curriculum's level of specificity appropriate (75 percent). In contrast, almost half of the teachers (44 percent) who do not apply the new teaching methods in their practice responded that new curriculum framework is either too vague or too specific. Their complaints, however, are about evenly

split between whether the new curriculum is too vague or too specific suggesting that neither problem is dominant.

Table 3-50: Do you think the new curriculum is too vague, too specific or about right? All Teachers (Teacher Form 1 q.11)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Too vague	17	13	20
Specific	14	10	18
Right	69	64	74
Total	100		

Note: N=693

Table 3-51: Do you think the new curriculum is too vague, too specific or about right? by Category (Teacher Form 1 q.11)

Respondent Category	Too vague	Specific	Right	Chi-Sq. Value	Probability
Urban school	15	15	71	1.1997	0.651
Rural school	18	14	68		
Mountainous rayon	17	14	69	0.93	0.653
Non-mountainous rayon	15	09	76		
Urban school	18	14	69	1.49	0.833
Rural school	15	14	70		
Mountainous school	13	15	72		
Mountainous	15	14	70	0.35	
Rural not Mountainous	13	15	72		
Curriculum pilot schools	17	14	69	2.19	0.362
Not curriculum pilot schools	8	10	82		
School-based teacher training	17	13	70	0.52	0.808
Not School-based teacher training	16	15	69		
Curriculum pilot or school-based teacher	17	13	70	0.32	0.869
Not curriculum pilot or school-based teacher	16	15	69		
40 or younger	13	13	75	5.44	0.097
40 years or older	19	15	67		
50 or younger	17	12	71	3.02	0.269
50 or older	16	17	67		
Taught 10 or fewer years	16	11	73	1.59	0.400
Taught 11 or more years	17	15	68		
Primary or both	17	14	69	1.27	0.491
Primary grade teachers.	13	15	71		
Science / Math	21	15	63	11.65	0.170
Humanities	18	16	66		
Primary	8	8	83		
Use active methods in many-all classes	30	13	56	41.67	0.003
Use active methods in some-none classes	11	14	75		
Low-average use of active methods	17	16	67	1.67	0.390
High use of active methods	16	12	72		

Table 3-52: Do you think the new curriculum is too loose, too restrictive, or about right? All Teachers (Teacher Form 1 q.10)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Too loose	12	09	15
Too restrictive	07	05	09
About Right	81	77	86
Total	100		

Note: N=690

Table 3-53: Do you think the new curriculum is too loose, too restrictive, or about right? by Category (Teacher Form 1 q.10)

Respondent Category	Too Loose	Too restrictive	About Right	Chi-Sq. Value	Probability
Urban school	12	7	81	0.54	0.802
Rural school	11	2	83		
Mountainous rayon	16	2	81	2.08	0.435
Non-mountainous rayon	11	7	82		
Urban school	12	8	81	3.93	0.357
Rural school	10	6	84		
Mountainous school	16	5	79		
Mountainous school	10	6	84	3.64	
Rural not Mountainous school	16	5	79		
Curriculum pilot schools	06	02	92	2.16	0.287
Not curriculum pilot schools	12	07	81		
School-based teacher training	11	08	81	2.46	0.353
Not School-based teacher training	12	05	83		
Curriculum pilot or school-based teacher	11	08	80	2.06	0.414
Not curriculum pilot or school-based teacher	12	05	83		
40 or Younger	08	04	88	9.98	0.111
41 or Older	14	08	78		
50 or younger	11	06	83	2.35	0.4196
50 or older	13	08	79		
Taught 10 or fewer years	09	05	86	3.44	0.359
Taught 11 or more years	12	08	80		
Secondary or both grade teacher	13	07	80	3.21	0.348
Primary grade teacher	07	07	86		
Science / Math	12	10	78	2.72	0.492
Humanities	11	7	82		
Primary	7	7	86		
Use active methods in many-all classes	18	10	72	18.6	0.013
Use active methods in some-none classes	09	06	86		
Low to average use of active methods	12	5	82	0.91	0.657
High use of active methods	12	7	81		

Teachers at the focus group discussions emphasized the efficiency of curriculum instructional trainings and materials provided, that further fostered their understanding of new curriculum framework and methodology. Teachers pointed out that copies of training materials were distributed to all interested teachers at their school, which significantly contributed to implementation of the new curriculum at school level and promoted teachers awareness of new methodology as well. To be able to generalize more broadly, the same question was addressed in teachers' surveys to explore teachers' attitudes towards the examples and

models provided on how to teach active learning and the new curriculum. Teacher attitudes were almost evenly split. Namely, 53 percent of teachers think that the examples and models provided on how to teach active learning and the new curriculum are sufficient or more than sufficient, while 47 percent (the figures below are rounded) indicate that they find them somewhat or very insufficient. Most of these are in the somewhat insufficient category.

Table 3-54: How sufficient are the examples and models provided of how to assess active learning/group work? (Teacher Form 1 q.38a)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Very insufficient	9	6	12
Somewhat insufficient	37	30	45
Sufficient	52	44	60
More than sufficient	1	0	2
Total	100		

N=657

Table 3-55: How sufficient are the examples and models provided of how to assess active learning/group work? (Teacher Form 1 q.38a)

Respondent Category	Very insufficient	Somewhat insufficient	Sufficient	More than sufficient	T- or Chi-Sq Value	Probability
Rural school	8	34	56	0	3.57	0.621
Urban school	10	40	49	1		
Mountainous rayon	6	38	56	0	1.01	0.647
Non-mountainous rayon	10	37	52	1		
Urban school	10	40	49	1	9.42	0.441
Rural school	10	32	57	0		
Mountainous school	3	40	56	1		
Curriculum pilot schools	10	34	57	0	0.49	0.884
Not a curriculum pilot schools	9	37	52	1		
School-based teacher training school	8	40	50	1	4.58	0.286
Not school-based training school	11	34	55	0		
Curriculum pilot or school-based	8	40	51	1	4.03	0.316
Not curriculum pilot or school-based	11	34	55	0		
50 years or younger	7	38	53	1	5.56	0.239
51 years or older	13	36	50	0		
Taught 11 or more years	10	39	50	1	5.82	0.259
Taught 10 or fewer years	8	30	60	2		
Primary grade teacher	10	36	53	1	2.73	0.603
Secondary or both	8	41	51	0		
Class size 25 or more	12	35	51	1	3.35	0.588
Class size 24 or less	8	38	53	0		
Use active learning in many or all	9	33	57	1	19.76	0.034
Use active learning in some or none	11	48	41	0		
High use of active methods	7	34	58	0	5.63	0.285
Low to average use of active methods	11	39	49	1		

Table 3-56: How sufficient are the examples and models provided of how to teach active learning and the new curriculum? (Teacher Form 1 q.38b)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Very insufficient	7	5	10
Somewhat insufficient	41	36	46
Sufficient	50	44	56
More than sufficient	1	0	2
Total	100		

N=654

Table 3-57: How sufficient are the examples and models provided of how to teach active learning and the new curriculum? (Teacher Form 1 q.38b)

Respondent Category	Very insufficient	Somewhat insufficient	Sufficient	More than sufficient	T- or Chi-Sq Value	Probability
Rural school	5	43	51	1	4.07	0.364
Urban school	9	40	50	1		
Mountainous rayon	6	34	60	0	1.48	0.514
Non-mountainous rayon	7	42	50	1		
Urban school	9	40	50	1	6.23	0.546
Rural school	6	43	50	1		
Mountainous school	3	39	57	0		
Curriculum pilot schools	5	53	42	0	1.65	0.706
Not a curriculum pilot schools	8	41	51	0		
School-based teacher training	7	44	48	1	3.85	0.300
Not school-based teacher training	8	38	54	1		
Curriculum pilot or school-based	7	44	48	1	2.95	0.389
Not curriculum pilot or school-based	8	38	54	1		
50 years or younger	6	43	51	0	12.22	0.019
51 years or older	10	39	49	2		
Taught 11 or more years	8	45	47	0	9.42	0.126
Taught 10 or fewer years	7	31	61	1		
Primary grade teacher	8	42	49	1	2.07	0.643
Secondary or both	6	39	54	0		
Class size 25 or more	10	37	52	0	8.58	0.108
Class size 24 or less	6	44	49	1		
Use active learning in many or all classes	7	38	54	1	13.68	0.070
Use active learning in some or none	10	50	40	0		
High use of active methods	7	38	55	1	1.99	0.645
Low to average use of active methods	7	42	49	1		

All teachers interviewed emphasized a need for daily lesson-planning to teach new subject syllabi, but teachers generally suggested they felt prepared for teaching the new subject syllabi by the end of the 2007 calendar year. The survey showed that most teachers (77 percent) felt prepared "well enough" to teach new subject syllabi, although few indicated they were "very well" prepared. Teachers in urban areas feel slightly more confident about the level of preparedness to teach new subject syllabi. It is unclear from the research whether the structure of the question encouraged teachers to answer more positively than they really feel

Table 3-58: How well are you prepared to teach the new subject syllabi? All Teachers (Teacher Form 1 q. 9)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Not at all	01	0	1
Somewhat	11	07	14
Well enough	77	70	84
very well	12	07	16
Total	100		

Note: Totals do not add to 100 due to rounding, N=703

Table 3-59: How well are you prepared to teach the new subject syllabi? by Category (Teacher Form 1 q. 9)

Respondent Category	Not at all	Somewhat	Well enough	Very well	T- or Chi-Sq. Value	Probability
Urban school	0	7	77	15	18.95	0.044
Rural school	1	15	77	9		
Mountainous rayon	0	16	75	9	1.62	0.620
Non-mountainous rayon	0	10	77	12		
Urban school	1	7	77	15	36.30	0.208
Rural school	0	10	83	6		
Mountainous school	0	23	63	14		
Mountainous school	0	22	63	14	18.63	0.086
Rural not Mountainous school	0	10	83	6		
Curriculum pilot schools	0	6	79	14	0.83	0.909
Not curriculum pilot schools	1	11	77	12		
School-based teacher training	1	10	79	11	5.76	0.503
Not school-based teacher training	0	13	74	13		
40 or Younger	1	9	76	14	2.10	0.746
41 or Older	0	11	78	11		
50 or younger	1	12	74	13	7.63	0.180
50 or older	0	7	82	10		
10 or fewer years	2	9	76	13	13.57	0.172
11 or more years	0	11	77	11		
Primary grade teacher	1	11	77	12	1.24	0.780
Secondary or both	0	10	79	11		
Science / Math	2	7	76	14	8.92	0.283
Humanities	0	6	80	14		
Primary	0	8	85	7		
Low to average use of active methods	1	12	74	12	6.57	0.169
High use of active methods	0	7	80	12		
Use of active methods in many-all classes	0	7	77	15	31.72	0.002
Use of active methods in some-none classes	1	18	77	4		

Teachers acknowledge that availability of new textbooks oriented on integrated learning and practical tasks enables students to work more independently than before the reforms. They also stated that the level of collaboration in the classroom have improved among students of different performance levels during the lesson. The new curriculum enables more opportunities for an interactive classroom. On a question regarding how much freedom of choice the new curriculum gives to teachers, the vast majority of teachers responded that it gives them freedom of choice to some extent. Teachers from pilot schools and those with classes with 24 or fewer students are particularly likely to believe the new curriculum provides a lot of freedom.

Table 3-60: How much freedom of choice does the new curriculum give schools and teachers? all Teachers (Teacher form 1 q.12)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Little freedom	7	5	9
Some freedom	63	59	67
A lot of freedom	30	26	34
Total	100		

Note: N=694

Table 3-61: How much freedom of choice does the new curriculum give schools and teachers? by Category (Teacher form 1 q.12)

Respondent Category	Little freedom	Some freedom	A lot of freedom	Chi-Sq. Value	Probability
Urban school	8	57	35	12.46	0.0798
Rural school	5	70	25		
Not mountainous rayon	7	63	30	1.09	0.416
Mountainous rayon	3	65	33		
Urban school	8	57	35	17.39	0.125
Rural school	7	65	28		
Mountainous school	0	77	23		
Rural not mountainous school	7	65	28	9.68	
Mountainous school	0	77	23		
Curriculum pilot training school	2	25	73	25.36	0.007
Not curriculum pilot schools	7	65	29		
School-based teacher training	7	63	30	1.00	0.713
Not school-based teacher training	6	63	31		
Curriculum pilot or school-based teacher	7	62	30	0.68	0.778
Not curriculum pilot or school-based	6	64	30		
40 or Younger	8	59	33	2.73	0.286
41 or Older	6	65	29		
50 or Younger	8	61	31	2.75	0.272
51 or Older	5	67	28		
Taught 10 or fewer years	9	59	32	2.43	0.295
Taught 10 or more years	6	64	30		
Primary grade teacher	6	64	30	0.65	0.824
Secondary or both	8	60	32		
Science / Math	8	62	31		
Humanities	5	65	30	2.98	0.656
Primary	4	59	37		
class size 24 or less	5	68	27	16.44	0.038
class size 25 or more	10	54	36		

The new education law sets as a goal for the system to teach all students at all performance levels at the same time in contrast to the more traditional Soviet focus on the best performers. The evaluation examined this issue through a survey question. 61 percent of teachers think that the curriculum allows them to teach all levels of students at the same time, while 24 of teachers think that it is suitable mostly for students of medium or strong level and 16 for students at the low to medium levels. This shows additional room for training of teachers how to teach at all levels. Those from mountainous rayons, those from pilot curriculum

training schools, and younger teachers more often consider the new curriculum to be more suitable for all levels of their students. Interestingly, no difference was found based on urban versus rural areas nor by grade level or subject taught. (See table below.)

Table 3-62: Which levels of students do you think the curriculum allows you to teach at the same time? (Teacher Form 1 q.13)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Students of medium or strong level	24	18	30
Students of medium or weak level	16	12	19
At least all levels of students	61	55	66
Total	100		

N= 696

Table 3-63: Which levels of students do you think the curriculum allows you to teach at the same time? (Teacher Form 1 q.13)

Respondent Category	Medium or strong	Medium or weak	All levels	T- or Chi-Sq Value	Probability
Rural school	22	17	61	1.147	0.702
Urban school	25	15	60		
Mountainous rayon	12	11	77	4.40	0.158
Not mountainous rayon	24	16	60		
Urban school	22	17	61	12.06	0.131
Rural school	31	14	55		
Mountainous school	14	15	70		
Curriculum pilot schools	14	01	85	8.26	0.018
Not a curriculum pilot schools	24	16	60		
School-based teacher training school	23	15	62	0.90	0.712
Not school-based training school	25	16	59		
40 or younger	19	9	71	20.67	0.001
41 or older	26	19	55		
50 or Younger	22	15	63	4.47	0.223
51 or older	28	17	55		
Taught 11 or more years	18	11	71	10.75	0.021
Taught 10 or fewer years	26	17	57		
Primary grade teacher	24	16	60	0.50	0.823
Secondary or both	22	15	63		
Science/Math	21	21	59	6.20	0.309
Humanities	25	11	64		
Primary classes	20	13	67		

The evaluation attempted to get a basic indicator of whether schools are utilizing the 25 percent flexibility in the curriculum to stand out and come up with novel curricular programs, as expected under the National Law. For instance, in some countries, the idea of magnet schools has arisen with special academic foci. Overall, schools appear to be motivated to offer some breadth of educational programs within the national curriculum to students, a potential indication of school ability to use creativity in their development of curriculum. The director of the NCAC indicated the expectation that, at this point, most schools are using this flexibility merely to bolster the most powerful programs within the school. The director surveys provide the suggestion there may be more diversity than this. Forty-four percent of

schools claim to offer programs different from programs in other schools within the framework of new national curriculum, although admittedly this may not be a highly reliable measure.[15] As expected, urban schools more often apply different programs more than rural schools because of the greater implicit competition between schools located more closely together. The evaluation does not have a good baseline figure for comparison to judge whether this represents a change or continuity from the past.

3.2.4 Obstacles to Use

In addition to training related issues, the study considers other obstacles to teacher use of newer methods to serve as potential diagnostics for the program. Insufficient equipment or materials was identified as the most common impediment followed by short class periods, insufficient time to practice newer methods, too many students, and an unsupportive atmosphere in schools for the use of the new methods from the director and other teachers.

Sixty-four percent of teachers surveyed identified insufficiency of equipment and materials as one of the obstacles in using the new instructional practices. This is a common problem found in most developing countries attempting such reforms. In contrast to expectations, the survey did not show significant shortages of relevant equipment and materials in rural or mountainous schools relative to urban ones, although this is based on subjective assessments of teachers themselves. Teachers of primary classes identified themselves as poorly equipped with materials and equipment somewhat less often than teachers of science and math subjects. Nonetheless, informally and in interviews, primary school teachers also indicated a lack of equipment such as scissors, paper, tape, etc required for activities in the new text books, as discussed later. The recommendations section discusses how the Ministry and Centers may want to expand the work the TPDC did previously on this issue by looking at resources developed in other countries.

[15] The survey asks only for directors to make this assessment of whether the school is providing different options. Additional research would be required to analyze curricula to better answer this question.

Table 3-64: I do not have the necessary equipment or materials (Teachers form 1 q.34g)

Respondent Category	Yes %	T- or Chi-Sq. Value	Probability
Urban school	64	0.24	0.812
Rural school	63		
Mountainous rayon	72	1.15	0.268
Not mountainous rayon	63		
Rural school	36	3.43	0.186
Urban school	33		
Mountainous school	45		
Rural not mountainous school	67	1.05	*
Mountainous school	55		
Curriculum pilot schools	62	-0.19	0.849
Not curriculum pilot schools	64		
School-based teacher training	63	-0.08	0.940
Not school-based teacher training	64		
Curriculum pilot or school-based teacher training school	63	-0.19	0.855
Not curriculum pilot or school-based teacher training school	64		
40 year or younger	64	-0.08	0.939
41 or older	63		
50 year or younger	63	0.12	0.908
51 or older	64		
Taught 10 years or less	63	0.02	0.988
Taught 11 years or more	64		
Primary grade teacher	64	-0.54	0.594
Secondary or both	62		
Science / Math	72	6.99	0.109
Humanities	63		
Primary	54		
Use active methods in some-none classes	72	8.50	0.009
Use active methods in many-all classes	60		
Low to average use of active methods	66	0.35	0.472
High use of active methods	64		

***Unable to calculate probability values to generalize nationally.**

Short class times and the number of students in classrooms were the next most frequently mentioned obstacles. Short class times were named by 44 percent of teachers as an obstacle for using new instructional practices effectively. Teachers of only regular primary classes indicate they face this obstacle more often than do teachers of science and math subjects. This is a common problem experienced by teachers in many countries. The evaluation team expects that this problem could increase somewhat in future surveys as more teachers try to use the new methods more often. The NCAC should consider in its training how teachers can try to fit active learning within and across class periods. On the other side, the Ministry and schools should consider methods such as allowing classes for longer blocks that could more easily facilitate the many steps involved in many active learning approaches.

Table 3-65: time is too short (Form 1, q 34 c)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
No	56	50	62
Yes	44	38	50
Total	100		

N= 646

Table 3-66: Class time is too short (Form 1, q 34 c)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability
Urban school	44	-0.03	0.973
Rural school	44		
Mountainous rayon	51	0.79	0.440
Not mountainous rayon	43		
Rural not mountainous school	46	0.65	*
Mountainous school	41		
Curriculum pilot schools	50	0.98	0.344
Not Curriculum pilot schools	43		
School-based teacher training	46	0.64	0.530
Not school-based teacher training	41		
Curriculum pilot or school-based teacher training school	46	0.77	0.455
Not curriculum pilot or school-based teacher training school	40		
40 or Younger	37	2.12	0.051
41 or Older	47		
50 or Younger	40	2.65	0.018
51 or Older	51		
Taught 10 or fewer years	35	1.96	0.069
Taught 11 or more years	46		
Primary grade teacher	42	1.99	0.066
Secondary or both	51		
Science / Math	47	7.08	0.187
Humanities	40		
Primary	59		

***Unable to calculate probability values to generalize nationally.**

Overall, 41 percent of teachers indicated that too many students in classroom or insufficient classroom size is an impediment for them in applying new instructional practices. This problem is most evident in urban areas, where half the teachers (52 percent), identified this as a problem compared only 28 percent among teachers from rural schools. The problem of how to use active learning methods in larger classrooms is a common complaint across similar interventions in other countries and deserves special attention in future efforts. Although the Ministry clearly is aware of the issue of small, inefficient classroom sizes (justifying the concern with consolidation discussed in section 4), large classrooms could pose a barrier to widespread use of active methods and could become increasingly problematic with ad hoc physical consolidations of larger schools in urban districts (also discussed in section 4).

Table 3-67: Too many students in classroom or insufficient classroom size (Form 1, q 34 h)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
No	59	53	66
Yes	41	34	47
Total	100		

N= 637

Table 3-68: Too many students in classroom or insufficient classroom size (Form 1, q 34 h)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability
Urban school	52	4.59	0
Rural school	28		
Mountainous rayon	32	-1.09	0.295
Not mountainous rayon	41		
Rural not mountainous school	30	1.05	*
Mountainous school	25		
Curriculum pilot schools	49	1.26	0.226
Not Curriculum pilot schools	40		
School-based teacher training	46	2.14	0.049
Not school-based teacher training	33		
Curriculum pilot or school-based teacher training school	46	2.24	0.040
Not curriculum pilot or school-based teacher training school	33		
40 or Younger	46	-2.36	0.032
41 or Older	38		
50 or Younger	45	-3.52	0.003
51 or Older	33		
Taught 10 or fewer years	45	-1.12	0.280
Taught 11 or more years	39		
Primary grade teacher	40	0.56	0.584
Secondary or both	44		
Science / Math	40	3.28	0.317
Humanities	50		
Primary	50		

*Unable to calculate probability values to generalize nationally.

A perception of inflexibility in the school or national curriculum was identified as an issue for a moderate amount of teachers. Only 33 percent of teachers identified that there is not enough flexibility in the curriculum to make room for many of these newer instructional practices. The statement was not designed to identify in what respect they perceive the inflexibility. 37 percent of teachers that had school-based teacher training or pilot training agree with this statement, while only 28 percent of teachers without school-based teacher training or pilot training agree with it. These findings may seem to contradict earlier ones in which 81 percent of teachers claim to apply to some extent active assessment methods in their classes. However, it is important to note that those teachers mostly indicated they apply active methods *to some extent*. In some countries, use of active methods only part of the time may be due not just to lack of comfort and practice or understanding of how to apply the methods. Limited application of active methods may happen in part because teachers believe they have to meet certain quotas of delivery of facts, for which active learning is an

inefficient method of delivery. Teachers therefore may use the active methods only in cases when they feel they have "met their quota" of delivery of important content or facts.

Table 3-69: There is not enough flexibility in curriculum to make room for many of these newer instructional practices (Form 1, q 34 f)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
No	67	64	70
Yes	33	30	36
Total	100		

N= 625

Table 3-70: There is not enough flexibility in curriculum to make room for many of these newer instructional practices (Form 1, q 34 f)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability
Urban school	34	0.28	0.782
Rural school	33		
Mountainous rayon	33	0.14	0.894
Not mountainous rayon	33		
Rural not mountainous school	31	-1.21	*
Mountainous school	35		
Curriculum pilot schools	36	0.90	0.385
Not Curriculum pilot schools	33		
School-based teacher training	36	1.78	0.096
Not school-based teacher training	29		
Curriculum pilot or school-based teacher training school	37	2.04	0.059
Not curriculum pilot or school-based teacher training school	28		
40 or Younger	23	3.66	0.002
41 or Older	38		
50 or Younger	30	2.11	0.052
51 or Older	39		
Taught 10 or fewer years	26	2.35	0.033
Taught 11 or more years	35		
Primary grade teacher	33	0.31	0.761
Secondary or both	35		
Science / Math	30		
Humanities	34	1.159	0.738
Primary	36		

*Unable to calculate probability values to generalize nationally.

34 percent of teachers think that the atmosphere in their schools is unsupportive of the use of the new methods either due to lack of support from the existing directors or from other teachers and teacher faculties. For teachers to make such a large change in their ways effectively, they have to feel the environment is, if not supportive, at least not antagonistic to the use of new methods. This again suggests the importance of training to help director attitudes change in line with reform directions.

Table 3-71: There is no atmosphere in my school for the use of the new methods (Form 1, q 34 i)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	33	26	42
No	66	58	74
Total	100		

N=634

Table 3-72: There is no atmosphere in my school for the use of the new methods (Form 1, q 34 i)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability
Urban school	32	-0.72	0.481
Rural school	36		
Not mountainous rayon	34	0.18	0.861
Mountainous rayon	32		
Rural not mountainous school	36	0.55	0.601
Mountainous school	31		
Curriculum pilot schools	40	0.76	0.459
Not Curriculum pilot schools	33		
School-based teacher training	34	0.16	0.879
Not school-based teacher training	33		
Curriculum pilot or school-based teacher training school	34	0.40	0.694
Not curriculum pilot or school-based teacher training school	32		
40 or Younger	37	-0.89	0.390
41 or Older	32		
50 or Younger	35	-0.74	0.469
51 or Older	30		
Taught 10 or fewer years	33	0.11	0.912
Taught 11 or more years	34		
Primary grade teacher	34	-0.99	0.336
Secondary or both	30		
Science /Math	30	6.46	0.052
Humanities	33		
Primary	47		

Finally, thirty percent of teachers indicated that shortage of time to practice new instructional practices impedes them to apply new instructional practices in their classes. Older teachers identified this as a concern more often than younger teachers.

Table 3-73: I do not have time to practice new instructional practices (Form 1, q 34 d)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
No	70	63	76
Yes	30	24	37
Total	100		

N= 624

Table 3-74: I do not have time to practice new instructional practices (Form 1, q 34 d)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability
Urban school	26	-1.60	0.131
Rural school	35		
Mountainous rayon	42	2.62	0.019
Not mountainous rayon	30		
Rural not mountainous school	34	-1.26	*
Mountainous school	41		
Curriculum pilot schools	39	1.09	0.292
Not Curriculum pilot schools	30		
School-based teacher training	27	-1.12	0.281
Not school-based teacher training	35		
Curriculum pilot or school-based teacher training school	27	-0.97	0.348
Not curriculum pilot or school-based teacher training school	35		
40 or Younger	27	1.33	0.202
41 or Older	32		
50 or Younger	27	2.16	0.047
51 or Older	37		
Taught 10 or fewer years	26	1.13	0.277
Taught 11 or more years	32		
Primary grade teacher	31	-0.90	0.383
Secondary or both	26		
Science / Math	25	6.11	0.183
Humanities	26		
Primary	40		

*Unable to calculate probability values to generalize nationally.

3.2.5 Assessment

This subsection discusses the attempts undertaken by the reform efforts to change the grading system to a ten point system and the system for student assessment from purely summative grading to a combination of formative and summative assessment.

3.2.5.1 Grading System

A new ten point grading system was introduced to avoid the problem in the existing system of grade inflation and the subsequent shrinking of the system to a small number of options. This is a common problem across many countries.

Center representatives indicate that the reason the ten-point system was chosen was because it already is used formally and informally in some schools, is considered to be simple and widens the scale to allow for a formative assessment process to show progress in student learning. The ultimate goal is for teachers to be able to develop individual lesson plans and assess for progress, not comparisons. Grading would be removed from the primary grade and replaced with only comments.

Center representatives admit they have had difficulty in communicating this complicated and ambitious concept to teachers thus far. They indicate that during the coming year, the Center will be training teachers in how to construct rubrics and how to work with students so they

develop their own goals for improvement. In addition, one training kit will be provided at each school, plus one in each ERC library. The Center also distributes a copy of a monthly newsletter to schools in a mostly question-answer format in which examples of grading rubrics are provided and other active learning-related issues are discussed.

3.2.5.2 Formative and Summative Assessment

The evaluation survey asked teachers questions to try to determine the extent to which they are using the newer concepts in assessment. Questions such as these on a self-reported survey should be seen as only blunt, rough measures for purposes of getting a general sense of teachers' impressions of their use. Teachers often over estimate their own use of new approaches. Thus, they should not substitute for the more in depth research planned by the NCAC. The results described below indicate that teachers lack a strong understanding about the new formative evaluation goals of the assessment system, are only somewhat prepared to use the 10 point system, and they, parents, and directors have some lack of comfort with the new grading system. Although a large percentage of teachers indicate they apply active assessment methods in their classes to some extent, many may not understand well the concepts involved and require additional training, examples and models.

The survey asks teachers three questions to determine the extent to which teachers are more focused on traditional methods of questioning to see if students know the "right answers" or are attempting to get students to think critically and justify their responses regardless of how "right" they are. Because there are only three questions and their purpose in the survey is obvious without any observational data to ground truth them, they should be used cautiously.[16] The goal is to see whether attitudes, if not assessment processes themselves, have changed from Bank's baseline studies (Sancho and Hernandez *et al.*; 1999, Shahriari, 1999), in which assessment goals focused on correct answers and summative assessment. The three individual questions are presented below.

Table 3-75: See if students know the correct answer (Teachers form 1 q.6a)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Never	40	31	47
Sometimes	51	45	58
Often	8	6	11
Very often or always	0	0	1
Total	100		

Table 3-76: Elicit / Draw out students' ideas and opinions (Teachers form 1 q.6b)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Never	0	0	1
Sometimes	5	3	7
Often	47	43	51
Very often or always	47	43	51
Total	100		

[16] Three questions is an insufficient number to get a truly reliable, internally consistent index, but it used here for exploratory purposes only. The index was kept at three in order to keep the survey a reasonable length.

Table 3-77: Get students to justify and explain their reasoning (Teachers form 1 q.6c)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Never	0	0	1
Sometimes	8	5	11
Often	41	37	45
Very often or always	50	47	54
Total	100		

Across the three, teachers claimed that they often ask students questions to elicit their ideas and make them justify responses and infrequently use assessment to test whether students know the right answers. However, teachers in some focus groups indicated lack of confidence in the new formative assessment methods to the extent that the pattern of variation among students has not changed so that students who are poorer at traditional learning methods still are not scoring well in traditional tests. This suggests a continued lack of understanding about the new formative evaluation goals of assessment system and continued reliance on the idea of traditional assessment. The latter non-generalizable finding is not, strictly speaking, inconsistent with the former. Overall, the evaluation team places limited faith in these as strong measures of the extent to which teachers really have changed their goals, although they do indicate that teachers have changed their understanding about what is, if only in theory, the new "right" way to assess students.

The survey also asked teachers about their preparation to use the new 10 point grading system. Survey results indicate that 61 percent of teachers state that they are only somewhat prepared to use the new 10 point grading system as an assessment instrument. Indeed, the majority of teachers at teachers' focus groups emphasized the need to have thorough trainings in using the 10 point grading system to ensure its effective application in practice taking into consideration subject matter and larger class sizes. The need is seen across all categories, although newer teachers and those who claim to use active learning claim to be slightly better prepared.

Table 3-78: How well prepared are you to use the 10 point grading system? (Teacher form 1 q.33)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Very well prepared	36	30	41
Moderately well prepared	61	56	67
Poorly prepared	3	2	5
Total	100		

Note: N= 692

Table 3-79: How well prepared are you to use the 10 point grading system? (Teacher form 1 q.33)

Respondent Category	Very well	Somewhat well	Poorly	Chi-Sq. Value	Probability
Urban school	39	59	2	2.37	0.331
Rural school	32	63	4		
Mountainous rayon	30	68	2	1.01	0.435
Not mountainous rayon	36	61	3		
Rural school	39	59	2	6.00	0.455
Urban school	30	66	4		
Mountainous school	37	58	5		
Mountainous school	37	58	5	1.91	0.421
Rural not mountainous school	30	66	4		
Curriculum pilot schools	28	66	6	1.38	0.388
Not curriculum pilot schools	36	61	3		
School-based teacher training	39	58	3	4.18	0.412
Not school-based teacher training	32	65	4		
Curriculum pilot or school-based teacher	39	59	3	4.05	0.432
Not curriculum pilot or school-based teacher	32	65	4		
40 or Younger	40	58	2	4.33	0.261
41 or Older	33	63	4		
50 or Younger	38	60	3	2.83	0.472
51 or Older	33	63	4		
Taught 10 or fewer years	46	50	4	10.35	0.070
Taught 11 or more years	33	64	3		
Secondary or both	35	61	3	0.14	0.924
Primary grade teacher	37	60	3		
Class size 24 or less	35	62	3	0.90	0.575
Class size 25 or more	37	60	2		
Science / Math	34	65	2	7.05	0.435
Humanities	39	58	3		
Primary	24	72	4		
Use active methods in some-none classes	26	70	4	12.41	0.042
Use active methods in many-all classes	40	57	3		
Low-average use of active methods	39	56	5	15.29	0.002
High use of active methods	34	66	0		

Teachers indicate mixed appraisals of the examples and models provided of how to assess active learning/group work and some indicate they believe the training relevant to these subjects are sufficient even though NCAC and TPDT representatives admitted that this is an area for further improvement. From the survey, 52 percent of teachers responded that the models were sufficient, but 37 percent of teachers indicated they were only somewhat sufficient and 9 percent that they were very insufficient. There were not significant differences in responses among most relevant categories.[17] The NCAC appears to be trying to communicate examples of grading rubrics through the Ministry's official newspaper, one copy of which is distributed to each school although not to each teacher. The NCAC indicated it will be putting greater emphasis on assessment into their trainings planned for the coming year.

[17] Regarding the same question, directors said that 40 percent of their teachers have been trained to assess students while using new methods. It appears that most directors may have interpreted this question to indicate all teacher training rather than just training on the new methods. 38 percent of directors claimed that those trainings greatly helped teachers to assess students while using new methods and 62 percent stated that the trainings helped somewhat. None indicated they provided no help.

There is modest evidence that teachers, parents, and directors have some lack of comfort with the new 10 point grading system. The evaluation team did not raise the issue of the new 10 point grading system during focus groups or in the director surveys. Nonetheless, six directors raised the issue of parent concern about the new 10 point grading system interest as a reason for higher parent involvement in school academic issues. This is notable because it was an open ended question on a different subject and the grading system was not mentioned anywhere in the survey to prompt such a response. One board of trustees also raised the issue of concern about the new grading system during a generic focus group question about parent concerns regarding the reforms. In the teacher survey, 44 percent of teachers indicate that they think that the new 10 point grading system is too wide. Interestingly, the percentage of teachers who think that 10 point grading system is too wide to be used as assessment instrument is higher in schools involved in pilot training (71 percent), than in non-pilot schools (51 percent). The interpretation of this depends on whether one assumes that training has been more widespread in the pilot schools or the non pilot schools. It could indicate that greater familiarity with the grading system leads to greater concerns, or it could mean the reverse. There is no significant difference in teacher responses by school location.

Table 3-80: Do you think the new 10 point grading system is too wide? (Teacher form 1 q.19)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	46	36	57
No	53	42	64
Do not Know	1	0	2
Total	100		

Table 3-81: Do you think the new 10 point grading system is too wide? (Teacher form 1 q.19)

Respondent Category	Yes	No	DK	T- or Chi-Sq Value	Probability
Urban school	57	42	1	36.15	0.064
Rural school	35	65	0		
Urban school	56	42	1	47.22	0.021
Rural school	27	73	0		
Mountainous school	52	48	3		
Deer Leap shool	55	44	1	31.95	0.0697
Not Deer Leap shool	34	66	0		
Rural Deer Leap school	46	54	0	5.36	0.181
Rural not Deer Leap school	24	76	0		
Mountainous Deer Leap school	45	53	2	2.03	0.451
Mountainous Deer Leap school	53	47	0		

Many teachers interviewed during fieldwork and informal discussions emphasized the need to have trainings on the 10 point grading system/instruments to ensure its effectiveness. They also indicated that trainings should include examples that account for differences across subjects and how to assess well in large classes, where individual attention is more challenging.

3.2.6 Pilot versus Implementation Models for Delivery

Generally, the concept of pilot schools followed by implementation schools implies that the pilot schools are the schools where one would expect the strongest efforts towards dissemination and thus the largest effect. The implementation schools would then result in a lower level of impact. Because the delivery systems are different for pilot and implementation schools, the goal of the pilot schools must be to test out and make adjustments in the curriculum itself rather than the delivery system. Nonetheless, due to the difference in methods, it represents an opportunity for a natural experiment in the benefits of the delivery models. The weakness of the pilot model is its unclear dissemination method from the corps of people trained to the rest of the school. The weakness of the implementation model is a lack of commitment among those trained since anyone can attend any session but not attend the next.

The evidence presented previously is mixed regarding whether the pilot school or implementation school models are superior in terms of training. More pilot school teachers feel confident about the application of the new curriculum and think the curriculum allows them to teach all levels of students. However, pilot school teachers have lower congruency between their attitudes and the new methods, and indicate more frequently as an obstacle inadequate training support on using the newer methods. Most relationships with other indicators of increased use and attitudes are unclear including that for use of and comfort with assessment methods. No more pilot school than implementation teachers consider the examples provided to them to be sufficient, use active learning techniques no more frequently, and are no more positive about whether the new curriculum's preference for active learning can be applied to their classrooms.

Although the superiority of the training outcomes is not the only reason to have pilot schools, the evaluation considers it highly unusual across international interventions to have different delivery methodologies where learnings about how to improve delivery from one can not be transferred to the other and where the pilot training model is not at least superior.

3.2.7 Systems of Support of Continuous Change for Teacher Method Reforms

Returning to training for both school-based teacher training program and curriculum training, proper support structures and efforts to encourage continuous professional development will be the only way reforms such as these will be sustained. This section examines these structures.

3.2.7.1 In-service Training

Immediate in-service training for current teachers by first the TPDC and then the NCAC has been identified by the Ministry, Centers, and Bank as a key to reforming teacher practices. Long-term in-service training plans beyond these trainings also are a key to long-term change and sustainability. As of the evaluation, the Ministry and Centers are still working on the design of longer-term in-service training after the NCAC completes its training. The understanding of the evaluation is that it is likely to involve certification of nongovernmental organizations, but this is uncertain. Although some NGOs currently are offering teachers training sometimes claiming it is helpful for future certification, it is our understanding that

they are not licensed, certified, or necessarily linked in any way to structured in-service training.[18]

Although the evaluation team was informed that ERCs currently are not envisioned as directly providing teachers' professional development trainings to schools, they are intended to play at least a facilitative role. We therefore asked directors about the activeness of ERC support both for school management and for teachers' professional development processes. Almost all directors (97 percent) indicated that their ERC is active enough to support school management and teachers' professional development processes, although the question did not differentiate between those two. According to surveys, 78 percent of directors responded that local ERC helped their school in terms of national curriculum implementation, and 41 percent referred to ERC support in providing educational materials. The picture painted by key informants involved and the ERCs themselves is somewhat different. According to focus groups held with 20 ERC heads from the 20 rayons selected for the other data collection, they have had fairly limited interaction with teachers themselves and many of their educational resource staff have insufficient training or background to support teachers in the new processes.

3.2.7.2 Pre-service Training

In order for the dominant methods of teaching not to return to their previous status, incoming teachers also must receive training regardless of low teacher turnover rates currently (see section 4). The Ministry currently is involved in changing the pre-service system in accordance with the Bologna process, which would establish a two-cycle study system consisting of bachelor's and master's degrees with qualifications that would be comparable with all others throughout Europe. The evaluation team has been told that because of the thorough institutionalization of the Soviet-style approach to pedagogy throughout the university system, the pre-service element of teacher training currently is very weak in two respects: its ability to train about newer pedagogical theories and methods, and its ability to model these methods themselves through an active learning process. The team has been informed that no quick solution is apparent through the traditional university system and to expect three to five years to get started. The description of why this assessment was reached appears to assume that the traditional, slow methods of training and vetting traditional full-time university faculty must be followed in order to reform pre-service training.

This diagnosis is understandable and common in post-communist countries trying to transition away from teacher-centered teaching and learning methods. If one agrees with the assumption of the need to slowly reform the tertiary system, it will be no less than the five years estimated before appropriate changes begin to percolate through that system, with incoming teachers weakening the reforms by joining the schools steeped in the traditional methods. It was not clarified for the evaluation team how this change would be pursued through putting newly trained professors in charge, or slowly training existing professors, or – less likely – recruiting internationally. Each of these requires different amounts of time to create their impacts. Another approach that could result in more rapid progress – encouraging universities to utilize the non-Ph.D. talent developed through the reform process – is addressed in the recommendations section.

[18] The evaluation did not interview any such provider nor explore this issue in depth.

3.2.7.3 Teacher Networks and Interactions within and Across Schools

Networking by teachers within and across schools remains somewhat limited, but anecdotal comparisons with the pre-reform era suggest that even this represents a substantial decrease in the isolation that epitomized the Soviet and early independence era system. According to representatives of the NCAC, the TPDC, and the Ministry, isolation from other schools was typical during the Soviet and post-Soviet eras. The reform undertook a school networking project and formulated the school-based teacher professional development delivery model to encourage inter-school collaboration to reduce this isolation. The survey data indicate continued isolation for many teachers but also the beginnings of intra- and inter-school networking and exchanges.

The Implementation Coordinator for the NCAC cited lack of cooperation within schools to create a vibrant teacher professional development community as one of their largest obstacles to successful implementation of teacher training reforms. The evaluation team explored this issue. At teachers' focus group discussions, teachers emphasized the effectiveness of newly established subject faculties, which enable teachers of the same subject to collaborate more closely and discuss new methodology and curriculum components. During focus group discussions, teachers reiterated that all their schools had subject faculties, all teachers were involved, and that they held such faculty meetings on weekly basis. However, the findings from the teacher surveys suggests a lower frequency of teacher interaction, at least regarding teaching issues. First, only 75 percent of teachers indicated that their schools had subject faculties. The survey indicates that 52 percent of teachers meet less than once a month with other teachers of their faculty to discuss how to teach a particular concept in a class and only 12 percent of teachers meet at least once a week to discuss their teaching practice related topics. In addition, 52 percent of teachers state that they rarely meet to discuss with other teachers the ideas for students projects or sharing examples of students projects. The evaluation did not study whether some faculties are very active and yet do not include most teachers.

Table 3-82: Discussions with other teachers of your faculty about how to teach a particular concept in a class (Form 2, q. 35 a)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Never or I cannot answer	7	5	9
Rarely	28	24	31
Less than once a month	52	48	57
At least once a week	13	11	15
Total	100		

N=681

Table 3-83: Discussions with other teachers of your faculty about how to teach a particular concept in a class (Form 2, q. 35 a)

Respondent Category	Never or I cannot answer	Rarely	Less than once a month	At least once a week	Chi-Sq. Value	Probability
Urban school	10	26	52	11	10.57	0.073
Rural school	4	29	53	15		
Mountainous rayon	3	29	57	11	1.18	0.616
Not mountainous rayon	7	27	52	13		
Rural school	3	29	52	16	12.53	0.275
Urban school	10	26	52	11		
Mountainous school	5	25	59	11		
School Network program school	5	19	64	12	3.96	0.29
Not school network program school	7	28	51	13		
Secondary or both	8	19	50	11	8.90	0.124
Primary grade teacher	7	30	63	13		

Table 3-84: Discussion with other teachers about ideas for student's projects or sharing examples of students projects? (Teacher form 1 q.35b)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Never or cannot answer	17	14	21
Rarely	51	47	56
Less than once a month or never	26	22	31
At least once a week	5	3	6
Total	100		

N: 656

Table 3-85: Discussion with other teachers about ideas for students projects or sharing examples of students projects? (Teacher form 1 q.35b)

Respondent Category	Never or cannot answer	Rarely	Less than once a month or never	At least once a week	Chi-Sq. Value	Probability
Urban school	16	51	28	4	2.61	0.575
Rural school	19	51	24	5		
Mountainous rayon	17	69	13	1	5.66	0.005
Not mountainous rayon	17	50	27	5		
Urban school	16	51	29	4	12.76	0.254
Rural school	21	45	28	6		
Mountainous school	12	66	17	5		
School Network program school	17	51	27	5	2.02	0.509
Not school network program school	20	58	19	4		
Primary grade teacher	19	50	27	4	7.02	0.167
Secondary or both	11	58	25	7		

According to discussions with key informants, the school network program had at least some success in linking teachers within regions. Those involved with the reform program were sufficiently impressed with this approach that they have indicated that they hope to build off this model with ERCs designed as hubs for smaller networks of schools although no direct

mechanism for doing so was outlined for the team. The survey indicates that teachers still do not have broad interactions with other teachers on academic matters within or across schools. Only 16 to 23 percent of teachers indicate they meet with other school teachers from other schools through school networks or ERCs. The evaluation also combined together responses across all five questions dealing with networking into one index. The average score was 5.6, which suggests on average that teachers mostly mark "rarely" across most of the questions with some marking more frequently. The evaluation does not have a quantitative baseline for comparison but it has been suggested by many that even this modest proportion suggests a significant shift from earlier and may bring into question why follow up activities were not pursued.

Table 3-86: Discussion with teachers at other schools through the school network? (Teacher form 1 q.35c)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Never or cannot answer	29	23	35
Rarely	55	50	60
Less than once a month or never	14	10	18
At least once a week	2	0	3
Total	100		

N: 648

Table 3-87: Discussion with teachers at other schools through the school network? (Teacher form 1 q.35c)

Respondent Category	Never or cannot answer	Rarely	Less than once a month or never	At least once a week	Chi-Sq. Value	Probability
Urban school	36	53	9	2	24	0.022
Rural school	22	53	20	2		
Mountainous rayon	23	58	19	0	1.75	0.532
Not mountainous rayon	30	55	14	2		
Urban school	36	53	9	2	27.36	0.036
Rural school	24	54	20	2		
Mountainous school	18	58	23	0		
School Network program school	35	56	9	0	2.50	0.652
Not school network program school	29	55	15	2		
Primary grade teacher	30	54	14	2	2.51	0.556
Secondary or both	24	58	17	1		

Table 3-88: Discussion with teachers at other schools through ERC? (Teacher form 1 q.35d)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Never or cannot answer	34	24	45
Rarely	43	35	51
Less than once a month or never	21	12	30
At least once a week	2	1	3
Total	100		

N: 658

Table 3-89: Discussion with teachers at other schools through ERC. (Teacher form 1 q.35d)

Respondent Category	Never or cannot answer	Rarely	Less than once a month or never	At least once a week	Chi-Sq. Value	Probability
Urban school	44	41	14	1	38.71	0.002
Rural school	24	45	28	3		
Mountainous rayon	19	53	22	6	5.94	0.163
Not mountainous rayon	35	42	21	9		
Urban school	44	40	14	1	43.08	0.045
Rural school	27	46	24	3		
Mountainous school	17	45	36	2		
School Network program school	33	45	23	0	1.39	0.634
Not school network program school	35	43	21	2		
Primary grade teacher	36	42	20	2	3.27	0.373
Secondary or both	29	46	24	1		

Table 3-90: Discussion with teachers at other schools through other ways? (Teacher form 1 q.35e)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Never or cannot answer	27	19	34
Rarely	52	45	59
Less than once a month	19	16	23
At least once a week	2	0	4
Total	100		

N: 656

Table 3-91: Discussion with teachers at other schools through other ways? (Teacher form 1 q.35e)

Respondent Category	Never or cannot answer	Rarely	Less than once a month	At least once a week	Chi-Sq. Value	Probability
Urban school	32	49	17	2	12.81	0.132
Rural school	20	55	22	2		
Mountainous rayon	25	46	26	3	1.18	0.550
Not mountainous rayon	27	52	19	2		
Urban school	32	49	17	3	18.44	0.104
Rural school	25	50	23	2		
Mountainous school	12	62	24	1		
School Network program school	26	58	16	1	1.46	0.493
Not school network program school	27	51	20	3		
Primary grade teacher	28	51	18	2	6.29	0.232
Secondary or both	19	54	25	2		

Table 3-92: Index of five networking questions (Teachers form1 q.35 a-e)

Respondent Category	average	T- Value	Probability
Urban school	5.2	-2.80	0.014
Rural school	6.1		
Mountainous rayon	5.6	0.07	0.946
Non-mountainous rayon	5.6		
Mountainous school	6.2	0.11	0.883
Rural not mountainous school	6.1		
School Network Program	5.6	-0.70	0.493
Not in school Network program	5.4		
School-based teacher training school	5.5	-0.64	0.531
Not school-based teacher training school	5.7		
51 or older	5.9	1.72	0.106
50 younger	5.5		
Taught 11 or more years	5.6	-0.58	0.572
Taught 10 or fewer years	5.7		
Primary grade teacher	5.5	1.97	0.068
Secondary or both	6.1		

3.2.8 Teacher Training in ICT Technology

This section examines measures of the use of computers and ICT skills of teachers. It thus involves both the impact of training in ICT technology conducted under the Deer Leap program as well as status quo comparisons for teachers and schools yet to be involved in Deer Leap. A discussion of the Deer Leap teaching training component is provided in the introductory section of the report. The provision of computers and Internet to schools by the Deer Leap program is discussed separately under section 4.3.

The evidence suggests positive reactions from teachers and students about the Deer Leap training as well as the computer laboratories that facilitate the use of computers (the latter discussed in greater detail in section 3.3. Teachers who received Deer Leap's currently basic level of training feel more comfortable with computers and use them at school and outside of school more often than their colleagues. Nonetheless, a high proportion of all teachers, including Deer Leap trained teachers, still never or rarely use computers at school; do not feel comfortable enough with computers to use them as teaching aids; and lack an understanding of how to make the technology relevant to teaching.

All the schools where the evaluation team conducted teachers' focus groups discussions are involved in the Deer Leap program. Teachers interviewed emphasized that students demonstrate more interest in developing and Internet search skills since the establishment of computer labs at schools. During focus groups, some teachers at urban schools indicated that they use school computers to search relevant information over the internet. However, teachers from rural areas indicated they mostly are unable to supplement their teaching process from the information gained from the Internet due to the non-existence of access locally.

Because computer installation by Deer Leap has covered all schools in urban areas, valid comparisons by school involvement in Deer Leap could be made only across rural schools. Unlike the computer installation by Deer Leap, not all teachers in urban areas have received

Deer Leap training, so no differentiation in the analysis is required by urbanity when considering effect by whether teachers indicate they have been involved in Deer Leap training.

Teachers generally are positive about the training impact made under Deer Leap program, 82 percent of teachers who state that they have received training from the Deer Leap project claim that the quality of teaching and learning has improved an a result of their participation in the Deer Leap program. Perhaps because this initial stage of training is only at the basic level, 22 percent of teachers who also stated that they have received training from Deer Leap indicate that these skills have improved only a little, 60 percent moderately, and only 18 percent indicate that it has improved significantly. The results were only marginally different among all teachers in Deer Leap computer installation schools.

Table 3-93: How much has the quality of teaching and learning improved as a result of participating in "Deer Leap"? Only teachers who claim to have received Deer Leap training. (Form 2, q.23)[19]

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Little	22	11	33
Moderately	60	45	75
Significantly	18	11	26
Total	100		

N=163

Table 3-94: How much has the quality of teaching and learning improved as a result of participating in "Deer Leap"? All Teachers in Deer Leap Schools. (Form 2, q.23)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Little	28	22	34
Moderately	59	48	67
Significantly	12	8	20
Total	100		

Note: N = 241

The evaluation also considered as an indicator of the success of the program computer use by teachers. This indicator combines both teacher comfort and access to computers in school and is expected to increase over time with additional stages of teacher training and computer installation in schools, although Deer Leap is not the only contributing factor to movement in this index. The survey showed that 65 percent of teachers do not use a computer at home or outside of school, with those in rural schools not involved in Deer Leap schools indicating much lower use of computers. As expected, a higher percentage of teachers (46 percent) at urban schools use computers outside of school relative to 21 percent of rural school teachers.

[19] This question was designed in conjunction with Deer Leap. It is unclear whether the 23 who answered form 2 and stated that they had received Deer Leap training did no respond in order to indicate no improvement from the program, which is not included as an option.

Table 3-95: Do you use a computer at home or outside of school? (Teacher form (Form 2, q 17)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
No	65	60	70
Yes	35	28	41
Total	100		

N=688

Table 3-96: Do you use a computer at home or outside of school? (Teacher Form 2, q.17)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability
Urban school	46	44.42	0.000
Rural school	21		
Rural school	21	46.13	0.008
Urban school	46		
Mountainous school	21		
Rural or Mountainous not Deer Leap school	25	31.11	*
Rural or Mountainous Deer Leap school	5		
Trained by Deer Leap	45	11.95	0.001
Not trained by Deer Leap	31		

*N=23 for Rural or Mountainous Deer Leap school category and so unable to calculate probability values to generalize nationally.

A potential barrier to use of computers by teachers is lack of understanding of how to make the technology relevant to teaching. Forty-seven percent of teachers indicated that they are unsure how to make technology relevant to their subjects. Surprisingly, according to the survey results, although 36 percent teachers rate their training and skills in using computers to search the Internet as low, a greater proportion (49 percent) of teachers rate them as moderate, although clearly the definition of moderate is subjective and differs across countries. Overall, urban school teachers and those from Deer Leap schools feel more confident about their IT skills than their colleagues from rural schools. No statistically significant difference was found regarding whether teachers received Deer Leap training.

Table 3-97: How strong would you rate your own training and skills in using computers to search the Internet for resources or student project information and ideas? (Teacher form 2 q.24)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Not so good	36	29	44
Somewhat good	49	42	56
Very good	14	9	20
Total	100		

N: 443

Table 3-98: How strong would you rate your own training and skills in using computers to search the Internet for resources or student project information and ideas? (Teacher form 2 q.24)

Respondent Category	Not so good	Somewhat good	Very good	Chi-Sq. Value	Probability
Urban school	27	56	18	26.51	0.003
Rural school	50	40	10		
Urban school	26	59	18	41.10	0.003
Rural school	61	31	8		
Mountainous school	36	50	14		
School with less than 100 students	41	48	11	4.52	0.508
School with 100-750 students	39	47	14		
School with 750 students	30	53	17		
Deer Leap school	30	54	16	15.11	0.013
Not Deer Leap school	48	41	11		
Rural or mountainous Deer Leap school	65	41	11	3.87	0.354
Rural or mountainous not Deer Leap school	48	41	11		
50 or Younger	33	51	16	5.91	0.226
50 or Older	43	46	11		
Primary grade teacher	39	48	13	3.66	0.475
Secondary or both	29	53	18		
Received Deer Leap training	29	55	15	5.46	0.195
Have not received Deer Leap training	40	46	14		

Overall, most teachers still do not feel comfortable enough with computers to use them as teaching aids. During focus group discussions, teachers raised the issue of needing further trainings to further develop their IT skills. In the surveys, 63 percent of all teachers do not feel comfortable enough with computers to use them for teaching. Sixty-seven percent of those who have not received training from Deer Leap state that they do not feel comfortable with computers compared with only 55 percent of teachers who indicate that they have received basic training by Deer Leap program. This finding supports both the positive effect Deer Leap is having on teacher comfort with computers as well as Deer Leap's understanding that the level of training for most of the teachers they train at the basic level will still remain low even after the 24 hour course, particularly in the schools in which they have not yet installed computers.

Table 3-99: Not comfortable enough with computers to use them for teaching? All teachers (Teacher form 2 q.21d)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
No	37	31	42
Yes	63	58	69
Total	100		

The impact of the Deer Leap training is also expected to grow somewhat over time as the program introduces more computers to all of these schools. As discussed earlier, Deer Leap is planning on additional trainings that attempts to build capacity of a small number of teachers within a school to understand how to integrate ICT into curriculum. These trainings build on the current basic level training program for only a few teachers in order to help the Ministry and NCAC meet the eventual goal of ICT integration into school curricula. They are not designed, however, to meet the desire of the large number of teachers in the survey

who desire broader follow-on training, but it has been suggested that beyond the current program plan, Deer Leap may be able to assist with development of distance learning tools that could partially meet this demand. Were additional resources available, this demand across a large number of teachers would have to compete with more tailored training such as that already planned. This research is not designed to provide a cost-benefit analysis of the tradeoff in value between meeting these two needs, although frequently, resources spent on a targeted advanced needs (such as the "In Tech" training) are more likely to provide larger payoffs to student learning outcomes.

Table 3-100: Not comfortable enough with computers to use them for teaching? by Category (Teacher form 2 q.21d)

Respondent Category	Yes %	t-Value	Probability	N
Rural Deer Leap school	71	0.06	*	167
Rural not Deer Leap school	74			
Mountainous Deer Leap school	87	11.69	*	90
Mountainous not Deer Leap school	43			
Trained by deer leap	55	6.91	0.103	511
Not trained by deer leap	67			

*Unable to calculate probability values to generalize nationally.

As in previous sections, rather than rely on a single measure of comfort and use of computers, the evaluation asked teachers six questions regarding use of computers for professional purposes in order to create a combined index. The responses to the individual questions are presented below.

Table 3-101: Use a computer or the Internet as part of your instruction (Teacher form 2 q.20a)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Never	70	62	77
Once a year	5	2	7
Once a month or less	17	12	22
More than once a month	9	6	11
Total	100		

Note: N = 619

Table 3-102: Make handouts for students using a computer (Teacher form 2 q.20b)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Never	57	49	65
Once a year	6	3	10
Once a month or less	18	15	22
More than once a month	18	12	24
Total	100		

Note: N = 616

Table 3-103: Create a test or assignment using a computer (Teacher form 2 q.20c)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Never	58	50	65
Once a year	5	3	7
Once a month or less	21	16	25
More than once a month	16	12	21
Total	100		

Note: N = 618

Table 3-104: Email for professional use (Teacher form 2 q.20d)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Never	83	78	87
Once a year	4	2	6
Once a month or less	9	6	11
More than once a month	4	3	6
Total	100		

Note: N = 598

Table 3-105: Use a computer or the Internet to get resources for your instruction? (Teacher form 2 q.20e)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Never	66	60	72
Once a year	6	4	8
Once a month or less	14	9	18
More than once a month	14	12	17
Total	100		

Note: N = 609

Table 3-106: Have you been giving tasks requiring use of computer to your students? (Teacher form 2 q.20f)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Never	74	70	79
Once a year	4	3	6
Once a month or less	14	10	17
More than once a month	8	5	10
Total	100		

Note: N = 605

In order to study in greater depth whether teachers apply these skills in the lesson preparation and teaching process, this study added together into a single index six questions about the use of computers. Each separate item is coded 0 for never, 1 for once a year, 2 for once a month or less, and 3 for once a month, and the total is divided by the number of questions answered. The average use of computer index score is 0.67, or an average of conducting only four of the six activities no more than once a year. This is a very low rate of computer use for professional purposes. Again, teachers at urban schools and Deer Leap computer installation schools use computers for professional purposes more often with the effect largest among those trained by Deer Leap in Deer Leap schools. The number of teachers trained in rural areas was too small and the computer use too low to detect any difference, which is not

unexpected given that two-thirds of teachers trained by Deer Leap program in these areas work in schools that up to this point have received no Deer Leap computers or Internet connectivity.

Table 3-107: Index of computer use for professional purposes. (Teachers Form 2 q.20a-f)

Mean	Min	Max	Standard Deviation
0.67	0	3	0.82

N:574

Table 3-108: Index of computer use for professional purposes, by category. (Teachers Form 2 q.20a-f)

Respondent Category	Mean	T- or Chi-Sq Value	Probability
Urban school	0.99	8.72	0.00
Rural school	0.29		
Deer Leap school	0.95	9.67	0.00
Not Deer Leap school	0.23		
Rural or mountainous Deer Leap school	0.35		
Rural or mountainous not Deer Leap school	0.29		
Rural or mountainous and trained by Deer Leap	0.17	0.01	0.998
Rural or mountainous and not trained by Deer Leap	0.17		
Trained by Deer Leap and in Deer Leap school	1.20	6.35	0.000
All others	0.53		

3.2.9 Conclusions: Teacher Training, Professional Development, New Curriculum, Assessment

- Student learning outcomes appear to have improved at least to some extent as a result of recent reforms. Additional research is required to understand better the magnitude.

- The survey results indicate that most teachers feel positively about the school-based teacher training efforts. A large proportion of teachers, however, indicate that they lack sufficient trainings in the new teaching methodologies.

- All sizes of schools in rural, urban and mountainous regions had exposure to school-based or curriculum-based teacher trainings. Overall, about half of teachers claim to have received some training under the school-based teacher professional development trainings and 63 percent under the curriculum-based training.

- Teachers are aware of the examples and models provided on how to teach active learning and the new curriculum, but many find them insufficient thus far.

- Attitudes towards active learning have greatly changed and improved due to the reforms. Many teachers remain to be convinced, however, that the new methods are relevant and can be fully applied in their classrooms. Attitudes among many remain fluid sometimes inconsistent.

- Almost all the teachers surveyed report they use active learning methods in their classes to some extent – a major change from the past. Although their use of active

learning methods appears to be improving, they still at least as often use passive methods, more often use traditional classroom arrangements, and probably use the methods mechanically or inappropriately many times.

- Some indications from focus groups that upper grade students are studying only to tests, a common issue in countries instituting high stakes assessments. It is partially offset in many countries by requiring that the grade point average or other general indicator of consistent academic efforts is part of the university entrance formula.

- Teachers provided generally supportive responses regarding the structure of the new curriculum and a large proportion of teachers indicate confidence about their level of preparedness to teach new subject syllabi, although they also note a need for additional models and trainings.

- Teachers think that availability of new textbooks oriented toward integrated learning and practical tasks enables students to work more independently than previously.

- Key obstacles cited by teachers in using new instructional practices include most commonly insufficient equipment and materials followed by too many students in urban classrooms, short class times, insufficient time for practice of newer methods, and an unsupportive school atmosphere.

- Most teachers think that the new curriculum allows them to teach all levels of students at the same time, but there remains room for training for those who do not.

- Urban schools more often than rural schools claim to offer programs different from programs in other schools within the framework of new national curriculum, although it is unclear if this represents any change from the past.

- Teachers still lack a strong understanding about the new formative evaluation goals of assessment system. Many teachers need considerable further examples and training in how to create and use new grading rubrics.

- Teachers, parents, and directors have some lack of comfort with and ability to use the new 10 point grading system.

- Evidence is mixed regarding whether the pilot school or implementation school models are superior in terms of training. More pilot school teachers feel confident about the application of the new curriculum, but more pilot school teachers consider their training inadequate. Pilot school teachers claim to apply active learning methods more, but this is not supported from class observations, and most relationships with other indicators of increased use and attitudes are unclear. The weakness of the pilot model is its unclear dissemination method, while the weakness of the implementation model is a lack of commitment among those trained.

- Plans for long-term in-service training are being developed and appear to be considering appropriate incentive structures but perhaps focused only on a one-time licensure. Changes in pre-service training are envisioned as happening very slowly. Some anecdotal evidence that teachers are paying for independent trainings toward licensure although those requirements have not yet been decided.

- Although many are positive about the ERCs' efforts to support school management and teachers' professional development processes, many ERCs have insufficient training, background, or resources yet to appropriately support teachers.

- Establishment of subject faculties is a step forward in fostering teacher professional interactions within schools, although the frequency of such meetings seems variable and often low. Networking across schools appears to have increased significantly from the pre-reform period, although it remains modest.

- Teachers generally are positive about the training impact made under Deer Leap program. Teachers trained under Deer Leap or in Deer Leap schools more often use computers at home and at school, more frequently use computers for professional purposes.

- Most teachers – including those trained under Deer Leap's current basic training program – still never or rarely use computers at home or school. Significant barriers include lack of comfort with computers and a lack of understanding of how to make the technology relevant to teaching among most teachers. Rural school teachers use computers less frequently than those in urban areas.

- Planned additional Deer Leap trainings for a limited number of teachers or of through less effective distance learning methods are unlikely to be able to meet the high interest level in greater training.

3.3 Provision of Learning and Supplemental Materials and Social and Physical Learning Environment

The evaluation is asked to consider the extent to which the social and physical school and class environments affect the potential for student learning. This section includes consideration of different learning and supplemental materials including the supplemental materials program, other supplemental materials found in classrooms, the text books designed around the new curriculum, and computer facilities. It also includes consideration of barriers to learning, opportunities to deepen the learning experience, and classroom and school physical environments that might affect the success of the reforms.

3.3.1 Extracurricular activities

Active minds require active bodies and opportunities outside of the class to apply learning. Extracurricular activities can be an outlet for energy as well as ways to explore learnings in more active, self-guided ways. The evaluation therefore asked schools about extracurricular opportunities. The difficulty is the challenge through survey methods to gauge the level of learning opportunities available in an extracurricular activity if there even were agreement generally on this issue in the international literature. The evaluation does not attempt to answer this greater question and merely asked schools about whether extracurricular activities were available.

Across the schools, only 52 percent provide extracurricular offerings to their students. This is low relative to most countries. According to survey results, urban schools provide more

extracurricular classes rather than rural schools. Urban schools tended to indicate they offered more activities than rural schools. See Table below. One example of extracurricular activities at some schools includes sports or computer-related after-school projects, as encouraged by the Deer Leap project. More research would be necessary with students to determine the extensiveness of access to these activities across grade levels and student types as well as the type of learning opportunities they represent.

Table 3-109: How many extracurricular activities exist in your school? (Teacher form 2 q.10)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Do not know	19	12	26
0	15	10	20
1-4	52	45	58
5-10	14	8	19
10+	1	0	2
Total	100		

Note: N = 699

Table 3-110: How many extracurricular activities exist in your school? (Teacher form 2 q.10)

Respondent Category	0	1-4	5-10	10+	Chi-Sq. Value	Probability
Urban school	17	59	23	1	15.13	0.16
Rural school	20	68	11	0		
Mountainous rayon	19	74	7	0	3.09	0.376
Not mountainous rayon	18	63	17	1		
Urban school	17	59	23	1	14.56	0.444
Rural school	17	69	14	1		
Mountainous school	21	69	10	0		
Rural not mountainous school	17	69	14	1	2.77	*
Mountainous school	21	69	10	0		
Schools with less than 750 students	18	67	14	0	22.31	0.064
Schools with 750 or more students	19	51	26	3		

***Unable to calculate probability values for this subsample to generalize nationally.**

3.3.2 Barriers that Impede Students from Learning

The evaluation was tasked with examining barriers to students from the type of quality learning envisioned in the national law from barriers to arriving at school to distractions in the physical environment. The large sizes of some classes, inadequate furniture in a small, but significant, number of classes and difficulties in reaching school during bad weather for some students arose as key potential barriers.

In focus group discussions with teachers, respondents emphasized that large class sizes is one of the biggest challenges that they face in practice. Because of a shortage of funding, some schools are not able to split classes of 38 to 40 students and a large number of students at the lesson makes it very difficult to approach each student individually and meet their needs as intended under the new assessment methods. Fifteen percent of teachers indicated that the size of most of their classes included at least 30 students, and another 26 percent indicated that their classes contained at least 25 students. Only 14 percent of teachers in consolidated schools noted that the average class size has increased since consolidation, but if school consolidations eventually leads to a reduction in the number of teaching staff (see section 4), more teachers will confront larger classrooms and this issue could become a leading problem for teachers in implementing more active learning.

The evaluation examined whether teachers divided students according to their capabilities, which educational research indicates hampers greatly the learning of those tracked to lower classes. The survey found little evidence that this is a problem in Georgian Schools.

Teachers mostly appear aware that students are not distributed in classes according to their academic performance as stated under Law on General Education.

Table 3-111: Are students distributed according to their abilities? (Teacher form 2 q.8)

Response	%	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	8	5	10
No	86	82	91
Do not Know	6	2	10

Note: N = 668

The classroom observations conducted under this research indicate that in 17 percent of the classes, desks and chairs are not of appropriate size for the students. In 16 percent of the classes there is not at least one chair per student. In 11 percent of the classes there are insufficient desks for all students. Ten percent of the classes lack a chalk or writing board and 17 lack writing materials for boards. Overall, rural schools were found better equipped with writing materials for board (12 percent lacking writing materials) that urban ones (34 percent). While these numbers indicate problems to be addressed, the scale of problems is not as high as anecdotal accounts might suggest. Findings by category do not suggest systematic differences by urbanity or school size but do indicate that the problem is worse for secondary school classes; math, science, IT, and nature classes.

The evaluation attempted to see whether schools that have consolidated have improved their physical infrastructure due to physical consolidation by comparing their classroom infrastructure to those of other small to medium size schools (smaller than the median of 555 students). It should be noted that this is a measure only of their situation relative to other schools that might be candidates for consolidation and not whether they are better off than they were in the old school. (For a more precise analysis along these lines, see section 4.) The survey does not provide evidence that these consolidated schools have narrowed any gap that might have existed with other schools before consolidation although, again, this does not include a comparison from the baseline situation so should be interpreted with caution. The supporting tables are presented below.

Table 3-112: Classroom Physical Environment and Learning Materials

Response	Yes	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Are desks and chairs of appropriate size for the students?	83	73	93
Is there at least one chair per student?	84	75	93
Are there sufficient desks for all students?	86	82	95
Is there a chalk/writing board?	90	85	95
Are there writing materials for board?	83	75	90

N=484

Table 3-113: Are desks and chairs of appropriate size for the students? (Classroom Obs q. 27)

Respondent Category	Yes	Chi-Sq. Value	Probability
Urban school	73	-2.26	0.039
Rural school	86		
Mountainous rayon	80	-0.22	0.827
Not mountainous rayon	84		
Rural, not mountainous	85	-0.30	*
Mountainous	88		
School size: < 555	83	-0.12	0.905
School size: > 555	82		
School size – small:<100 students	80	1.80	0.632
School size - medium: 100-750 students	84		
School size large:>750 students	76		
School consolidated physically	83	-0.04	0.971
Small school not consolidated	83		
Curriculum pilot schools	93	1.55	0.142
Not curriculum pilot schools	81		
School-based teacher training	83	0.04	0.971
Not school-based teacher training	83		
Curriculum pilot or school-based teacher training school	83	0.04	0.971
Not curriculum pilot or school-based teacher training school	83		
Student / teacher ratio : < 0	83	0.13	0.896
Student / teacher ratio : > 0	84		
Primary grade teacher	90	2.79	0.014
Secondary or both	78		
Math, Science, Nature, IT	86	5.54	0.020
Languages or Georgian language	92		
History, social science, art	95		
Other subjects	93	-2.85	0.012
Math, Science, IT, or Nature	86		

***Unable to calculate probability values for this subsample to generalize nationally.**

Table 3-114: Are there at least one chair per student? (Classroom Obs q. 28)

Respondent Category	Yes	Chi-Sq. Value	Probability
Urban school	81	-0.66	0.520
Rural school	85		
Mountainous rayon	84	-0.01	0.990
Not mountainous rayon	84		
Mountainous	85	0.01	*
Rural, not mountainous	85		
School size: < 555	84	0.00	0.997
School size: > 555	84		
School size – small:<100 students	83	0.46	0.88
School size - medium: 100-750 students	85		
School size large:>750 students	81		
Curriculum pilot schools	92	1.27	0.225
Not curriculum pilot schools	83		
School-based teacher training	88	0.80	0.437
Not school-based teacher training	83		
Curriculum pilot or school-based teacher training school	88	0.80	0.437
Not curriculum pilot or school-based teacher training school	83		
School consolidated physically	83	2.83	0.013
Small school not consolidated	98		
Math, Science, Nature, IT	88	4.72	0.051
Languages or Georgian language	94		
History, social science, art	93		
Secondary or both	78	2.69	0.017
Primary grade teacher	92		
Other subjects	94	-1.64	0.122
Math, Science, IT, or Nature	88		
Student / teacher ratio : < 0	85	-0.31	0.760
Student / teacher ratio : < 0	82		

***Unable to calculate probability values for this subsample to generalize nationally.**

Table 3-115: Are there sufficient desks for all students? (Classroom Obs q. 29)

Respondent Category	Yes	Chi-Sq. Value	Probability
Urban school	84	-1.08	0.299
Rural school	89		
Mountainous rayon	85	-0.36	0.726
Not mountainous rayon	89		
Rural, not mountainous	89	-0.40	*
Mountainous	93		
School size: < 555	89	-0.73	0.478
School size: > 555	85		
School size – small:<100 students	91	1.75	0.641
School size - medium: 100-750 students	88		
School size large:>750 students	81		
Curriculum pilot schools	93	0.71	0.490
Not curriculum pilot schools	88		
School-based teacher training	88	-0.12	0.908
Not school-based teacher training	89		
Curriculum pilot or school-based teacher training school	88	-0.12	0.908
Not curriculum pilot or school-based teacher training school	89		
School consolidated physically	89	2.85	0.013
Small school not consolidated	98		
Secondary or both	81	4.51	0.000
Primary grade teacher	98		
Math, Science, Nature, IT	95	1.30	0.398
Languages or Georgian language	97		
History, social science, art	95		
Other subjects	97	-0.67	0.511
Math, Science, IT, or Nature	95		
Student / teacher ratio : < 0	89	-0.65	0.526
Student / teacher ratio : > 0	86		

***Unable to calculate probability values for this subsample to generalize nationally.**

Table 3-116: Are there writing materials for the board? (Classroom Obs q. 31)

Respondent Category	Yes	Chi-Sq. Value	Probability
Urban school	66	-2.53	0.023
Rural school	88		
Mountainous rayon	88	0.61	0.553
Not mountainous rayon	81		
Mountainous	98	0.56	*
Rural, not mountainous	84		
School size: < 555	85	-1.49	0.156
School size: > 555	64		
School size – small:<100 students	92	18.83	0.053
School size - medium: 100-750 students	81		
School size large:>750 students	55		
Curriculum pilot schools	93	1.20	0.247
Not curriculum pilot schools	81		
School-based teacher training	78	-0.80	0.434
Not school-based teacher training	84		
Curriculum pilot or school-based teacher training school	78	-0.80	0.434
Not curriculum pilot or school-based teacher training school	84		
School consolidated physically	84	2.19	0.046
Small school not consolidated	94		
Secondary or both	74	4.53	0.000
Primary grade teacher	94		
Math, Science, Nature, IT	90	1.06	0.519
Languages or Georgian language	88		
History, social science, art	93		
Other subjects	90	0.06	0.954
Math, Science, IT, or Nature	90		
Student / teacher ratio : < 0	85	-1.26	0.228
Student / teacher ratio : > 0	74		

***Unable to calculate probability values for this subsample to generalize nationally.**

Inability to attend schools represent the largest potential obstacle for learning, and the survey indicates that this is indeed a problem for a small number of schools. Approximately 88 percent of teachers responded that only a small amount of their students are unable to go to school because of bad weather. However, 12 percent of teachers indicate that bad weather represents an obstacle for a significant number of their students to go to school. The problem is worst in mountainous areas, where 29 percent of teachers claim that more than a small number of students are unable to attend classes during bad weather. Interestingly, there is not a statistically significant difference between rural and urban school teachers generally on this issue. As discussed in a later section, 80 percent of directors expressed some concern in related with low attendance of students due to transportation shortages available at schools.

Table 3-117: What amount of your students are unable to go to school because of bad weather? (Teacher form 2 q.11)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Very little	48	39	57
Little	40	34	47
Significant	12	7	17
Total	100		

Note: N =712

Table 3-118: What amount of your students are not able to go to school because of bad weather? (Teacher form 2 q.11)

Respondent Category	Very little	Little	Significant	Chi-Sq. Value	Probability
Urban school	47	42	11	1.51	0.682
Rural school	49	38	13		
Urban school	47	42	11	36.97	0.002
Rural school	39	43	18		
Mountainous school	70	27	3		
Rural not mountainous school	39	43	18	38.79	*
Mountainous school	70	27	3		

***Unable to calculate probability values for this subsample to generalize nationally.**

Another barrier to learning common in some countries is teacher absences, leaving students without structured learning or having to join other classes increasing class size. This is not an obvious problem in Georgian schools according to our data, as only 8 percent of directors responded that teachers miss classes in their schools more than rarely.

Financial costs to quality educational activities outside of school also may represent a barrier to poorer students, and there is some evidence of this problem in Georgian schools. The director surveys indicate that most schools (88 percent) do not charge students for extracurricular classes. Only 12 percent of schools responded that they set an insignificant or moderate fee for extracurricular activities, although more urban schools set insignificant to moderate fees for extracurricular initiatives, while in almost all rural schools such opportunities are free.

Table 3-119: Do students have to pay or spend anything to participate in student extracurricular clubs or organized activities? (Directors' form q.101a)

Respondent Category	Free	Insignificant amount	Moderate Amount	A lot	Chi-Sq. Value	Probability
Urban school	68	11	21	0		
Rural school	97	2	1	0	-3.26	0.005
Mountainous school	97	3	0	0		

N =82

Informal discussions and previous research suggest that the need for tutoring to pass exams to enter university. Some families also provide their children tutoring at earlier ages to improve their academic situation. The evaluation asked teachers to estimate the average annual cost for tutoring for students at their school.[20] The median response was 400 Lari with a higher

[20] It was believed that this would provide a more reliable, less intrusive measure than asking teachers what they charge but, based on the survey literature, is expected to be closely correlated with what they themselves charge. Therefore, the survey does not provide only averages by school. For teachers who provided a range, the evaluation used the middle point as an average.

average response of about 600 Lari because of the much higher estimates from some teachers. The average could be slightly higher (but the difference was not statistically significant) in urban areas. The top 10 percent of teacher estimates was 1500 Lari, although this represents only an estimate. The average estimate by rayon varies widely from about 250 to 1000. Even the lowest of these averages would represent more than many families could afford in rural areas, where annual income tends to be low.

Table 3-120: Average annual estimated cost of tutoring, by rayon (Teacher form 2 q.12)

Rayon	Average	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
1 |	467	436	497
2 |	900	784	1015
3 |	566	382	749
4 |	790	553	1026
5 |	515	488	541
6 |	561	386	734
7 |	506	482	530
8 |	1004	873	1135
9 |	722	662	781
10 |	598	546	651
11 |	248	217	278
12 |	568	486	650
13 |	498	329	667
14 |	554	368	739
15 |	404	346	461
16 |	802	441	1162
17 |	864	771	957
18 |	532	399	664
19 |	448	397	498
20 |	261	241	280

N=291

Table 3-121: Average annual estimated cost of tutoring, by location type (Teacher form 2 q.12)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Urban	606	497	716
Rural	526	351	701
Mountainous	701	447	955
Total	100		

N =280

3.3.3 School and Classroom Materials and Physical Environment

3.3.3.1 School and Classroom Materials and Physical Environment: Textbooks

The evaluation examined briefly school and classroom materials and textbooks finding that most teachers had and used new textbooks, although about a quarter of teachers indicate that a lot of their students do not have the new textbooks when they should and manuals were not always available. Generally, teachers' satisfaction appears high with the quality of the new textbooks and teachers' manuals, having increased from the previous NCAC study, with some concern in focus groups about whether the new texts are above the reading or ability level of upper grade students;

Across the schools surveyed, 57 percent of teachers responded that the new textbooks are available for their classes, which, lacking a way of tracking by class, appears an appropriate proportion. The survey did not show a statistically significant difference by urbanity or size of schools.

Table 3-122: Are any of the new texts for the new curriculum available for your classes? (Teacher form 1 q.21)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability
Urban school	59	0.96	0.351
Rural school	55		
Mountainous rayon	60	0.45	0.660
Not mountainous rayon	57		
Rural school	59	-0.64	0.531
Urban school	56		
Mountainous school	55		
Rural not mountainous school	56	-0.09	0.921
Mountainous school	55		
Schools with 750 or more students	57	0.22	0.826
Schools with less than 750 students	58		
Science / Math	50	4.29	0.225
Humanities	62		
Primary	56		

Note: N = 695

The evaluation was interested in understanding whether lack of new texts represents an obstacle to student learning, as has been indicated in the Bank's baseline research. Interviews with directors elicited complaints that textbooks sometimes were delivered only just before the school year or even during the school year and in a few cases not at all. To generalize more broadly and learn more about problems within classes, the evaluation asked teachers about what percentage of students do not have the new textbooks. Over half (63 percent) of teachers indicate that either no students or a small percentage of their students do not have new textbooks in their classes when they are supposed to have them; however, 26 percent say a lot of their students do not have the new textbooks when they are supposed to be available. Teachers in mountainous areas and smaller schools indicate their students are slightly better provided with new textbooks than their colleagues, while teachers teaching primary classes say slightly fewer of their students are missing texts. See the tables below.

Table 3-123: In your classes for which new texts are available, what percentage of students does not have the new texts in your classes? (Teacher form 1 q.26)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
New texts are not ready yet for any of my classes	11	7	15
None or few	10	7	13
A small amount	53	46	61
A lot	26	21	30
Total	100		

Table 3-124: In your classes for which new texts are available, what percentage of students does not have the new texts in your classes? (Teacher form 1 q.26)

Respondent Category	None or few	A small amount	A lot	Chi-Sq. Value	Probability
Urban school	15	61	25	14.71	0.093
Rural school	7	59	34		
Rural school	15	61	24	32.49	0.001
Urban school	9	50	40		
Mountainous school	1	78	21		
Schools with less than 750 students	8	59	32	14.65	0.010
Schools more than 750 students	17	61	22		
School-based teacher training	18	48	35	2.03	0.190
Not school-based teacher training	11	61	27		
Science / Math	8	62	30	7.67	0.177
Humanities	8	63	30		
Primary	18	64	17		

The evaluation used its classroom observations to provide additional data on this issue. Among those classes in which new texts were available, in 38 percent of them, there were not new texts available for all students.[21] Additional research could assist in understanding better the reason texts may not be available when they should be.

Table 3-125: Texts and learning materials (Classroom observation form)

Response	Yes	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Are new text books in the classroom?	59	49	70
Is there at least one new text book per student?	42	30	53
Are new text books being used?	52	42	63
Do new text books appear to have been used frequently?	45	36	55
Do additional learning materials appear to have been used frequently?	44	37	52

N=484

Table 3-126: Is there at least one new text book per student? Only classes for which new texts are available. (Classroom observation form q.33)

Response	Yes	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
No	38	23	53
Yes	62	47	77
Total	100		

N= 306

Survey results suggest that teacher attitudes towards the new textbooks have improved considerably since the 2005-06 NCAC study was conducted. In that study, teachers claimed that textbooks were written too quickly and lacked thoughtfulness at the initial stage of the piloting process. The results from the evaluation, while more cursory in its treatment of the issue, suggests teachers seem to be getting more familiar with new texts, additional texts may

[21] It is unclear from this research what proportion of those students lacked textbooks.

be of somewhat higher quality as companies become better used to how to write appropriate manuals, and teachers feel more comfortable in their application. Overall, teachers seem more satisfied with the quality of the new textbooks.

In some countries, teachers may not want to damage the new texts by using them or may be sufficiently uncomfortable using the new texts that they may not be used. This does not appear to be a widespread problem in Georgian schools. A high percentage of teachers (approximately 81 percent) indicate they use the new textbooks in some of their classes. As expected, a higher percentage of pilot school teachers (82 percent) use the new textbooks in their classes than non-pilot school teachers (67 percent). There is not a statistically significant difference in terms of new textbooks application by age group of teachers nor by subject, although teachers who claim to use the new methods more frequently also indicate they use the texts slightly more frequently.

Table 3-127: To what extent do you use new texts in your classes, when they are available and relevant? (Teacher form 1 q.27)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
In none or few of my classes	3	1	5
In a few of my classes	8	5	10
In some of my classes	8	6	10
In most of my classes	82	79	85
Total	100		

Note: N = 673

Table 3-128: To what extent do you use new texts in your classes, when they are available and relevant? (Teacher form 1 q.27)

Respondent Category	In none or few of my classes	In a few of my classes	In some of my classes	In most of my classes	Chi-Sq. Value	Probability
Urban school	4	7	8	82	1.16	0.869
Rural school	3	8	7	82		
Urban school	4	6	8	82	4.91	0.645
Rural school	3	9	7	81		
Mountainous school	1	9	6	84		
Curriculum pilot schools	0	19	14	67	8.09	0.151
Not curriculum pilot schools	3	7	7	82		
School-based teacher training	4	6	7	84	7.45	0.102
Not school-based teacher training	2	10	9	79		
50 or Younger	4	5	9	81	15.89	0.002
50 or Older	2	12	4	83		
Taught 10 or fewer years	4	3	11	82	8.45	0.058
Taught 10 or more years	3	9	7	82		
Science / Math	1	9	5	85	15.58	0.053
Humanities	3	9	6	82		
Primary	7	0	11	82		
"Well prepared'' teachers[1]	3	14	9	83	9.14	0.047
"Not well prepared'' teachers	7	7	7	71		
Use active methods in some-none classes	7	12	14	67	47.18	0
Use active methods in many-all classes	1	5	5	88		
Low-average use of active methods	4	9	5	81	13.42	0.042
High use of active methods	2	4	9	85		

Note 1: Teachers who indicated "well enough" or "very well prepared" in question 9 in the first teacher form "How well are you prepared to teach the new subject syllabi?" The other category is all others.

This finding is supported by the classroom observations, as 88 percent of the classes in which the new texts were found, the observers indicated that they appeared to be in use at the moment and generally, although not universally, well used.

Table 3-129: Are new text books being used? , Only classes for which new texts are available. (Classroom observation form, q.35)

Response	Yes	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
No	16	3	28
Yes	84	72	97
Total	100		

N= 306

Table 3-130: Do new text books appear to have been used frequently? (Classroom observation form, q.36)

Response	Yes	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
No	27	8	47
Yes	73	53	92
Total	100		

N= 306

At teacher focus group discussions, a majority of teachers mentioned concerns about the complexity of the new textbooks, especially in the upper grades. Teacher surveys provided

contradictory responses, with only 17 percent of teachers who have texts in their classes responding that the new texts are above the reading or ability level of their students. Given the limited question directed towards teachers in the survey and the contradictory findings in the focus groups, additional research may be suggested, at least for upper grades.

Table 3-131: How do the new texts compare to the average reading/ability level of your students? All teachers who received textbooks. (Teacher form 1 q.29)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Below their reading or ability level	7	4	11
At their reading or ability level	61	54	67
Above their reading or ability level	13	9	18
Not applicable	19	14	23
Total	100		

Note: N = 682

Table 3-132: How do the new texts compare to the average reading/ability level of your students? Teachers who received textbooks, by category. (Teacher form 1 q.29)

Respondent Category	Below their ability	At their ability level	Above their ability	Chi-Sq. Value	Probability
Urban school	14	71	15	15.03	0.005
Rural school	4	79	17		
Rural school	13	71	16	23.3	0.07
Urban school	5	77	18		
Mountainous school	6	83	12		
Curriculum pilot schools	28	62	10	11.46	0.009
Not curriculum pilot schools	8	75	16		
Science / Math	12	73	15	9.02	0.398
Humanities	4	81	15		
Primary	13	75	13		
Low to average use of active methods	8	75	17	0.47	0.791
High use of active methods	7	78	15		
Use active methods in some-none classes	14	69	17	5.66	0.191
Use active methods in many-all classes	7	77	16		

Teachers in focus groups indicated that they find the teachers' manuals helpful, but they note a shortage of the manuals. According to survey responses, teachers' manuals are available for 59 percent of teachers who state that new texts are available for their classes, while 41 percent of teachers claim not to have them. No statistically significant difference was found between rural and urban school teachers nor by subjects taught, although teachers in smaller schools indicated higher availability of manuals.

Table 3-133: Are teacher's manuals available for how to teach new materials? Only teachers who claim new texts are available in q.26 (Teacher form 1 q.30)

Respondent Category	Yes %	T or Ch-Sq Value	Probability
Urban school	58	-0.84	0.412
Rural school	61		
Mountainous rayon	53	-0.67	0.512
Not mountainous rayon	60		
Urban school	62	0.93	0.795
Rural school	58		
Mountainous school	61		
Schools with less than 750 students	63	-2.49	0.025
Schools with 750 or more students	52		
Science / Math	61	0.04	0.974
Humanities	62		
Primary	61		

Note: N = 690

The evaluation asked teachers about whether the manuals provided the lesson plans needed, particularly important given their lack of familiarity with the new approaches. Forty-six percent of teachers indicated that the teachers manuals include almost all the suggested lesson plans and (active learning) activities needed, while 28 percent think that the manuals include too little in terms of suggested lesson plans. (Another 19 percent were not using the new texts.) Interestingly, no difference was found by subject area.

Table 3-134: To what extent do teachers manuals include suggested lesson plans and active learning activities? (Teacher form 1 q.31)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Insufficient	28	23	32
About what is needed	46	37	55
More than enough	7	5	9
Not applicable	19	14	25
Total	100		

Note: N = 685

Table 3-135: To what extent do teachers manuals include suggested lesson plans and active learning activities? (Excluding the not applicable category, Teacher form 1 q.31)

Respondent Category	Very little amount	Almost what is needed	More than enough	Chi-Sq. Value	Probability
Urban school	37	53	10	3.78	0.388
Rural school	31	61	7		
Urban school	29	42	7	9.93	0.006
Rural school	24	50	7		
Mountainous school	30	54	5		
Curriculum pilot schools	16	65	19	6.52	0.121
Not Curriculum pilot schools	35	57	8		
Science / Math	39	51	10	5.76	0.440
Humanities	36	57	6		
Primary	30	53	17		

3.3.3.2 School and Classroom Materials and Physical Environment: Supplemental Materials and Library Resources

Supplemental Learning Materials

The first part of this section considers whether supplemental materials, such as books other than the standard text books, games, and posters, are widely available and used in supporting new curriculum and active learning. The results indicate that there remains a shortage of supplemental learning materials and, although most schools have a library, access to the books remains a problem. They also indicate a small but measurable impact of the school library program in rural schools.

All teachers interviewed stressed that the shortage of supplemental learning materials impedes their classroom practices. The evaluation cannot determine, however, how much of an improvement even these levels represent over pre-reform and Bank efforts. Most school directors indicated their budgets do not or cannot allocate funding for purchasing even basic materials like sticky notes, tape, construction paper, and related materials to produce some learning materials and visual aids that are required to teach the new subject syllabi, especially for primary grades and for teaching sciences.

As suggested by teacher focus groups, supplementary learning materials were observed in short supply in the classrooms. Classroom observations indicate that most have no or few games, no or a limited number of books outside of textbooks, and limited posters and other supplemental learning materials. Classroom observations showed that 67 percent of classes do not classroom games and only 31 percent have 1-4 games available.[22] Overall, there still is a significant shortage of supplemental learning materials for different subject teaching purposes still unaddressed despite the supplemental learning materials exhibition initiatives undertaken early under the reform program. In more than half of the classrooms with data reported, even these limited materials did not seem to be used frequently. This analysis is limited due to the cursory nature of the observations and the inability to specify clearly exact items for data collectors to observe. Further, it is unclear the extent of the relationship between the materials observed in the classroom and those provided by the supplementary learning materials program. Due to the limited time for the evaluation, it is unable to assess carefully how well schools use the materials to increase creativity or support active learning.

Table 3-136: Other additional materials, Games (Classroom observation form, q.44a)

Number of materials	Yes	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
0	66	59	75
1-4	31	24	38
5+	3	-2	7
Total	100		

N=346

[22] In primary school classrooms, 47 percent had 1-4 games versus 15 percent for secondary classes, with no difference in the number with more games.

Table 3-137: Books aside from text books (Classroom observation form, q.44b)

Number of materials	Yes	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
0	35	15	56
1-9	54	36	72
10+	11	6	16
Total	100		

N=368

Table 3-138: posters (Classroom observation form, q.44c)

Number of materials	Yes	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
0	39	23	55
1-4	30	20	39
5+	31	10	52
Total	100		

N=399

Table 3-139: Other, (Classroom observation form, q.44d)

Number of materials	Yes	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
0	40	21	59
1-4	37	19	55
5+	23	10	35
Total	100		

N= 317

We combine the categories of the number of available supplemental materials into an index coding 0 as 0, 1-4 as 1 and 5+ as 2, adding all together to see whether any categories of schools tend to have fewer materials. Larger and urban schools and secondary school classes tend to have somewhat fewer resources.

Table 3-140. Index of availability of additional materials (Classroom observation form, q.44a-d)

Respondent Category	Yes	Chi-Sq. Value	Probability
Urban school	6.10	-2.41	0.037
Rural school	6.90		
Rural, not mountainous	6.63	1.23	0.258
Mountainous	7.10		
School size: < 555	6.79	-1.88	0.090
School size: > 555	5.78		
School size – small:<100 students	6.85	-0.99	0.345
School size - medium: 100-750 students	6.52		
School size large:>750 students	6.11		
Curriculum pilot schools	6.14	-1.40	0.192
Not curriculum pilot schools	6.65		
School-based teacher training	6.39	-0.65	0.533
Not school-based teacher training	6.70		
Curriculum pilot or school-based teacher training school	6.39	-0.65	0.533
Not curriculum pilot or school-based teacher training school	6.70		
Secondary or both	6.18	2.97	0.014
Primary grade teacher	6.98		
Math, Science, Nature, IT	6.37	0.88	0.399
Languages or Georgian language	6.65		
History, social science, art	6.94		
Other subjects	6.74	-0.87	0.403
Math, Science, IT, or Nature	6.37		
Student / teacher ratio : < 0	6.73	-1.34	0.210
Student / teacher ratio : >0	6.16		

The evaluation also asked classroom observers to indicate whether the additional learning materials appear to have been used frequently to get some idea of whether teachers are using the materials they have. Although this is clearly a limited, subjective measure, the observers did not indicate that the materials looked well worn. Given that the supplemental learning materials exhibition occurred some years ago, this provides limited evidence that teachers are not using well the limited materials they have.

Table 3-141: Do additional learning materials appear to have been used frequently? (Classroom observation form, q.37)

Response	Yes	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Do additional learning materials appear to have been used frequently?	44	37	52

N=484

Library Resources

The most recent (2005-06) data from EMIS indicate the absence of a library in 22 percent of the schools. According to directors and administrators, 83 percent of schools have a library or dedicated room with at least some additional books and resources for student learning, which does not differ statistically from the EMIS information. Teachers' knowledge of whether their schools had libraries revealed similar numbers after accounting for "do not know" responses. As expected, larger schools and urban schools are more likely to have

libraries. The limited number of physically consolidated schools also were more likely to have libraries, but their limited number prevent the ability to generalize nationally.

Table 3-142: Does the school have a designated library/book room? (School Obs. 1 q.38)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	83	68	98
No	17	2	32
Total	100		

N= 103

Table 3-143: Does the school have a designated library/book room? (School Obs. 1 q.38)

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Urban school	100	2.48	0.025
Rural school	76		
Mountainous rayon	86	0.20	0.841
Not mountainous rayon	83		
Schools with 555 or more students	100	2.40	0.030
Schools with less than 555 students	80		
Schools with less than 100 students	49	28.58	0.002
Schools with 100-750 students	94		
Schools with more than 750 students	100		

Table 3-144: Does your school have a library or dedicated room with additional books and resources for student learning (Teacher Form 1 q.22)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	77	69	85
No	19	11	27
I do not know	4	2	6
Total	100		

N= 702

Table 3-145: Does your school have a library or dedicated room with additional books and resources for student learning (Teacher Form 1 q.22)

Respondent Category	Yes	No	I do not know	T- or Chi-Sq Value	Probability
Rural school	73	24	3	12.14	0.177
Urban school	81	15	5		
Urban school	81	14	5	12.78	0.586
Rural school	74	22	4		
Mountainous school	75	25	0		
School in library program	89	7	4	23.96	0.004
School not in library program	73	23	3		
Rural school in library program	89	7	4	6.22	*
Rural school, but not in library program	81	15	5		

*Unable to calculate probability values to generalize nationally.

In most countries, the concept of a library is one not only of storing materials, but also of providing a space for students to read and work. The data collectors visiting schools indicated that among the 94 libraries observed, 41 percent were judged insufficiently large for students to read and work with smaller schools the least likely to have appropriate space. This is a rough measure and does not account for whether there is regular access to the space to make it a useful library, although interviews with the director of the NCAC suggests generally they are not.

Table 3-146: Does the library have enough space for students to read and work (School Obs. 1 q.40)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	59	41	77
No	41	23	59
Total	100		

N= 94

Table 3-147: Does the library have enough space for students to read and work? (School Obs. 1 q.40)

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Urban school	48	-1.02	0.323
Rural school	64		
Mountainous rayon	21	-3.88	0.001
Not mountainous rayon	63		
Schools with 555 or more students	61	0.14	0.887
Schools with less than 555 students	59		
Schools with less than 100 students	11	29.62	0.0001
Schools with 100-750 students	77		
Schools with more than 750 students	51		

Further, even though most schools have libraries, the director of the NCAC suggests that in most cases, outside of the School Library Program, much of those resources are inadequate to aid active learning activities. This was the motivation for the School Library Program, which directed its resources toward rural schools. The evaluation therefore asked the impressions of administration regarding the library resources available. Fifty-one of school administrators questioned that their libraries include books that support the new educational goals and curriculum. No difference was found among rural and urban schools overall, but smaller

schools were less likely to respond positively (at the p≤0.10 level). However, although only 35 percent of rural schools involved in the school library program believe that available library books significantly support the new curriculum, this figure is twice that found among other rural schools that are not under the program (Table 3-151). The director of the NCAC noted that the evaluation committee possibly could have established book selection criteria to better be aligned with the new curriculum to assure that appropriate supplemental materials across subject areas, which might have increased this figure among School Library Program schools. Nonetheless, the small number of books provided overall by the program (107) may preclude greater impact regardless.

Table 3-148: Are the books in your library in accordance with the new educational goals? (School Obs. 1 q.39)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	51	32	69
No	49	31	68
Total	100		

N= 96

Table 3-149: Are the books in your library in accordance with educational goals? (School Obs. 1 q.39)

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Urban school	56	0.50	0.622
Rural school	48		
Mountainous rayon	45	-0.15	0.883
Not mountainous rayon	51		
Schools with 555 or more students	58	0.54	0.598
Schools with less than 555 students	49		
Schools with less than 100 students	20	10.29	0.086
Schools with 100-750 students	59		
Schools with more than 750 students	60		

Table 3-150: If your school has a library, does it include library books that support the new curriculum? (Teacher Form 1 q.23)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
No library	4	0	8
Yes	20	14	26
Somewhat	47	39	55
No	24	17	31
I do not know	4	2	7
Total	100		

N= 694. Note: Totals do not add to 100 percent due to rounding.

Table 3-151: If your school has a library, does it include library books that support the new curriculum? (Teacher Form 1 q.23)

Respondent Category	Yes	Somewhat	No	T- or Chi-Sq Value	Probability
Rural school	22	48	20	27.92	0.078
Urban school	18	47	28		
School in library program	35	50	12	52.93	0.010
School not in library program	14	46	28		
Rural school in library program	35	50	12	28.64	*
Rural school, but not in library program	18	47	27		

*Unable to calculate probability values to generalize nationally.

Availability of libraries is of no assistance if teachers and students do not have consistent access to the materials. It is not uncommon in many countries for school administration to want to protect new resources in short supply from being damaged or lost by limiting their access. According to the NCAC director, although it is a requirement of the school library program that access to resources should be open, anecdotal evidence suggests that teachers and students indeed do not have consistent access to the materials, nor is the space provided generally appropriate location for reading or studying. In the survey data, the percentage of teachers indicating they have frequent access to library books is about 40 percent, with most of the remainder indicating "seldom" access and 15 percent indicating never. The effect of the library program is seen through teacher responses. According to surveys, more teachers from the library program schools have access more frequently than teachers from schools not in the library program. Mirroring the findings earlier in the section, rural school teachers have considerably more frequent access than urban teachers. See table below. These teachers are not all found in just a small number schools, suggesting that these schools are not locking them up all the time. However, they are heavily clustered in some schools indicating it is not just a matter of one or two teachers in a school not knowing whether the library is open. Ministry and NCAC officials need to clarify to school administration, perhaps through ERCs, that libraries and their resources need to be readily available perhaps providing all teachers keys to the libraries or keeping them open.

Table 3-151: If your school has a library, how often do you have access to the library and its books? (Teacher Form 1 q.24)

	Estimated Percent	95 Percent Confidence Interval	
Response		**Lower Bound**	**Upper Bound**
Never	15	9	22
Seldom	44	34	54
Frequent	40	29	51
Total	100		

Note: Totals do not add to 100 due to rounding, N= 666

Table 3-152: If your school has a library, how often do you have access to the library and its books? (Teacher Form 1 q.24)

Respondent Category	Never	Seldom	Frequent	Chi-square or T-Value	Probability
Urban school	15	52	33	23.47	0.048
Rural school	16	35	50		
Urban school	16	52	32	24.88	0.189
Rural school	13	37	50		
Mountainous school	15	32	53		
School in library program	4	34	61	52.50	0.002
School not in library program	20	48	33		
Rural school in library program	4	34	61	40.67	*
Rural school, but not in library program	15	52	33		
Trained by Deer Leap	29	55	15	5.46	0.195
Not trained by Deer Leap	40	46	14		
Science / Math	14	47	39	7.08	0.232
Humanities	10	51	39		
Primary	21	51	28		

*Unable to calculate probability values to generalize nationally.

Despite a lack of consistent access and the limited number of library resources, a vast majority (85 percent) of teachers claim that they give their students assignments requiring usage of books outside of their classroom (although not necessarily from the school library).

Table 3-153: Do you give students assignments requiring use of books outside of your classroom (Teacher Form 1 q.25)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	85	81	86
No	15	11	19
Total	100		

N= 698

Table 3-154: Do you give students assignments requiring use of books outside of your classroom (Teacher Form 1 q.25)

Respondent Category	Yes	No	T- or Chi-Sq Value	Probability
Urban school	85	15	0.004	0.969
Rural school	85	15		
Urban school	85	15	0.127	0.953
Rural school	85	15		
Mountainous school	86	14		
School not in library program	84	16	0.57	0.602
School in library program	86	14		
Rural school, but not in library program	85	15	0.28	*
Rural school in library program	86	14		

*Unable to calculate probability values to generalize nationally.

3.3.3.4 Alignment of School Physical Environment to New Curriculum

The type of learning planned through the reforms can be adversely affected without appropriate physical accessories for schools besides libraries such as science laboratories and gymnasia. Further, they should include basic services, heating, and appropriate lighting. It is well documented that the Georgian school system, neglected for many years during the early post-independence era, suffers from severe deferred maintenance and rehabilitation problems. The most recent (2005-06) data from EMIS indicate a widespread lack of basic utility facilities.

EMIS data indicate that of the schools existing at the time, 41 percent lacked consistent electricity, 66 percent lack a consistent water supply, 72 percent lack sewage, and 92 percent lacked central heating. An unspecified number of others suffered from considerable problems with water infiltration and fire damage and were of limited usability, as discussed in Godfrey (2007). These numbers will decrease somewhat given the Ministry's efforts at consolidating some schools into the schools with superior physical structures, as discussed in section 5. Further, the Iakob Gogebashvili rehabilitation program is designed to address some of the most critical needs including a focus on roofs, fire and water damage, and building communication systems. Ministry officials indicate that the ministry is totally rebuilding one school per rayon, about the same number substantially repaired, and 218 across eight rayons will have fixed roofs, communication systems, heating, and windows.

While the evaluation did not undertake extensive research on school physical needs, its research suggests some improvement in the school situation as well as considerable remaining needs. Eighty percent of school directors indicated their schools have consistent electricity. Almost all of urban schools (97 percent) indicated they have consistent electricity, compared to only 69 percent of rural schools. Of the limited number of mountainous schools surveyed, all indicated they have consistent electricity. Overall, this suggests a considerable improvement from the 41 percent found in the 2005-06 EMIS data. Despite this improvement overall, the lack of electricity in some schools result in poor studying conditions in some classroom rooms, the inability of administration to communicate with ERCs and the Ministry, and an inability to use computer equipment.

The evaluation's research suggests that about 70 percent of schools would have adequate bathroom facilities, were inadequacies in sewage and water services addressed. 83 percent of urban schools and 64 percent of rural schools indicate they have adequate bathroom facilities. Problems with sanitation and inadequate bathroom facilities could serve as a disincentive for students, especially female students to attend schools.

Table 3-155: Would your school have a sufficient amount of toilets were inadequacies in sewage and water services addressed (School Obs. 1 q.43)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	70	51	88
No	30	12	49
Total	100		

N= 101

Table 3-156: Would your school have a sufficient amount of toilets were inadequacies in sewage and water services addressed, by category (School Obs. 1 q.43)

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Urban school	83	1.64	0.121
Rural school	64		
Mountainous rayon	36	-1.49	0.156
Not mountainous rayon	74		
Consolidated physically	80	1.40	0.221
School with less than 555 students, not consolidated	60		
Schools with 555 or more students	86	1.62	0.126
Schools with less than 555 students	67		
At least 10 students per teacher	64	-0.57	0.574
Less than 10 students per teacher	71		

The school observations conducted as part of the evaluation research suggests that only slightly more than half (52 percent) of schools have operational gymnasium facilities. We estimate that there are gymnasiums in about 80 percent of urban schools and only 41 percent of rural schools.

Table 3-157: Does your school have a gymnasium? (School Obs. 1 q.41)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	52	41	63
No	48	37	59
Total	100		

N= 98

Table 3-158: Does your school have a gymnasium? (School Obs. 1 q.41)

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Urban school	80	3.98	0.001
Rural school	41		
Mountainous rayon	40	-0.78	0.450
Not mountainous rayon	53		
Schools with 555 or more students	100	10.17	0.000
Schools with less than 555 students	43		
Schools with less than 100 students	15	22.83	0.001
Schools with 100-750 students	58		
Schools with more than 750 students	100		

Even of those schools with working gymnasiums, we found that only about 44 percent of gymnasiums are sufficiently equipped and used.

Table 3-159: Is the gymnasium sufficiently equipped? Are these equipment used? (School Obs. 1 q.42)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	30	22	38
No	70	62	78
Total	100		

N= 83

Table 3-160: Is gymnasium sufficiently equipped? Are these equipments used? (School Obs. 1 q.42)

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Urban school	50	4.18	0.001
Rural school	21		
Mountainous rayon	13	-2.51	0.024
Not mountainous rayon	33		
Consolidated physically	9	-1.29	0.153
Small school, not consolidated	37		
Schools with 555 or more students	75	4.60	0.000
Schools with less than 555 students	18		
At least 10 students per teacher	63	4.06	0.001
Less than 10 students per teacher	19		
Schools with less than 100 students	4	16.43	0.001
Schools with 100-750 students	32		
Schools with more than 750 students	73		

The classroom physical environment observations also show that in 67 percent of the classes windows are broken, missing or boarded up although in half of those only one or two windows are missing. In 18 percent of the classes only one window and in 13 percent of the classes two windows were broken. According to the evaluation's data collectors, there is insufficient lighting (assuming cloudy conditions) in 19 percent of urban school classes and 28 percent of rural school classes. Overall, there is sufficient lightning in most of small and medium size school classes (79 and 80 percents), while in larger schools with more than 750 students only 56 percent of the classes were judged to have sufficient lightning.

Table 3-161: Classroom Physical Environment and Learning Materials

Response	Yes	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Are windows broken/missing or boarded up?	33	0	41
Does there appear to be sufficient lighting to read comfortably? (assume a cloudy day if there is no electricity)	79	72	87
Is there a chalk/writing board?	90	85	95
Are there writing materials for board?	83	75	90

N=484

Table 3-162: How many windows are broken/missing or boarded up? (Classroom observation question 25)

Number of missing windows	Percentage	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
0	67	32	100
1	18	0	40
2	13	0	26
3	2	0	3
4	1	0	2
6	<1	0	<1
Total	100		

N=484

Table 3-163: Does there appear to be sufficient lighting to read comfortably? (assumes a cloudy day if there is no electricity) (Classroom observation question 26)

Respondent Category	Yes	T- or Chi-Sq. Value	Probability
Urban school	72	-1.03	0.321
Rural school	81		
Mountainous rayon	86	0.78	0.446
Not mountainous rayon	78		
Rural, not mountainous	81	-1.12	0.282
Mountainous	69		
School size: < 555	80	-0.69	0.503
School size: > 555	70		
School size – small:<100 students	79	7.40	0.474
School size - medium: 100-750 students	81		
School size large:>750 students	56		
Curriculum pilot schools	62	-4.95	0
Not curriculum pilot schools	82		
School-based teacher training	72	-1.09	0.291
Not school-based teacher training	81		
Curriculum pilot or school-based teacher training school	72	-1.09	0.291
Not curriculum pilot or school-based teacher training school	81		
Student / teacher ratio : < 0	80	-0.18	0.859
Student /teacher ratio : > 0	78		
Primary grade teacher	83	1.08	0.299
Secondary or both	76		
Math, Science, Nature, IT	92	9.12	0.036
Languages or Georgian language	81		
History, social science, art	88		
Other subjects	83	2.39	0.030
Math, Science, IT, or Nature	92		

Table 3-164: Is there a chalk/writing board? (Classroom observation question 30)

Respondent Category	Yes	T- or Chi-Sq. Value	Probability
Urban school	85	-0.97	0.346
Rural school	92		
Mountainous rayon	90	-0.05	0.964
Not mountainous rayon	90		
Rural, not mountainous	89	3.11	*
Rural, mountainous	98		
School size: < 555	91	-1.06	0.305
School size: > 555	85		
School size – small:<100 students	93	3.53	0.455
School size - medium: 100-750 students	90		
School size large:>750 students	81		
Secondary or both	82	5.51	0.00
Primary grade teacher	100		
Curriculum pilot schools	95	0.79	0.442
Not curriculum pilot schools	89		
School-based teacher training	94	1.26	0.227
Not school-based teacher training	89		
Curriculum pilot or school-based teacher training school	89	1.26	0.227
Not curriculum pilot or school-based teacher training school	94		
School consolidated physically	90	2.89	0.012
School consolidated administratively	98		
Math, Science, Nature, IT	96	6.58	0.118
Languages or Georgian language	99		
History, social science, art	99		
Other subjects	99	-1.11	0.284
Math, Science, IT, or Nature	96		
Student / teacher ratio : < 0	91	-1.11	0.285
Student / teacher ratio : > 0	86		

*Unable to calculate probability values to generalize nationally.

Data from the Ministry of Finance indicate that rehabilitation programs and the Deer Leap IT program account for 23 per cent of the MoES budget (Godfrey, 2007). Although there is no international standard for appropriate expenditures on repairs and maintenance for systems in poor condition, this large proportion appears commensurate with the system's needs. It also suggests the motivation for one of the criteria used for school consolidation – condition of the school, as discussed in section 4.

It is not possible with limited funds to take care of all these needs in a short period, and in some cases it may be better to concentrate resources on fewer schools and consolidate them to create improved school environments. The evaluation was unable to conduct a thorough analysis on this complicated issue. The continued broad need for repairs and improvements across so many schools, however, draws questions to the strategy of upcoming Bank efforts to focus repair efforts on a very limited number of schools and suggests the need for ways to expand efforts further. The evaluation team recognizes that the data it collected and examined consider only school-level data and do not weight problems by the number of students affected. Equity concerns, however, may suggest that particular attention should be paid to rural schools.

3.3.3.5 Alignment of School Physical ICT Environment to New Curriculum

This section considers whether the school physical environment in terms of ICT is conducive to learning and supportive of the curriculum. Although the evaluation conducted this research as part of its planned survey, data from all schools collected by Deer Leap are expected to present a more accurate representation of actual computer and Internet connectivity nationwide. Nonetheless, the data show the immediate impact of the Deer Leap program not just in decreasing the students-to-computers ratio but in increasing teacher access to IT managers. On the other hand, the need for further progress generally is made obvious by the continued limited computer access, especially for teachers, limited support from IT managers, continued emphasis on computer classes teaching only basic programming skills and absence or low speed of internet or insufficient software.

Compared to the 2005-06 EMIS data, more schools have computers in 2007, part way through Deer Leap's "computerization" program, with all large and urban schools in the sample covered.

Table 3-165: Is there a computer lab at the school (School Obs. 1 q.45)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	73	58	87
No	27	13	42
Total	100		

N= 74

Table 3-166: Is there a computer lab at the school (School Obs. 1 q.45)

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Schools with 555 or more students	100	4.03	0.001
Schools with less than 555 students	66		
At least 10 students per teacher	100	4.29	0.001
Less than 10 students per teacher	65		
Rural or Mountainous Deer Leap school	100	3.59	0.010
Rural or Mountainous not Deer Leap school	58		

As suggested earlier, electricity remains an issue for running computers in some schools, especially smaller and rural schools.

Table 3-167: Is there consistent electricity every day for the computers to operate? (School Obs. 1 q.46)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	80	62	97
No	20	3	38
Total	100		

N= 72

Table 3-168: Is there consistent electricity every day for the computers to operate? (School Obs. q.46)

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Urban school	97	8.065	0.010
Rural school	69		
Schools with 555 or more students	100	2.57	0.021
Schools with less than 555 students	74		
At least 10 students per teacher	97	2.14	0.049
Less than 10 students per teacher	73		
Mountainous not Deer Leap school	78		
Rural or Mountainous Deer Leap school	71	0.01	0.950
Rural or Mountainous not Deer Leap school	70		

In addition, computers tend to be older, in worse operational shape and are less likely to be used, and are more likely to lack sufficient software in smaller, rural schools and schools not yet part of Deer Leap's computerization program.

Table 3-169: Are the computers less than two years old (newer than a 2005 computer)? (School Obs. q.47)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	52	33	71
No	48	28	67
Total	100		

N= 72

Table 3-170: Are the computers less than two years old (newer than a 2005 computer)? (School Obs. q.46)

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Urban school	93	29.06	0.000
Rural school	28		
Schools with 555 or more students	95	4.91	0.000
Schools with less than 555 students	40		
At least 10 students per teacher	90	3.86	0.002
Less than 10 students per teacher	39		
Rural or Mountainous Deer Leap school	91	11.93	0.001
Rural or Mountainous not Deer Leap school	18		

Table 3-171: Do the computers work? (School Obs. q.48)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	85	68	100
No	15	0	32
Total	100		

N= 69

Table 3-172: Do the computers work? (School Obs. q.48)

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Urban school	98	5.35	0.020
Rural school	78		
Schools with 555 or more students	100	1.84	0.085
Schools with less than 555 students	81		
At least 10 students per teacher	100	1.90	0.077
Less than 10 students per teacher	80		
Rural or Mountainous Deer Leap school	87	0.29	0.301
Rural or Mountainous not Deer Leap school	76		

Table 3-173: How many computers in the classroom work and are used consistently? (School Obs. q.57)

Mean	Min	Max	Standard Deviation
8.9	0	37	9

N=69

Table 3-174: How many computers in the classroom work and are used consistently? (School Obs. q.57)

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Urban school	14.5	6.30	0.000
Rural school	2.3		
Schools with 555 or more students	16.9	3.98	0.001
Schools with less than 555 students	3.6		
At least 10 students per teacher	13.3	2.80	0.014
Less than 10 students per teacher	4.2		
Rural or Mountainous Deer Leap school	8.2	3.61	0.025
Rural or Mountainous not Deer Leap school	1.3		

Table 3-174: Are there any obvious maintenance deficiencies or computer problems (in addition to not working altogether)? (School Obs. q.49)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	45	26	65
No	55	35	74
Total	100		

N=55

Table 3-175: Are there any obvious maintenance deficiencies or computer problems (in addition to not working altogether)? By category (School Obs. q.49)

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Urban school	42	-0.41	0.688
Rural school	48		
Schools with 555 or more students	46	0.07	0.945
Schools with less than 555 students	45		
At least 10 students per teacher	37	-0.77	0.454
Less than 10 students per teacher	49		
Rural or Mountainous Deer Leap school	48	0.00	0.960
Rural or Mountainous not Deer Leap school	47		

Table 3-176: Does teacher think they have sufficient software for their needs? (School Obs. q.50)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	62	42	82
No	38	18	58
Total	100		

N=72

Table 3-177: Does teacher think they have sufficient software for their needs? (School Obs. q.50)

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Urban school	92	15.33	0.010
Rural school	45		
Schools with 555 or more students	100	4.66	0.000
Schools with less than 555 students	51		
At least 10 students per teacher	91	2.9	0.011
Less than 10 students per teacher	51		
Rural or Mountainous Deer Leap school	93	5.27	0.010
Rural or Mountainous not Deer Leap school	38		

One of the problems noted by the Deer Leap Master Plan is that computer classes traditionally are very basic focusing on "informatics" or programming that does not always even require use of a computer let alone understanding of how to use computers. About half of the computer class teachers interviewed indicate that this type of computer programming still is the norm in their computer classes. There is no evidence yet that there has been a change in this due to the Deer Leap program.[23]

Table 3-178: Teacher indicates that the main goal of computer classes is programming (informatics) (SO54)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	53	34	73
No	47	27	66
Total	100		

N=67

[23] The most recent data from EMIS (2005-06) indicated the absence of computer classes in most schools. Thus, it is unclear whether the fact that more than half of the schools in the survey indicate they do have computer classes is related to greater computer coverage and the Deer Leap program. Further questions would have to be asked.

Table 3-179: Teacher indicates that the main goal of computer classes is programming (informatics), by category

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Urban school	49	0.62	0.440
Rural school	56		
Schools with 555 or more students	50	-0.23	0.823
Schools with less than 555 students	54		
At least 10 students per teacher	36	-1.37	0.193
Less than 10 students per teacher	60		
Rural or Mountainous Deer Leap school	74	0.63	0.502
Rural or Mountainous not Deer Leap school	54		

The most recent, but somewhat out of date data from EMIS (2005-06) indicated the absence of computer classes and internet connections in almost all schools. In contrast to the EMIS data, evaluation school observation results showed some significant progress made in terms of the computerization process, as well as room for continued improvement.

The student-to-computers ratio found in these schools is 39.5 students per computer in both urban and rural schools. According to Deer Leap's more comprehensive data across all Georgian schools, the student-to-computers ratio across all schools is actually even higher at 58 students per computer. This indicates that the sample selected for the survey tend to under estimate the student per computer ratio somewhat. In schools involved in the Deer Leap program, the students-to-computers ratio among these 105 schools was found to be much lower at 24, while in schools not involved in Deer Leap program the ratio is 51. According to Deer Leap's more data across all schools, the students-to-computers ratio in Deer Leap schools is 39, while in schools not involved in Deer Leap program the ratio is 220. These figures show the immediate, easily countable, effect of Deer Leap's computerization program.

Table 3-180: How many students are in the school per computer? (School Obs. q.56)

Respondent Category	Number of students	Chi-Sq or t-Value	Probability
Urban school	39.4	-0.00	0.997
Rural school	39.5		
Schools with 555 or more students	50.6	1.35	0.193
Schools with less than 555 students	37.2		
At least 10 students per teacher	38.5	-0.11	0.917
Less than 10 students per teacher	39.8		
Rural or Mountainous Deer leap school	21.4	-1.38	0.187
Rural or Mountainous not Deer leap school	41.1		

Generally, students have to share computers in the classes observed, although the number of students per computer varies considerably. The median number (half of the classes had more and half fewer) of students per computer in a class was 1.66. The average is higher at over three students per computer because some classes observed have very large numbers of students per computer, as high as 24.

Table 3-181: How many students are in the classroom per computer (where students are present)? (School Obs. q.56)

Average	Min	Max	Standard Deviation
3.12	.133	24	5

N=74

The evaluation's research suggests that computer access remains limited in many schools. The data collectors asked the teacher in charge of the computer lab the number of hours per day students use available computers. The average response was 4.5 hours a day, but most of these hours were in a small number of schools. In a quarter of schools, students use computers no more than one hour a day in classes, in half the schools, students use computers no more than one hour a day in classes, and in three quarters, students use computers fewer than four hours per day. The average was considerably higher in urban (seven hours) than rural areas (two hours). This may partially be a function, however, of the larger size of urban schools and the presence of the Deer Leap program in all urban schools, although evidence was not found that the Deer Leap program increased the number of hours students used computers in rural areas, where valid comparisons could be made. Larger and urban schools also are more likely to provide students somewhat greater access to computers after school, such as part of extracurricular activities, although the average still is not much more than two hours per day.

Table 3-182: How many hours a day are students using computers in classes? (School Obs. q.59)

Mean	Min	Max	Standard Deviation
4.5	0	45	8

N=70

Table 3-183: How many hours a day do students use computers in classes? (School Obs. q.59)

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Urban school	7	1.91	0.095
Rural school	2.1		
Schools with 555 or more students	6.8	1.37	0.191
Schools with less than 555 students	3		
Rural or Mountainous Deer Leap school	2.7	0.59	0.604
Rural or Mountainous not Deer Leap school	2		
At least 10 students per teacher	3	-0.72	0.486
Less than 10 students per teacher	4.6		

Table 3-184: How many hours a day do students use computers outside of classes? (School Obs. q.60)

Mean	Min	Max	Standard Deviation
1.6	0	6	1.4

N=65

Table 3-185: How many hours a day do students use computers outside of classes? (School Obs. q.60)

Respondent Category	Number of Hours	Chi-Sq or t-Value	Probability
Urban school	2.3	3.20	0.009
Rural school	1.1		
Schools with 555 or more students	2.3	2.13	0.051
Schools with less than 555 students	1.3		
At least 10 students per teacher	2.1	1.80	0.093
Less than 10 students per teacher	1.3		
Rural or Mountainous Deer Leap school	0.8	-0.77	0.650
Rural or Mountainous not Deer Leap school	1.1		

The survey also provides evidence that teachers still have infrequent access to computers frequently. In terms of computer use at schools, 42 percent of teachers state that they never use computers at schools, 18 percent use computers once a month or less and 33 percent use computers at school more often. According to the teachers questioned in school observations, teachers get to use the computer laboratories (usually the same used by students) on average only 1.5 hours per day.

Table 3-186: How often can teachers use computers at school computer lab? (Teacher form 2 q.18a)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Never	42	34	50
Once a year	8	5	11
Once a month or less	18	12	23
More than once a month	33	27	38
Total	100		

N= 609

Table 3-187: How many hours a day do teachers get to use these computers? (School Obs. q.61)

Mean	Min	Max	Standard Deviation
1.5	0	5	1

N=62

Teachers from urban areas, larger schools, and Deer Leap schools all use computers at the computer lab more often as do younger teachers and teachers who teach secondary school classes. To consider more carefully the impact of the Deer Leap trainings on computer use, the evaluation examined the use of computers by whether the teacher had received training from Deer Leap. Teachers who indicate they have received Deer Leap training state that they use computers at school as well as outside of school more often than their colleagues who have not received the training with 42 percent stating they use computers more than once a month compared to 29 percent for their untrained colleagues. Because teachers to some extent choose themselves to receive the Deer Leap training rather than being selected at random, it is unclear whether the explanation for these teachers show greater comfort or interest in using computers due to the training or that those more interested in and comfortable with using computers in the first place went for the training so that the trainings might have had no effect.

Table 3-188: How often can teachers use computers at school? (Teacher form 2 q.18a)

Respondent Category	Never	Once a year	Once a month or less	More than once a month	Chi-Sq. Value	Probability
Urban school	26	10	21	42	76.13	0.000
Rural school	61	4	13	22		
Urban school	26	11	22	42	73.57	0.000
Rural school	57	4	12	27		
Mountainous school	66	5	15	15		
School with less than 100 students	75	3	6	15	38.92	0.018
School with 100-750 students	43	7	19	30		
School with more than 750 students	31	10	17	42		
Deer Leap school	27	3	10	20	91.70	0.000
Not Deer Leap school	66	10	22	41		
Rural Deer Leap school	24	12	34	31	23.73	0.040
Rural not Deer Leap school	70	3	9	27		
Mountainous Deer Leap school	41	6	18	36	10.77	0.091
Mountainous not Deer Leap school	72	5	14	9		
50 or Younger	39	8	15	38	20.65	0.026
51 or Older	48	6	24	22		
Primary grade teacher	45	8	17	30	13.32	0.019
Secondary or both	31	5	21	44		
Trained by Deer Leap	36	8	14	42	10.36	0.065
Not trained by Deer Leap	45	8	19	29		

During the focus group discussions, most teachers referred to the IT Manager position as the potential source for receiving technical support in using computers, dealing with problems, and understanding how to use the computers for academic purposes. However, the surveys showed that in almost half of schools surveyed, an IT manager is not able to provide teachers relevant support during preparation of curriculum and lecture. At this stage, 53 percent of schools do not have IT manager. Since the computerization program covered mostly urban schools at initial stage of implementation, a higher percentage (57 percent) of urban schools have an IT Manager position than rural schools (35 percent).

Table 3-189: Is there an IT manager at your school? (Teacher form 2 q.19)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	46	36	57
No	53	42	64
Do not Know	1	0	2
Total	100		

Table 3-190: Is there an IT manager at your school? (Teacher form 2 q.19)

Respondent Category	Yes	No	DK	Chi-Sq or T-Value	Probability
Urban school	57	42	1	36.15	0.064
Rural school	35	65	0		
Urban school	56	42	1	47.22	0.021
Rural school	27	73	0		
Mountainous school	52	48	3		
Deer Leap school	55	44	1	31.95	0.0697
Not Deer Leap school	34	66	0		
Rural Deer Leap school	46	54	0	5.36	0.198
Rural not Deer Leap school	24	76	0		
Mountainous Deer Leap school	45	53	2	2.03	0.450
Mountainous Deer Leap school	53	47	0		
Trained by Deer Leap	48	51	2	4.15	0.213
Not trained by Deer Leap	46	54	0		
Trained by Deer Leap and in Deer Leap school	55	55	2	13.06	0.090
All others	44	42	0		

The effect of Deer Leap is evident in these schools even though assigning IT managers is not a formal part of their work. Within our sample, there is evidence that in Deer Leap schools in mountainous areas, IT managers provide more support to teachers (35 percent of teachers from Deer Leap schools indicate insufficient support from their IT manager compared to 70 percents of teachers not in Deer Leap schools). Further, those receiving training from Deer Leap across all schools also seem to be able to get more attention from their IT managers (41 percent of teachers having training from Deer Leap indicate on insufficient support from their IT manager compared to 53 percents of teachers not having Deer Leap training). See tables below.

Besides contextual linkages, most teachers listed shortage of computers for students, absence/low speed of internet or no access to peripherals' as major obstacles for using computers in teaching. The obstacles of inadequate software and peripherals or out of date computers are identified by lower percentages of teachers for schools in the Deer Leap program. The obstacles of being insufficiently comfortable with computers to use them for teaching, being unsure how to make technology relevant to teaching and unable to get sufficient support from the IT manager is found less frequently for teachers with Deer Leap training. The tables below present teacher responses to questions about obstacles to using computers in teaching.

Have any of the following been obstacles for you to using computers in teaching?

Table 3-191: Too little access to computer labs (Teacher form 2 q.21a)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability	N
Rural or mountainous Deer Leap school	53	-1.23	0.236	267
Rural or mountainous not Deer Leap school	41			
Trained by Deer Leap	43	2.29	0.259	517
Not trained by Deer Leap	50			

Table 3-192: Absence of internet or low speed (Teacher form 2 q.21b)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability	N
Rural or mountainous Deer Leap school	81	-1.02	0.323	278
Rural or mountainous not Deer Leap school	71			
Trained by Deer Leap	56	4.15	0.055	522
Not trained by Deer Leap	65			

Table 3-193: Too few computers for my students (Teacher form 2 q.21c)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability	N
Rural or mountainous Deer Leap school	80	-1.04	0.316	249
Rural or mountainous not Deer Leap school	69			
Trained by Deer Leap	55	14.76	0.013	490
Not trained by Deer Leap	72			

Table 3-194: Not comfortable enough with computers to use them for teaching (Teacher form 2 q.21d)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability	N
Rural or mountainous Deer Leap school	64	1.18	0.258	257
Rural or mountainous not Deer Leap school	78			
Trained by Deer Leap	55	6.91	0.103	511
Not trained by Deer Leap	67			

Table 3-195: IT manager is not able to provide relevant support during preparation of curriculum and lecture (Teacher form 2 q.21e)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability	N
Rural or mountainous Deer Leap school	52	0.94	0.360	220
Rural or mountainous not Deer Leap school	62			
Trained by Deer Leap	40	6.04	0.010	442
Not trained by Deer Leap	53			

Table 3-196: Not sure how to make technology relevant to my subject (Teacher form 2 q.21f)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability	N
Rural or mountainous Deer Leap school	47	0.01	0.960	226
Rural or mountainous not Deer Leap school	46			
Trained by Deer Leap	35	5.73	0.068	451
Not trained by Deer Leap	47			

Table 3-197: Computers are too unpredictable or outdated (Teacher form 2 q.21g)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability	N
Rural or mountainous Deer Leap school	07	-6.05	0.000	198
Rural or mountainous not Deer Leap school	43			
Trained by Deer Leap	10	16.34	0.003	416
Not trained by Deer Leap	28			

Table 3-198: Software is inadequate or does not work right (Teacher form 2 q.21h)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability	N
Rural or mountainous Deer Leap school	25	-3.00	0.015	199
Rural or mountainous not Deer Leap school	51			
Trained by Deer Leap	23	7.81	0.010	409
Not trained by Deer Leap	37			

Table 3-199: No access to printer or the printer frequently is not working or out of paper or ink (Teacher form 2 q.21i)

Respondent Category	Yes %	T- or Chi-Sq Value	Probability	N
Rural or mountainous Deer Leap school	52	-2.87	0.025	256
Rural or mountainous not Deer Leap school	73			
Trained by Deer Leap	45	9.65	0.005	256
Not trained by Deer Leap	60			

*Unable to calculate probability values to generalize nationally.

In terms of Internet connections, only 25 percent of the schools observed have Internet access. The percentage of urban schools is significantly higher (55 percent), than of rural schools (8 percent), as expected considering Deer Leap program implementation cycle, with its focus on urban areas on the first year of its implementation. Overall, 34 percent of schools involved in Deer Leap program have an Internet connection, while only 13 percent of schools not involved in the Deer Leap program are connected to the Internet. It is obvious that, overall, still there is a shortage of internet access for schools at this early stage in the Deer Leap program implementation cycle. Fifty-six percent of teachers from schools involved in the Deer Leap program claim that absence of internet, or its low speed impedes them in using computers, while vast majority of other schools (84 percent) facing this problem are represented by schools which are not involved in the program. Among schools having Internet connection 55 percent have low speed internet (slower than 1mbps or dialup).

Table 3-200: Does teacher indicate school has an Internet connection? (School Obs. q.51)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	25	16	34
No	75	66	84
Total	100		

N=67

Table 3-201: Does teacher indicate school has an Internet connection? by category. (School Obs. q.51)

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Urban school	55	5.95	0.000
Rural school	8		
Mountainous rayon	0	-5.69	0.000
Not mountainous rayon	27		
Schools with 555 or more students	67	5.45	0.000
Schools with less than 555 students	12		
At least 10 students per teacher	26	5.86	0.000
Less than 10 students per teacher	0		
Rural or Mountainous Deer Leap school	19	0.91	0.560
Rural or Mountainous not Deer Leap school	6		

Half of the schools observed have a budget for maintaining computers. The percentage of urban schools (86 percent) that provide a budget for computer maintenance is much higher than rural schools (31 percent). The financial status of rural and small schools is discussed further in section 4.

Table 3-202: Does the school provide a budget for maintaining the computer? (School Obs. q.52)

Response	Estimated Percent	95 Percent Confidence Interval	
		Lower Bound	Upper Bound
Yes	50	29	71
No	50	29	71
Total	100		

N=67

Table 3-203: Does the school provide a budget for maintaining the computer? (School Obs. q.51)

Respondent Category	Yes %	Chi-Sq or t-Value	Probability
Urban school	86	3.71	0.003
Rural school	31		
Mountainous rayon	47	-0.13	0.901
Not mountainous rayon	51		
Schools with 555 or more students	85	3.78	0.002
Schools with less than 555 students	39		
Rural or Mountainous Deer Leap school	60	1.82	0.110
Rural or Mountainous not Deer Leap school	28		

3.3.4 Learning and Supplemental Materials and School Physical and Social Environment: Conclusions

1. Surveys showed that only half of schools offer extracurricular classes to their students. More urban areas offer extracurricular activities, but they also are more likely to charge a fee for participation that potentially excludes some poorer students from participation.

2. Physical challenges to teaching and learning include large class sizes in urban areas' improper or insufficient classroom furniture in a small but significant minority of classes observed, especially in urban areas; low attendance due to bad weather or lack

of transportation in mountainous areas.

3. Estimated annual average costs for tutoring ranged between 250 and 1000 Lari depending on the region, representing a barrier to equal learning opportunities to poorer families to the extent that educational quality from free schooling is insufficient.

4. Teachers currently more positively appraise the quality of the newly designed textbooks than they did in previous research, and teachers appear to be using the books. In about a quarter of classes, a significant number of students do not have or have to share the new textbooks according to teachers and supported to some extent by observations.

5. The NCAC should encourage providers of teacher manuals to provide lesson plans to help teachers know how to use active teaching for the lessons. Textbooks should be made available, even if in draft form, well before the school year. One of the future studies proposed includes understanding better why about 40 percent of teachers claim not to have the new manuals when available for their classes.

6. Some teachers at focus groups think the new material included in the textbooks are too complex for their students. This sentiment was only weakly supported by the surveys, however.

7. Teachers feel that the new manuals effectively contribute to teachers preparedness to teach the new syllabi, although a quarter would like more lesson plans, and about 40 percent claim not to have the new manuals when available for their classes, although it is unclear why.

8. Overall, there still is a significant shortage of supplemental learning materials for different subject teaching purposes unaddressed despite a supplemental learning materials exhibition initiatives undertaken early under the reform program.

9. A high proportion of schools have a library or dedicated room with resources for student learning, although many in smaller schools were too small or inappropriately set up for students to use as real libraries. Library resources generally are not considered of high quality by most teachers with those in the rural school library program appraised somewhat more highly than the others. Teachers access to the libraries is inconsistent, as some schools are likely trying to protect their books from use that might damage books but support the new active learning methods.

10. There appears to be some improvement in the school situation in terms of consistency of electricity, although in-class lighting was judged insufficient in nearly half of larger schools.

11. Sewage, sanitation, and sufficient size of bathroom facilities remains a problem. Although more than half of the schools observed have operational gymnasium facilities, fewer than half of those are sufficiently equipped and used. More than half of rural schools have no gymnasium.

12. Implementation of Deer Leap program at schools has increased the student-to-

computer ratio, computer quality, Internet access, and access to computers for students during and after school.

13. Teachers having received Deer Leap's basic level of training have greater comfort with computers, use them more frequently, and get more frequent assistance from school IT managers, although even most of these trained teachers indicate a need for further training. Teacher access to school computers remains limited but higher in Deer Leap schools.

14. Overall, computer and Internet access remains limited in many schools with greater access in urban than rural areas especially in schools not yet involved in Deer Leap's computer provision program.

15. Many teachers – even those trained by Deer Leap – are not clear how they can make technology relevant to subject teaching purposes, or they do not feel confident in their IT skills. In almost half of schools, teachers do not get relevant support from an IT manager.

16. More than half of schools still appear to focus on teaching basic programming (informatics) skills rather than courses that would be in greater alignment with the new methods.

17. A shortage of computers for students, absence or low speed of internet or no access to peripherals' are cited as other major obstacles for using computers in teaching. Few rural schools have a budget for maintaining computers.

4.0 RESULTS: MANAGEMENT EFFECTIVENESS AND FINANCE

4.1 Decentralization and Management

4.1.1 Overall attitude toward school autonomy

Granting autonomy to general schools has been the central effort among the wide-scale reform initiatives implemented by the Ministry of Education and Science during the last two years. Although this change was made quite recently and in a relatively short period of time, overall, all the stakeholders – directors, teachers and board members feel very positive about school autonomy. In the interviews, all directors unanimously agreed that the freedom to make independent decisions is very important for them, acknowledging that directors and school staff know best what are the needs of their schools. Most importantly, unlike the pre-reform period, schools are now free to decide on their spending. Previously local governments used to allocate the budget for them in line items and they had to ask specially for permission for any extra spending; however, now they can prioritize and allocate their budget according to schools' needs without going through bureaucratic procedures. The quantitative evidence is also in line with this view. All of directors surveyed are in favor of school autonomy reform (30%: strongly in favor, 70%: in favor).

The challenge that was emphasized by the directors in this regard was the huge responsibility that they have now assumed. However, they hardly see it as a problem, and all of them indicate they can deal with it without significant difficulties. Teachers are also generally in favor of the school autonomy reform, although they are slightly less positive than directors (see Table 4.1 below).

Table 4.1 Attitude of Directors and Teachers towards Decentralization and More School Autonomy

	Strongly in favor	In favor	Not in favor	Strongly not in favor	n
Directors	30 %	70 %	0 %	0 %	106
Teachers	19 %	70 %	9 %	0 %	686

Overall, boards of trustees are positive about school autonomy. During focus group discussions with board members, most of the board members indicated that they understand schools now bear more responsibilities and duties in terms of school management and finance. However, some schools boards are not fully ready to make independent decisions, claiming the negative side of the school autonomy is that schools are now responsible to solve all their problems on their own.

4.1.2 Schools' and Directors' Organizational Capacity in the Decentralized Environment

School directors and administrative staff need specific skills and capacities to deal with the responsibilities conferred upon them in the decentralized management environment. This section will describe, what is the understanding of school directors about the new roles and functions that they have assumed, what kind of trainings are needed for directors and

administrators to efficiently and effectively perform their new functions. It will also examine what capacity schools currently have for data-based decision making as well as the rate to which information shared among various stakeholders at the school level is practiced and the participation of various stakeholders in the decision-making process.

4.1.2.1 Understanding of Roles and Responsibilities of Directors

Directors state that they are mostly aware of the new roles and responsibilities that they and their administrations have assumed in the decentralized management environment, and this finding was confirmed during interviews conducted by the evaluation team. Most of the directors surveyed (93 percent) indicated they received information about their new responsibilities before the change occurred. During interviews, it became clear, however, that the directors still need further clarifications and instruction on the scope of their authority, functions and rights in order to fully understand and undertake their new roles and responsibilities. In the survey question asking the directors' perception of their own level of understanding, only 45 percent of surveyed directors responded they know fully their new roles and responsibilities, 50 percent responded they know only partially, and 5 percent even admitted they do not know at all. Although it was not feasible during the quantitative survey to test their level of understanding in more detail, given the reasonable probability of the directors' reluctance to admit their lack of understanding, it is assumable that the actual level of their understanding is likely even worse than their responses in the survey. Also, ERC heads mentioned that some directors still turn to either the Ministry or ERCs to solve the problems or gain the approval of issues that now fall within their scope of authority. Administrative staffs also need more specific clarification of their duties. The training experience of the directors appears to be associated with better understanding of their roles and responsibilities as shown in the below table, but the difference is not statistically significant if one wants to generalize nationally.

Table 4.2 Perception on understanding of rights and responsibilities among the directors who were/were not trained

Respondent Category	Fully	Partially	No	Do not know	Chi-Sq. Value	Probability
Trained	58	38	0	2	7.1178	0.1695
Not trained	37	61	0	1		

n=99

4.1.2.2 Training for directors

All directors agree that they and their administrative staff are greatly in need of training, both in understanding the scope of their work and in specific skills needed to perform their functions. During the interviews, most of the directors claimed that teachers have been receiving a reasonable amount of training and support in terms of professional development while the training needs of directors and administrators have mostly been disregarded.

The areas identified by directors for trainings that need to be provided to them and their administrative staff are: management and financial accountability issues, procurement procedure, and psychology. 46 percent of the surveyed directors indicated that they have received some kind of training in the past. However, they indicate that trainings have not been provided in a unified or coordinated way. The trainings provided covered a wide variety

of school management issues, and different public and non-governmental institutions provided these training at different times.

4.1.2.3 Schools demonstrated capacity of decision-making

In most cases, directors and administration claim that they are making decisions based on data and information they collect. Schools surveyed, as a rule, indicate they collect the data needed for decision-making: 98 percent of schools are collecting academic performance data of students; 95 percent of schools are keeping record of student attendance and attendance problems; 76 percent of schools are keeping record of student disciplinary problems; 66 percent of schools are keeping record of extra-curricula activities; and 63 percent of schools are keeping teachers' qualification information. Some schools have stated they are measuring teachers' qualification and teaching skills using their own criteria, which are then used to make decisions on granting incentive bonuses and scholarships to best-performing teachers and students.

Almost all school directors indicate they develop their own school plans to meet strategic goals: 98 percent of school directors state they establish their own school strategic plan or goals, and 95 percent of schools establish their own annual action plans. The evaluation team was unable to determine within its data collection process the quality of those plans in terms of their ability to meet school needs.

81 percent of schools have staff appointed to take charge of certain physical resources of the schools. On the other hand, only 14 percent of schools have staff appointed to take responsibility for human resource management issues, suggesting that in most cases directors are primarily in charge of handling human resource issues or that they are handled in an ad hoc manner.

However, at the same time, it has been suggested to the evaluation team by some directors in the interview that, in the long run, school directors' and boards' capacity in planning will likely be found considerably insufficient in most cases to meet the future school accreditation requirements. As school accreditation process is planned to start in 2009 and be over by 2011 preparation of directors and boards for accreditation remains a significant challenge.

One good practice of school management was found during the field work. The evaluation team visited school No 51 in Tbilisi which has established a very effective and efficient procedure for collecting and storing all the data related to student and teachers performance, learning environment at the school, physical facilities as well as financial accounting and management issues. The data is collected and updated in a regular and systematic manner. The team was informed that there is a network of school directors in their area through which they share innovative ideas and good practices, such as school data collection formats, teacher performance rating criteria and so forth. This practice can prove useful for other schools not only in Tbilisi but across regions as well.

Overall, the evaluation result on this issue showed, rather contrary to the general expectation of the evaluation team, schools' high readiness to the decentralized environment and capacity of independent decision-making. Further focused research on this issue would provide valuable insight, which will likely assist in the planning of school administrators and boards trainings.

4.1.2.4 Schools democratic decision-making capacity

The extent of sharing information on school management and student performance among various stakeholders has increased since the introduction of decentralization reforms. Teachers and parents also now have more opportunities to express their opinions and take part in decision-making.

Most schools indicate they are disseminating student performance and school management information among all stakeholders: teachers, parents and students. Most schools (95 percent) indicate they have some sort of structured regular procedure for providing information on student performance and problems to parents. However, the share of schools with a structured regular procedure for providing information on school management issues to parents is somewhat less - about 73 percent.

As for communicating students' academic performance information to parents, schools most frequently rely either on regular parents meetings or parents' day, individual communication between head teachers of classes and parents, and the report card. As for disseminating school management related information to parents, regular parents meetings and board of trustees meetings are by far the most frequent methods. Some schools, though limited to a handful of them, use written forms of communication such as school newspaper, formal letters, and school notice board.

As the table below drawn from teachers' survey demonstrates, most school directors consult with teachers concerning the issues related to the learning environment as well as budgeting and management.

Table 4.3: Teacher Responses on Whether Director Consults with Teachers on Selected Issues (in %)

	yes	no	n
Planning actions for gaining additional funding for school	78	22	659
Way of using financial resources	79	20	637
Distribution of classes and subjects among Teachers	93	7	682
Selection of textbooks and learning materials	88	12	668
TPD (training attendance)	94	6	689
Cooperation with local community	86	11	656

The percentage of teachers, however, who think that they have the opportunity to freely express their ideas and opinions to school administration is somewhat lower (60 percent completely agree, 34 partially agree and 7 percent disagree). Nevertheless, 39 percent of teachers think that their freedom to express opinions concerning school management has increased after decentralization reforms. Overall, teachers think their role in school decision-making is limited mainly to the issues concerning teaching and learning processes. Based on their comments in focus groups, budget related decisions in general are exclusively upon the discretion of school directors and boards of trustees. They state, however, that the school

budget planning process has become more transparent nowadays, and budget plans and accounting information for each budgetary item are accessible to teachers and parents upon request.

Most teachers claim they are aware of the planning of their schools. Only a small proportion of the teachers surveyed are not aware of the existence of strategic goals and action plans of their schools (16 percent and 14 percent respectively). Also, only 14 percent of the surveyed teachers are unaware of the way rights and responsibilities are distributed among directors, administrative staffs and boards.

Most of the boards of trustees indicate that currently they are receiving most of the administrative and school related information solely from school directors and administrators. This leaves a potential window of opportunity for directors to either intentionally or unintentionally misinform board members. However, only 23 percent of the surveyed board member teachers responded that their directors are not managing schools in a democratic way.

4.1.3 Receptiveness of Director Election System

According to most stakeholders at the time of the survey, the new director election procedure is better than the old practice of appointing directors, as it gives a chance to qualified candidates to apply. School directors are mostly positive about the new director election procedure, and think it is more efficient (89 percent) and transparent (88 percent). However, they do have some concerns about negative effects/outcomes of the procedure. Some directors raised strong concerns that under the new scheme, most of the directors will lose their ties and network with the local community. Interviewed directors also raised concerns about the possibility of experienced directors with mastery of communication and excellent personality failing to attain high scores on examination thus losing his/her director position. Further, they also expressed concerns over the election procedure by board of trustees, as personal relations are likely to be decisive in the process and board members might on purpose cause failure of potentially successful candidates. They suggested that it would be better if the Ministry conducts the examinations and interviews of director candidates, then appoints qualified directors to schools directly without going through the voting by boards of trustees. Teachers' attitudes towards the new election procedure seems to be less positive than directors with only 47 percent having a positive view. However, those teachers who know the procedure of the director election are highly supportive of the new scheme (89 percent). These responses occurred just prior to the nomination of directors in June 2007.

4.1.4 Effectiveness and Activeness of Boards of Trustees

Boards of trustees have been established within Georgian general schools as the representative bodies responsible for ensuring transparent and participatory decision-making at school level and for promoting community participation in school management as well as improvement of the learning environment at school. This section will describe the progress made so far towards the achievement of these goals. It will examine the extent to which boards of trustees adhere to democratic principles in their operational procedures, and evaluate how efficiently they use their resources and capacities. The section also identifies potential areas for the improvement of board of trustees operations and lays out basic training needs as well as main challenges they face.

4.1.4.1 Adherence to democratic principles

In most cases, respondents of the survey indicated that board elections were conducted fairly and without any major problems. In some schools, however, only a small percentage of parents have participated in board election meeting. The percentage of parents who participated in board election meeting is higher in rural and mountainous areas than in urban areas (64 and 65 percents in rural and high-mountainous respectively compared to 50 percent in urban).

In some cases, there was evidence from the fieldwork that the director influenced the process of the election of board members.

Table 4.4: The proportion of parents who participated in the voting of boards

Respondent Category	Average % of parents	95% confidence interval		T- or Chi-Sq Value	Probability
Urban	50	36	64	1.47	0.164
Rural	64	50	79		
Mountainous	65	49	82		

N = 95

Votes are in most cases made following the rule of the law; however, according to teacher respondents who are also members of board of trustees, in some cases boards are not making decisions by voting. Board of trustee members who joined focus group discussions indicated that in some cases especially when issues are minor, boards are reaching decisions by implicit unanimous agreement among members.

Only 23 percent of the surveyed board member teachers think that their directors are not managing schools in a democratic way.

4.1.4.2 Efficiency

Boards of trustees, in most cases, show a high degree of willingness to contribute to efficient school management and improvement of learning environment. In 88 percent of the schools, the frequency of board meeting meets or exceeds the required minimum meeting frequency (overall average of 4.78 times per year). The survey demonstrates that probably rural areas' schools tend to hold board meetings less frequently. The average found was 5 or 6 meetings per year in urban or mountainous areas compared to 3.7 percent in rural. Directors are feeling the current frequency of board meeting is sufficient. Nevertheless, they also feel there should be more board meetings. In addition, teacher board members are more likely to think board meetings have not been sufficient and should have more meetings than directors, as shown in the table below. Many boards in other nations have instituted meetings where educational matters are discussed. These are often interspersed between business meetings.

Table 4.5 Comparison of directors' and teachers' perceptions about the sufficiency of board meeting frequency

	Sufficient	Insufficient	Do not know	N
Directors	78	22	0	103
Teachers	57	30	13	233

Many board members, particularly in village areas, very often rely on non-formal meetings as members of the same community to discuss and solve school-related issues.

Activeness of boards of trustees varies significantly from school to school, and, on average, teacher board members are more active than parent members.

Some schools have a member inactiveness problem with being busy and a lack of interest being the prime causes of being inactive. As demonstrated by the tables below, there is some probability that boards in schools in rural areas tend to be less active than those in urban and mountainous areas.

Table 4.6 Are there any members in the board who are insufficiently active?

Respondent Category	Yes (%)	Chi Square-test Value	Probability
Urban	39		
Rural	55	12.3750	0.0305
Mountainous	14		

N= 103

Table 4.7 Number of decisions made last year by voting by Boards across school types

Respondent Category	Average	95 confidence interval	
Urban	5.7	3.8	7.5
Rural	4.9	3.8	5.9
Mountainous	5.8	3.1	8.6

N=89

In many boards of trustees (57 percent), there are established sub-committees. Distribution across school types again shows some disparity:

Table 4.8: Existence of committees established by boards across school types

Respondent Category	Yes (%)	Chi-Sq. Value	Probability
Urban	71		
Rural	48	3.9687	0.4783
Mountainous	54		

N=103

Despite the existence of sub-committees and councils in many of the boards, the qualitative evidence from fieldwork has demonstrated that the tasks and responsibilities are not clearly divided between these sub-committees and the board, and the boards themselves are often handling all sorts of issues as a whole even when they have a particular sub-committee for the issue, for example, students' disciplinary problem. The issue was raised in a board meeting and discussed by all the board members together.

Boards of trustees are, as a rule, more involved in budget planning and accounting issues rather than improvement of learning environment and process. However, many boards are trying to launch initiatives that go beyond school management issues, such as: school heating, school playgrounds, purchasing equipment, incentives pay to teachers, students attendance issues, etc. In 42 percent of the surveyed schools, directors indicated that boards frequently launch initiatives related to the improvement of learning environment at schools and in 44 percent said they sometimes launch such initiatives. This provides a rationale for instituting meetings at which education is the chief matter on the agenda. Again, if compared across school types urban and mountainous schools are probably more active in this respect as shown in the below table. The evaluation team was not able to determine the reasons of this apparent lower level of activeness among rural schools.

Table 4.9 Compare the frequency of launching initiatives across school types

Respondent Category	Frequently	Sometimes	Rarely	Never	T-test Value	Probability
Urban	50	25	23	2	1.57	0.139
Rural	26	58	16	0		
Mountainous	58	41	1	0	3.52	0.004

N=102

During the fieldwork the evaluation team has visited Gori school No 6 where the members of the board have been very active in school life; teachers and parents are equally involved in the board decision-making process and activities. They often launch initiatives related to the improvement of learning environment at their school. Thus, for example, the board has on its own initiative equipped the school with special facilities for disabled children. The board is very active in fundraising activities. The board members regularly communicate school-related information to other parents and accordingly the involvement of the community in school life is very high. Intensive cooperation between school director and board members also helps them better perform their functions.

4.1.4.3 Capacity of Boards

Boards of trustees are not yet fully utilizing their capacities since they are newly established bodies. Directors view boards primarily as bodies to share responsibility with and to cooperate with, not as opposing forces. However, there is also in some cases confusion over the distribution of roles and responsibilities between the school administration and board of trustees, which ultimately produces tensions and conflicts over school management issues. 77 percent of the surveyed teacher board members indicated that they have a clear understanding of their roles and responsibilities on the boards, 15 percent do not have a clear understanding and 6 percent do not know.

About 60 percent of boards have had some kind of training. However, only a few members of the boards were trained. Also, these trainings have been provided at different times by various organization and they have covered wide variety of issues.

Evidence both from qualitative as well as quantitative data demonstrates that board members need further training. 43 percent of surveyed board member teachers think that the training

that they have had is insufficient, 38 percent consider the trainings sufficient and 19 percent have no answer to this question. The most important training to be provided is training in their roles and responsibilities. Boards of trustees want to have official trainings from the Ministry in order to be authorized to perform their duties. It is essential that the information and instructions about the board's roles and functions provided to directors and board members are identical to prevent conflicts or misunderstanding between them. In one case, for example, there was a conflict between the board and school administration because board members discussed the school budgeting issues with other teachers and this action was regarded by the school administration as a violation of law or protocol.

Participation of local communities in boards other than parents is quite low: only 29 percent of the schools surveyed have local community representatives on their board.

4.1.4.4 Challenges

The qualitative research has revealed some of the challenges that the boards of trustees typically encountered as they started engaging in the school management sphere. In some schools, the tensions and conflicts that had existed in the local community are also reflected in the board and it often hinders efficient functioning of boards.

Also, in one school board, teacher board members pointed out that they are feeling unprotected as teachers against pressure or abuse of power from their director. Although as board members they technically are on an equal footing with their director, they are at the same time still subordinate to the director as teachers and are subject to potential dismissal or reallocation by the order of directors. The board mentioned that the director has threatened to dismiss them when there was a conflict between the board and director. They argued that there should be some sort of legal protection mechanisms present to ensure the secure and active involvement of teacher board members.

4.1.5 Parental Involvement in School Management and Student Learning

According to our survey to directors and focus groups with boards of trustees, parents' awareness on students' academic performance has been improving to some extent, but not very significantly, compared to the pre-reform period. 42 percent of the surveyed directors think that the parents are now much better informed about academic progress and problems of students than before the reforms. 40 percent think that the parents are somewhat better informed now, 14 percent consider that there has been no change and only 4 percent think that parents are now less informed.

As for the parent involvement in school management, which can be represented by the level of participation in the board of trustee activities, the quantitative evidence indicates some degree of active involvement from parent side. The overall share of parents who took part in voting for board member election was 60 percent, and 6 percent of parents actually were candidates for board membership. In both indices the rates of participation of parents in urban areas appear to be less than those of rural and mountainous areas as shown in the tables below:

Table 4.10: The proportion of parents who participated in the voting of boards

Respondent Category	Average (%)	95% confidence interval		T-test Value	Probability
Urban	50	36	64	1.47	0.164
Rural	64	50	79		
Mountainous	65	49	82	-	-

N=94

Table 4.11: The share of parent candidates for board membership

Respondent Category	Average (%)	95% confidence interval		T-test Value	Probability
Urban	2.5	1.2	3.8	3.44	0.004
Rural	8	4.5	11		
Mountainous	7	2.4	12	-	-

N=96

The introduction of a board of trustee system was the most frequently cited reason by directors for improvements in parent involvement in students' academic issues at schools. Directors indicated that parents now feel they are more responsible and have a bigger role to play for improving their children's learning at school. The curriculum reform (the individual approach and 10 grading system) has also played a significant role to provoke parents' interests in their children's academic progress and problems. Lack of interest on the part of parents was cited by most directors as a principal reason for their passive involvement in school life.

4.1.6 Institutional Capacity of ERCs

ERCs are entrusted with the very important task of providing support to schools both in terms of school management and in terms of improving learning environment. As quite recently established bodies they are facing some major challenges. However, the progress they have made so far is still evident. This section will review the strengths and opportunities of ERCs currently, and will outline what are the major weaknesses and threats for them. This study can be used as a baseline to later measure the progress and performance of ERCs in the future.

4.1.6.1 Strength of and Opportunities for ERCs

The roles that ERCs are playing for supporting learning environment and management at schools are appraised positively by directors but less so by teachers. Directors have a highly positive view toward and are satisfied with ERCs since ERCs have provided administrative trainings and bureaucratic information from the Ministry to school administration. 93 percent of the surveyed directors think that ERCs in their districts are active enough to support professional development of teachers and school management. However, teachers are less positive about this point: only 15 percent of surveyed teachers fully agree that ERCs are active enough to support school management, 34 percent of them partly agree ERCs are active enough, 28 percent of teachers do not think ERCs are active enough and 24 percent responded they do not know. However, more teachers (53 percent) believe that their district ERC is active enough to support their own professional development.

Almost all school directors think that ERC staffs have enough skills and capacities for supporting schools.

Directors rate very positively the performance of ERCs compared to the old District Education Offices. Teachers, again, are less positive (see table below).

Table 4.12: Directors' and teachers' Perception of Level of Support Received from ERCs Relative to District Office (in %)

Respondents	ERC much more support	more support	no difference	less support	much less support	no support	n
Directors	85	12	0	0.3	3	0	104
Teachers	18	29	29	14	3	6	666

ERCs are perceived by all stakeholders as intermediary institutions between the school administration and the Ministry of Education and Science, and also as units responsible for provision of support to schools rather than controlling or inspecting them.

The qualitative evidence from focus group discussions with ERC heads and other interviews also reinforces this overall positive view that directors and teachers to some extent have towards ERCs. It has been reported that ERCs are having better communication and interactions with schools as well as the Ministry, the level of corruption has declined significantly, and some ERCs have been renovated and now have better equipment to provide support to schools. Above all, it is been commonly agreed during the qualitative research that many of the ERC heads and members are highly motivated and positive about their duties as a resource center. Although as ERC members themselves admit they are still in great need of additional training and resources, they are not at all feeling ashamed or backward about it, and as a part of the effort, some ERC members indicated that they have formed a loosely connected regional network of ERCs in order to exchange ideas and discuss problems. This type of cooperation among ERCs should be encouraged to the point of considering both regional and national associations to improve their functioning.

4.1.6.2 Weaknesses of and Threats to ERCs and the ERC System

ERCs are entrusted and expected by stakeholders to undertake a wide variety of tasks, while their physical and human resources seem insufficient to perform all of them. Focus group discussions with ERC heads have demonstrated that they need more human resources, more and better quality facilities, as well as capacity building of existing staffs. Only 30 percent of directors think that ERCs are equipped sufficiently to support schools, and 51 percent of them think that ERCs are equipped to a certain degree.

One of the major problems that have been identified in regard to ERC operation is the insufficiency of communication between the Ministry and ERCs on one hand and between ERCs and schools on the other. Despite being identified, as mentioned earlier, as an area of improvement since the old district office, the insufficiency of communication still looms as one of the biggest challenges ERCs are facing, and is also effectively paving the way to other problems as well. The insufficiency of communication for the most part comes from the insufficiency in physical resources, such as telephone, fax, internet connection, and cars and

gasoline; the common problem which was raised by most of the ERC heads in the focus group discussions. However this problem is likely to be resolved to great extent together with the renovation and equipment of ERCs which is currently ongoing. At the time of the evaluation, 19 new ERCs were opened and fully equipped. The renovation of other 25 ERCs is currently complete, and they will be opened soon. Once all ERCs are renovated and appropriately equipped, and schools are provided with internet access and skills needed under the Deer Leap program, the problem of communication will not likely be such an acute issue as it is now.

ERC heads are in most cases having meetings with school administrators at ERC offices. As evidenced by the results of teacher focus group discussions, in most cases, the only persons who visit ERCs are directors. In most cases teachers do not have direct contacts with ERCs.

ERCs are having problems spending considerable time cleaning and processing school data that they receive from schools to provide to EMIS. In most cases, directors indicate ERCs are collecting statistical data from schools in a timely manner. However, the indicated frequency of data collection by the ERCs from schools varies significantly school by school, pointing to the possibility of a lack of standardized process of statistical data collection. The most frequently cited reason by schools for problems in terms of data collection and transmission was the short time given for the task. However, as will be explained later in the report, the practice of keeping electronic accounting information is still very unfrequent especially in rural areas, and also, as ERC heads pointed out, the quality of data prepared by schools are sometimes very low due to insufficient accounting and data management skills on school side. This situation put a heavy burden on ERCs' workload for data collection and processing. The expected computerization of schools and ERCs should be able to alleviate the difficulties for some degree.

Some ERC heads argued that the budget procedure for ERCs has been problematic because ERCs are not authorized to formulate their own budget, and required to ask for permission to the Ministry for every expenditure they make, thus considerably limiting its flexibility. They claimed that ERCs should be given more autonomy in terms of budget planning.

The other problematic area identified both by ERC heads and by other stakeholders alike is in regard to ERC's roles and responsibilities. ERC heads raised concern over the ambiguity which exists in definition of their institution's roles and responsibilities. They argue that there is no law that specifies their duties and functions in detail, and sometimes school directors are unclear which tasks they should or can address to ERCs. Some stakeholders pointed out that ERCs have been given many different roles onto their shoulders without clear prioritization, and their planned new engagements even include some duties that will exceed the current scope of their roles and responsibilities.

4.1.7 School Budgeting Capabilities

Budget planning is one of the most important tasks that schools have been assigned to perform after the decentralization reform. Prior to the reform they have not had any experience in budgeting as local governments were allocating funds for schools. In this section the schools' budgeting capacities are assessed. It describes what kind of procedures are used by schools in the process of budgeting, to what extent are board of trustee members and teachers involved in the process, and how transparent the process is. Major challenges identified by stakeholders in school budgeting are also laid out.

Almost all school directors understand how the per capita formula calculates the amount of their school budget. As evidenced by qualitative data, directors are the key persons in schools' budget planning. The budget planning procedure is as a rule consists of: needs assessment, cost-estimation, and prioritization. Boards of trustees in some cases take part in needs assessment and prioritization and they are as a rule responsible for approving budget. The most common practice is that first the school director and administrative staff plan the budget, and then it is reviewed by the board for approval. Budget planning and approval are considered by board members as the key responsibility of board of trustees. However, some schools have established more efficient procedures for budget planning.

For example, in Kakhati School, located in the Zugdidi rayon and which the evaluation team visited during the fieldwork, members of each subject group are in charge of identification of the needs of their particular group for the coming year. The list of priorities is then submitted by the heads of the groups to the school director. At the same time the director and administrative staff as well as members of boards of trustees identify school's overall needs. After this, the director together with accountant checks the availability of funds to cover the needs identified, and prioritizes them in close consultation with heads of subject groups and boards of trustees. Through the use of such a procedure the school can ensure participation of all stakeholders in the process and avoid potential tensions over the management of funds on the one hand, and ensure efficient spending of the funds available on the other. This may provide an example of a model process to use in other schools.

Compared to the pre-reform period, schools directors indicate that they have a greater ability to budget for expenses beyond mere staff salaries, and more freedom to plan their budget based on school needs. As discussed earlier, directors are very positive about the new funding/budgeting procedure since it gives them the opportunity to prioritize spending based on school needs and to allocate funds to school improvement initiatives. Many of schools have started to utilize this budgetary freedom to plan for their own initiatives. For instance, they offer extra payments to teachers apart from salaries as well as incentive bonuses based on teacher performance and their scope of work. They also afford to pay small scholarship to best performing students. Many schools can afford paying for teacher professional development (training courses for teachers). However, in some cases directors are not sure whether they have the right to allocate school budget for specific items (such as trainings in school management for themselves and their administrative staff), or what should be the procedure for approving this type of expenditure. In most cases board of trustees and teacher councils are involved in decision making in the payment of incentive bonuses.

Schools indicate that when information about the budget is communicated from the school administration, generally it is done through meetings with parents and teachers. Therefore, the budget information in most cases is not likely to be readily available after the meetings were conducted. Focus group discussions with teachers indicated that teachers who are not members of the boards do not generally show much interest in knowing or expressing opinions on budgeting and financial issues. In some cases they do not think that their opinions will be considered unless they are board members.

Almost all schools have a staff member assigned for handling accounting documents and records, and the financial information is readily available for administrators. The practice of storing accounting data electronically is still limited to a handful of schools (12 percent). Less than a quarter of schools have computers for their administrators (20 percent). However,

among the large schools (that have more than 750 students), utilization of computer for storing accounting information is indicated to be as high as 75 percent. Also, those who keep electronic accounting data are concentrated in urban areas. ERCs have been having problems where they have to convert non-electronic data into electronic data for EMIS.

4.1.8 Decentralization and management: Conclusions

- Structural changes that have been implemented in the general education system of Georgia are in general adequate to create a fully decentralized and democratic education management environment;
- Overall, the majority of stakeholders are supportive of decentralization and democratization of the education system in general, as well as reform efforts that have been undertaken already;
- Schools are demonstrating varying degrees of success in efficient and effective management in decentralized environment;
- Generally schools are not yet ready to fully utilize the opportunities offered by a decentralized management system;
- Some schools have established an effective procedure for collecting and storing all type of data and information and have already workable models that can be applied by other schools;
- Communication of information on school management and student performance issues to parents and teachers has improved. However, some of the key data and information are not readily available;
- Teachers other than board of trustee members are very poorly informed about school management and budgeting issues;
- In most schools, it is the directors and administrations that plan budgets, and boards approve. However, in some schools there are very efficient and effective procedures of needs assessment, prioritizing and budget planning in place that could be used as models for other schools;
- School directors, administrative staff and board members urgently need detailed clarification and guidance on the scopes of their responsibilities and authorities;
- School directors and administration are in need of intensive training to acquire specific skills for some of the critical areas such as financial accountability, data collection and processing;
- Since boards of trustees are newly established bodies, they do not have enough organizational capacity to plan their work efficiently (e.g. distribute tasks among sub-committees);
- Schools (administration as well as boards) in urban (and possibly in high-mountainous) areas tend to be more active and more willing to utilize benefits of autonomous governance;
- Education Resource Centers are providing better support to schools than old district education offices;
- ERCs are entrusted with too many tasks and their physical and human resources are insufficient to successfully perform all of them;
- There are some problems with communication between MoES, ERCs and schools;

4.2 Per capita funding and financial status of schools

Per capita funding system of general schools was introduced with the aim to ensure a more transparent and fair allocation of funds to schools and efficient spending, as well as to make the financial status of schools comparable across school sizes and school types. This section will examine the flexibility of per capita funding, efficiency of per capita funding operations, sufficiency of school budget to cover school current costs and maintenance needs, financial status of general schools across school locations and school sizes, and challenges identified by stakeholders and areas for improvement.

Per capita funding is considered flexible enough in larger schools, where the schools have extra funds available to spend apart from staff salaries. However, in small schools, it cannot be used flexibly as they are spending all or most of their budgets solely on salaries. Overall, 78 percent of school directors think that per capita funding is flexible enough. Most of the directors who do not think so, have concerns about the insufficiency of funding they receive due to the small number of students they have.

Table 4.13: Attitude of directors towards flexibility of per capita funding

School type	Flexible	Not flexible	Chi Sq. Value	Probability
Receiving small school subsidy	46	55	31.39	0.000
Not receiving small school subsidy	94	6		

In almost all cases (96 percent), schools are receiving per capita funding fully and without any delays. They are also paying teacher salaries on time. This is a considerable change from the pre-reform days and represents a major achievement of the financial aspect of the reforms.

Now schools are more able to spend money on the physical maintenance of schools. The volume of capital expenditure spent by schools has increased over the last three years. The improvement is especially evident in rural and mountainous schools. However, the school budget is still in most cases not enough to cover schools' physical maintenance costs. The insufficiency of school budget for schools' maintenance needs seems more serious in rural areas than urban and mountainous areas. Schools can afford small repairs within their own expenses, but for major capital repairs they are as a rule waiting for the Iakob Gogebashvili program. In terms of taking care of the backlog of maintenance needs, mountainous schools are having a severe problem of shortage of funds (see tables below).

Table 4.14: How much of the school's current physical maintenance costs is covered by the school budget (in %)

Respondent Category	Covers all needs	Covers most needs	Covers around half	Covers small portion	Covers none	Chi-Sq. Value	Probability
Urban	34	33	0	18	15	16.0493	0.1980
Rural	16	8	6	42	28		
Mountainous	31	40	0	25	5		

N=66

Table 4.15: Has your school had enough funding (including fund from per capita, small school subsidies, local gov., parents/community contribution, Iakob Gogebashvili, donors) to meet backlog of school repair needs? (in %)

Respondent Category	Has met all needs	Most of them	About half of them	Small portion	None of them	Chi-Sq. Value	Probability
Urban	26	13	23	21	17		
Rural	9	8	6	43	34	18.4879	0.1602
Mountainous	6	2	0	49	44		

N=81

For small schools (schools receiving small school subsidies) the funding is not enough. Their financial status has improved to a certain extent, but not substantially.

Introduction of three different levels for per capita funding (for urban, rural and high-mountainous areas) has shown positive impact as the non-salary expenditure ratio has improved significantly in rural and mountainous areas. Overall, the financial status of rural and mountainous areas has become more comparable to that of urban schools compared to the pre-reform period, even though urban schools on average still retain a better non-salary expenditure ratio.

Disparity in non-salary expenditure ratios across school sizes (measured by the number of students: small = less than 100 students, middle = 101- 750 students, large = more than 750 students) also has shrunken substantially. Nevertheless, large schools are still granted with a far higher margin for non-salary expenditures than small and middle size schools, whilst at the same time the sizeable gap between small and middle size schools also remains.

Table 4.16: Non-salary/salary expenditure ratio (average) across schools geographic types

Respondent Category	2005	2006	2007
Urban	23.7	23.4	19.2
Rural	2.4	6.3	10.8
Mountainous	2.7	3.3	10.5

Table 4.17: Non-salary/salary expenditure ratio (average) across school size

Respondent Category	2005	2006	2007
Small (less than 100 students)	2.4	3.7	6.3
Middle (101 – 750 students)	5.3	8.4	12.6
Large (more than 750 students)	38.1	34.8	29.2

Schools are not fully exploiting the opportunity to apply for other sources of income apart from the per capita funding. The situation is worse in rural and mountainous areas than in urban areas.

Table 4.18: Has your school had an experience of applying for funds apart from allocated funds for the last 3 years?

Respondent Category	Yes (%)	T-test Value	Probability
Urban	62		
Rural	41	10.7924	0.0078
Mountainous	16		

N=91

The qualitative evidence indicates that the per capita funding system has been successful in promoting competition among schools, giving schools the incentive to offer better educational services (better programs, more projects, better teaching). However, every system has its negative effects, and the negative effects of the per capita financing also do exist. One that's been identified in the evaluation is that some schools are facing the threat of losing students and funding. If one school had a very competitive environment– with better buildings, educational programs and teaching practices – its neighbor, the less competitive school inevitably loses its students and consequently money from per capita financing. Now, this school is having trouble paying their teachers' minimum salary and has a very little financial margin left to invest in school improvements. It is a vicious circle. Per capita financing does promote competition, but on the other hand a supportive or safety net mechanism for less favored schools is not still in place, suggesting a function for ERCs to assist with program development. Another issue that has been indicated to the evaluation team is that parents sometimes abuse their rights in trying to influence schools' decision-making in their favor by threatening schools with pulling their students out, or to demand that schools provide undue goods or services to their children.

4.2.1 Per capita funding and financial status of schools: Conclusions

- The introduction of the per capita funding system has had positive effects on the financial status of schools;
- The system was introduced at the same time as the overall increase of funding for general education. It is difficult, therefore, to evaluate the effects of this system separately;
- Schools are receiving funding without delays and distributing staff salaries without delays as well;
- Compared to the old system, schools now have capacity to spend more on non-salary expenditures: for the improvement of learning environment and for physical maintenance of schools;
- Most schools are paying incentive bonuses or more than minimal salaries to teachers;
- Schools in most cases are not spending per capita funding for capital repairs;
- The ratio of salary/non-salary expenditure has become more comparable now across urban, rural and mountainous schools as well as across school sizes. However, sizeable disparity still remains;
- Small schools that are receiving small school subsidies are still spending in most cases the whole amount of per capita funding on staff salaries. Their financial status has not improved as of the rest of the schools;
- Schools in rural and mountainous areas are far less experienced in applying for funds from outside sources;

4.3 Effectiveness of Teacher New Pay Scheme

Teachers had long suffered from their meager wage level, which was exacerbated by the frequent and often prolonged delay in disbursement. As a part of the reform, the Ministry introduced the new formula to calculate the minimum level of remuneration for each teacher in the aim of raising the general salary level of teachers in Georgia in order to retain and attract qualified and competent teachers. The evaluation team was informed the minimum wage level was benchmarked according to the minimum wage for state employees – GEL115 per month. Above the minimum level, however, it entirely depends on the school's financial status and management policies how much they can add on to the minimum wage for each teacher. As a result, the actual amount of teacher wages can fluctuate from school to school. Overall, after the reform, the teacher salary level, on average, has been doubled. It was discussed in the previous section that the delay in salary disbursement has been significantly improved under the per capita funding system. This section will now look into the teachers' perception and satisfaction of their new salary level, comparative analysis across school geographic types, adoption of incentive schemes, state of teachers' extra work, and trends in teacher turnover in recent years.

4.3.1 Perception among teachers on the new pay scheme

Teacher salaries have been doubled on average with the recent reforms and salaries are distributed without any delays to all teachers. However our qualitative research demonstrated that the majority of teachers still remain unsatisfied with their salary level. They think that it compares unfavorably even with the salary levels offered to other state employees. Teachers indicate that they mostly understand the new salary calculation formula, though the understandings are often not perfect.

Directors in the interview argue that one shortcoming of the new salary calculation formula is that it takes into account only educational background and the length of professional experience, but not actual teaching and class management skills. Therefore, the results of the upcoming teacher certification planned in 2008 should be incorporated in teachers' pay scheme. Another problem pointed out by teachers is the potential conflict between teachers and directors over the assigned class size: teachers are keen to have fewer students in their classes since it favors salary calculation according to the current pay schemes, whereas smaller class size is associated with a higher coefficient. In contrast, directors want teachers to accept larger class sizes so that to improve the human resource efficiency of his/her school. Teachers indicate they are disgruntled with the aspect of the formula that defines the teacher who teaches larger classes are compensated less than the teacher who teaches smaller classes. Parents in some cases want to have their children in a class where a better-performing teacher is in charge, and it leads to the dilemma where high-performing teachers who shoulder many students end up having lower payments.

4.3.2 Comparison of teacher salary level between school types before and after the reform

The disparities in teacher salaries (average annual salary per teacher and average annual salary per teaching hour) across urban, rural, and mountainous schools have decreased significantly. The level of teacher salary has become comparable nationwide. Further, if taking into consideration the different costs of living across these categories generally,

teachers can be better off in rural areas, which is one of the stated goals of the program. The absolute amount of salary per teacher and per teaching hour has increased significantly over the past three years across all school categories. The growth in salaries has been particularly significant in rural and mountainous areas between 2006 and 2007, at the time of the introduction of the new formula of per capita favoring more rural and mountainous area schools.

Table 4.19: Average teacher annual salary per teacher for the past 3 years

Respondent Category	2005	2006	2007
Urban	1210	1248	1476
Rural	1061	1072	1472
Mountainous	1030	1124	1512

Table 4.20: Average teacher annual salary per weekly teaching hour for the past 3 years

Respondent Category	2005	2006	2007
Urban	88	89	117
Rural	73	80	112
Mountainous	74	89	111

4.3.3 Incentive scheme

Overall, the evaluation estimates that about a third (37 percent) of schools are offering incentive bonuses to teachers. However, prevalence of the practice of incentive bonus differs across school geographic category. Rural schools are less likely to offer an incentive bonus than urban schools (see the table below). None of the schools receiving small school subsidies indicate that they can afford to pay incentive bonuses to teachers. Some schools have their own teacher ranking criteria to calculate the amount of incentive bonus. Most of the directors (68%) agree that the incentive bonus effectively provides a strong motivation to teachers.

Table 4.21: Does your school provide incentive bonus payments to teachers?

Respondent Category	Yes	Chi-Sq. Value	Probability
Urban	46 %	3.6862	0.0341
Rural	26 %		
Mountainous	47 %	-	-

N=101

4.3.4 Teachers' additional source of income and tuition

Since teacher salary is often not sufficient to maintain a living, some teachers in focus group discussions indicated they have to take up additional jobs apart from teaching in school. According to the director survey data, however, in most schools, fewer than 25 percent of all teachers have extra work to supplement their income from teacher salary. In addition, the practice of tutoring students of their own classes, which is a potential cause of a conflict of

interest, does exist, although the magnitude is not large according to directors surveyed. No more than 20 percent of directors illustrate the teachers' tutoring of their own students as either frequent or very frequent practice. No significant difference was observed in this trend across school geographic types. The above result appears consistent with the finding in the report of curriculum training program. However, the evaluation team was not able to cross-examine the result from students' side.

4.3.5 Trend in teacher turnover ratio

The new pay scheme had almost no impact on the teacher turnover ratio. According to directors' perceptions, teacher turnover has remained almost unchanged as before, albeit it has slightly declined over the years as the results from the survey shows (average of 6.7 percent in 2005, 4.5 percent in 2006, and 4.1 percent in 2007). However, salary was not cited as the most frequent cause for leaving the teaching profession. The frequently cited reasons for teacher turnover, according to directors, include the following: family problem (21 percent), retirement (25 percent), and relocation to other workplace (19 percent), whereas salary was cited by only 7 percent of directors as being a reason for their teacher to leave.

4.3.6 Effectiveness of Teacher New Pay Scheme: Conclusions

- The minimal teacher salary rate has increased significantly alongside with the introduction of the new teacher pay scheme. Therefore, it is difficult to attribute the improvements in teacher remuneration to the new pay scheme system;
- Teachers across urban and rural areas feel that compared to other public sector occupations, their remuneration level is still low and unsatisfactory;
- Many schools are paying incentive bonuses and extra payments to teachers based on the type of work they perform (class supervisors, heads of subject groups) and their qualifications;
- Despite the low salary levels, the turnover ratio of teachers is very low;
- Some teachers have to do other jobs to make additional income, but the practice is not prevalent;
- Differentiation of teacher salaries according to class size is the most frequently cited argument against the new pay scheme.

4.4 School Optimization

Optimization/consolidation of schools has been undertaken extensively in the recent years with the aim of promoting physical, human and financial resources of schools in the face of the declining population of pupils in the country. The evaluation team came to learn that the optimization has been taking place not only among small schools and between small and large schools but also between two large schools. The state of pre-consolidation and the method of consolidation vary significantly for each case of optimization, and the decisions regarding optimization have been made primarily through discussions in the optimization commission. The guideline, on which discussions in the commission were based, provides only general criteria for and against school consolidation, and each single case was addressed individually. It was informed to the evaluation team that the school optimization policy does not have a particular set of goals or target indicators to measure the level of its achievement.

This section of the report will examine the impact of consolidation on human, physical and financial resource managements as well as on students learning and enrollment, challenges identified, and general perception among directors toward consolidation.

4.4.1 Impact of consolidation on human, physical and financial resource managements

The principal goal of the wide-scale optimization process of general schools that took place in Georgia during the last years in two major phases was to support the efficient use of human, physical and financial resources. This section will examine whether the consolidation of schools has so far had positive impacts on these factors.

Consolidated schools show a somewhat larger student/teacher ratio and student/non-teaching staff ratio than non-consolidated schools. It suggests that consolidation did not bring about changes in the student/teacher ratio, but has improved the student/non-teaching staff ratio to some extent. This is a function in part of the dominance of administrative consolidation in the cases of consolidation rather than physical consolidation. There most likely has been some degree of restructuring of non-teaching staff at the time of consolidation, which accounts for only a small fraction of school costs generally. On the other hand, the restructuring of teachers has been quite rare. In consolidated schools, directors feel that it would be more efficient for school management to dismiss most of the teachers from the other consolidated school, particularly because not all students actually join from their previous schools. However, dismissals are a very delicate issue, and directors are reluctant to do so. In some cases, directors are not sure whether they can dismiss teachers or if they have to accept all the teachers who are teaching in the other consolidated school.

The average teaching hours are almost the same between consolidated and non-consolidated schools in the year 2007. They have been decreased slightly both in consolidated and non-consolidated schools.

Consolidation has somewhat improved human resource management although not significantly because teaching staff have not been restructured after consolidation.

Table 4.22: Student to teacher ratio

School types	2005	Probability (t-test)	2006	Probability (t-test)	2007	Probability (t-test)
Consolidated	9	0.308	7.9	0.417	7.6	0.403
Non-Consolidated	8.1		7.2		7.0	

Table 4.23: Student to non-teacher ratio

School types	2005	Probability (t-test)	2006	Probability (t-test)	2007	Probability (t-test)
Consolidated	73.1	0.332	79.1	0.204	89.2	0.153
Non-Consolidated	63.1		61.8		65.9	

Table 4.24: Average teaching hour

School types	2005	Probability (t-test)	2006	Probability (t-test)	2007	Probability (t-test)
Consolidated	14.8	0.920	12.1	0.007	13.0	0.684
Non-Consolidated	14.7		14.0		13.4	

There has not been a significant improvement between 2005 and 2007 in terms of the student/classroom ratio nationally. The ratio for consolidated schools has not increased and remained almost constant between 2005 and 2007, but there has been a general decline in the student/classroom ratio of non-consolidated schools during the same period, which has made the difference between consolidated and non-consolidated schools rather significant.

There has been a slight improvement in the allocation of schools' physical learning equipment. Overall, in about 40 percent of cases the directors reported that physical resource management has improved as a result of consolidation. The desk/student ratio (the number of desks per student) in 2007 is lower in consolidated schools than in non-consolidated schools. 72 percent of directors of consolidated schools reported that the number of books in their library increased as a result of consolidation. However, only 8 percent of them reported the increase of lab equipment, and also only 19 percent of them agreed that they now have more sport equipment after consolidation.

Table 4.25: Average student/classroom ratio

School types	2005	Probability (t-test)	2007	Probability (t-test)
Consolidated	19.6	0.314	19.3	0.087
Non-Consolidated	15.6		13.6	

The financial situation in consolidated schools has been improving almost equally to non-consolidated schools. In more than half the cases, the directors reported that financial resource efficiency has improved as a result of consolidation, in a smaller number of cases it worsened.

4.4.2 Impact of consolidation on students learning, learning opportunity, and enrollment

No improvements are observed in terms of assigning teachers according to teachers' subject expertise. The number of teachers who teach classes without subject specific qualification remains at the same level before and after consolidation.

School directors believe the larger average class size as a result of consolidation does have some negative effects on the students' learning performance. Directors indicate that the negative effect on students learning resulting from consolidation is particularly severe in large and middle size schools. Almost all of the large and middle size schools directors think larger class size did have a negative effect on students learning, while none of the small school directors surveyed reported they experienced such a negative effect.

As for educational programs at schools, they indicate 54% of consolidated schools director responded they are offering more extracurricular activities after consolidation. 46% of them indicated there has been no change. Consolidation has positive impact on provision of extra curricula activities to students.

Table 4.26: Impact of larger class sizes resulting from consolidation on students learning across school sizes

Respondent Category	Very Negatively	Negatively	No effect	Positively	Very Positively
Small (less than 100 students)	0	0	90.2	0	9.7
Middle (101 – 750 students)	15.7	74.6	2.5	0	7
Large Schools (more than 751)	45.6	54.3	0	0	0

Table 4.27: Impact of larger class sizes resulting from consolidation on students learning across school geographic types

Respondent Category	Very Negatively	Negatively	No effect	Positively	Very Positively
Urban	20.8	79.1	0	0	0
Rural	18.3	47.9	16.8	0	16.8
Mountainous	6.9	30.1	56.0	0	6.9

Consolidated schools also are having more problems with student attendance caused by the difficulties in transportation. No difference was observed across school geographic types in this issue. Consolidated schools where there are no school buses indicate they have more problems with student attendance than non-consolidated schools without school buses and consolidated schools with school buses.

Table 4.28: Are there any students who have low attendance because of difficulties of transportation?

Respondent Category	Yes	No	Chi-Sq. Value	Probability
Consolidated	38.9	61.1	4.7837	0.0831
Non-Consolidated	15.7	84.3		

Table 4.29: Are there any students who have low attendance because of difficulties of transportation?

Respondent Category	Yes	No	Chi-Sq. Value	Probability
Consolidated without bus	46.2	53.8	5.5440	0.0964
Non-Consolidated without bus	16.0	84.0		

Table 4.30: Are there any students who have low attendance because of difficulties of transportation?

Respondent Category	Yes	No	Chi-Sq. Value	Probability
Consolidated with bus	21.7	78.3	*	*
Consolidated without bus	46.2	53.8		

*Unable to calculate probability values for this subsample to generalize nationally.

Schools indicate that consolidation has not affected negatively the rate of cooperation between schools and parents. No director of consolidated schools reported the decrease of parents' involvement after consolidation.

4.4.3 Major challenges identified by stakeholders

Overall the major concern identified by the evaluation team regarding consolidation is the lack of clear quantitative targets and goals. While it is obvious that the process is aimed at increaing efficiency of physical, human and financial resources, there are no targets set for any of the basic parameters, such as: school sizes, student/non-teacher ratios, class sizes, overall number of schools. While understanding that there is a great variety of factors influencing consolidation decisions and due to specific geographic location and relief of the country each case is individual and unique, there still needs to be some indicators set to measure progress and success.

Consolidated schools are facing different kinds of problems and challenges. In the case of administrative consolidation, some schools reported having problems in financing maintenance costs (cost for cleaning, guard, etc) for smaller schools consolidated with their school. In some cases of administrative consolidation, two schools consolidated were too remotely located and it causes problems for school management.

In some cases, directors of consolidated schools have concerns about the method of consolidation: mostly in schools where only administrative consolidation took place, physical consolidation is considered a better alternative.

During the evaluation some key interviewees expressed concern that consolidation between middle or large size schools especially in urban areas might result in the creation of excessively large schools where school management and student learning are negatively affected. International research supports this concern about the negative impact of excessive school size on achievement.

4.4.4 Overall perception of directors towards optimization

Over 20 percent of directors currently think that consolidation with other schools would benefit their school in terms of efficient use of human and financial resources. Among those who think consolidation would benefit their school, around 40 percent do have specific schools in mind as a potential consolidation partner. In terms of impact of schools' geographical background, in urban areas almost 30 percent of school directors think consolidation would be beneficial to their schools, whereas only 10 percent of rural school directors think it would be beneficial (although not statistically significant). Furthermore, among those schools already consolidated, almost half of them (45 percent), which is significantly higher proportion than the overall ratio (20 percent), think that further consolidation would be beneficial to their schools. No difference was found across school size.

Considering the peculiarities of per capita funding, a majority of directors of consolidated schools surveyed (63 percent) think that consolidation of their school was a good decision. However, 23 percent responded they do not think it turned out to be a good decision for their schools. Interviews with directors showed some cases where financially resourceful schools were consolidated with a school with a small number of students and a large number of teachers, and consequently the schools' overall financial status have worsened. Schools in urban areas tend to have more positive views about their consolidation in relation with per

capita funding than rural or mountainous areas, and also large schools seem more likely to think their consolidation was a good decision.

4.4.5 School Optimization: Conclusions

- School optimization has not impacted students/teacher ratio at the time of the evaluation;
- School directors of consolidated schools have been highly reluctant to restructure teaching workforces although they agree that it would improve the efficiency to do so;
- Student/non-teaching staff ratio has shown evidence of a certain degree of improvements in consolidated schools;
- Consolidation has not contributed to improve student/classroom ratio, nevertheless it appears to have prevented it from worsening alongside with other non-consolidated schools;
- Improvement in the financial status of consolidated schools do not appear to be significantly different from the general trend of improvement;
- Consolidation has exacerbated students attendance problem especially for schools without the provision of school buses;
- There is some level of dissatisfaction among directors over the decision and method of consolidation;
- Directors' interest in consolidation is still relatively high;
- The majority of directors agreed that under the per capitation system their consolidation has been beneficial in term of financial efficiency;

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Learning Environment

5.1.1 Teacher Training: Conclusions and Recommendations

5.1.1.1 School-based Teacher Training and Training for New Curriculum

The results indicate considerable successes from the school-based teacher training efforts and the training efforts for new curriculum given how far they have come in very few years. The surveys also indicate considerable further work to go in the teacher training reforms. For instance, two-thirds of teachers indicate that they lack sufficient trainings in the new teaching methodology, and half of teachers find the training they have received in active learning at least somewhat insufficient.

Attitudes toward active learning clearly have improved. Nonetheless, teachers are not fully convinced that the new methods are appropriate and can be applied fully to their classes. Thus, teachers are likely to change their teaching methods somewhat but probably not thoroughly or appropriately. This is supported by discussions with key informants as well as our research. The evaluation found more teachers than expected using both traditional (passive) and non traditional (active) methods in the same short time period the classes were observed. Classes are, almost universally, arranged using traditional didactic organizing principles that minimize active learning. Others who have had more time to observe classes in depth told the evaluation team that indeed teachers sometimes use the newer methods mechanically. This is a common issue in similar interventions across other countries introducing such methods. This is understandable because of the difficulty in conceptualizing these new methods without many models they can observe and tremendous support.

Another common finding in other countries is backsliding to the point that the new approaches are lost. The persistence of the reform efforts and incentives being built in should help offset this somewhat, but the dangers of the potential for backsliding to more comfortable traditional methods are evident.

Key obstacles to use of active learning teaching and assessment methods include large class sizes, class periods that are too short, insufficient time for teachers to practice newer methods, and an insufficiently supportive atmosphere in the school from the director and other teachers. That only modest differences were found across school types suggests a need for broad-based training efforts rather than large specific needs with the exception of additional efforts needed in some cases in rural areas.

How to teach active learning methods in larger classrooms is a clear need in urban and some rural classrooms. One of the instructional methods to deal more effectively with large classes is to facilitate many, semi-autonomous small groups. In this way students can take more responsibility for their own learning and can learn both at their own pace and using their own learning style, both making the class and instruction more effective. Additional training with such approaches must be taught and modeled, however, during exhibitions. To deal with the obstacle of short class periods, the NCAC should consider in its training how teachers can try to fit active learning within and across class periods. On the other side, the Ministry and schools should consider methods such as allowing classes for longer blocks that could more easily facilitate the many steps involved in many active learning approaches. Other issues the

NCAC should consider in its future training, if it is not already, include further work on training teachers how to teach to all levels of students.

Although the coordinator of the school-based training efforts believes there was insufficient coverage of theoretical subjects such as learning styles and different learning strengths of students, the training materials provided to the evaluation team included more on these subject for the training sessions than found in similar interventions in many other countries. The lack of any of these materials in Georgian or Russian and the desire to introduce the complicated formative assessment approach does suggest, however, that in addition more materials on theory would be useful especially during teaching assessment training. Outside of assessment training, however, emphasizing theoretical issues may not be as high a priority as more practical concerns regarding examples of how to do active learning in different subjects.

Structurally, the use of a selection mechanism in the curriculum training to try to choose more committed teachers could be an important improvement in the curriculum training but only if those teachers are provided sufficient time or opportunity to spread their understandings to other teachers. Ways to do so could include paying these teachers to provide weekend teacher trainings to other teachers, as in a more traditional cascade model, or providing such teachers a slightly reduced teaching load in exchange for other in-service training or classroom visits/training. Both involve costs that suggest other difficult programmatic trade-offs, however unless costs can be shifted in some cases. The fact that student to teacher ratios remain unchanged in some areas despite consolidation (see section 4) suggests the potential of ways not to strain resources.

Another problem with the organization of the recent trainings is a dearth of materials in Georgian for the majority of teachers. Ideally, support materials provided during reform efforts and written communications from the Ministry on how to incorporate newer methods should be more thorough (more pamphlets rather than handouts of several pages), plentiful, and widely distributed. Widely distributed written materials could be perceived by teachers as a symbol of the level of commitment by the ministry to the newer methods. Ideally, more in-depth training materials should be made available in the ERC libraries, in school libraries, and distributed to each teacher. Again, the evaluation team recognizes, however, that doing so would involve costs and programmatic trade-offs that the team cannot advise upon without additional information.

Great inroads have been made in the attitudes of teachers towards the newer methods and with the new curriculum. This is made clear if one compares the responses we added together into an index about teacher attitudes towards reform. Although one cannot assume the responses by teachers would have been zero were an actual baseline taken, the baseline studies by the Bank discussed earlier (Sancho and Hernández, 1999; Shahriari, 1999) indicate that teachers almost uniformly would have ranked low in this index. Not surprisingly given the early stages and magnitude of the reform efforts, however, they have yet to win over fully the teachers' hearts to utilizing the new methods. This is evidenced by the lack of higher scores for teachers in schools involved in either the school-based teacher professional development efforts or the pilot curriculum training.

The peril displayed in similar interventions elsewhere is that, left on their own without additional training and successful examples or other evidence of the value of the new approaches to teaching, teachers' attitudes might regress in some areas. Exhibitions of

teacher active teaching examples, such as that undertaken by the school-based teacher training program, are one good way to communicate convincingly. Another is for teachers to be involved themselves in learning about active learning modeled through active learning approaches.[24] Although plans for teacher in-service are still being formulated at the time of the evaluation, those involved should consider setting a requirement for continued annual professional development rather than a one-time requirement. To ease the burden and cost for the Centers and ministry, these could be provided by nongovernmental organizations, universities, or private providers with quality standardized via licensure that guarantees that those involved are experienced in delivery of the modern teacher training reforms. Those involved should be careful of the additional costs placed on teachers, however, despite the increase in salaries so competition should be encouraged by helping as many organizations as possible reach licensure.

Those involved in managing the training indicated, and teachers' survey and focus group responses suggest, that the directors were central to whether change happened successfully in the schools. The centrality of having a school director who understands and is committed to reform is a common finding in the international literature on educational reforms and in programs in other countries. Since they are unaware both of the innovation and how to implement it, they may be clumsy in the implementation process, or may be hostile to the change. Thus, directors should not only be trained similarly to the teachers but, to the extent possible, be involved in future in-service training of teachers itself to increase its potential for deepening its effect and avoiding failure in some schools. Waiting to formally train any directors until new directors were selected after a prolonged selection/election process (as discussed in section 4) may have been an unwise choice. By failing to systematically train directors in the same process as teachers, the Ministry likely missed an opportunity to better support teachers' efforts as well as train the interim directors, many of whom are likely to end up as permanent directors. The Centers have indicated that training directors is a priority area under development for the coming year. Consideration should be given for including key ERC members in these trainings (as well as some of the teacher trainings) both for efficiency as well as to assure they understand well the current needs of teachers in these areas.

Regarding the newly established ERCs, there is a need to clearly set and articulate the scope of work for ERC staff members regarding support of teacher training (and for other responsibilities – see section 5). At this stage, teachers view the ERC role to be in direct contact only with school Directors for ensuring information flow/communication from the Ministry and for monitoring on-going processes at schools. If one of the roles for ERC staff is to support reforms for teacher training, then recently rehabilitated ERCs, which are designed with library space for educational materials, will need to be better and uniformly equipped with resources and books for teachers. It could promote more professional linkages and interaction between ERCs and local teachers, rather than limiting their role at Directors level communication.

An issue of concern that requires additional research to confirm is the assertion by some teachers and parents in focus groups that upper grade students headed to university are studying only to the university entrance tests. This is a common issue in countries instituting high stakes assessments. It is partially offset in many countries by requiring that the grade point average or other general indicator of consistent academic efforts is part of the university

[24] Interestingly, however, the evaluation found no correlation in this case between those who claim to have been involved as "teacher trainers" under school-based professional development and higher attitudes or use of active learning methods.

entrance formula – an issue the Ministry may wish to consider.

5.1.1.2 Deer Leap Training

Training under the Deer Leap program is modeled differently from the other teacher training efforts. This is an appropriate choice given research on the more intensive process required to teach older learners about computer use and the even greater difficulty in such skills transferring to others. The Deer Leap program thus far has shown adaptability and a delivery model that appears to have a higher probability of success.

The early results from this survey indicate some modest success thus far in Deer Leap schools at least in the valid comparisons we can make between rural schools. The results show plenty of room for improvement in the teachers' use of computers for professional purposes, however,. The research indicates that the Deer Leap teacher training program appears to have increased teachers' comfort with and use of computers across many dimensions, with higher levels of computer use in urban areas. Because teachers to some extent choose themselves to receive the Deer Leap training rather than being selected at random, it is unclear whether the explanation for these teachers show greater comfort or interest in using computers due to the training or that those more interested in and comfortable with using computers in the first place went for the training so that the trainings might have had no effect. Moreover, most teachers – including those trained under Deer Leap's current training program – still never or rarely use computers due to lack of comfort with computers, lack of understanding of how to make the technology relevant to teaching, and lack of access.

The research here shows that most teachers feel that additional training is required for them to be able to feel more comfortable with computers and understand how to use them more professionally. The trainings planned by Deer Leap are not, however, intended to build on the current basic level training program for most teachers and so will not be able to meet the desire of these teachers for broader follow-on training. The program's goal with these additional trainings are to bring some teachers up to the level that they can create school web pages, design links to resources, etc. They are not designed as cascade models, which perhaps is appropriate given the challenge for doing so with IT interventions. Therefore, it is unclear whether this ambitious program's efforts will be sufficient to support the national goals of integrating ICT into school curricula across most schools by the time the project ends. However, success can be measured even in more modest gains. Deer Leap representatives note that they may in the future create distance learning opportunities, which will be more affordable but less effective than direct trainings. Given limited funds, this may be all that is possible, but the Ministry may want to try to encourage teacher faculties to take up the issue of self-training in computers at the school level if Deer Leap can design appropriate distance learning opportunities.

5.1.2 New Curriculum: Conclusions and Recommendations

Another area of mid-course success is that teachers and directors generally appear satisfied with the new curriculum framework as a whole as well as increasingly so with the new textbooks relative to the research undertaken two years ago by the NCAC. Teachers also consider themselves at least moderately prepared to teach new subject syllabi. This finding appears to be somewhat over confident given the relatively modest proportion of teachers

estimated to have been involved in the trainings even in non pilot schools and the modest movement towards proper use of active learning methods.

5.1.3 Systems of Support of Continuous Change: Conclusions and Recommendations

Changing pre-service training using the traditional methods of training and vetting full-time university faculty members is a slow process that will continue to allow new teachers to enter the schools with training out of synch with the new methods the education law supports. If one agrees with the assumption that traditional methods of reform of pre-service are required, it will be many years before appropriate changes begin to percolate through that system, with incoming teachers weakening the reforms by joining the schools steeped in the traditional methods. There are alternatives that those involved in the reforms should consider that could result in more rapid progress.

One alternative would be to promote less traditional models of providing pre-service training that could essentially compete with the older models. Similar to the provision of in-service training for teachers, universities could be encouraged to team with the same type of nongovernmental and private providers of in-service training for specific parts of the training. The provision of the degree would still have to meet all the requirements of the Bologna process and so should involve and be overseen by those with appropriate academic training to deepen the appropriate theoretical components. However, it is possible to meet the Bologna requirements without waiting for training all academics at the tertiary level. The Ministry may wish to discuss with other transitional countries in the Baltics and Balkans for examples of how to speed up this process.

5.1.4 Assessment: Conclusions and Recommendations

The ambitious approach to changing assessment methods is admirable and the approach appears to have been selected for appropriate reasons. There remains a considerable lack of understanding about the new formative evaluation goals of the assessment system and evidence that many teachers need considerable further examples and training in how to create and use new grading rubrics. The more recent reform efforts are putting some emphasis here. Additional consideration, however, should be paid to increasing expenditures and efforts on more frequent and plentiful written communication.

There also is evidence that teachers, parents, and directors are not yet comfortable with the new 10 point grading system as well as how to use it for formative assessment. This is understandable since it is a relatively wide spectrum, the idea of formative assessment is almost completely new to the system, and only modest training on this issue has occurred thus far. Teachers indicated to the team that consideration should be given to making this training subject specific at least in some cases. They also indicated that the training should take into consideration ways to do such assessment work given large class sizes found in many urban areas. The concern is that without strong emphasis here, the teachers will compress the scale as before and utilize it in traditional ways, reducing its value as a tool for formative assessment.

One key structural question from an evaluative perspective is whether the changes should have been instituted until after greater training had been conducted in the concept of formative assessment and the use of rubrics for grading. Otherwise, the system could return

to the problems the new assessment approach is designed to address –grade inflation and the shrinking of the grading system to a small number. This has particular potential for problems given that international research suggests the difficulty for users of scoring/grading systems in discerning between such a number of options larger than seven.

The evaluation team also believes that the amount of training materials in assessment, as with other training conducted under the reform, is insufficient to ideally support such comprehensive and challenging reforms. The evaluation team recognizes that it makes this and similar appraisals, however, outside of the context of having to balance a limited budget and decide which tradeoffs in materials to consider.

5.1.5 School Physical Environment: Conclusions and Recommendations

There are many physical challenges to teaching and learning in Georgian schools due to pre-reform neglect. While the Ministry, Bank, and even NCAC should be congratulated for making major efforts to improve building maintenance, much remains to be done in the area of physical infrastructure from roofing to adequate sewage, water and sanitation and extensiveness of bathroom facilities. There appears to be some improvement in the school situation in terms of consistency of electricity, although in-class lighting was judged insufficient in nearly half of larger schools. To address these remaining needs of physical structures, the Ministry cannot rely solely on continuing *ad hoc* consolidation nor the Bank's contribution in completely repairing a few key schools in emergency condition.[25] It will have to follow through with its planned rehabilitation program for another over 1000 schools to at least an adequate level and others also in emergency condition.

In many countries, libraries constitute the heart of instructional programs in schools. A high proportion of schools have a library or dedicated room with resources for student learning, although many in smaller schools were too small or inappropriately set up for students to use as real libraries. Library resources generally are not considered of high quality by most teachers with those in the rural school library program appraised somewhat more highly than the others. It is recommended that the Ministry, Bank, and NCAC continue establishing and improving libraries as places where students can find resources and study as a priority in all schools. Schools with surplus space should consider setting up a large extra classroom as an open library. Where space is at a premium in schools without excess capacity, satellite libraries or small learning centers to be shared by schools within close walking distance may be useful ideas. The ERCs and Ministry could provide advice perhaps hiring appropriate regional or international consultants to understand how best to do so. Older students may be asked to monitor such centers or libraries as a way to keep costs down (if additional teachers are not available) and to provide then with experiences in learning responsibility, a major goal of the Republic. Libraries have to have sufficient space so that students can work in them alone or in small groups on projects, or merely to read. Consideration also may be given to combining large computer labs with libraries to assure that they are used and seen as priorities and opportunities to explore intellectually. Schools themselves should consider drawing on parents, community members, and businesses for donations of materials for libraries and general school

[25] This had been described initially to the Evaluation as repairing entirely a few model schools to generate replicable improvements across schools when additional funds become available after the Iakob Gogebashvili rehabilitation program terminates. The Bank has presented its contribution in APL2 as an initiative running in parallel with a planned rehabilitation program for another over 1000 schools.

supplementary materials. The Ministry or national centers could consider how to identify international donors that might be helpful at least for resources in English or other languages

Availability of libraries is of no assistance if teachers and students do not have consistent access to the materials. It is not uncommon in many countries for school administration to want to protect new resources in short supply from being damaged or lost by limiting their access. Indeed, evidence suggests that teachers and students indeed do not have consistent access to the materials. Ministry and NCAC officials need to clarify to school administration, perhaps through ERCs, that libraries and their resources need to be readily available perhaps providing all teachers keys to the libraries or keeping them open.

In terms of specific physical infrastructure issues, the Bank and Ministry are involved currently in an attempt to provide adequate desks for students and is recommended to continue its multi-year plan to acquire suitable desks and furniture for all students. Although it should be done as quickly as feasible, Ilia Chavchavadze Program representatives indicate they are interested in making sure appropriate standards are found or developed. The evaluation recommends contacting other Bank offices about affordable standards developed for post-communist countries. Similarly, adequate lighting is necessary for students to be able to see properly. The Ministry is recommended to address this to improve the classroom learning milieu. Regarding gymnasiums, although more than half of the schools observed have operational gymnasium facilities, fewer than half of those are sufficiently equipped and used. More than half of rural schools have no gymnasium. Since the weather in many parts of Georgia becomes too difficult to conduct physical education outside, the Ministry should consider for future work methods to assess how to repair or provide appropriate gymnasiums for all schools so that students may have physical education during the entire year. Further, low attendance can be due to bad weather or lack of transportation in mountainous areas, which is discussed further in the following sub-section.

Sports represent but one type of extracurricular activity than can contribute to understanding how to work in groups and learn actively. Surveys showed that only half of schools offer extracurricular activities to their students. More urban areas offer extracurricular activities, but they also are more likely to charge a fee for participation that potentially excludes some poorer students from participation. The Ministry and others should encourage school boards to expand opportunities for a variety of extracurricular activities that can foster team work and learning. The international literature is mixed on which provide the best learning opportunities and students have different preferences, so encouraging students to creatively form and lead activities sponsored by teachers or parents can be a low cost way to do so. In some schools, particularly in urban areas, students are charged for extra-curricular activities, a practice which may enable a greater variety of activities to be provided but also discriminates against poor students. To the extent possible, it is best to encourage that extra-curricular activities be free of charge to students or else that scholarships be provided to those with limited resources if needed.

Another extracurricular issue of concern is the presence of tutoring of students. The prevalence of tutoring appears to have diminished from earlier anecdotal accounts, a practice that essentially establishes barriers to the poor and can create the potential of conflicts of interest if the teacher is tutoring their own students. Estimated annual average costs for tutoring ranged between 250 and 1000 Lari depending on the region, representing a barrier to equal learning opportunities to poorer families to the extent that educational quality from free schooling is insufficient. While tutoring is seen as a potential source of income to teachers,

as part of the certification process, the Ministry should consider structural disincentives to tutor a teacher's own students. The Ministry also may want to consider requiring appropriate structural protections such as authorizing and licensing regulated teaching collectives to standardize amounts charged and conditions for service.

Regarding provision of new textbooks, the admirable and prodigious effort to generate and supply new texts to all students are bearing fruit. Teachers currently more positively appraise the quality of the newly designed textbooks than they did in previous research, and teachers appear to be using the books. Students and teachers require these books to be able to learn more effectively. In about a quarter of classes, a significant number of students do not have or have to share the new textbooks according to teachers and supported to some extent by observations. The multi-year plan to continue to provide new texts for all students as a high priority is supported, and efforts should be made to encourage suppliers to provide at least one copy per teacher – even if incomplete – as early as possible in the two months preceding the new year.

Some teachers at the focus groups think the new material included in the textbooks is too complex for their students' reading levels. This sentiment was only weakly supported by the surveys, however. Nonetheless, the NCAC might consider recruiting a few representative teachers across fields for a couple exploratory focus groups to determine the validity of this concern. If revisions are required, the Ministry might consider involving teachers in developing the materials focusing particularly on grade level reading levels. If many students read below grade level, teachers must be taught clearly how they may be taught and learn appropriately. Because the approved texts do not represent the only books schools may use and the evaluation is told that competition is increasing, the NCAC also could host a website where teachers and directors could lodge their views on strong and weak points about approved texts that could provide feedback for future editions.

In terms of the teacher manuals, teachers feel that the new manuals effectively contribute to teachers preparedness to teach the new syllabi, although a quarter would like more lesson plans, and about 40 percent claim not to have the new manuals when available for their classes, although it is unclear why. The schools and Ministry need to make sure that all teachers receive such a manual for each text to improve teaching and learning either as complementary editions or paid for by the schools to decrease the probability this continues.

Supplemental learning materials are critical for appropriate active teaching and learning. The issue of supplementary materials seems to be a concern for many teachers, especially primary level teachers, who indicate that they do not have appropriate resources or do not have adequate supplies despite budgetary arrangements to supply them. This is a common problem found in most developing countries attempting such reforms. School boards and school subject faculties should be encouraged during their trainings to prioritize these when additional funds are available. In the future, perhaps ERCs can set aside some time to deal with the issue of budgeting with directors and involving teachers in setting school budgetary priorities to deal with this issue so that funds for materials will not be used for other purposes. ERCs might use this in their in-service work with boards, as well, since boards do have a function of stewardship over their schools. The Ministry and Centers also may want to expand the work the TPDC did in teaching about using available resources by looking at resources on this issue developed in other countries. Although most post-communist countries are averse to looking at resources developed in Africa and Asia, the creativity of these efforts, and sometimes the resources developed themselves, can serve as good models.

The USAID Development Experience Clearinghouse website is but one easily accessible ways to locate such resources.

Deer Leap has been a significant success story in the school reform efforts, and success of major computer and Internet provision efforts are by no means guaranteed nor smooth flowing in most countries. Implementation of Deer Leap program at schools has increased the student-to-computer ratio, computer quality, Internet access, and access to computers for students during and after school. Overall, computer and Internet access remains limited in many schools with greater access in urban than rural areas especially in schools not yet involved in Deer Leap's computer provision program. Larger and urban schools are more likely to provide students somewhat greater access to computers after school, such as part of extracurricular activities, although the average still is not much more than two hours per day. Teacher access to school computers remains limited but higher in Deer Leap schools. A shortage of computers for students, absence or low speed of internet or no access to peripherals' are cited as other major obstacles for using computers in teaching. Another potential problem is that few rural schools currently have a budget for maintaining computers, although this may change after the Deer Leap computerization intervention spreads further. Adequate supplies of computers to and connection to the Internet for all schools should continue to be a priority, as planned. One approach to expand use of computers for students is to structure instruction so that small groups or teams of students can be assigned to work on a computer to solve problems, do research, or some other active learning approach. More than half of schools still appear to focus computer classes on teaching basic programming (informatics or keyboarding) skills rather than courses that would be in greater alignment with the new methods. Changing this should be considered as an element in Deer Leap's future plans, as well as a potential project for their teachers trained in the more advanced In-Tech training, if not already a part of the immediate future work plan.

Teachers having received Deer Leap's basic level of training have greater comfort with computers, use them more frequently, and get more frequent assistance from school IT managers, although even most of these trained teachers indicate a need for further training. Despite the presence of computers and because Deer Leap's basic training program is limited and starts with teachers often with very low skills, many teachers – even those trained by Deer Leap – are not clear how they can make technology relevant to subject teaching purposes, or they do not feel confident in their IT skills. In almost half of schools, teachers do not get relevant support from an IT manager.

Schools that have moved into using computers find two supports essential for their use in view of the fact that half the schools report that they do not get relevant support. The first is that an IT manager with considerable expertise is required, as all people run up against obstacles in working with computers that can be readily resolved by the expertise of the IT manager. The second essential for all schools (rural schools report they do not have a budget to maintain their computers) is a budget to support computers, which require supplies, software, etc. to function effectively.

Planned additional in-depth Deer Leap trainings for a limited number of teachers are unlikely to be able to meet the high interest level in greater training. The evaluation is told that less expensive, albeit less effective, distance learning methods would be considered after the end of the current Deer Leap cycle. If possible, school faculties might be encouraged during this period to conduct their own in-service workshops on computers with assistance from or

facilitated by Deer Leap introducing teachers to distance learning options with teachers also working together to learn how to get assistance from each other when IT managers are not available and increase comfort with computers.

5.2 Management and Finance: General Conclusions and Recommendations

Since some of the management and finance reform initiatives were launched recently, it was expected to be premature for some of the reform efforts to demonstrate its full effect/outcome in the evaluation. As the evidence from the qualitative and quantitative analysis of the evaluation reveal, the management and finance reform initiatives have been yielding some clear and tangible indications of improvement. The degrees of achievement appear to differ significantly, however, from school to school. In other areas, impacts are yet to be seen, and many challenges remain.

Key progress and achievements identified regarding attitudes and capacity include:

- High receptiveness among stakeholders of school autonomy;
- Positive overall attitude of directors and teachers toward director election system at the time of the survey;
- Successful formal establishment of the Boards of Trustees in all the schools;
- Demonstrated active involvement and contributions of the Board of Trustees in some of the schools;
- Increased parents involvement;
- Demonstrated capability on school budgeting of school management in some schools;
- Positive attitude among directors and teachers towards ERCs and highly motivated ERC heads, if not staffs;

Key progress and achievements identified regarding financial and resource issues include:

- Significant positive impact on the financial status of rural and mountainous schools under the per capitation system;
- Moderate improvements on the financial status of small and middle size schools;
- Efficient operation of the per capita funding with timely disbursement;
- Fair distribution of teacher salary;
- Improvement on student/non-teacher ratio in consolidated schools;
- Beginning of improvement in allocation of resources to maintain schools;
- With the development of so many citizens participating in school board, increasing understanding of democratic participation in Georgian society;

Key challenges and concerns identified regarding capacity and information include:

- Critical needs for intensive training to directors-elect and administrative staff;
- Insufficient training opportunity for board of trustee members;
- Inadequate understanding among school administrators and board members of distribution of roles and authorities between them;
- Lower activity of boards in some of the schools, particularly in rural areas;
- Low level of information sharing and undemocratic decision making in some of the schools;
- Concerns about the negative outcome of the director election system;
- Insufficient training opportunity for ERC staff;
- Ambiguity in the definition of roles and responsibility of ERCs;

- Goals and criteria for optimization require further clarification;

Key challenges and concerns identified regarding resources and finance include:

- Inadequate human, physical and financial resources in ERCs;
- Severely constrained financial status among small size schools particularly those schools which are eligible for the small school subsidies;
- Underutilization of the opportunity of applying for outside funding sources especially in rural and mountainous areas;
- Improved but continuing unfavorable level of teacher wages;
- Little improvement in teaching resource management due to consolidation;
- Potentially negative impact on student learning due to larger class sizes as a result of optimization;
- The problem of student attendance due to transportation difficulty being more severe in optimized schools;

The survey has demonstrated that the schools are not fully utilizing the opportunities to apply for external funding sources, through which they can ensure receiving extra revenues that can be used for the improvement of the learning environment. Therefore it would be very useful to equip the school directors, administrative staff and boards of trustees with the necessary skills for fund-raising, writing project proposals, and monitoring and evaluation. It might be beneficial for schools to cooperate and share their best experiences and practices with each other on these and other issues. ERCs may be used to work with schools to establish more formal regional networks and communicate to each other the specific successful practices and approaches they have used. Regional models could be set up of the best performing schools to provide additional support.

Schools will be facing major challenges associated with the upcoming school accreditation in 2009-2011. Since currently the capacities of independent management bodies is still quite weak, there is the urgent need for intensive and dedicated training efforts based on a well-planned and prepared strategy to meet the challenges of school accreditation procedures, another area for ERC function. The Ministry will need to conduct a separate investigation probably in 2008-2009 regarding whether the dates chosen are realistic given this weakness.

The per capita financing system has proved flexible and efficient in most cases studied, having improved the financial condition of many schools and making them more comparable across geographic locations. However, from the school size perspective, the per capita financing system has had less positive impact on small size schools, and very limited impact on some of the small size schools particularly those which are subject to additional small school subsidies. They have almost no opportunity to cover any other costs rather than staff salaries by their budget even when offered special small school subsidies. One approach to solve this problem, and offer more opportunities to small schools for quality improvements, could be the inclusion of element that caters to the needs of those small size schools as one of the criteria for calculating the amount of per capita funding. Further analysis may be needed to identify additional key factors that contribute to the financial difficulty of those small size schools rather than the alternative of directly including school size as a criterion for calculating the amount of per capita funding. The per capita formula also would be improved by offering a different rate of funding to school children with special needs, as educating such children involves greater costs. This way, greater equity in funding of general education can be better ensured.

Evidence indicates that school consolidation has produced negative effects on student attendance due to transportation difficulties and probably on student learning outcomes due to larger class sizes. The criteria for and against school consolidations concentrates mainly on financial and physical capacity and efficiency of schools. The Ministry may want to consider giving greater consideration and attention to issues of student enrollment and learning. Consolidated schools with school buses have fewer problems with student attendance; therefore, it would be helpful to prioritize school bus provision to consolidated schools without school buses. In addition, consolidation between large or middle size schools into very large schools should be more carefully examined so that to prevent creation of excessive class size and the negative effect on students' learning. Excessive school size has become a concern internationally because of the adverse affects of increasing size on students, faculty, and administration, including making schools increasingly impersonal as they become larger, increasing dropout rates considerably,[26] increasing costs, and many other deleterious outcomes, such as weakening the social controls smallness produces.

Thus, a concurrent approach to reducing school size in existing large schools is to decentralize into schools-within-a-school, also called halls or small learning communities. In this model – as manifested in the United States and some other countries, an administrative team consisting of an assistant director, student support staff such as a counselor or psychologist, and administrative staff member directs the hall or school learning community (SLC) while the director coordinates the overall school, common spaces, safety and joint issues. Each SLC is usually a separate and autonomous unit that organizes its own program, staff, students, and budget. In many cases, the SLC director will report directly to the Ministry instead of being responsible to the building principal. This device also serves as a model for slowly urging faculty to join in teaming to provide more effective teaching approaches.[27] In some manifestations, the cohorts of students are simply grouped together while administrative identification remains with the larger school. The benefits of smaller school units are most evident if the SLC can develop its own identity and culture.[28]

Regarding the issue of consolidation in Georgia, one approach could be to set as a criterion for of consolidation whether the consolidated school would have above a fixed student to teacher ratio or a fixed number of students within one administrative unit. (That would be one administrative unit if the schools are consolidated physically without a schools-within-a-school structure). Above that threshold, the consolidation would have to be reviewed to understand the schools' plan to avoid affecting negatively learning outcomes. The merging schools could propose incorporating house plans, mini-schools, learning communities, clusters, charters, or schools-within-schools as potential approaches to try to maintain learning quality. Evidence from the international literature suggests that total size per administrative unit might be the appropriate criterion.

In the eyes of many educational stakeholders, the distinctive position that ERCs are placed in terms of technical support rather than management appears to be highly convenient and

[26] A high school of 2000 generates twice the rate of drop outs as does a school of 600 in the American context.
[27] For more information on the school achievement benefits of smaller school sizes generally and this approach specifically, see for instance Dewees (1999), "The School-within-a-School Model." ERIC Digest. http://www.ericdigests.org/2000-4/school.htm (as of 08-2007). Among many practitioner resources include George and Lounsbury, (2000), *Making Big Schools Feel Small* and French, Atkinson, and Rugen, (2007) *Creating Small Schools: A Handbook for Raising Equity and Achievement*.
[28] As noted in Dewees' review (*ibid*) "The most critical factor for success is a commitment to implementing the program fully, allowing for complete administrative separation of the subschool and the creation of a separate identity (McCabe & Oxley, 1989; McMullan, Sipe, & Wolfe, 1994; Raywid, 1996b, cited in Dewees)."

suitable in terms of provision of information and services. Almost all sorts of information, services and trainings to schools that are being implemented or being planned count on ERCs for direct technical input or coordination/facilitation. These planned services include a wide range of duties such as information dissemination to schools, data collection for various purposes and EMIS; monitoring of the school grant program; facilitation of school, teacher, director, and board regional and national networks; administrative and accounting support to schools; conducting Board of Trustee trainings regarding director selection; organizing directors' training and teacher professional development training; and responding to ad hoc requests.

It has also become clear in the focus group discussion with ERC heads and other key informants, although the effort has been underway to refurbish their facilities, many of the ERCs are severely short of human, physical and financial resources. Hence, it is urgently needed to reinforce the capacity of ERCs and ERC staffs, especially, as often pointed out in the focus group discussions, enough attention should be paid to the shortage or lack of communication and transportation equipment, which effectively hinders efficient operation of ERCs. In addition, it appears that too many stakeholders are hoping for ERCs to play too many roles given their size and resources. Effort should be made to clarify priorities among different duties and responsibilities that ERCs have on their shoulders. Consideration should be given to the possibility of expanding ERC staffs in order to cope with the growing demand as well as getting stakeholders to conference together to prioritize a realistic set of responsibilities.

Granting budgetary autonomy and flexibility to ERCs might prove beneficial for them to promote efficient financial management. That is, the school decentralized and independent management model could be applied for ERC management as well. ERCs also could use more proactive methods of communicating with schools. Instead of organizing meetings with directors at ERC offices, they may consider arranging site visits to schools and establishing regional meetings with teachers, directors, and boards. This way, it could also be ensured that not only directors but teachers have direct access and communication with ERCs to the extent reasonable.

5.2.1 Management and Finance: Conclusions and Recommendations on Board and Director Training

The evidence from this evaluation is unequivocal in the need to provide intensive training opportunities to all the key stakeholders – directors and school administrators, the board of trustee members, ERC staffs – in order to ensure the efficient operation of the new institutional mechanism implemented during phase 1 of the reform. In the short term, it was repeatedly stressed by stakeholders that the critical immediate need in training school administrators and board members should be on understanding of the structure of their roles and authorities and procedures in school management. Considering the fact that schools' decision-making structure will routinely undergo reshuffling of its members by elections in the future, in the longer term, it is essential to establish sustainable institutional mechanisms to provide comprehensive and continuous pre-servicing and in-service training opportunities to board members and directors including potential director candidates. This subsection discusses this and related issues.

From the research results and the international literature on school boards, it is clear that the Republic of Georgia's newly created approximately 2300 separate school boards face the

need to develop their own roles. Certainly any new organization, particularly one as complex as a local school board, needs thought, training, and reflection regarding their missions, purposes, policies, and procedures to develop as effective and efficient an operation as possible – and, to avoid confusion and needless conflict.

Thus, the Ministry might consider how school board systems and school board organizations in other nations have developed models to deal with this relatively complex task. For example, Macedonia recently enacted a law decentralizing all schools to single building districts that were then required to develop nine-member school boards. They quickly realized not only did they need a great deal of training on roles of boards in relationship to directors, but also information and procedures on developing board policies and procedures, as well as on developing the mission and operating procedures of the directors and schools. Consultants recommended forming a Macedonian National School Board Association in order for the boards to communicate and to develop in-service and educational programs. The association should also provide a platform to deal more effectively with the Ministry and other stakeholder groups. The planned delivery method for in-service and educational programs was undecided but expected to be conducted by nongovernmental organizations depending on what the new association decided.

Since many school boards in different nations (in the United States, the appropriate model would be at the level of its states) have developed handbooks of procedures, they could serve as potential models for long-term in-service plans. The UK could also be useful for models of school board training since they have been involved in training boards for many years. In addition to traditional didactic methods of training, there are other examples of ways to assist school boards in how to educate their members that build on the superior active learning methods of instruction favored now by the ministry. For example, the Alabama School Board Association in the United States hired a consultant to write role-playing simulations for school board representative to use, to help the board members learn to deal with the various roles, issues, and concerns board members face in carrying out their responsibilities. One area for training involves establishing sub-committees to study issues and recommend solutions to the total board. In addition, many boards have meetings at which only educational information and ideas are discussed, so that board members may be more fully educated about the issues with which they have to deal.

Similarly, effective school directors are made and not born. They need education and in-servicing to become more effective and efficient in their ever more complex and demanding position and role. Again, Macedonia also faced the problem of its schools all becoming independent school districts with directors used to traditional didactic methods of teaching and greater familiarity with authoritarian approaches to school management. The education ministry mandated that all of their directors have a degree in education and pass a six-module program developed by Slovenian professors and trainers. The training was provided not to just active directors, as the evaluation team was informed is planned currently in Georgia. The training was also provided to some subset of qualified others who also had ambitions to serve as directors.

By training more than just sitting directors, Macedonia avoids the creation of a new cadre of permanent incumbents, which the evaluation team was informed was one concern about the existing system in Georgia. The Macedonian ministry decided to take a "free market" approach to future training or continued professional development of directors by allowing

them to be conducted by nongovernmental organizations or universities. This approach has been utilized in other nations, as well.

The drawback of such a model is that it requires care to set standards for training and does not assure that continued professional development of directors and boards is unified in what is taught. In fact, the evaluation team has been told by some boards of trustees during its focus groups that directors have confronted the board regarding their understanding of board authority based on the training provided by the Liberty Institute because it did not necessarily represent official policy. The Slovenian model of director training is a different model the Ministry might examine based on the idea that in smaller countries, a single, governmentally sanctioned, provider might best meet training needs for directors and boards (and possibly some ERC members).

The evaluation team was informed that one aspect of director "pre-service" training in Georgia after the planned "in-service" training may be through professional degrees or certifications as part of other management degrees. The evaluation has not examined the intended programs but notes that entire programs leading to an advanced masters degrees exist in most European countries and every state in the United States to serve as models for "pre-service" options for school directors.

5.3 Recommendations for Further Research

5.3.1 Areas for further research

The Ministry of Education and Science has made significant progress towards laying the foundations for the sound operation of the general education system in terms of improving the learning environment and learning outcomes as well as management and financing of the system. Since most of the reform initiatives that have been assessed within the scope of this project evaluation effort have been implemented quite recently it may take a couple of years before their outcomes and effects become tangible for some interventions. Therefore, this evaluation may be considered as a baseline study for some parts covered by the project. Undertaking a similar study in two or three years and comparing the results with current findings will give a clear idea of progress made or the drawbacks of the process. Specifically, research should be repeated in key areas regarding school management: performance and capacities of ERCs, budgeting capabilities of schools, efficiency and effectiveness of boards of trustees, and of directors. Similarly, regular evaluation of curriculum piloting and implementation should be carried out on a regular basis as it is currently done by the NCAC in order to keep track of progress as well as problems and challenges. This section also discusses a variety of other potential areas for further research in no particular order.

One priority area that the evaluation was unable to cover in its limited time available is the status of schools located in minority regions and in conflict zones. Future entry into the European Union is contingent in many countries on equal education and treatment of minorities, and anecdotal information collected by the evaluation as well as secondary research provided to the evaluation by the Bank and Ministry suggests this would not be considered the case currently. Special research should be carried out on the status of reforms at those schools that should include the study of management and financing practices as well as physical and learning environment, availability of textbooks and physical access to

schools. This evaluation can serve as a model using all the tools available in order to make this evaluation both easy and relatively inexpensive to conduct and thus a first priority.

Another quick, inexpensive research idea is that the Ministry itself can relatively conduct additional research with the classroom observation and other data collected as a part of this evaluation. More nuanced questions could be asked and explored than possible in the time available to conduct this study.

As further consolidation of schools continues at its current rapid pace, it potentially exacerbates additional problems in transportation for children and large class sizes affecting school learning that could offset other gains made. Additional research should be considered soon to assess potential positive and negative effects of consolidation to more carefully define criteria acceptable to stakeholders and that make sense in terms of outcomes.

The only two stakeholders surveyed quantitatively under this evaluation study were teachers and directors. Focus groups of boards of trustees also involved parents who are board members. One area for future research is to consider surveying students, particularly as new teaching methods and the implementation of new curriculum are concerned. A student survey also could help identify how much access students have to computers, to what extent IT is used in learning, extensiveness of tutoring by a student's own teachers, and assessments about the adequacy of the national examinations. Further, some of the questions about the use of active learning methods given to teachers are designed so that they could be given verbatim, or with slight modification, to students to provide additional ground truthing to teacher answers. One of the acute issues that was only slightly covered by this evaluation study is tutoring. A study could be done on how to decrease the rate of student tutoring, particularly in upper grades where students tend to study mainly to tests. Surveys of parents also would be helpful in studying several potentially problematic issues such as perceptions of active learning, attendance problems, availability of textbooks, communication from school administration, and level of interactiveness of teachers, among others. These are envisioned as serious studies requiring time and a relatively broad scope.

As legislative and structural changes have already been introduced, ensuring sustainability of the system is now the essential issue. As discussed previously, the findings of the evaluation suggest that all management bodies are in need of intensive training immediately. Some areas for training have been identified during evaluation. However there still is the necessity for detailed and careful training needs assessment, most significantly for board members. This would be helpful regardless of whether the Ministry wants to consider establishment of a national board association, as this would provide a starting set of assumptions regarding training required.

Interaction across different schools and teacher networking is very helpful for developing good teaching and learning practices. This is also true of school management; some schools have established successful practices that can be shared with other schools. A study to identify areas for cooperation of schools and teacher networking as well as geographical areas for regional networking to share schools' experiences and best practices might be helpful. With sufficient, but not considerable funding, this research could even identify specific schools to serve as models within each rayon for specific functions.

One intriguing finding that requires additional study to better understand is why about 40 percent of teachers claim not to have the new manuals when available for their classes. This could be a very modest, probably qualitative, study.

There may be a need to do a detailed study of the physical environment at schools. Although EMIS does collect data on the availability of certain facilities at all schools, there still are issues which need closer examination, such as adequacy of bathroom facilities, compliance of school furniture with age-specific standards, adequacy of lighting, amount of time schools are closed due to lack of heat or electricity, etc.

Another area for potential study is the performance of EMIS. This was not provided directly within the TOR of the project evaluation, even though the relationship between the ERCs, schools, and EMIS and other data needs were an issue that ultimately consumed considerable ERC time. Given the broad scope of work EMIS performs and its importance for efficient and knowledge-based decision making, stakeholders indicate that it would be helpful to analyze carefully the strengths and weaknesses of the system now, as well as threats and opportunities for its continuation and development in future. Otherwise, all the Bank's dutiful efforts to create a meaningful EMIS system could evaporate quickly if problems and threats are not addressed. Further, there is evidence that not all the data that are essential for making relevant policy decisions are available in a uniform and accessible manner. Additional research could be conducted on priority areas for data collection and dropping other data to minimize work burdens to the extent possible. This likely could be a limited study but should be broad enough to get feedback from many stakeholders.

Currently, local governments' role in school management is limited to a minimum in order to ensure financial efficiency and transparency of school spending and avoid mismanagement of funds by local authorities. This was a clear decision by the Ministry to deal with a considerable problem at the time. However, even if local self-management bodies do not have any financial authority over schools, their role and involvement in school life could be increased in some form to the potential benefit of schools. The Ministry might consider conducting a study to identify the areas where local government involvement might be beneficial for schools. The study also could look toward other models of cooperation internationally for school-locality cooperation. This study could be of modest magnitude.

Along these lines, and as part of a potential study on director election systems, the Ministry may want to consider the benefits and tradeoffs of ensuring local connections between school directors and the communities that is not assured in the current system – one common complaint raised to the evaluation about the electoral system. Such local connections allow for a greater ability of directors to raise funds locally, and the evaluation was provided several anecdotal examples of how this is possible. The evaluation was carried out in the middle of the first director elections and has identified earlier some key strengths and challenges of the system. However further and more systematic study focused directly on this issue will be necessary to assess the adequacy of new director election procedure and consequently provide concrete ways to improve it. This need not be an expensive endeavor.

Some teachers at the focus groups think the new material included in the textbooks is too complex for their students' reading levels. This sentiment was only weakly supported by the surveys, however. Nonetheless, the NCAC might consider recruiting a few representative teachers across fields for a couple exploratory focus groups to determine the validity of this concern.

Longer-term research needs are obvious as well. It is useful to evaluate the effect of a new teaching technique (such as active learning) in order to convince those teachers who require research results before they consider using the approach. Generally, the research methodology takes the form of getting an adequate sample of classes and teachers employing the new technique (for Georgia, in this case, active teaching approaches) and then comparing student results with a similar numerical sample of those using another technique (in this case, passive or traditional methods). This develops objective scientific evidence within the Georgian context of the validity of the technique in the face of normal skepticism and resistance to changing old patterns. The evaluation's understanding is that this is, to some extent, being done already by the NCAC although perhaps not with the intention of disseminating the results to a potentially skeptical outside audience of teachers. The NCAC should be aware of the value of doing so.

Similarly, when a whole new curriculum is developed and used, ministries and schools have been eager to determine the effectiveness of the innovation. In the case of Georgia, the new national curriculum should receive the benefit of such studies as well. Educational researchers have found Robert Stakes' evaluative model useful for this purpose in a number of courses in American states. Obviously, other evaluative models, depending upon purposes, have also been employed successfully for a number of different subjects. Although the evaluation team understands that the NCAC is and has been conducting extensive research related to the new curriculum, it is uncertain whether this is being done to evaluate and make adjustments to the specific subject curricula. It should strongly consider doing so if it is not planning on doing so already.

Certification is a tool to improve the quality and credentials of the teaching corps, and is used in all American states and many other countries to provide minimal entrance criteria for those interested in entering the teaching profession. It implements quality criteria. Since the Republic intends to implement a certification program, in the long-run, the Ministry might consider to establish a research program to investigate the effects of the effort.

On a methodological note, the country's universities as well as institutions of higher education in other nearby countries could serve as inexpensive sources for research efforts, as can teachers and school administrators in some instances. Universities and educators can prove valuable in expanding research efforts into fields the Ministry deems important and useful. It might be useful the Ministry to convene personnel from all these organizations to establish some areas of research that the Ministry may be interested in supporting.

The evaluation also is aware that the NCAC and Deer Leap are working towards integrating ICT into the curriculum, but the evidence supports their contentions that it is too soon to do so given teachers' current skill levels. In the long-term research will need to be done on the success of having tried to do, as that integration begins to unfold.

5.3.2 Additional Data Needs

It is essential to collect detailed data on school expenditures and revenues in a manner that is transparent to stakeholders. This both prevents corruption and increases accountability at both a local and national level. It would be helpful to analyze the financial status of schools, compare it across school types, across regions and across different years. It should be noted

that unavailability of such data has been a serious impediment for the evaluation team during the study.

The establishment of EMIS is a positive trend; however, there is evidence that not all the data that are essential for making qualified policy decisions are available in a uniform and accessible manner. For instance, it will be helpful if information on student attendance is collected from all schools, unified and available through EMIS. Currently, the EMIS unit collects only data on general schools. It would be helpful to have information from other levels of education (pre-school, vocational training, higher education) available through EMIS as well. Additional research could be conducted on priority areas for data collection and dropping other data to minimize work burdens to the extent possible.

ANNEXES

Annex A: Sampling Methodology

A.1 Primary Sampling Stage

By using clustered sampling, 20 rayons were chosen from among 66 rayons. Rayons were excluded if they contained fewer than five schools, were not located in a single area ("ltolvilebi") or were located in areas that were inaccessible due to hostilities. One rayon, Mestia, was excluded due to the difficulty for data collectors to reach the area. Four rayons were excluded due to the insufficient time to translate all materials into other languages. The problem with doing so is that the sample no longer becomes nationally representative, so results can not be interpreted to represent these areas. This is unfortunate because there are anecdotal suggestions that the problems analyzed may be worse in these areas.

Selection is conducted using explicit and implicit stratification processes. That is, it first sorts schools into strata by student population size, whether the rayon includes mountainous areas, and whether there were a large number (at least 5) or proportion (at least 20 percent) of consolidated schools. The first two were considered central for general representation. The third is a central issue of research to the management and finance section. To assure that there is sufficient coverage from larger rayons and mountainous areas, school districts with a student population larger than 17500 and rayons containing mountainous areas both were over sampled. Rayons were then sorted into order by total student population size (implicit stratification).

Twenty-one rayons contained five or more consolidated schools, and there were nine rayons where at least 20 percent of the schools had been consolidated according to current data. This sampling approach selected seven rayons with 5100 or fewer students, six rayons with more than 17500 students, three rayons with schools primarily in mountainous areas, and 18 rayons containing consolidated schools according to our data.

A.2 Second Stage

At the second stage, five to eight public schools are chosen across each rayon for data collection for each collector. The number chosen is five for rayons with a student population below 6000 or in mountainous areas, six for non-mountainous rayons with student populations between 6000 and 20000, and eight for rayons with student populations above 20000. The total number of schools selected initially was 110.

Schools were chosen using probabilities weighted based on the combined number of Program components of greatest interest to primary data collection: consolidated schools, Deer Leap, rural school libraries, and School Networking Program. The weighting is simply a factor of about three multiplied by number of these three key Program components found in that school.

Other various forms of teacher training as part of different teacher professional development initiatives were found frequently across the dataset and were too complicated for effective

weighting during sample selection. That is because they have been conducted in different ways to different subsets of teachers (teacher trainers and cascade teachers, school-based 2002-05, curriculum-based pilot schools and other schools 2005-07). Further, some teachers have changed schools over time due to consolidation, which made selection based on this factor unwise. The sample focuses only on public schools, as these are the schools most relevant to all of the projects and initiatives undertaken within the Ilia Chavchavadze Program. Data on private schools or school functional language other than Georgian across all schools were not available in time for sample selection. Schools were replaced in the sample by the next school in the sample if either a private school or a school requiring translation of materials was drawn. The sample was stratified implicitly (sorted) by the number of Program components found in each school to ensure that the sample of schools included both schools with at least one of the three program components as well as some without any of these three components. During the survey process, five schools selected for the sample turned out to have been consolidated since the time the list was drawn originally.

A.3 Third Sampling Stage

In the final stage, it was decided that it would be inadvisable and difficult to try to select only certain teachers based on subject or other characteristics to fill out the surveys. However, there was insufficient time to include the full number of teachers from all schools. Thus, we conducted post-stratification and selection first by ordering completed teachers forms by subject. Then we selected all teacher survey forms in schools with 19 or fewer teachers, every third form from schools with 20-50 teachers, and every fifth survey from schools with more than 50 teachers.

For classrooms, data collectors were asked to observe classes of different grades and subjects. Because the type and grade level mix at any given point of the day were not known, the data collectors were asked to provide the directors basic parameters. To minimize potential biases, directors and teachers were not warned ahead of time that the classes would be observed, and they were informed that the data collectors were focused on classroom conditions rather than observation of the class itself.

The final probability weights for each school is the product of the probability of selection in the first two stages multiplied together. The probability weights for each teacher respondent are a function of the product of the probability of selection in all three stages multiplied together. For classrooms, the probability weights are calculated by multiplying together the probability weight for the school by the probability the class was selected within the school. The latter was calculated by first estimating the average number of class periods taught at a school per day. This was done using the total number of teaching hours at a school given by the directors or administrators by five days and also by the average number of contact hours for students. The number of classrooms observed in each school is divided by this number.

Annex B: Frequencies for Teacher Survey, Form 1

1. What is your age?

30 years or younger	31-40 years	41-50 years	51-60 years	61+ years	n
12	23	30	22	13	1415

2. What is the highest level of schooling that you have completed?

Secondary	Higher	n
4	92	1404

3. How many years have you been a classroom teacher?

5 year or less	6-10 year	11-20 year	21 year or more	n
12	12	28	48	1406

4. Which grade levels do you teach?

1-4	5-6	7-9	10-12	n
29	44	62	44	1430

Note: Table adds up more to 100, because respondents could answer more then one set of grades.

5. What is the size of most of your classes?

15 or fewer students	16-24 students	25-29 students	30-34 students	35-39 students	40 or more students	n
32	44	26	10	4	1	1430

Note: Table adds up more to 100, because respondents could answer more then one category of class size.

6. Teachers may have one or more goals when asking students questions. When you ask students questions, how often do you try to accomplish the following goals

	Never	Sometimes	Often	Very often or always	n
See if students know the correct answer	**40**	**52**	**8**	**0**	**664**
Elicit / Draw out students' ideas and opinions	0	5	47	47	684
Get students to justify and explain their reasoning	0	8	41	51	676

Note: Totals do not add to 100 percent due to rounding

7. Please indicate the degree to which you agree with each statement.

	Strongly agree	Agree	Disagree	Strongly disagree	n
a) Classroom learning actually is most effective when based primarily on lectures with students responding when called on.	2	21	63	13	684
b) The best way if students working independently and teacher clearly define their knowledge	30	64	3	3	697
c) Teachers know more than students and should just explain the facts directly.	13	50	29	8	681
d) Classes should be focused on problems with specific, correct answers and ideas that students can grasp quickly.	17	67	13	3	669
e) Students generally interrupt the flow of class and the learning of other students when they talk with each other about the lesson	7	35	50	8	689
f) Teachers should provide feedback to students on assignments to show them how to improve their work	2	2	60	35	693

Note: Totals do not add to 100 percent due to rounding

8. Thinking about only your class periods this year in which new material was presented, please indicate how often, if at all, students do each of following across most of the subjects and classes you teach.

	Rarely or never	1-3 times a month	often	Very often	n
a) Listen and take notes in whole-class settings	13	55	12	20	680
b) Engage in discussions or debates with peers	10	12	60	19	686
c) Projects that last more than one day	4	15	26	55	647
d) Read silently	27	7	56	10	652
e) Students work in small groups	11	18	58	12	666
f) Make presentations to the class	19	29	41	10	669
g) Work on problems or issues with no immediately obvious solution or answer.	21	21	50	8	666
h) Engage in group discussions led by the teacher	23	9	58	10	671

Note: Totals do not add to 100 percent due to rounding

9. How well are you prepared to teach the new subject syllabi?

not at all	somewhat prepared	well enough	very well	n
1	11	77	12	703

Note: Totals do not add to 100 percent due to rounding

10. Do you think the new curriculum is too loose, too restrictive, or about right?

Too loose	Too restrictive	About right	n
12	7	82	690

Note: Totals do not add to 100 percent due to rounding

11. Do you think the new curriculum is too vague, too specific, or about right?

Too vague	Too specific	About right	n
17	14	69	693

Note: Totals do not add to 100 percent due to rounding

12. How much freedom of choice do you think the new curriculum gives schools and teachers?

Some freedom	Medium freedom	More freedom	n
7	63	30	694

13 Which levels of students do you think the curriculum allows you to teach at the same time?

Students of medium or strong level	Students of medium or weak level	At least all levels of students	n
24	16	61	698

Note: Totals do not add to 100 percent due to rounding

14. How well can the new curriculum's preference for active learning be applied to your classrooms?

not possible	somewhat possible	possible	n
3	41	56	698

15. Some teachers use active learning methods in their classes in many or almost all of their classes and others in almost none. In what amount of your classes do you use active learning methods?

in almost none	in some classes	in many classes	in almost all classes	n
2	30	16	52	678

18. After the introduction of new curriculum what happened in your schools? The cooperation between teachers increased, decreased or stayed the same?

increased	stayed the same	decreased	n
58	38	4	695

19. Do you think the new 10 point grading system is too wide to be used as assessment instrument?

yes	no	Do not know	n
42	44	14	695

20. Do you believe the old or the new curriculum framework is better for meeting the educational goals of active learning and creative thinking?

New is better	It is about the same	The old one was better	n
70	16	13	697

Note: Totals do not add to 100 percent due to rounding

21. Are any of the new texts for the new curriculum available for your classes?

Yes	No	n
57	43	695

22. Does your school have a library or dedicated room with additional books and resources for student learning?

yes	no	Do not know	N
77	19	4	702

23. If your school has a library, does it include library books that support the new curriculum?

there is no a library	Yes	somewhat	No	Do not know	n
4	20	47	24	4	694

Note: Totals do not add to 100 percent due to rounding

24. If your school has a library, how often do you have access to the library and its books?

Never	Seldom	Many times	n
15	44	40	666

Note: Totals do not add to 100 percent due to rounding

25. Do you give students assignments requiring use of books outside of your classroom?

Yes	No	n
85	15	698

26. In your classes for which new texts are available, what percentage of students does not have the new texts in your classes?

New texts are not ready yet for any of my classes	None or few	a small amount	A lot	n
11	10	53	26	669

27. To what extent do you use new texts in your classes, when they are available and relevant?

In none or few of my classes	In a few of my classes	In some of my classes	In most of my classes	n
3	8	8	82	673

Note: Totals do not add to 100 percent due to rounding

28. How well can the new curriculum's preference for active learning be applied to your classrooms?

fully	partially	not at all	n
55	42	3	682

29. How do the new texts for your class (or for others you have seen if not available for your class) compare to the average reading/ability level of your students?

Below	At	Above their reading or ability level	Not applicable	n
7	61	13	19	682

30. Are teacher's manuals available for how to teach the new materials?

Yes	No	n
56	44	690

31. To what extent do they include suggested lesson plans and (active learning) activities?

very little amount	almost what is needed	more than enough	Do not know	n
28	46	7	19	685

32. Have the learning process changed, while implementing the new curriculum during last 2 years?

yes	no	Do not know	n
81	9	10	699

33. How well are you prepared / trained to use the new 10 point grading system as assessment instrument?

very well	somewhat well	poorly	n
36	61	3	692

34. Have you any of the following been obstacles to you in using new instructional practices?

	Has been an obstacle	Has not been an obstacle	n
a) I have not been trained in most of these instructional practices	32	68	662
b) These new instructional practices do not apply to most of my courses	56	44	626
c) Class time is too short	56	44	646
d) short I do not have time to practice new instructional practices	70	30	624
e) Inadequate teacher training support on how to use these instructional practices in the classroom	51	49	633
f) There is not enough flexibility in curriculum to make room for these instructional	67	33	625
g) practices I do not have the necessary equipment or materials	36	64	634
h) Too many students in classroom or insufficient classroom size s.	59	41	637
i) There is no atmosphere in my school for the use of the new methods	66	34	634

35. How often did you have the following types of interaction this year?

	Never or can't answer	rarely	Less than once a month	At least once a week	n
a) Discussions with other teachers of your faculty about how to teach a particular concept in a class	7	28	52	13	681
b) Discussions with other teachers about ideas for student projects or sharing examples of student projects	17	51	26	5	656
c) Discussions with teachers at other schools through the school network	29	55	14	2	648
d) Discussions with teachers at other schools through ERC	34	43	21	2	658
e) Discussions with teachers at other schools through other ways	27	52	19	2	656

Note: Totals do not add to 100 percent due to rounding

36. What are the In-service professional development opportunities you were involved for the last six years?

	True	False	n
a) I do not have any information on professional development opportunities that I could undertake	31	69	651
b) I have not participated in professional development courses or workshops in the last 6 years	33	67	1119
c) I have been trained as a teacher trainer under TPD program	27	73	625[1]
d) I have been involved in teachers professional training course conducted at my school under TPD program	61	40	1047
e) I have been involved in a new curriculum training program cycle	63	37	641[1]
f) Trainings conducting by english teacher's association of georgia	15	85	295[1]
g) Program-IREX	11	89	330[1]
h) Free excess in internet and training programm	13	86	368[1]
i) The training which was conducting by "Deer Leap" project	45	55	415[1]

1: This question was asked only on Teacher survey form 2.

37. If you have participated in either the school-based teacher professional development (TPD) or national curriculum implementation trainings, please indicate the degree to which you agree with each statement.

	Strongly Disagree	Disagree	Agree	Strongly Agree	n
Techniques I learned through TPD have helped me improve my teaching.	3	8	71	18	637
Techniques I learned through TPD improved my pupils' learning.	5	9	72	15	630
Individual pupil involvement during lessons has improved due to techniques I learned through TPD or other projects	2	8	71	18	634

Note: Totals do not add to 100 percent due to rounding

38. Please answer the following questions about materials that you are getting for professional development:

	very insufficient	somewhat insufficient	sufficient	more than sufficient	n
How sufficient are the examples and models provided of how to assess active learning/group work?	**9**	**37**	**52**	**1**	**657**
How sufficient are the examples and models provided of how to teach active learning and the new curriculum?	**7**	**41**	**50**	**1**	**654**

Note: Totals do not add to 100 percent due to rounding

39. Are you the member of school board?

Yes	No	n
15	85	553

40. Please, answer the following questions

	yes	no	I do not know	n
Do you have a clear idea what your role is as a member of the board?	**76**	**18**	**6**	**238**
Does the board make decisions by voting?	**80**	**10**	**10**	**231**
Do you think the frequency of board meeting has been sufficient to support efficent school management?	**57**	**30**	**13**	**233**
Have you been trained in performing board functions?	**51**	**45**	**4**	**232**
Were they sufficient?	**38**	**43**	**19**	**195**
Was the procedure of electing board members made clear by director to all teachers before conducting election of board?	**87**	**6**	**6**	**233**
Do you think voting procedure used in the board is democratic and director is not managing the board in an authoritarian way?	**64**	**23**	**13**	**229**
Does the board in your school have any members who are not active enough?	**33**	**54**	**12**	**231**

Note: Totals do not add to 100 percent due to rounding

41. In your opinion, why are board members inactive?

Aren't interested	Are very busy	Live far away	Communication problem	Costs of transportation	Do not know	n
21	**17**	**4**	**4**	**2**	**52**	**305**

42. What kind of subjects do you teach? (Mark *all* that apply.)

Natural sciences	mathematics	Humanities	Social sciences, or languages	Information technology/ computers	Primary classes	n
18	10	36	15	4	23	712*

*Note: an error occurred in processing, so complete results were not available across all teachers.

43. What is your gender?

Male	Female	n
16	84	1283

Annex C: Frequencies for Teacher Survey, Form 2 – Questions Not Provided in Annex B

6. Have average class size increased or decreased in your class / classes since 2005?

increased	stayed the same	decreased	increased in some classes and decreased in some	n
22	46	17	15	709

7. If the average number of students changed in your class did it influence on the quality of learning?

class size did not change	learning has improved	quality of learning has worsened	quality of learning is the same	n
25	13	16	47	680

8. Are students distributed in classes according to their academic performance?

yes	no	do not know	n
8	86	6	701

9. has your students discipline improved?

worsened	the same	improved	n
40	18	42	712

10. how many extracurricular activities exist in your school?

do not know	not any	1—4	5—10	10 and more	n
19	15	52	14	0	699

11.What amount of your students is not able to go to school because of bad weather?

Very little	little	significant	n
48	40	12	712

12. what do you think is the annual cost for tutoring for students at your school?	
Average, in GEL	n
593.6572	291

13. How many times this year have you been able to meet most of the parents to discuss academic performance and problems of the students?				
never this year	once	2-3 times	more	n
3	5	39	53	708

14.Please indicate to what extend do you agree or disagree the following statement					
	Strongly agree	Agree	Disagree	Strongly disagree	n
teachers knowledge level has increased during past 5 years	36	51	7	6	692
I enjoy being a teacher	1	43	56	0	695
teachers in our school get training in teaching that they need to improve quality of teaching	6	54	37	2	697

15.Please check the appropriate box if your director has consultation and discussion with teachers staff			
	yes	no	n
planning actions for gaining additional funding for school	78	22	659
way of using financial resources	79	20	637
distribution of classes and subjects among teachers	93	7	682
selection of textbooks and learning materials	88	12	668
TPD (training attendance)	94	6	689
coooperation with local community	86	11	656

16.Are there at your school teachers groups or subject departments that work on introducing changes in school program according to the new curriculum?			
yes	no	do not know	n
75	16	9	698

17. Do you use a computer at home or outside of school?		
yes	no	n
35	65	688

18. How often can you use computers at school?					
	never	once a year	once a month or less	more than once a month	n
Computers in the school computer lab	42	8	18	33	609
Internet at school	70	6	9	14	527

19. Is there an IT manager at your school?			
yes	no	Do not know	n
46	53	1	651

20 How often do you do the following?					
	never	once a year	once a month or less	more than once a month	n
Use a computer or the Internet as part of your instruction	70	5	17	9	619
Make handouts for students using a computer	57	7	18	18	616
Create a test or assignment using a computer	58	5	21	16	618
Email for professional use	83	4	9	4	598
used a computer or the Internet to get resources for your instruction?	66	6	14	14	609
have you been giving tasks requiring use of computer to your students?	74	4	14	8	605

21 Have any of the following been obstacles for you to using computers in teaching?			
	yes	no	n
Too little access to computer labs	48	52	517
absence of internet or low speed	62	38	522
Too few computers for my students	67	33	490
Not comfortable enough with computers to use them for teaching	63	37	511
IT manager is not able to provide relevant support during preparation of curriculum and lecture	49	51	442
Not sure how to make technology relevant to my subject	44	56	451
Computers are too unpredictable or outdated	22	78	416
software is inadequate or does not work right	32	68	409
No access to printer or the printer frequently is not working or out of paper or ink	56	44	486

22.If you received trainings under "Deer Leap" please answer the following questions			
	yes	no	n
Have the quality of teaching and learning been improved in a result of participating in "Deer Leap"?	65	35	414
Do you actively participate in grant programs announced under "Deer Leap"?	45	55	405

23.how much has the quality of teaching and learning been improved in a result of participating in "Deer Leap"?			
little	moderately	Significantly	n
14	28	58	384

24.How strong would you rate your own training and skills in using computers to search the Internet for resource or student project information and ideas?			
not so good	somewhat good	very good	n
14	36	49	443

25.has your school been consolidated with any schools during your practice? (if yes, please answer the following questions, if not, continue from question 33)			
yes	**no**	**do not know**	**n**
21	**74**	**04**	**501**

26. Have the schools consolidated their buildings or just the administration and management?			
Consolidated buildings	**Only the administration**	**both**	**n**
19	**47**	**33**	**202**

27. Did you have to relocate your residence because of school consolidation		
yes	**no**	**n**
5	**95**	**248**

28.How has your commute to work changed since consolidation?			
much longer	**somewhat longer**	**No change**	**n**
8	**7**	**86**	**216**

29. If you have had to relocate, are you more or less satisfied with your residence and location?				
No change in residence	**less satisfied**	**about the same**	**more satisfied**	**n**
49	**5**	**3**	**43**	**216**

30. Overall, what effect has consolidation had on the teaching and learning environment (egs: educational materials, school equipments, students extra curricula activities, etc)?				
strongly positive	**positive**	**negative**	**strongly negative**	**n**
6	**68**	**25**	**0**	**189**

31 How did your average class size change after consolidation?				
No change	classes are smaller on average	classes are larger on average	Do not know	n
66	5	14	15	203

32. How has the change in size of classrooms resulting from consolidation affected students' learning?			
very negatively	somewhat negatively	not negative	n
15	29	55	185

33. Overall, are you in favor of decentralization / more school autonomy				
very positive	positive	negative	very negative	n
19	70	9	0	686

34. Does your school administration collect information on all students' achievement, attendance, problems, etc.?			
yes	no	do not know	n
83	05	12	702

35. Does your school have an official and permanent procedure to directly disseminate information from school management level to teachers (e.g. weekly teacher meeting, etc)?		
yes	no	n
81	19	696

36. Does your school have an official and permanent procedure to directly disseminate information from school management level to parents (e.g. monthly parents meeting, etc)?		
yes	no	n
81	19	693

37. To what extent do teachers in your school get to express their opinions or concerns to school management?			
completely agree	partly agree	do not agree	n
60	34	7	703

38.Please answer				
	yes	no	do not know	n
Does your school have a strategic school plan or goals?	80	4	16	685
Does your school have an action plan based on the school plan or goals?	83	4	14	681
Is the distribution of roles and responsibilities among the school director, administrators, and Board of Trustees clear in your school?	81	5	14	681

39. Are you a member of the Board of Trustees? (if no, continue from # 42)		
yes	no	n
12	88	575

40. If you answered that you are a member of the Board of Trustees, please answer the following Questions.				
	yes	no	do not know	n
Do you have a clear idea what your role is as a member of Board of Trustees?	77	18	6	238
Are all the decisions of the Board of Trustees made by voting?	81	10	10	231
Do you think the Board of Trustees meets frequently enough to support the school's management?	57	30	13	233
Have you been given training about how to work effectively as a member of the Board of Trustees?	51	45	3	232
If yes, do you think training has been sufficient?	38	43	19	195
Was the procedure of electing Board of Trustees members made clear by the school director to all teachers before conducting election of Board of Trustees?	87	6	6	233
Do you think the school director is managing the school in a democratic way?	64	23	13	229
Does the Board in your school have any members who are not active enough?	33	54	12	231

41. If yes, what has been the reason that member is not active enough?

No interest	too busy	living too far	communication problem	cost of transportation	do not know	n

42. Please all answer these questions

	yes	no	do not know	n
Do you think teachers have more opportunities to express their opinions for school management than before the decentralization reforms?	39	44	18	571
Do you know what is the new director election procedure?	48	30	22	659
Do you think the new director election procedure is appropriate?	46	29	24	649
What kind of support/training have you had from ERC for your professional development?	51	25	24	662
Do you think the ERC for your region is active enough to support teachers' professional development?	53	16	31	646

43. Do you think the ERC for your region is active enough to support school management?

yes	no	partly	do not know	n
15	28	34	24	696

44. What kind of support did you get from your ERC for your professional development? (multiple answers possible)

training	teaching methodology	educational materials improvement	no support	other	n

45. How does the support your school is receiving from your ERC compare to that of the District Office?

much more support	more support	no difference	less support	much less support	no support	n
18	29	29	14	3	6	666

Annex D: Frequencies for Director Survey

03. What type of school is your school?

Urban	Rural	Mountainous	n
29	43	28	105

04. How many teachers are there in your school?

Mean	Minimum	Maximum	Standard deviation	n
35	8	131	29	106

05. How many students are there in your school?

Mean	Minimum	Maximum	Standard deviation	n
298	13	1854	376	106

06. How many administrative staff do you have?

Mean	Minimum	Maximum	Standard deviation	n
4	1	12	1.5	105

07. Is your school consolidated?

Yes	No	n
19	81	106

09. Was it physical or administrative consolidation?

Physical	Administrative	n
23	74	29

010. Does your school receive small school subsidies?

Physical	Administrative	n
31	69	106

4. Does your school have a library?

Yes	Yes	Yes
95	5	106

5. Does your school have a working gymnasium?

Yes	No	n
62	38	105

7. Overall, are you in favor of decentralization / more school autonomy?

Strongly in favor	In favor	Not in favor	Strongly not in favor	n
30	70	0	0	106

8. Have you been informed one way or another about your new roles and responsibilities in school management?

Yes	No	n
93	7	103

9. Do you think you have understood the changes in your roles and responsibilities?

Fully	Partially	No	Do not know	n
45	50	0	5	105

10. Have you and your administrators been given training on knowledge and skills to perform the new functions of board of directors?

Yes	No	n
47	53	104

11. Do you think the new director election procedure is fair and transparent?

Yes	No	n
88	12	103

12. Do you think the new director recruitment procedure is more efficient than the old system (director appointment)?

Yes	No	No difference	n
89	7	4	102

13. Have member of BoT in your school been informed officially about the function of BoT by school?

Yes	No	n
99	1	105

14. Have member of BoT in your school been given training?

Yes	No	n
60	40	104

14b. If yes, do you think the training for them has been sufficient to support school management effectively?

Yes	No	n
91	9	58

15. Do you think BoT election was fair?

Yes	No	n
99	1	106

16. Did you face major difficulties when conducting BoT election?

Yes	No	n
3	97	106

17. How many decisions has your Board of Trustees made by voting this year?

Mean	Minimum	Maximum	Standard deviation	n
5.4	0	18	3.4	89

18. Have the voting been made following the rules of the law of general education?

Yes	No	n
99	1	103

19. How many meetings has your Board of Trustees had this year?

Mean	Minimum	Maximum	Standard deviation	n
4.7	0	15	2.5	98

20. Do you think the frequency of BoT meeting has been sufficient to support efficient school management?

Yes	No	n
78	22	103

20a. If not, what frequency would be ideal?

Mean	Minimum	Maximum	Standard deviation	n
2.7	1	4	1.1	59

21. How frequently does the BoT launch initiatives for imrpoving learning at school?

Frequently	Sometimes	Rarely	Never	n
42	44	14	1	103

22. Does BoT in your school have any members who are not active enough?

Yes	No	n
40	60	104

22 a. If yes, what has been the reason of that member being inactive?

Aren't interested	Are very busy	Live far away	Communication problem	Costs of transportation	n
11	23	4	2	2	**106**

23. Are there sub-committees or councils established within BoT?

Yes	No	n
56	44	104

24. Does the Board of Trustee in your school have any representative from local government?

Yes	No	n
29	72	106

25. How many parent candidates were there in the board election?

Mean	Minimum	Maximum	Standard deviation	n
8	3	35	4.3	98

26. How many board members are there on the parents' side?

Mean	Minimum	Maximum	Standard deviation	n
4	3	6	1.2	105

27. How many parents joined the board election meeting?

Mean	Minimum	Maximum	Standard deviation	n
149	3	1300	234	96

28. Do you think parents are now more informed about students' academic progress and problems?

Strongly	Somewhat	No change	Worse	n
42	40	14	3	**106**

29. Is there an established procedure at your school to disseminate information to parents regarding students progress and problems?		
Yes	**No**	**n**
95	5	104

30. Does your school have a systematic and permanent (not ad hoc) procedure to disseminate school management or student performance information directly to parents?		
Yes	**No**	**n**
73	27	96

31. Does your school collect following information? (Multiple choice)						
Academic achievements	**Attendance**	**Information regarding students' problems**	**Students' extra curricula activities**	**Teacher qualifications**	**Other**	**n**
98	95	76	67	63		106

32. Are in your school committees or councils established other than those required by the law?		
Yes	**No**	**n**
2	98	103

33. How much was the total expenditure (including all source) in the past 3 school years at your school			
Year	**2004**	**2005**	**2006**
Teacher salaries	40,000	38,540	52,817
Administration salaries	6,815	7,221	14,804
Current expenditure	2,535	2,769	2,869
Capitalexpenditure	515	937	2,199
Other	6,212	5,223	7,742

34. Are all the school financial data collected for you and your administrators to make necessary decisions?		
Yes	**No**	**n**
97	3	103

35. Is accounting data available electronically?		
Yes	**No**	**n**
13	87	103

37. What kind of measures are being taken to disseminate school budget information to other teachers and parents? (multiple answers are possible)?					
Parents meetings	**Letters**	**Wall newspaper**	**Meetings with teachers**	**Other**	**n**
80	10	21	81	20	106

38. Does your school have a staff designated to storing accounting documents and records?		
Yes	**No**	**n**
94	6	106

39. Has your school established its own annual school strategic plan or goals?		
Yes	**No**	**n**
98	2	105

40. Has your school established annual action plans based on the school strategic plan or goals?		
Yes	**No**	**n**
95	5	105

41. Have you appointed members of staff responsible for handling school's physical maintenance?

Yes	No	n
81	19	103

42. Have you appointed members of staff responsible for human resource management?

Yes	No	n
14	86	103

43. Does your school provide means of transportation?

Yes	No	n
6	94	105

43a. if yes, is it operational?

Yes	No	n
79	**21**	**14**

43b. If yes, how do you finance the operation cost?

Contribution from parents	From local gov.	Other sources	n

44. Are there any students who have low or irregular attendance because of difficulties of transportation to school?

Yes	No	N
20	**80**	**94**

44a. How many miss the lessons regularly, because of transportation to school?				
Average	**Min**	**Max**	**Standard deviation**	**n**
15.3	3	100	23.6	16

45. Do you think further consolidation will benefit your school in terms of equipment, human resource, and student learning?		
Yes	**No**	**n**
21	79	91

46. Are there any schools you might want to consolidate with at this stage?		
Yes	**No**	**n**
9	91	97

47. Do you have a clear idea on the ERC's institutional role for the support of schools?			
Yes	**More or less**	**No**	**n**
94	6	0	104

48. Do you think support your school is receiving from your ERC has been better than that of the District Office?						
Much better	**Somewhat better**	**No change**	**Somewhat Worse**	**Much worse**	**No support from ERC**	**n**
85	12	0	3	0	0	104

49. What kind of support/training have you had from ERC on school management?				
Accounting	**Statistical data management**	**Other bureaucratic requirements**	**No support**	**n**
76	78	35	2	106

50. What kind of support/training have you had from ERC in terms of improving educational environment?			
TPD	**Implementation of national curriculum**	**Providing educational materials**	**n**
68	80	42	106

51. Do you think your ERC is equipped well enough to provide support for your teachers professional development				
Sufficiently	**To certain degree**	**Not sufficiently**	**Not sufficiently at all**	**n**
30	**51**	**15**	**5**	**102**

52. Do you think ERC for your region is active enough to support school management and teachers' professional development?		
Yes	**No**	**n**
97	**3**	**102**

53. Do you think ERC personals have enough skills and knowledge to support school management and teachers' professional development?		
Yes	**No**	**n**
99	**1**	**102**

54. Do you know what kind of information, where and when your school has to provide to your ERC?		
Yes	**No**	**n**
99	**0**	**105**

55. Your ERC has been collecting relevant information from your school in a timely manner?		
Yes	**No**	**n**
99	**0**	**103**

56. How many times has your school provide school's statistical and financial data to ERC during this school year?				
Average	**Min**	**Max**	**Standard deviation**	**n**
5.8	**2**	**30**	**4.9**	**73**

57. Has ERC's supported you in school accounting management?		
Yes	**No**	**n**
91	**9**	**99**

58. Has your school appointed a staff dedicated to data transfer to ERC?		
Yes	**No**	**n**
74	**26**	**103**

59. Have you experienced any difficulties for transferring data to ERC?		
Yes	**No**	**n**
9	**91**	**104**

66. Did your school have library?		
Yes	**No**	**n**
94	**6**	**24**

67. Did your school have gymnasium?		
Yes	**No**	**n**
81	**19**	**24**

68. Did your school have science laboratory?		
Yes	**No**	**n**
19	**81**	**22**

69. How has the amount of material resources changed in your school after consolidation?

	More	Same	Less	n
Books in library	72	28	0	20
Lab equipment	9	91	0	18
Sport equipment	19	81	0	18

71. How many teachers are assigned to the subject to which he/she does not have subject education?

Average	Min	Max	Standard deviation	n
7.6	**0**	**74**	**16**	**20**

72. How many teachers were assigned to the subject to which he/she does not have subject education in each of schools before consolidation?

	Average	Min	Max	Standard deviation	n
School 1	**2.1**	**0**	**8**	**2.5**	**17**
School 2	**0.8**	**0**	**4**	**1.2**	**17**
School 3	**0.3**	**0**	**2**	**0.6**	**17**

73. Were there teachers who were dismissed/fired as a result of consolidation?

Yes	No	n
27	**73**	**20**

74. How have teachers workload changed after consolidation?

Significantly decreased	Decreased	Didn't changed	Increased	Significantly increased	n
49	**40**	**8**	**3**	**0**	**21**

75. Was the decision about consolidation good for your school taking into consideration peculiarities of new per capita scheme?

Yes	No	We consolidated before per capita was	No answer	n
49	**40**	**8**	**3**	**22**

76. How does larger class size affect students' learning / academic performance?					
Very negatively	Somewhat negatively	Does not affect at all	Somewhat positively	Very positively	n
15	54	24	0	9	22

77. Does your school offer more extra curricula educational program (e.g. computer training, sport clubs, other clubs, others, etc) for its student now than before consolidation?			
More	No change	Less	n
54	46	0	18

79. How has cooperation between school and parents changed after consolidation?			
Increased	No change	Decreased	n
33	67	0	23

80. Do you think there could have been a better alternative to consolidation?		
Yes	No	n
10	90	23

81. Do you think your school's overall quality (management & learning environment) has improved after consolidation?				
	Improved	No change	Worsened	n
School management	73	27	0	20
Learning environment	75	25	0	21
Financial efficiency	46	26	28	20
Physical recourses	40	53	7	19
Staff management	42	37	21	19

82. Do you know how the amount of per capita allocation to your school was calculated?		
Yes	**No**	**n**
95	**5**	**102**

83. Do you think per capita funding can be used flexible enough?		
Yes	**No**	**n**
78	**22**	**102**

84. Is your school receiving 100% of designated per capita fund every year since the beginning of the scheme?		
Yes	**No**	**n**
97	**3**	**102**

85. Has your school received per capita fund without delay since the introduction of per capita funding?		
Yes	**No**	**n**
96	**4**	**102**

86. Has your school ever missed salary payment to your staffs since the introduction of the new scheme?		
Yes	**No**	**n**
96	**4**	**103**

87. Do you think your school budget status (per capita + small school subsidies per pupil) has improved compared to the school budget under the old scheme?					
Significantly improved,	**improved**	**Somewhat improved,**	**None**	**Worsened**	**n**
11	**31**	**21**	**30**	**7**	**31**

88. Is your school's school budget (per capita funding + small school subsidies + funds from local gov.) covering all the current school physical maintenance needs?					
Covers all,	Covers most of them,	Covers around half,	Covers a small portion,	Covers none	n
24	23	5	31	18	67

89. Has your school had enough funding (including fund from per capita, small school subsidies, local gov., parents/community contribution, Iakob Gogebashvili, donors) to meet backlog of school repair needs					
Has met all needs	Most of them	About half of them	Small portion of them	None of them	n
12	8	9	38	33	82

90. Has your school had an experience of applying to funds apart from allocated funds for the last 3 years?		
Yes	No	n
40	60	92

90a. if yes, how many times have you applied?				
Average	Min	Max	Standard deviation	n
3.6	1	10	2.1	35

90b. how many time turned out successful?				
Average	Min	Max	Standard deviation	n
2	0	5	1.4	36

90c. to whom have you applied?					
Local gov.	Donor NGO,	Private company or individual	Parents	Other	n
24	12	6	5	5	106

91. What portion of teachers at your school are doing other jobs for additional income?				
More than 75%	50-75%	25-50%	Less than 25%	n
16	9	3	72	81

92. How frequently do teachers provide private lessons or tutoring for their own students?				
Very infrequently	Somewhat infrequently	Somewhat frequently	Very frequently	n
45	35	13	7	83

93. Does your school provide incentive bonus payments to teachers?		
Yes	No	n
37	63	102

93a. If yes, who does approve the bonus distribution?				
Teacher council	BoT	Subject council	Board of Administration	n
24	9	35	24	106

93b. What is the maximum amount of bonus?				
1-5%	6-10%	11-20%	More than 20%	n
26	11	19	44	40
93c. how does incentive bonus increase teachers motivation?				
Strongly	More or less	Less	No effect	n
68	29	1	2	46

94. Has your school established a review process to review qualifications and experiences of teacher candidates before recruitment decisions are made?		
Yes	No	n
90	5	106

94a. If yes, who are involved in the process?				
Director	Board of directors	BoT	Pedagogical council	n
75	36	62	34	106

95. All the teachers' salaries calculated correctly following the teacher salary pay model of government?		
Yes	No	n
98	2	106

96. How many teachers have quit their jobs at your school?					
	Average	Min	Max	Standard deviation	n
2006/2007	1.5	0	14	2.4	75
2005/2006	1.5	0	15	2.8	80
2004/2005	1.8	0	9	2.2	73

97. After implementation of new payment system how does it change the number of teachers who cited because of low salary for turn-over?			
Increased	Same	Decreased	n
2	82	16	85

98. What was the major reason cited for turn-over this school year?						
Salary	Marriage	Family problem	Retirement	Move to the other workplace	Dismissal	n
8	11	22	25	19	14	106

99. Do you believe the old or the new curriculum framework better meets educational goals of active learning and creative thinking?					
Old was much better	Old was somewhat better	Both are the same	New is somewhat better	New is much better	n
1	0	0	57	40	106

100. Within the new national curriculum, does your school offer different programs from other schools?		
Yes	No	n
44	53	106

101. How many student extracurricular clubs or organized activities do you know of at your school?				
0	1-3	4-9	More than 10	n
13	54	26	1	106

101a. Do students have to pay or spend anything to participate in student extracurricular clubs or organized activities?					
It is free	An insignificant amount	A moderate amount	A lot	DK	n
60	6	7	0	0	83

102. What percentage of teachers have been trained to assess students while using new methods?				
Average	Min	Max	Standard deviation	n
9.8	0.08	70	14.5	92

103. How do these trainings help them?			
Very well	Somewhat well	Didn't help	n
36	60	<1	106

104. Have student discipline problems increased, stayed the same, or decreased in recent years?			
Increased	Stayed the same	Decreased	n
22	31	45	106

105. In your school, how often do teachers miss the classes?				
Very often	Often	Seldom	Never	n
1	4	92	0	106

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