



SCALING UP CHESS IN SCHOOLS

Part 1 – Opportunities and Challenges of Multi-site CIS Initiatives

Abstract

If ever there was an opportune time for Chess in Schools (CIS) to take root in American education, this is it.

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Scaling Up Chess in Schools

A Guide to Successful Multi-site Implementations

By Neil Dietsch

Introduction

If ever there was an opportune time for Chess in Schools¹ to take root in American education, this is it.

- **Mindset is right:** Educators have come to accept, at least in concept, that learning to play chess develops many of the executive functions of cognition. Acquiring the skills necessary to play chess spills over to learning in other areas.
- **Resources are ready:** Online chess curricula originally developed for self-study are being adapted to the classroom, enabling teachers with only modest chess experience to deliver quality chess training. Increasingly the teacher's role is that of a learning enabler/facilitator as opposed to a content expert.
- **Costs are declining:** Schools' technical infrastructure allow these curricula to be delivered economically via cloud computing, minimizing demands on school IT services.

However for the proponents of chess in schools (CIS), marketing the theoretical benefits of chess training and highlighting technological opportunities are only the start. Today the biggest hurdle CIS advocates face is one of implementation. The challenges are both strategic and tactical. Fortunately,

- **Multi-site² implementation models are emerging.** Early adopters are developing CIS programs that are intended to be sustainable and scalable across multiple schools and school systems. These are taking place in diverse settings in Asia, Europe, and North America.

This is the first in a four-part series of papers that examine CIS implementation theory and practical issues from a project management perspective. The series includes recent reports on CIS initiatives in the United States and internationally. It is hoped this will be of benefit to those considering such ventures.

¹ "Chess in Schools" implies chess instruction within the school's curriculum, not simply as an after-school activity.

² "Multi-site" as used here implies that the scope of the CIS implementation will be not only at more than one physical school, but will involve planning and coordination of the CIS program across more than one local school administrative organization. As a result, project management and political skills take on increased importance.

Multi-site CIS Program Model

Let us begin by reviewing some useful theory regarding multi-site CIS implementations.

In his 2008 paper, *Coordinating the Five Communities: Strategies to Introduce Chess as an Educational Tool*³, National Chess Education consultant Jerry Nash discusses the practical challenges facing the proponents of chess in schools and offers a strategy to meet those challenges. Among the challenges discussed are the serious limitations of relying on a grass-roots, bottom-up approach to CIS. A related issue is the scarcity of highly qualified chess instructors available to staff CIS programs.

The strategy to address these challenges involves a planning process that requires the coordination of five communities to achieve a viable and sustainable CIS program that encompasses multiple schools. Those communities include the:

1. Political community
2. Educational community
3. Civic community
4. Business community
5. Chess community

The notable United States CIS success being cited at that time the non-profit organization **Chess-In-The-Schools** was established in 1986 in New York City. It placed chess teachers in hundreds of schools to teach thousands of children to play chess. Former president Bill Clinton wrote of the cost effectiveness of the **Chess-In-The-Schools** program citing the results attained from an investment of about \$100 per student per year.⁴ In 2008 the organization began a gradual shift to teacher-driven training with the establishment of the Teacher Training Institute to teach New York City public school teachers how to teach chess.⁵

Recent Developments

Since 2008 there have been encouraging changes in both the chess and educational realms.

³ <http://www.alabamachess.org/cis/5communities.pdf>

⁴ http://www.chessintheschools.org/resources/PDF/6-BillClintonGiving_Flyer.pdf

⁵ <http://chessintheschools.org/s/index.cfm?SSID=30>

In the **education community** there is greater awareness and acceptance among educators of the value of chess. This is true internationally^{6 7 8}and in the US.

Implementation of the 2009 **Common Core** State Standards Initiative has been a top priority for most states and school districts in the United States. In any communication with the educational community by the chess community CIS needs to recognize and be sensitive to its impact. If CIS is to gain any traction, it must be seen as a catalyst for achieving a state's educational goals and its chess teaching aligned with specific standards.⁹

The **chess community** has continued to grow. The number of after-school and in-class programs is increasing. The US Chess Federation reports its membership has increased by 9.6% per year from 2009 to 2013 primarily due to growth in the ranks of school-age children.¹⁰

However, many of the problems alluded to in Mr. Nash's paper remain. Most of the recent growth of chess in schools in the United States has been based upon grass-roots efforts at individual schools. That is, chess has been introduced usually as a stand-alone, after-school activity led by a single chess-savvy teacher or parent in a well-to-do school. Since chess programs are often an elective with parents picking up some costs, the perceptions are often that chess is an activity for "gifted" children, not the masses.

Now as then, the life of such grass-roots programs is often cut short due to turnover. Even for those schools lucky enough to find a chess resource, such programs are rarely sustainable. Within a few years job turnover takes its toll. In some cases the instructor leaves or gets transferred. In some instances it is a supportive principal or superintendent who leaves and the program comes to an end. In the words of Mr. Nash, "Most scholastic chess programs in the United States are one person away from extinction."

How can we move beyond the limitations of this traditional CIS model?

⁶ European Chess Union, Chess in Schools Survey:

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CB4QFjAAahUKEwjBue6-kJrIAhWGOD4KHfUwBBs&url=http%3A%2F%2Fwww.europechess.net%2Fdocuments_download%2FCheSS-in-school-survey-abstract.ppt&usg=AFQjCNEISXA6TpJZwpGPot3YzRthLTwOzA&sig2=4hWRzghyrrOqOWGli6VrEw
<http://www.europechess.org/commissions/educational-commission/>

⁷ <http://www.europechess.org/ecu-and-eu-ready-for-joint-projects/>

⁸ <http://www.chessinschools.co.uk/aroundtheworld.htm>

⁹ If you live in a state where "Common Core" is a political red flag, be careful of the language used. Local educators can provide guidance on precise terms that have meaning and significance to your education community. After all, chess training has been around centuries longer than Common Core. CIS benefits have to do with development of the executive functions of cognition which are an inherent part of any set of educational standards; CIS is not linked to the controversial components of Common Core (i.e., testing and some content selection). Do not let your CIS effort get tripped up by bogus semantic associations.

¹⁰ Ruth Haring, USCF President's 2014 Report: <http://www.uschess.org/content/view/12764/783>

Multi-site CIS Design and Implementation Challenges

Many public schools systems today are embroiled in conflicting demands to improve performance, to implement new educational standards, and to cope with chronic underfunding. With teachers and administrators alike stressed with these core educational challenges, CIS struggles to be seen as a high priority. To the extent that chess is seen as just a nice-to-have elective competing for class time, it doesn't stand a chance in such an environment.

Even for education administrators who see chess instruction, not as competing for class time, but as an important catalyst to improving the 21st Century skills students need, the challenges of designing and implementing a chess in schools program on a larger scale (for multiple schools across a large district or even a state) can be daunting.

Simply trying to build incrementally on to the traditional after-school model is not going to yield significant improvement. A better approach would be to begin by envisioning what sort of end state we are trying to achieve. What qualities would a truly successful, large-scale CIS program have?

This paper proposes that a multi-site CIS program must:

- have sufficient community support
- address the chess-instruction supply/demand dilemma
 - Where do we find the chess instructors?
- Have the qualities of:
 - Sustainability
 - Scalability
 - Adaptability

The first bullet is simply an endorsement of the points in Mr. Nash's "Five Communities" paper; obviously some blend of community action and support is necessary even to get started.

The Supply / Demand Dilemma

The most basic challenge to CIS proponents who want to see chess taught in all schools is, **"Where are we going to find the chess instructors?"**

The supply and demand for chess teachers is a troublesome issue in the United States and in most countries. Today the demand from schools for some sort of chess program is growing, but most schools struggle to find the resources to meet this demand. Where there have been successful grass-roots efforts to implement CIS, the education systems look either to the chess community for teachers, or avail themselves of an enterprising teacher within their system who brings the combination of teaching skills, chess knowledge, and enthusiasm to make the program successful.

A few schools may be lucky enough to have a teacher, parent, or qualified volunteer and establish after-school programs. Wealthy school districts may even be able to use commercial services and pay upwards of \$80 per month per student. Most schools that might like to have a chess program end up with none at all.

Under the traditional supply / demand paradigm, demand far exceeds the supply of available chess instructors willing to work for what schools can afford to pay.

For a chess in schools initiative to have a broad reach, it has to be something more than disparate pockets of after-school programs that start up and die as chess coach volunteers come and go.

Mr. Nash has pointed out another drawback to using volunteer chess instructors. The cold reality is that often chess players aren't very good teachers. Those that have some teaching skills but aren't embedded in secondary education as a career, aren't equipped to integrate chess into today's primary education system that is driven by the state's educational standards. While many school superintendents and principals may trust such outside chess instructors to lead an after-school program, they may be leery of allocating class time to chess taught by an instructor who isn't thoroughly grounded in the institution's educational standards and teaching methods.

What is the solution to the supply / demand dilemma? Design a teacher-driven system where chess instruction is given by teachers already embedded within the system! They understand teaching; they know their students; they know the educational standards and expectations of the administration. Primary and elementary grade school teachers don't have to have deep subject matter knowledge if they have a good curriculum and training tools¹¹.

But can elementary school teachers who may have little or no experience learn chess well enough with a few days of training to teach chess competently in the classroom? Will they have the motivation? If so, is it possible to deliver the necessary training, tools, and support (at a reasonable cost) to make them successful? Is there a precedent?

The short answer to each of these questions is "yes".

A competent teacher who knows the rules of chess, but may only play at a rating level of 400 (i.e. the level at which many young novices playing in their first scholastic tournaments might be), can now teach chess to beginners and novices. Five years ago, this might not have been the case. The difference today is the combination of technology

¹¹ A "good curriculum and training tool" is defined to include having a path of independent study that advanced chess students can use to stay challenged.

and the better quality of training material available. While teachers at this level may struggle along with their students in such cognitive functions as pattern recognition and calculation, the distinctly superior skills they bring is their ability to think logically, to approach the problems methodically and objectively, and to communicate in language that children can understand. Most teachers also will be able to link experiences at the chess board into other realms of subject matter and life skills. Today's internet-based chess curricula and training programs do an excellent job at teaching visualization, tactics, and complex move calculation – i.e., the skill areas where novice chess teachers may struggle. While a teacher can always benefit from more chess experience, it is no longer a necessity at the introductory level for the general student population.

Sustainability, Scalability, and Adaptability

It is one thing to start up a pilot CIS program. It is quite another challenge to sustain and grow it.

In the language of systems theory, the post-start-up challenges of a chess in schools program are **sustainability, scalability, and adaptability**. In the US many individual schools have started after-school programs on their own initiative and kept them running for at least a few years. We have seen demonstrations (and even movies) of how chess can benefit disadvantaged students. But for many of these, sustainability has been an issue.

The move to a teacher-driven system addresses a large part of the **sustainability** problem. After all, educational systems are designed to sustain the supply of teachers into the system for teaching English, math, science, etc. They are also equipped to routinely provide training to teachers on new topics and teaching methods. What is new in the CIS equation is that two new training topics¹² are being added. The CIS topics may be new, but the process of training the trainers is routine in the education community. Once a successful class is developed, sustaining it presents no special challenges.

Scalability is another matter. Much has been written in support of the grass-roots approach about how to start a chess program at a single school. A motivated individual can use this guidance to establish a local chess program with good chances of a local start-up success. The planning and start up can typically be managed with simple “To Do” lists, a spreadsheet schedule, and meetings with the school principal and local stakeholders.

However, scaling a chess program up to a school district or state is a more complicated and challenging endeavor that requires project management skills as well as a sound

¹² **Topic #1** is typically a one-day CIS orientation course intended for the administrator and/or teacher who will be accountable for implementation of the CIS program at the school. **Topic #2** is typically a 4-day training course for teachers who will be teaching chess. Half the course involves learning chess basics; the other half has to do with the chess training process, gaining familiarity with the chess training tools and curriculum, and integrating chess into core curriculum training.

multi-site CIS program design. While school districts and state departments of education typically have experience in rolling out various new educational program to schools, a CIS program is likely to be of above-average complexity. The increased project management risks stem from 1) unfamiliarity with chess training, and 2) the best-practice requirement of involving stakeholders and participants from outside the educational community.

There are ways to mitigate scalability risks. First, taking a pilot approach with a limited number of schools is highly recommended. Second, be sure the leader(s) of the multi-site CIS effort have strong communication and project management skills.

Adaptability is the characteristic that allows an organization (or any complex system) to learn and change in response to its environment. Early adopters of the teacher-driven CIS model, particularly if it involves leveraging the latest cloud-based chess curricula, will need to consider what monitoring and feedback mechanisms will be needed to deal with issues and to support a process of continuous improvement. Early adoptions are likely to involve more art than science as teachers learn the nuances of both the chess curricula and how to best implement it for their particular age group. For example, consider a beginner's lesson on how the knight moves. We should not expect that a lesson and presentation method that works very well for teaching 5th graders will be equally effective with 2nd graders. An online self-study curriculum written in fourth grade level English may work fine for some classes but not others.

In the classroom, teachers often need to adapt their CIS program content to a broad range of student chess abilities that range from beginners to experienced tournament players. Teachers need to be able to recognize skill disparities and respond to them. A young tournament player doesn't need to be subjected to a series of lessons on how the pieces move when there are self-study options available if the teacher recognizes the skill disparity and is trained how to respond.

The key to adaptive learning is feedback. An important quantitative element of feedback is **metrics**. For chess in schools there are at least two important sets of metrics.

- 1) Strategically there needs to be some assessment and validation that a CIS program is effective in meeting overall education goals. In this regard, CIS is no different than most other educational initiatives. Education administrators should be able to determine what sort of assessment makes sense for their organization. It may be a formal research project involving correlation of chess study with standardized test results or some less formal mechanism.

At some point in time, every CIS program will be challenged to justify its continued existence. Consider appropriate metrics and adaptive learning mechanisms at the outset.

- 2) At a tactical level, a review of easily collected metrics can highlight anomalies in chess class methods and performance. Implementation problems can be spotted quickly and corrective action taken.
- a. The leading chess training applications store data for each student and make that data available to the instructor for individual coaching. The data might include ELO ratings, number of lessons completed, levels accomplished, puzzles solved, etc. This feedback can also help the instructor determine how engaged the students are in their chess learning. If an instructor isn't getting the expected engagement, are there other teachers (peers) who are? Are they doing something different?
 - b. At a macro level CIS administrators can download data for a large, multi-site account to a spreadsheet and analyze data by class to understand how various teachers are using the chess training software. For example, if an account has 40 classrooms with 1000 student accounts and the individual student data has been properly designed during setup, an administrator with questions about curriculum utilization might want to know what percentage of students in each classroom had solved at least one puzzle, or completed one lesson. Do the percentages trend up as the school year progresses? Do schools have similar usage rates? Or do they show distinctly different usage patterns and progress levels? If so, why?¹³

The metrics can be used in either a top-down review or a bottom up manner. One quick and low cost, bottom-up way to encourage adaptive learning is to set up an online forum for the chess teachers involved. CIS instructors can be encouraged to share their experiences and offer their own assessments of what the metrics mean.

¹³ There could be many reasons for anomalies: technical issues, software deficiencies, inadequate teacher training, teacher difficulty using some software functions, administrative roadblocks, the teachers' conscious (and legitimate) decision to adapt their mix of online and offline training tools based on the reading levels of the grades they teach. While it would be a mistake to use such metrics as a score card for teacher evaluation, reviews and comparisons of metrics can be revealing and lead to performance insights. Metrics should be understood as a guide for the whole CIS organization to engage in adaptive learning about the CIS processes.