

University of California at Berkeley



Scheduling Guide

*for Small Learning Communities /
Career Academies*



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Preface

Small Learning Communities (SLCs) and Career Academies, one variety of SLC, have grown rapidly in recent years. They are among the few high school reform approaches that seem promising and popular, bringing students together into cohorts where they support each other, teachers into teams where they do the same, and students and teachers into closer relationships which seem to benefit both. The United States Department of Education has spent hundreds of millions of dollars on grants to districts to develop SLCs, as have several private foundations. A number of states have contributed lesser amounts, and countless districts have invested in them as well.

Yet while SLCs seem to work *when well implemented*, they are not easy to implement. They embody a number of variations from the way high schools typically operate. High schools have traditionally been structured around a series of academic subjects essentially unrelated to each other: English, math, science, social studies, and so on. This has sometimes been called the "silo" approach. Each subject is taught in a vertical silo, for three or four years, with no attempt to link them horizontally. Further, little attempt is made to show students how their classes relate to what goes on outside a high school or how classroom learning relates to possible future careers. This lack of both internal and external connections to something larger is often pointed to as a central reason for the lack of motivation so many high school students experience.

In addition, just as the academic subjects are structured like silos, so are their respective departments. The English teachers may talk with each other, and the math teachers, and so on, but rarely do English, math, science, and social studies teachers all talk with one another. Further, the instruction is usually based on individual effort and performance. Students may make a friend or two in each class, but mostly they're around other students with whom they have no particular connection. No structured connections exist among classes or teachers, none around students. While this is the way high schools have been structured for a long time, one needs to ask, is it the best way?

SLCs in general and Career Academies in particular organize high schools differently. They build connections: among academic subjects, among teachers, and among students. They bring teachers in two or more different subjects together into a team. They place a group of students together in the classes taught by this team of teachers. They ask each teacher to cover not only her or his own subject but to show students connections between this and other subjects. They ask students to work together and support each other. And in a Career Academy, they show students the connections between what they're learning in high school and some future activity of possible interest to them. They add to the traditional call for Rigor in high schools, two other Rs: Relevance and Relationships.

What does this have to do with scheduling? It changes the way in which master schedules are developed and students are placed into their classes. No longer is this done in a random fashion, with any student who is taking a given subject being placed into any available section of that subject. Rather students are placed into their SLC/Academy sections along with the rest of their "cohort". And teachers agree to work as part of a team, with their classes scheduled to link with the others in their SLC.

In order for teachers to work as a team, they must have some time allotted to work together. Without this, they cannot collaborate in the ways needed to make an SLC function: coordinate their curriculum, plan joint projects and activities, engage business and community partners, and develop consistent strategies for supporting individual students that capitalize on their shared knowledge of those students. Usually such joint planning comes in the form of common preparation time scheduled during the day. Just as with students, rather than randomly scheduling teachers, the schedule for a cadre of SLC teachers must be determined in a coordinated fashion. These changes can be challenging even with one or two SLCs; they can become much more so with schoolwide SLCs unless we rethink the way we develop a master schedule.

In our experience, failure to adhere to these two requirements--cohort student scheduling and team teacher scheduling--is responsible for the most frequent downfalls

of SLCs. We have seen a number of SLCs and Career Academies fail outright because of poor master scheduling, and many others struggle when the job is done clumsily. At the same time, we have seen the scheduling of SLCs done well, to the immense satisfaction of teachers, students, parents, administrators, and other stakeholders. The fact is there *are* ways to successfully schedule schoolwide SLCs. We have developed this guide in an attempt to share knowledge of best practices in scheduling with those who have an interest in this topic.

Who are we? Four individuals who have studied and supported SLCs and Career Academies for many years. Patricia Clark was the Lead Teacher in a Health Academy in Oakland, California for over a decade and has led initiatives to support SLCs/ Academies in California and elsewhere. Susan Tidyman was for seven years the state administrator for the California Partnership Academies, a network of about 300 Academies supported by the California Department of Education. Charles Dayton helped to launch and administer the first two Career Academies in California, develop legislation to replicate them, and evaluate the resulting state network. Tracy Hanna is a graduate student at Berkeley who has helped to support and evaluate SLCs here and elsewhere for the past two years. All four of us work for the Career Academy Support Network in the Graduate School of Education at the University of California (UC) Berkeley.

What is the Career Academy Support Network (CASN)? A small group of professionals interested in high school improvement in general and SLCs/ Career Academies in particular, who have worked for the past eight years to conduct research on these approaches, provide professional development to districts and high schools implementing them, and develop materials to guide such implementation. Our work is supported by foundations, public education agencies, and individual high schools and districts. If interested, you can learn more about CASN at our website: <http://casn.berkeley.edu>.

In developing this *Scheduling Guide*, our work has been supported by a partner with whom we have worked for many years, the National Academy Foundation (NAF).

Based in New York City, NAF oversees a network of some 650 Career Academies across the country in three career fields: finance, hospitality & tourism, and information technology. NAF provides a variety of supports to its Academies, including curriculum in these fields, on-site technical assistance, other materials and staff support, and a series of national conferences. NAF's work is organized around its Six Core Principles, taken from the National High School Alliance. These include:

1. Personalized Learning Environments
2. Academic Engagement of All Students
3. Empowered Educators
4. Accountable Leaders
5. Engaged Communities of Youth
6. Integrated Systems of High Standards, Curriculum, Instruction, Assessment, and Supports

You can learn more about NAF at *their* website: <http://www.naf.org>. We want to express our deep appreciation to NAF for their support for this work, which they and we hope will benefit many others.

The organization of this guide is apparent in the Table of Contents. We begin with a fuller explanation of why scheduling is so important to the success of an SLC. Chapter II explains who needs to be involved in developing a master schedule, and in what ways. Chapter III delves into the process itself, the complexities of what needs to happen when, organized into five stages and a series of steps within each, with an annual calendar that provides a suggested timeline. Chapter IV discusses the potential conflicts that arise in the process and the many constraints that have to be considered in developing a master schedule. Chapter V reviews the features needed in software designed to assist scheduling and touches on what training and support exists to assist those who want to learn more. Finally, the Appendix provides a review of alternative bell schedules, a chart detailing software options and features, and a glossary of terms.

As with all our materials, this guide is available free at the CASN website, <http://casn.berkeley.edu>. Go to the "Resources" section and scroll down to "Academy Structures" for either a PDF or html version. Likewise, for NAF members it is available at the NAF website, <http://www.naf.org>. In addition to the Scheduling Guide itself, we have developed a Power Point presentation that covers the highlights of the Guide, as well as several handouts for use in a workshop setting. These too are free and can also be found on the CASN and NAF websites.

Chapter I

Why Scheduling SLCs Is Important

The Advantages of SLCs

Perhaps the place to start in conveying how crucial scheduling is to the success of a Small Learning Community (SLC) is to explain what an SLC is. To quote the U.S. Department of Education: "A Smaller Learning Community is an environment in which a core group of teachers and other adults within the school know the needs, interests, and aspirations of each student well, closely monitor his or her progress, and provide the academic and other support he or she needs to succeed." Often the curriculum is structured around a theme to add relevance to traditional academic subjects: English, math, science, and social studies. A Career Academy is one variety of SLC in which one class focuses on a career theme and coordinated academic classes are flavored with this theme.

That's the core idea of an SLC: a small cohort of students, a small cadre of teachers, together in several classes during all or part of the school day. "Small" varies from as few as one section per grade level, about 30 students, to as many as four or five sections per grade level, up to 150 students. Often an SLC also incorporates more than one grade level, so that students and teachers stay together across two or more years, in which case the SLC may include several hundred students. In addition to the movement toward organizing large high schools around such SLC structures, there is also a movement toward small, stand-alone high schools. The rationale for creating small schools draws on many of the same premises as SLCs, though small schools usually have a greater degree of autonomy.

Many traditional high schools are large, often over one thousand students, sometimes as many as three or four thousand. This size makes it easy for students, who may come from smaller middle schools closer to home, to remain anonymous, with no strong adult or peer connections, and no sense anyone really cares about them.

Confusion, frustration, and a sense of defeat may result. This lack of connection is one of the reasons so many students, an average of about 50% in many urban districts, drop out of high school before they reach graduation.

SLCs attempt to counter this anonymity by offering a smaller environment within the large high school context in which students come to know a group of other students well, and to be known by a cadre of teachers who work as a team. Just as in a small school, the teachers learn students' names, their strengths and weaknesses, and their interests. They encourage students to work together and support each other. They discuss students with each other, and develop common strategies for supporting student success. While covering the required curriculum in each subject, they help students discover relationships among these subjects. They stay in closer touch with parents.

Thus the SLC becomes like a family within the high school, providing support and nurture for students. It furthers not only rigor, but relevance and relationships. Research suggests SLCs help to keep students in high school, make it a more positive experience, and boost attendance, grades, and graduation rates (Maxwell, 2000; Stern 2000).

Why Is Scheduling Difficult

So, back to scheduling; why is it so important? Because if students aren't scheduled into the same sections as the other students in their SLC, with a cadre of teachers working together, these benefits are lost. Students are back to being randomly placed into disconnected classes. They don't have their group of teachers and fellow students for support. They continue to see little relevance in their learning. Research suggests teachers too are less happy (Kemple, 1997). As a bottom line, high schools remain less effective and less accountable to parents and their community.

Why is scheduling so difficult? Because there are *many* factors to be considered. The requirements of the state and district need to be weighed, as well as the needs of departments and teachers. Some students need special classes, such as those with

disabilities or English language difficulties. Staffing, facility and time limitations must be examined. And most important, students must be scheduled into the courses they need to graduate, qualify for college, and meet their interests.

There will inevitably be conflicts in all this, and decisions about priorities will be required, reflecting the high school's beliefs about teaching and learning. Are students needs more important than teachers needs? Are academics more important than athletics? Are block schedules better than traditional ones? Should AP and IB courses be given priority to meet the needs of high performing students, or should priority be given to support classes that help close the achievement gap? Should smaller classes be allowed for elective courses, at the same time larger ones are permitted for required subjects? Who should make these decisions?

How do SLCs affect this process? In addition to all the other complications and questions, they add another set. SLC students must be scheduled into several linked SLC classes as a group, limiting the scheduler's options. SLC teachers must have the same prep period, again limiting the scheduler's options. SLCs should be balanced with one another, each reflecting the general student population of the high school. Some SLCs entail keeping students with the same teacher(s) over two or three years (looping). If advisories are part of the SLC design, time for these must be found in the schedule.

What happens when a new high school without experience scheduling SLCs attempts all this for the first time? Often there are *big problems*. Confused, upset schedulers, who try this, that, and the other thing, find nothing works, and settle for half measures or give up altogether. Leading to students not scheduled into their SLC classes, teachers without common planning time, and when everyone shows up for the fall semester...*no SLC*. Angry students. Angry teachers. Angry counselors. Angry parents. Everyone blaming everyone else. Given the many positive outcomes SLCs have the potential to achieve, this is a very unfortunate development. It is to avoid these frustrations and to support the creation of effective SLC master schedules that we've developed this guide.

Chapter II

Who Needs to be Involved

The Importance of Teamwork

Traditionally, the master schedule has been developed by a single administrator, counselor, or registrar often working behind closed (and occasionally locked) doors, in a process that is mysterious at best. Our research indicates that the high schools with the most successful master scheduling approaches use an inclusive process in building the schedule. They incorporate many stakeholders, particularly those most affected by the outcomes of scheduling, with a set of principles in mind:

- A commitment to creating a master schedule that is student centered
- A commitment to equity and student achievement as mutual goals
- A commitment to creating a master schedule which furthers rigor, relevance, and relationships
- A master schedule building process that is open and collaborative
- A master schedule development team empowered to make many of the needed decisions

When there is such a team, it usually minimally includes:

- An administrator who can make final decisions about courses to be offered and teacher assignments
- A counselor who meets with students and pays attention to graduation and college entrance requirements
- A classified (non-teaching) staff member who assists, especially with course selection data entry and computer runs

But as high schools move toward a shared approach to school leadership, usually associated with SLCs, this team can be substantially broadened. Drawing on the above principles, such a team usually includes teacher-leaders from several different SLCs who have an interest in acquiring expertise in master scheduling and can represent their SLC and the broader needs of both students and faculty. An additional counselor or student advocate may also participate. The team should be big enough that some tasks can be shared but small enough to work efficiently. Successful schools often report having a scheduling task force that handles some of the research and communication and supports a small, core inner team and overall Master Schedule Coordinator.

Such a team approach has many advantages. It allows the Coordinator to share her/his expertise with others. This provides an "institutional memory" for how the process works, which can be readily lost if the work is left to one person who leaves or retires. A team approach also enables everyone in the school to have greater input to the process and better access to scheduling information. Many Master Schedule Teams take advantage of e-mail communication systems to regularly post scheduling queries, justifications for scheduling decisions, and drafts of the evolving master schedule in order to provide all those interested with opportunities for constructive feedback. There is no us-vs-them mentality; everyone shares responsibility.

SLCs Can Help With Scheduling

One approach used with good success is to let teachers in each SLC schedule their own students. Allowing each SLC team to assume direct responsibility for scheduling its own students places scheduling in the hands of those who know the students best.

If SLCs are involved in designing their own schedules, this will only work if there is good communication between the SLC leads, Department heads, and the overall Scheduling Team/ Coordinator. Once students have signed up for their courses, the SLC Lead Teacher works with the SLC faculty and others to develop an SLC schedule proposal. This proposal is turned into the overall Team/ Coordinator, who then meshes information from all the SLCs and Departments into a workable schedule. The resulting

master schedule draft in turn goes back to the SLCs and Departments for reflection and comment, perhaps resulting in adjustments. Some of these can be made within the SLC--two teachers swapping sections or classrooms, for example--while others will require negotiation with another SLC and the decision of the overall Team/ Coordinator.

The Role of Counselors

This approach affects not only the role of teachers but of counselors as well. In many high schools a head counselors' or vice principal's *main* job is to develop the master schedule. Such counselors or administrators may question sharing this role with a team of teachers. One way of handling this is to point out that freeing their time from some aspects of scheduling will allow them to do more of the counseling or instructional leadership they usually prefer, such as helping students with academic or personal problems or supporting teachers in the classroom. Another is to align counselors, administrators, and SLC teams.

For example, in many high schools counselors are assigned to students by what's called the "alpha" system. One handles students whose last name begins with A-D, the next E-J, and so on. Alternatively, counselors *could* work with those students in a particular SLC, or perhaps a group of SLCs, as long as their overall caseload doesn't change. That is, if there are grade 9-10 SLCs and grade 11-12 SLCs, counselors might work with SLCs at one or the other of these levels. If they're handling 450 students in the old system, and there is an average of 150 students per SLC, they would work with students in three of the SLCs. This approach lets counselors better match their own interests and strengths with the needs of students. It also lets them become part of a team and work closely with teachers, a structure many prefer. Likewise, often each member of the school administration team has primary responsibility for a particular SLC.

Other Contributors

In some schools teams of upper division students, postsecondary students, parents, and/or community volunteers also assist teachers and counselors in supporting

and mentoring students during the course selection process. In addition, information nights can be hosted for parents and daytime fairs for students. Often students enrolled in SLCs/ Academies are involved in recruiting new students and explaining course offerings. Frequently each SLC holds lunch time open houses and one-on-one or small group informational meetings. Thus there are a number of channels to ensure students are given full information regarding their course selections.

Successful schools also often build in a process to double check students' course selections. In addition to SLC teachers and/or schoolwide counselors, teacher advisors may meet with students to review their selections and, among other things, assure high school graduation and college entrance requirements are being met. Parents may also participate in such meetings. The more internal checks there are, the more likely that course tallies will be accurate, that correct data will be used as a basis for decision-making, and that every student will be scheduled as intended.

Whatever the plan in terms of who is involved, it is important to have well defined responsibilities and a clear time table. As long as each staff member or support person knows what is expected of them at what time, the process should work. This also implies an understanding that in the pursuit of the greater good not everyone will get everything they want. Teachers will have to make compromises to fit into their SLC, SLCs to fit with each other, and the overall Scheduling Team/ Coordinator will have to find the best compromises where there are conflicts and be given the authority to make these decisions. Likewise students will sometimes have to accept a less than ideal schedule to have the classes they want, and perhaps give up a lower priority course for a more important one. A high school is a community, and communities imply getting along with each other. But an inclusive approach can incorporate the most information from the most sources, lead to workable compromises, make the reasons for scheduling decisions clear, and build the sense of community.

Chapter III

What and When

Stages & Steps of the Master Schedule Development Process

As described earlier, there is a broad move around the country toward smaller structures in high schools. This has been encouraged by several large foundations and the U.S. Department of Education, as well as many state departments of education and high school redesign organizations. Increasingly high schools are developing wall-to-wall SLCs/ Academies. In some cases, these SLCs have evolved into stand-alone small high schools, each with its own culture, practices, policies, and schedule even though these small schools may continue to share some facilities and services with a larger campus.

More typically, large secondary schools with SLCs/ Academies attempt to strike a balance between holding on to the benefits of the comprehensive high school, with its broad range of course offerings, and acquiring the benefits of smallness by creating SLCs/ Academies within this context. In these cases the challenge is developing a master schedule for a school that is a mixture of large and small, with scheduling software that was not designed for this complexity.

Master schedule experts have found ways to successfully schedule SLCs while still offering some "global" or "universal" courses open to all students. What follows provides an overview of what we have learned about key stages and steps in the process. Obviously, there are many smaller steps in each stage that are not included here. Depending on the software and other tools utilized, the details of the process and the needed software commands will vary. You may also wish to take advantage of the training and manuals provided by your software vendor in addition to the support of software user groups and others engaged in the master scheduling process.

For purposes of discussion, we divide the master scheduling process into five basic stages:

- Planning
- Student course selection and tallies
- Master schedule construction
- Analysis, adjustment, and distribution of schedules
- Fine tuning and re-adjustment

For purposes of providing a timeline we describe stages and steps in the master schedule development process by month, using a ten-month school year calendar, August-May. This timetable may differ for schools on trimester, year-round, or other academic calendars.

Again, at each stage of the process the steps may vary, based on many considerations: the degree to which a school focuses on equity, the size of the student body, the student information system software utilized, the number and size of SLCs/ Academies, the extent to which SLCs / Academies have pure cohorts of students, the extent to which SLC students are platooned (moved as a pure cohort in all their SLC classes) the range of global (schoolwide) course offerings, and a variety of other elements. But the stages themselves and at least many of the steps in each apply in most situations. As with any guide, you will need to adapt the information to your own setting.

In general we refer to the "Team" as the source of most actions. This reflects the principle discussed in the previous chapter of the need to make scheduling a collaborative effort. However, at each stage or step there may be one or a few key staff members who play a lead role. For example, at times counselors or registrars are critical, at others the SLC/ Academy/ Department Leads, at others the data manager. Thus, while you need to keep the principle of shared responsibility in mind, you may also want to designate leads for a variety of tasks.

Stage One: Planning

Months 1-5

August – December

<p style="text-align: center;">Month 1</p> <ul style="list-style-type: none">• School Administrator/ Master Schedule Coordinator assembles scheduling team• Team reviews last year's master schedule development process and maps out tasks• Team establishes a time line (with roles, activities, and deadlines)
<ul style="list-style-type: none">• Team establishes/revisits a set of guiding principles. For example:<ul style="list-style-type: none">• A student-centered, learning-focused approach• An equitable schedule which supports achievement and personalization• An inclusive process that incorporates input from all stakeholders
<ul style="list-style-type: none">• Team reviews opportunities and constraints which may impact the master schedule (see Chapter IV)• Team reviews existing and emerging SLCs/ Academies and identifies their scheduling needs• Team determines questions which need to be answered and a process for gathering the information needed to make fair decisions
<p style="text-align: center;">Months 2-3</p> <ul style="list-style-type: none">• Team makes a presentation to faculty and engages them in a dialogue to agree on guiding principles• Team listens to scheduling suggestions and concerns and develops a process for resolving conflicts and sharing master scheduling decisions
<ul style="list-style-type: none">• Team meets with SLC/ Academy leads and Department Chairs to review the master schedule development plan and proposed course offerings for the coming year• SLC/Academy leads meet with their teams and Department Chairs meet with department faculty to discuss course offerings and teaching assignments• SLCs/ Academies/ Departments propose possible course changes
<ul style="list-style-type: none">• Team involves students (and possibly parents) in providing input to proposed course offerings, especially for new SLCs/Academies and/or proposed courses• Team discusses these with district office, including data managers• Team discusses these with teacher union representatives
<p style="text-align: center;">Months 4-5</p> <ul style="list-style-type: none">• Team follows prescribed process to obtain official approval for any new or revised courses from site and district• Team follows prescribed process to update official list of college preparatory and career-technical courses
<ul style="list-style-type: none">• Team develops course selection list/ guide/ registration packet for students. These include descriptions of SLC/Academy course offerings/ sequences.

Stage One: Planning

There are a number of best practices we have found related to scheduling. We describe these in narratives that accompany the five Stages charts that follow. For example, in *Stage One: Planning*, a high school considering adopting a new bell schedule may want to form a study team to research this change, contact and perhaps visit other schools with similar schedules, and share their findings with all stakeholders in their high school. This will allow them to examine the benefits and drawbacks for both students and teachers and build a consensus.

One practice that has worked well in developing a master schedule is to involve students in the process. The Team leading this effort can orient a cadre of 11th and 12th grade students (or graduates now in college) to work with incoming middle school students and 9th and 10th graders to mentor them in their course selection. This peer support is in addition to that provided by counselors, SLC leads, teachers, and advisors/advocates.

Another approach practitioners recommend is creating charts or other visual representations of various aspects of the master schedule to illustrate interrelationships and surface possible conflicts. Magnetic boards or foam boards with grids are popular in this respect. If such tools are used, rules are needed about who can make changes on the board. Tales were shared of "midnight elves" finding their way into the magnet board room and making changes that curiously seem to meet the scheduling preferences of one teacher or department.

Portable versions of such a magnetic scheduling board allow the Team or SLCs or departments to explore alternatives before they go on the official "master" board. They enable stakeholders to see how even a single change in when a course is offered can have a ripple effect in the entire master schedule. Digital pictures of the master board at various stages can also preserve steps in the refinement process which can be useful in explaining decisions to various stakeholder groups. Dated printouts of the evolving

master schedule also work well in this regard. Sharing this process helps to ensure that challenges are fairly addressed and decisions are understood by stakeholders.

Another recommended practice is to involve both district personnel and teacher union representatives early in the process. There may be aspects of the schedule that bear on the collective bargaining agreement (e.g., advisories, number of teacher preparations) that influence the staffing formula or bear on the collective bargaining agreement. While district staff and unions are often supportive of SLCs/ Academies and their effects on the master schedule, they are likelier to be so if they are part of the planning and have co-authorship of the results.

Stage Two: Student Course Selection

When it comes to *Stage II: Student Course Selection and Tallies*, expert master schedulers note that it is helpful to meet early and regularly with district staff in charge of the staffing ratio formula. Rather than wait for the District to provide the staffing formula with little or no input from the school site, schedulers talk of being “proactive” and of providing evidence and justification for their staffing request. In addition to documenting any needs associated with SLCs and/or new course offerings, the Team shares data on the high school's enrollment patterns and staffing needs over the past several years.

If the district can then provide the high school's FTE (full time equivalent) staffing allotment for the upcoming school year early, even by mid-year (January on an August - May schedule), it is very helpful. In some cases districts can provide a tentative staffing allotment mid-year and then, following some negotiation with sites, a formal allotment a few months later. While staffing may need to be adjusted at the beginning of the new school year, when registered students may disappear and unregistered ones show up, without projected FTE allotments earlier it is very difficult to develop a master schedule.

Stage Two
Student Course Selection
Months 6-8
January - March

<ul style="list-style-type: none"> • Team distributes course selection guide and registration packet to current students <ul style="list-style-type: none"> • Course selection guidance provided by SLCs/ Academies/ Departments/ counselors • Any new SLC/ Academy/ Department courses explained • These materials are disseminated variously, including the high school website
<ul style="list-style-type: none"> • SLC/ Academy/ Department leads make presentations to new students/parents <ul style="list-style-type: none"> • Informational fair for incoming students and parents • Possible visits to SLCs/ Academies of interest
<ul style="list-style-type: none"> • Students fill out a registration form or complete an online registration <ul style="list-style-type: none"> • Students indicate SLC/ Academy preference (if appropriate) • Students indicate 1st, 2nd, and 3rd choices for SLCs/ elective courses
<ul style="list-style-type: none"> • Students return completed SLC/ Academy and course registration forms with parent signatures • Students meet one-on-one or in small groups with counselor/ advisor/ SLC/ Academy lead to review and confirm course selections
<ul style="list-style-type: none"> • Team and SLC/Academy leads work collaboratively to finalize student lists <ul style="list-style-type: none"> • Team uses students' backup choices for SLC/ Academy/ courses as needed • Team checks that each SLC/ Academy reflects the diversity of the school
<ul style="list-style-type: none"> • Data manager/technician tags each new student with an indicator of his/her SLC/Academy <ul style="list-style-type: none"> • She/he adjusts 'tags' for continuing students who change SLCs/ Academies • She/he inputs SLC/Academy and course requests, produces initial course tallies
<ul style="list-style-type: none"> • Team cleans up course tally based on a variety of constraints (see Chapter IV) • Team works with administration to drop courses or consolidate sections with insufficient enrollment, and add sections for overenrolled courses, using agreed upon guidelines for minimum/ maximum section sizes in each course
<ul style="list-style-type: none"> • Administration and Team determine needed FTE staffing allotment <ul style="list-style-type: none"> • They incorporate recent years' enrollment patterns, allowing for early fall semester additions and losses, and summer school course completions • Administration/ Team provide staffing needs/ justification to district

Many schools host grade-level student and parent course selection informational meetings to help in the process. Those with themed SLCs/ Academies often schedule a “Theme Week” (SLC/ Academy selection) prior to “Registration Week” (course selection). This usually entails informational posters in the hallways, booths at lunchtime, videos, and announcements about the registration process. Most high schools have found it works best to have students select back-ups to their first SLC/ Academy choice at the time they register, with an understanding that while every attempt will be made to honor their first choice this can't be guaranteed.

Mainstreamable special education and English language learner students (and their parents) can be included in this process. With the exception of a few students with acute special needs, such students can usually be accommodated in the SLC/ Academy, furthering their own development and helping the SLC to reflect the high school's overall population.

Whether or not a high school permits each SLC to schedule its own students, individual student conferences may be held at this time of the year. The student, perhaps his/ her parents, the SLC/ Academy Lead, and/or a school counselor may meet to review the student's growth and progress and discuss course selections for the coming year, summer school plans, and perhaps credit recovery or credit acceleration options.

Stage III: Master Schedule Construction

There are a number of practices that generally help also with *Stage Three: Master Schedule Construction*. As suggested in Chapter II, good success has been had with allowing each SLC/ Academy to schedule its own students. This helps to assure that students will indeed wind up in their SLC classes, an outcome not always secure when SLC leads are not involved. This practice also allows teachers to be sensitive to their SLC/ Academy needs, such as working with community partners, employers, and institutions of higher education. If students need to be available at certain times for dual credit courses, senior projects, service learning, or internships, the SLC/ Academy teachers can assure they are.

Stage Three: Master Schedule Construction
Months 8-10
March - May

<ul style="list-style-type: none"> • Team provides course tallies and section allocations to SLCs/ Academies • Team determines when global courses will be offered (e.g., band, chorus, AP/IB)
<ul style="list-style-type: none"> • SLC/ Academy faculty meet to review their course tallies and section allocations <ul style="list-style-type: none"> • Each develops a schedule proposal for its own courses (submitted to Team)
<ul style="list-style-type: none"> • Master Schedule Coordinator runs conflict matrix <ul style="list-style-type: none"> • This shows how many students are signed up for courses at conflicting times • Best time to schedule singletons and doubletons is determined accordingly
<ul style="list-style-type: none"> • Team establishes rules for order in which courses are scheduled, usually as follows: <ul style="list-style-type: none"> • Singletons and doubletons with specific time and space constraints • Other singletons and doubletons (e.g., AP/IB, ELL, spec. ed. classes; those with largest #s of students are scheduled first) • Common SLC/Academy planning periods • Physical education and other non-SLC electives during common planning times • Linked SLC/Academy classes scheduled as a block • Courses with many available sections (e.g., core academic subjects not in SLC, foreign languages, other electives)
<ul style="list-style-type: none"> • Team adds teacher and room assignments to course listings, using SLC/ Dep't. input <ul style="list-style-type: none"> • Team keeps running tally, checks for class size/period, prep periods/period • Team convenes meeting of SLC/ Academy Leads and Department Chairs to review tentative master schedule and explain its decisions <ul style="list-style-type: none"> • Team incorporates feedback, makes adjustments as needed
<ul style="list-style-type: none"> • Data technician inputs sections (and codes), including teacher and room assignments • Data technician begins computer master scheduling runs: <ul style="list-style-type: none"> • "Epic" report shows how many students have been successfully scheduled without conflicts (goal is 90-95% success) • Data technician makes adjustments and reruns as needed • Master Schedule Coordinator makes final adjustments by hand
<ul style="list-style-type: none"> • Team double-checks everything, schoolwide and by SLC/Academy <ul style="list-style-type: none"> • Course sections, teachers, classrooms, needs of traveling teachers
<ul style="list-style-type: none"> • Team invites SLC/Academy Leads/ Department Chairs to view master schedule, explains its decisions, listens to feedback, makes adjustments as needed <ul style="list-style-type: none"> • Team invites other interested stakeholders to view master schedule • Team disseminates schedule to all interested parties

Let's look at an illustration. Picture a high school with four Freshman Learning Communities (FLCs or "houses"), each with teachers in English, math, science, and social studies. There are approximately 600 freshmen, or 150 per FLC, and about 30 students per section. The school operates on a six-period day, and has agreed to keep students together in platoons. Suppose the Master Scheduling Team tells House A faculty they can have the first period free for common planning, House B the second period, and so on. Then House A faculty members sit down and work out a schedule to fit their five cohorts (platoons) of students into their four courses in periods 2-6. It might look something like this:

	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6
English	Prep	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Cohort 5
Social St.	Prep	Cohort 2	Cohort 3	Cohort 4	Cohort 5	Cohort 1
Math	Prep	Cohort 3	Cohort 4	Cohort 5	Cohort 1	Cohort 2
Science	Prep	Cohort 4	Cohort 5	Cohort 1	Cohort 2	Cohort 3

House B's schedule would look the same except the free period would be second period, House C's third period, and so on. Once this schedule is agreed upon, the house members can then meet with their students to tailor their schedules as needed to accommodate when global courses, those which are open to students in all SLCs, will be offered (as determined by the Master Scheduling Team). For example, suppose 15 of the students in House A wanted to be in the band, and the beginning band class is scheduled second period. These 15 students could go into Cohort 5, since there is no Cohort 5 House class second period. Another group of seven students wish to take drama, and the beginning drama class is only open fourth period. They would go into Cohort 2. And so on.

Allowing SLC faculty to develop a master schedule proposal for their own SLC classes and students requires close cooperation between the SLCs/ Academies and the Master Scheduling Team, which provides guidance and oversight and balances the needs of all. Thus there needs to be a pattern of back and forth communication between the two

groups. Certain decisions must be made at the schoolwide level, such as when global courses (e.g., band, chorus, physical education) and singletons/ doubletons will be scheduled. The needs of the various SLCs/ Academies have to be balanced equitably. Communication with those outside the high school, including parents, must occur. All these are schoolwide concerns.

The Stage Three chart indicates the order in which to enter courses/ sections that most often works best, but this can vary. With regard to singleton and doubleton classes, experts recommend scheduling the singleton with the greatest number of students first, then the singleton with the next greatest number of students, and so on. The software program itself usually provides a conflict matrix report and the opportunity to make a range of scheduling queries. Experimenting with different orders of entry may suggest alternative strategies. Most expert-practitioners report trying for 90-95% accuracy before hand scheduling the remaining students.

Schools usually try to schedule SLC/ Academy cadres in close physical proximity to each other. Having their classrooms near each other enhances a sense of community for both teachers and students, and improves the ability of a team of teachers to work together in all the ways needed to operate a successful SLC. Often when SLCs and Academies are formed it requires teachers to move classrooms. Veteran teachers may at first resent this, but experience suggests that most quickly adapt to the new arrangement and prefer it. Perhaps the most difficult physical option is for those teachers who lack their own classroom and have to "travel". This creates a burden, one often placed on new teachers without seniority. Some guidelines for supporting traveling teachers include:

- Special education teachers with self-contained classes and specialized materials for each student cannot usually travel
- Science and art teachers, who need access to labs, tables, and sinks, also cannot easily travel
- Blocked classes (e.g., academic reading/ writing; Algebra/ Algebra support; World Cultures / English; American History / Literature) need to be located in close proximity, with as little traveling as possible

- Computer/ technology teachers cannot easily travel, although they may have their prep period elsewhere to maximize student access to computers
- For math, English, social studies, and foreign language much depends on teachers' use of classroom libraries, instructional materials, and other resources
- Fairness and balance are important. Start with volunteers. Sometimes a more experienced teacher will volunteer to travel for a period or two rather than have new teachers with less experience be forced to their first year. No teacher should have to travel every year.

Given the many complexities of developing the master schedule, there needs to be a pattern of carefully checking the results. The Master Scheduling Team and Coordinator are usually responsible for much of this, making sure the master schedule:

- Meshes the various SLC/ Academy schedules
- Includes a cross section of students in each SLC/ Academy
- Incorporates department needs
- Incorporates Advance Placement (AP) and International Baccalaureate (IB) programs
- Incorporates other specialized programs such as English Language Learners (ELL), Special Education, and academic intervention classes
- Results in fair and balanced teacher assignments
- Results in optimal room assignments
- Meets the needs of traveling teachers
- And -- most importantly -- results in workable schedules for all students

Stage Four: Analysis, Adjustment, and Distribution of Schedules

A number of approaches to ease *Stage IV: Analysis, Adjustment, and Distribution of Schedules* emerged during our research. An equity check to ensure fairness and balance across SLCs/ Academies is important. Because the complexity of the process and the number of possible conflicts is so daunting, double-checking everything is essential. Some schools email the tentative master schedule out to the entire staff for review and commentary. Others post final drafts and invite student review and

Stage Four
Analysis, Adjustment,
and Distribution of Schedules
Months 10-12
May - July

<ul style="list-style-type: none"> • Once the full master schedule is available, it is checked as to whether: <ul style="list-style-type: none"> • It follows the principles and priorities established (e.g., it is student centered, equitable, and arrived at through an open process) • SLCs/Academies are balanced in terms of size and diversity • Key student needs have been met (e.g., graduation requirements) • Teacher and room assignments are fair and feasible • All potential conflicts have been considered and to the degree possible eliminated (see next chapter)
<ul style="list-style-type: none"> • Team provides draft copies of the Master Schedule, class rosters and individual teacher schedules to SLC/Academy/Department leads and teachers <ul style="list-style-type: none"> • Teams and leads examine each student schedule to identify any conflicts • Team gathers feedback and makes changes as needed
<ul style="list-style-type: none"> • Tentative schedule is provided to students and teachers before summer break <ul style="list-style-type: none"> • Students are advised re. summer school opportunities • Students enrolling in summer school complete a form indicating course choices • Team reviews possible impact of summer school course completion patterns on fall master schedule • Summer school grades are entered into student records upon course completion <ul style="list-style-type: none"> • Adjustments in student schedules and master schedule made as needed
<ul style="list-style-type: none"> • Final class schedules provided to all students and teachers one to two weeks prior to the start of the school year <ul style="list-style-type: none"> • These reflect summer school credits/ grades • System in place for registering and scheduling newly arrived students • System in place for adjusting student schedules where needed • Counselors and/or SLC/Academy leads provide orientation for new students
<ul style="list-style-type: none"> • Adjustments made as needed during first few weeks of school year <ul style="list-style-type: none"> • Students who were registered and don't appear are dropped from the schedule • New students not previously registered are added to the schedule • SLCs/Academies class enrollments and teacher loads adjusted as needed to ensure balance

suggestions. Others have an open door policy that allows anyone interested to stop by to review and comment on the master schedule.

It is important to provide students and teachers with their tentative schedules prior to the end of the school year. This encourages students to participate in summer school when needed and provides both students and teachers an opportunity to use the summer to prepare for the fall. Additionally, notifying students of late-summer counselor availability to facilitate needed fall schedule changes is another best practice.

For new students who enter after the formal registration process or at the beginning of a new term, the use of videos that orient students to their SLC/ Academy has proven helpful. Upper classmen can also assist in orienting new freshmen and students transferring to the school to its various structures schedule.

Good communication during the balancing of overcrowded classes and SLCs/ Academies is important. Class size balancing usually occurs over the first few weeks of the fall semester. Often SLC leads are able to balance classes within their own SLCs and/or negotiate with other SLC leads to ease or minimize class changes. Changes from such balancing need to be recorded and communicated. A copy of the change form needs to go to the student, the SLC lead, the teacher with the overcrowded class from which the student is removed, and the teacher with the underenrolled class to which she or he is moving. Often a copy of the class change is also mailed to parents. Some schools write the word “balancing” on the schedule changes and/or include another reason for the move.

Stage Five: Fine Tuning and Readjustment

The point of *Stage V: Fine Tuning and Readjustment* is to engage in a cycle of improvement. No process ever works perfectly, but by examining what did and did not work, especially with feedback from the many stakeholders who were involved, usually the worst problems can be eliminated and improvements made. Simply knowing problems are being listened to and addressed can help, and with some creative problem

Stage V
Fine Tuning and Readjustment
Months 13-14

August - September

<ul style="list-style-type: none"> • Internal Assessment: <ul style="list-style-type: none"> • Administrators, team, counselors, and SLC leads review master scheduling process and analyze what worked and what needs improvement
<ul style="list-style-type: none"> • External Assessment: Team surveys students, faculty, counselors, and parents to determine what worked well and what needs to be improved: <ul style="list-style-type: none"> • To what extent were students successfully scheduled into SLCs/Academies? • To what extent do SLC/Academy teachers share common planning time? • What percent of students were free from major conflicts? • How satisfied were stakeholders with the process and results?
<ul style="list-style-type: none"> • Using internal and external input, Team analyzes strengths and weaknesses of the process and recommends needed changes
<ul style="list-style-type: none"> • Re-entering the Cycle: <ul style="list-style-type: none"> • Administration and/or Master Schedule Coordinator reforms the Team, making changes as needed • Team reviews underlying principles and recommits to or reformulates them • Team incorporates analyses of previous year and maps out tasks for the year • The master schedule development process begins again

solving, the scheduling process can become one that reinforces the school's efforts to improve learning, personalization, and communication. However overwhelmed you may feel at this point, we've seen master scheduling work successfully many places; don't despair.

Chapter IV

Potential Conflicts

Now that you have an idea of the stages and steps in the process of developing a master schedule, and some of the best practices involved, we turn to the possible constraints. Unfortunately, there can be many. The chart on the next page lists at least the major ones. We have grouped these into twelve topics which we've called "The Dirty Dozen". This doesn't mean they are bad things; in fact none are. They are simply the elements that complicate developing master schedules.

While we call this chapter "Potential Conflicts", these are actually constraints that need to be considered in developing a master schedule. Constraints that can't be accommodated become sources of conflicts. That's why it's important to understand them. Most of these are not new. They have been dealt with by schedulers in the past. Thus we'll move quickly through most of these so we can concentrate on the new conflicts SLCs bring to the process (darkened in the chart).

Requirements from outside the high school. Federal policy, such as Title I and II programs (special classes or supports) and No Child Left Behind (NCLB) can impact scheduling. For example, schools may need to add extra support classes in English and math in order to meet federal student achievement targets. States establish minimum instructional times for students, may require a certain student to teacher ratio, may establish high school graduation requirements, often have initiatives that require high schools to offer certain courses or programs. Districts often have graduation requirements over and above the state. Coordination with middle schools that feed into the high school is necessary to register incoming freshmen and to assure course sequence and alignment.

Staffing allocations. As the fiscal agent, the district determines the number of teacher positions each high school is allocated. Fiscal restraints and teacher shortages

Scheduling Constraints and Conflicts "The Dirty Dozen"

Requirements from the outside:

- Federal mandates
- State requirements
- District initiatives
- Middle school coordination

Staffing allocations:

- # teachers allocated by the district
- # teachers in each subject
- Teacher credentials

Collective bargaining agreement:

- Class size limit/ balance
- Number of teacher preps
- Innovative scheduling

Credit requirements:

- Course prerequisites
- High school graduation
- College entrance

Space constraints:

- Science labs
- Computer labs
- Athletic facilities
- Art/ music facilities
- # classrooms

Time Constraints:

- # periods/ day--traditional/ block schedules, variations
- Off campus classes

Singletons, doubletons:

- Specialized courses
- IB/ AP classes
- Junior/senior advanced courses

Special populations/ programs:

- Special education
- English language learners
- Double dosing--Eng./math
- Credit recovery programs
- AP/IB courses
- Career/ technical education

Teacher preferences/ needs:

- Teacher requests--prep time, classroom, #/nature of preps
- Professional development time
- Non-class assignments

Software capabilities:

- Field for SLC/Academy
- Ability to link classes
- Ability to give teachers common planning time
- Ease of use, training required
- Possible on-line registration

Making the deadlines:

- Course options to students
- Student sign-ups
- Data into the computer
- Master schedule runs
- Necessary adjustments
- Teaching assignments out
- Class schedules out

SLC/ Academy needs:

- **Shared leadership**
- **Linked classes**
- **Common teacher prep time**
- **Balance across SLCs**
- **Looping**
- **Advisories**

affect this. The high school is limited to scheduling courses in the subjects for which it has credentialed teachers, with the number of sections also determined by these allocations.

Collective bargaining agreement. Most public high schools are unionized. The collective bargaining agreement between the teachers union and the district also impacts scheduling. Usually there is a maximum class size allowed via the agreement, and a maximum number of subjects ("preps") a teacher is required to teach.

Credit requirements. High schools require a certain number of course credits to graduate, including requirements within subjects. Usually the four "core" subjects predominate: English, math, science, and social studies. Most states and districts also have minimal requirements in physical education, health, and perhaps other subjects. In addition, most colleges have entry requirements over and above those needed for high school graduation. These may include additional years of core subjects and/or certain electives (e.g., foreign language, music, arts).

Space and time constraints. Certain courses require special facilities, such as science labs, athletic facilities, and art and music rooms. The number of classes offered in these subjects is limited by the space available. There are also only so many periods during the school day. High schools have experimented in recent years with many variations on traditional schedules to try to fit in more courses. The options in this regard are reviewed in Appendix A.

Singletons, doubletons. These are discussed in Chapter III. The fewer available sections of a given subject, the fewer degrees of freedom the scheduler has to move students around to fit in their requested subjects. Particularly with upper division classes, such as advanced math or foreign languages, there may be only one section of a given subject. Also, a class taught by a community college or regional occupation program teacher may only be offered at a specific time of the day.

Special populations/programs. Virtually all high schools have students with special needs related to disabilities or non-English language backgrounds. In addition, students who enter high school behind in English or math need support programs, often in the form of "double dosing" in these subjects. Some high schools have programs which support students making up failed courses ("credit recovery").

Contrastingly, some students seek additional academic challenges. Advanced Placement (AP) and International Baccalaureate (IB) courses have increased in recent years, and the number of students enrolled in these is often viewed as a measure of school quality. Some courses are particularly designed to encourage college going (e.g., AVID). Most high schools also offer career and technical classes which may need to be scheduled at certain times or in certain classrooms. "Dual credit" (concurrent enrollment) courses allow juniors and seniors to take community- or four-year college courses while in high school, but often need to be coordinated with the schedules of those institutions and/or available transportation.

Teacher preferences/needs. While teacher needs should be balanced against student needs (and the latter should predominate when there are conflicts), some prefer to have their prep period first thing in the morning or last thing in the afternoon. Teachers often have non-teaching responsibilities -- lunch or study hall duty. Many high schools also build in regular time for faculty, SLC, and/or Professional Learning Community meetings, and for professional development, using means such as student late starts or early departures on a given weekday.

Software capabilities. Most high schools use a computer software (or web-based) program to help deal with all these complications. The next chapter reviews the main features of these that bear on scheduling SLCs/ Academies, so we won't elaborate here, except to say that they vary in their ability and ease in dealing with all these variables. Some even provide internet-based student registration, a system most colleges now use and a direction high schools are moving toward. The chart in Appendix B sketches the main features and advantages and disadvantages of such programs.

Making the deadlines. All of the above might be easier to handle if, in the words of Andrew Marvell, there were "world enough and time". Unfortunately, there are several deadlines in this process that loom before the scheduler's eyes:

- Course options determined and conveyed to students
- Student sign-ups completed
- Courses and sign-ups entered into the computer
- Computer runs made to map out the schedule
- Required hand adjustments made to the optimal computer results
- Teacher assignments--courses, times, classrooms--given to teachers
- Student schedules--courses, times, classrooms--given to students

SLC/Academy Needs

So, after dealing with all of the above, most of which schedulers have been doing for some time, we now come to the *additional* constraints placed on this process through SLCs/ Academies. As discussed earlier, linking several classes, moving students in a block from one to another to keep them together in their SLC, removes degrees of scheduling freedom. Instead of schedulers being able to place students into any of the sections available in each of the subjects they've selected, they can only put them into the ones in their SLC. This creates a cluster of students in a cluster of classes. If there happens to be just one section of SLC students per grade level (roughly 30), this set of classes becomes in effect a "singleton", like an upper level course with only one section, except that there are several such classes linked together.

Even if there are several sections of each course in the SLC the scheduling becomes more difficult. For example, returning to the example in Chapter III, a school with about 600 incoming freshmen would have about 20 sections of freshman English (@ 30 students per section) any student could go into. But once divided into four houses, with 150 students per house, only five sections of freshman English are available for each student. Further, if the teachers in each house are to have a common planning period, each English teacher's schedule must be coordinated with their SLC's math, science, and

social studies teachers' schedules. Again, this leaves fewer degrees of freedom in developing the schedule. Do this for a whole school, and there are a *lot* fewer degrees of freedom, making an already complicated and difficult process more so.

In addition, several other constraints may be added by SLCs/Academies. In some cases SLCs incorporate "looping", keeping students and teachers in a given SLC together across two or more years, most commonly in grades 9-10. Often "advisories" are part of the approach, times built into the schedule for teachers to work one-on-one with a given subset of students in a mentor/ advisor role. And often schools work to maintain some balance across the SLCs in terms of the pattern of students enrolled. If all the high performing students go into the Pre-Engineering Academy, while all the low performing students enter the Telephone Solicitors Academy, both can become stigmatized and unintended tracking results.

To help incorporate these concerns into the scheduling process, what follows is a revisiting of the five stages of the last chapter. For each, we have listed the constraints to be considered that specifically relate to SLCs. Walking through the process again with these issues at the forefront lets you highlight where to focus your attention at each stage.

Planning

How do SLCs affect the planning stage? During the fall semester the team of teachers in each SLC needs to consider the year ahead of them. They need to discuss the various matters that bear on scheduling, reflecting on the plusses and minuses of the previous year and making adjustments as needed. Topics to cover:

- What, if any, courses will be dropped or added for the next year?
- Is the common prep period in place? If not, how can it be arranged? Are alternative meeting times (e.g., over lunch, before or after school) possible?
- Are the SLC classrooms near each other, and if not, how can they be so arranged?
- How will potential new students be informed about the SLC (e.g., middle school visits, informational programs for high school students/ parents)?

- Have mainstreamable special education and English language learner students been included in SLC/ Academy recruitment?
- How will mid-year student drops, additions, and schedule changes be handled?
- Will any teachers be leaving or joining the team during or after this year, and if so, what adjustments are needed?
- Is there a student late arrival or early departure system in place to allow for professional development?
- If advisories exist in the high school, have they been included in the schedule?
- If there is looping across two or more grade levels, has this been addressed?

Student Course Selection and Tallies

- What information will go to students and parents (e.g., course lists, sign up sheets, information packets, classroom/ evening presentations) to guide course selection?
- What data will be incorporated in helping students select courses (e.g., state test scores, reading/math levels, transcript data, teacher recommendations)?
- Who will advise which students? Who will check their schedules?

Master Schedule Construction

Once all students have signed up for their next year's courses, how will this data be incorporated across the school, and how will SLC requests and needs be integrated with schoolwide ones?

- How will course requests be gathered from students and collated?
- Who will input/tally/analyze these in the computer?
- Who will teach each section of the SLC courses?
- How will SLC courses fit around the high school singletons and doubletons?
- How will sections be balanced within the SLC, and across SLCs?
- What process will exist to allow SLC teams to interact with the high school Scheduling Team/ Coordinator to resolve conflicts?
- How will summer school sign-ups be handled?

Analysis, Adjustment, and Distribution

Once a tentative master schedule has been developed, how will it be shared with SLC teams, and what will be the process for making adjustments, finalizing the schedule, and providing students and teachers with their individual schedules?

- Are adjustments needed to balance SLCs/ sections re. size and student makeup?
- Are there scheduling conflicts for any SLC students? How will these be resolved?
- How will you assure that tentative class schedules are provided to students and teachers prior to summer?
- How will summer school credit be incorporated?
- How will final schedules be distributed to students and teachers before the fall semester? Will there be an orientation to explain schedules to students and allow feedback and/or change requests?
- How will changes in fall student schedules be handled?

Fine Tuning and Readjustment

- What worked and didn't? What needs to change?
- How will feedback from SLC team members be incorporated for the next year?
- How will input from students and parents be incorporated?
- Who will be on the schoolwide Scheduling Team?

Soooo, there are the issues. Enough for any sane person to wonder why they aren't selling real estate or sailing around Barbados instead of mapping out a high school schedule. But remember, it *can* be done. Many high schools have succeeded. And now that you are familiar with master scheduling stages and steps, and know what constraints should be incorporated into the process, you are armed with the essential information you need. It remains a challenge, but one that can be met.

Chapter V

Related Software

Though creating the Master Schedule requires substantial planning, it is often difficult with scheduling software that produces the most headaches for administrators, counselors and teachers. As mentioned earlier, when schools are segmented into SLCs/Academies that require students to take certain courses with specific cohorts and teachers, scheduling via the computer becomes even more complex. Thus, a crucial step in the scheduling process is choosing the appropriate software and ensuring that all parties involved are properly trained. This chapter discusses the important characteristics to look for when choosing software, and the accompanying chart in Appendix B provides examples of software programs that meet the scheduling needs of most SLCs. However, we won't recommend any particular company or program.

In researching about 30 of the most commonly used software programs across the nation, 15 of which are identified in Appendix B, we identified five key components necessary for scheduling SLCs: the software must be able to: a) link classes, b) group students, c) schedule multiple SLCs, d) allow for block scheduling, and e) provide common planning time for teachers. In addition, some administrators find it useful for the software to automatically build the Master Schedule, but this has both pros and cons, which we will discuss later. The availability of product support and continual training is an important consideration. In this vein, it is important to hire (or train) people who are proficient in navigating the computer and its software. Often training on the current system will preclude the purchase of new software, if the system isn't antiquated.

Key Components

Most software programs are able to satisfy the five criteria, though some do so with more ease and require less esoteric knowledge than others. For example, most software will allow the scheduler to link classes together (e.g., if a student takes American Literature, he is automatically assigned to U.S. History, which means that

every American Literature class must be connected to a U.S. History course). However, if a school wants another grouping such as having the Arts SLC link a drawing course with a specific math class (e.g., Algebra II), while the Science SLC would prefer to link the same math course to a chemistry class, difficulties arise. This is the point at which software programs diverge from one another.

Some programs require the scheduler to assign unique course ID numbers to classes in each SLC. In this case, the program would recognize Algebra II in the Arts SLC as a course distinct from Algebra II in the Science SLC. Other programs require that the scheduler assign individual sections of Algebra II to each SLC; then the program will only link those courses so assigned. Both approaches ensure that courses are linked and students are enrolled in each linked course, but the scheduler may prefer one style over the other.

Grouping students and creating cohorts is another primary concern for SLCs. All software programs that group students will allow them to be manually assigned to individual SLCs. However, some programs will also make random assignments, which is a helpful tool for schools that have SLCs without themes and/or don't allow students to make a choice. This is most common with freshmen entering a ninth grade learning center. Once students are in a cohort, many software programs will recognize that those students should then only be scheduled into certain linked courses within the SLC.

In large comprehensive high schools with several SLCs or wall-to-wall academies, the ability of the software to schedule multiple groups becomes increasingly important. If a program is capable of linking classes and cohorts of students, and recognizing that different cohorts should be assigned to particular sets of courses, scheduling multiple SLCs is relatively simple and is done automatically.

Block scheduling is a component that clearly separates software programs from one another. As discussed in Appendix A, schools have developed numerous bell schedules, many of which use block scheduling to organize the students' school day.

Most programs will allow for several combinations of scheduling, such as a 4x4 or a 6-period A/B. But many have limitations on the types of combinations available or require manual modifications. Thus a school that has a nontraditional bell schedule should discuss its scheduling needs with a sales representative before purchasing anything. In addition, schools that have more than 10 periods in a day (0-9) should look for those programs that do not place a character maximum in the period field.

Common planning time for teachers (ideally a common planning period) is one of the most difficult aspects of an SLC to schedule automatically. Most programs do not recognize that a teacher assigned to a particular academy should have the same free period as other teachers within her academy. Instead, programs are designed to schedule the teacher to teach, and planning time falls during whichever period is left over. Thus, the administrator must manually block off an assigned period when inputting data to build the Master Schedule. Those programs that have a Master Schedule Builder will not override a free period if it is “locked” into the schedule.

The Master Schedule Builder

Numerous companies offer a Master Schedule Builder either as part of or in conjunction with their normal scheduling software. For those administrators who prefer the old fashioned whiteboard or spreadsheet, Master Schedule Builders in many programs can be viewed as a spreadsheet which then automatically builds the master schedule after the required data has been entered. For computer savvy data managers this can save time and energy. However, it may mean that only one or two people are involved in this building process, complicating the ability for all parties to easily see the Master Schedule as it develops and provide input as needed. A Master Schedule Builder can also limit the scheduler’s choices, depending on its flexibility and requirements, or lead to more work because it requires inputting an immense amount of information, such as which teachers/ courses must use which rooms, or which courses the administrator wants a particular teacher to teach (as opposed to what the teacher prefers).

Product Support

When considering the appropriate software for your school or district, it is important to determine the type of support and training provided by the company, and whether or not the company serves your region on a regular basis. Most companies provide initial on-site support in the form of district workshops or training for individual staff. These are often the most expensive forms of training, so many districts only receive on-site support occasionally, if at all, after the initial purchase. Larger companies that serve multiple states also offer regional and national conferences several times per year. These tend to be more general, and may fail to cover issues specific to individual schools. While they can be more cost effective than asking the company to provide on-site training, they may require travel outside the local area. Another option most companies offer is technical over-the-phone or on-the-web support, which tends to be less expensive and more tailored to individual needs.

Many companies also offer regular updates of their software, which can be downloaded from their websites. Sales representatives often have information about such changes. Companies that operate in multiple states will often have regional user groups that allow sharing of information among practitioners. These groups may determine the dates and locations of upcoming trainings and can be valuable resources for learning new information regarding the software or making contacts with other schools.

Continuing Training

Though most companies will provide workshops as needed, particularly as their software changes, in many districts new schedulers learn their jobs through a predecessor, or often by simple trial-and-error. As a result, when a scheduler leaves a school after many years, the institutional memory is often lost and significant amounts of time and money are spent unnecessarily. Thus as discussed in Chapter II, it is important to involve multiple people in all aspects of scheduling, including use of the software, so that if one leaves others will remain to continue the work with minimal interruption.

For those individuals who find themselves with no predecessors, manuals or money to attend trainings, there are still options. Regional user groups often collaborate to provide local trainings. In addition, many companies, particularly the larger ones that serve multiple states, are able to direct their clients to online user groups. These groups connect schedulers across the country, allowing them to post questions and receive informal, free training from more experienced users.

Appendices

Appendix A

Alternative Bell Schedules

Background

In 1906 the Carnegie Foundation decreed that 120 hours in one subject would be the standard time unit to measure credit earned in secondary schools. The Carnegie Unit, which still exists, was established as the structure around which schools would organize and deliver curriculum. Most schools adopted a schedule of classes meeting four or five times a week for 40 to 60 minutes, 36 to 40 weeks a year. This structure reflected the “Industrial Age” model in which students were sorted according to perceived abilities, and school was not open during the summer so that students could work.

Most high schools still use the Carnegie Unit as the basis for organizing curriculum, awarding credit, and moving students toward graduation. However, the number of credits required for high school graduation, and the way credits are counted, varies greatly from state to state. Achieve, an education reform organization focused on helping schools prepare all students for post secondary success, published *The Expectations Gap: A 50-State Review of High School Graduation Requirements*, in December, 2004. (Executive Summary and full report are available at www.achieve.org). The researchers found great differences in what states required and how courses for credit were defined – or not defined.

This appendix will briefly review various high school schedules. The term “bell schedule” is commonly used to describe these different plans. Our goal is to provide you with samples of different options. All the options allow an early release or a late start for students to accommodate teacher collaboration. Many other schedules are available on the Internet and in the documents cited in the bibliography.

Traditional Schedule

Many high schools continue to use the “traditional” schedule with six or seven periods a day (sometimes eight), each lasting from 45 and 60 minutes. Some have even

returned to it after experimenting with other options. Students usually take six or seven classes; teachers teach five or six, with one preparation/conference period. Schools have experimented with variations in which courses meet at different times during the day: e.g., periods 1, 2, 3, 4, 5, 6 on Monday, 2, 3, 4, 5, 6, 1 on Tuesday, 3, 4, 5, 6, 1, 2, on Wednesday, and so on. Such schedules may also vary in terms of when they begin in the morning or end in the afternoon, but usually incorporate about 360 minutes per day. Proponents of the traditional schedule believe it works well in placing students in linked classes and providing common planning time for SLC and Academy teachers. Other educators question whether the traditional schedule best accommodates the way students learn and retain knowledge.

Modular Schedule

During the 1960s and 70s high schools experimented with flexible or modular scheduling to allow more time for some classes and to break away from a routinized bell schedule. Modular scheduling is similar to what most colleges use, with some classes meeting every day, some meeting twice or three times a week. Class lengths can vary as well. Although modular scheduling is successful in some schools, teachers and students sometimes complain about the difficulty of keeping track of time and place. Also, scheduling students and teachers is difficult.

Sample Modular Schedule

MON	TUES	WED	THURS	FRI
Course 1	Course 1	Course 3	Course 5	Course 1
Course 2				Course 2
Course 3	Seminar Remediation	Course 4	Course 6	Course 3
Course 4				Course 4
Course 5	Course 2	Seminar Internship	Early release – Teacher planning	Course 5
Course 6				Course 6

Block Schedules

As graduation requirements were increased in the 1980s and 1990s educators examined bell schedules. Joseph Carroll, a former superintendent, developed the Copernican model, named for Copernicus who changed the way people looked at and understood the solar system. Dr. Carroll believed the Copernican model should change the way schools looked at time and the use of time. The “block” scheduling movement developed around this theory.

There are two common designs for block schedules. The first is a “four by four” (4 x 4) semester plan in which courses meet for between 75 and 110 minutes a day. Students take four courses a semester and earn a full year of credit. They take eight courses in a year. Teachers typically teach three courses each semester.

Sample – Basic 4 X 4 Schedule

Semester 1	Semester 2
Course 1	Course 5
Course 2	Course 6
Course 3	Course 7
Course 4	Course 8

The four by four can be problematic for Advanced Placement courses since students typically take the exams in the spring, either months after they have stopped studying a course or before they've completed much of the curriculum. Teachers also complain about a lack of continuity. For example, students may complete a foreign language or math course in January and not have the next level until fall. One variation is to have some selected courses operate all year long, such as Advanced Placement or foreign language. Also, one of the long blocks can be divided in two and used to remediate students needing extra support in math or Language Arts.

Sample – 4 x 4 With One Course Meeting Daily

Semester 1	Semester 2
Course 1	Course 5
Course 2	Course 6
Course 3 Full year	Course 3 Full year
Course 4	Course 7

The second common form of block scheduling is the “A/B” plan. Students take eight courses for the entire year, but courses meet every other day for between 75 and 110 minutes, so that teachers meet with only half their students each day. A variation on the A/B plan is to have one course (a “skinny”) that meets every day to accommodate subjects like band and the school newspaper. Another common variation is having one day a week, usually Monday or Friday, when all classes meet for a shortened time. This gives teachers the opportunity to see all their students on one day each week.

**Sample A – B Block Schedule
Eight Classes Meeting Every Other Day**

	MON A - BLOCK	TUES B – BLOCK	WED A – BLOCK	THUR B – BLOCK	FRI A-BLOCK
Period 1	Course 1	Course 5	Course 1	Course 5	Course 1
Period 2	Course 2	Class 6	Course 2	Course 6	Course 2
Period 3	Course 3	Class 7	Course 3	Course 7	Course 3
Lunch					
Period 4	Course 4	Course 8	Course 4	Course 8	Course 4

Another variation combines the traditional schedule with a block schedule. For example, a school might have six 50-minute periods on Monday, Wednesday, and Friday and three 100 minute periods on Tuesday and Thursday.

Sample A – B Block Schedule
Seven Classes – One Meets Every Day

	MON A - BLOCK	TUES B – BLOCK	WED A – BLOCK	THUR B – BLOCK	FRI A-BLOCK
Period 1	Course 1	Course 5	Course 1	Course 5	Course 1
Period 2	Course 2	Course 6	Course 2	Course 6	Course 2
Period 3	Course 3	Course 3	Course 3	Course 3	Course 3
Lunch	Every day	Every day	Every day	Every day	Every day
Period 4	Course 4	Course 7	Course 4	Course 7	Course 4

Sample A-B Schedule
Seven Classes – 4 X 3 Block

MON	TUES	WED	THURS	FRI
Course 1	Course 5	Course 1	Course 5	Course 1
Course 2		Course 2		Course 2
Course 3		Course 3		Course 3
Course 4	Course 6	Course 4	Course 6	Course 4
	Course 7		Course 7	

Proponents of block scheduling believe it is easier to engage students in active learning and gives them more opportunities to pursue knowledge deeply. The longer block of time provides for more in-depth instruction, works well for labs and technical courses, and supports project-based instruction. Other advantages include reduction in time lost between classes, fewer tardies, and because teachers see fewer students each day, more personalized learning.

Because students typically enroll in more classes each year (eight instead of six or seven), block scheduling can be costly in terms of personnel. In some instances districts are reducing teachers' preparation time from one class per day to one every other day to address this problem. The following chart shows the impact of the different schedules on teacher time with students.

Impact of Various Schedules on Teaching Time

SCHEDULE	NUMBER OF CLASSES TAUGHT	AMOUNT OF TIME WITH STUDENTS
Six classes	Teach six classes	100%
Six classes	Teach five classes	83%
Seven classes	Teach six classes	86%
Seven classes	Teach five classes	71%
Eight classes	Teach six classes	75%
Eight classes	Teach seven classes	87%

Educators who have used longer periods also agree that moving from the traditional schedule to a block requires professional development for teachers if they are to make good use of the increased block of time. School reform experts recommend at least fifty minutes each week for teacher planning and collaboration.

Trimester Schedule

Most schools operate on a two semester schedule (with a few summer school offerings). A variation on the semester model is the trimester. The number of courses taken and their length can vary. The school year is typically divided into three 12-week terms, and students can take five courses per 60-day trimester and earn a year of credit in two trimesters. Supporters of the trimester point out those students can usually take additional courses, and the model supports increased electives and career/technical courses. Critics note the same issue they do with the four by four, a lack of continuity. A student in the trimester system could take Algebra I during the first trimester and not take the second half of the course until the third trimester.

Other Variations

A school in Virginia offers three one hour courses that run all year long and two 90 minute courses that are semester courses. Students can complete seven courses in one year. A school in Oregon has divided the school day into four 83 minute blocks with a 35 minute activity period at the end of the day. In some of the 83 minute blocks students may have two 40 minute classes with three minutes for passing. Some of the 40 minute classes (music, band, lunch, and distance learning) meet every day; some meet every other day (Physical Education, Science Labs, Resource Classes, and study halls). Core courses are 83 minutes long and meet every other day.

Ridgewood High School in Ridgewood, New Jersey, has an interesting schedule. Eight years ago, in an effort to allow students to take more courses, the school adopted an eight-period day. However, while students can take up to eight classes, only six meet each day (of which teachers teach five). Classes are one hour and lunch is thirty minutes, resulting in a school day six and a half hours long, with three classes before lunch and three after.

The school operates with four different daily schedules: a "One Day", "Two Day", "Three Day", and "Four Day". Six of the eight classes meet each day, while two are skipped, on a rotating basis. Thus, for example, on a "One Day" periods one, two, and three meet in the morning, periods five, six, and seven in the afternoon. On a "Two Day" periods two, three, and four meet in the morning, six, seven, and eight meet in the afternoon. And so on. Thus each class meets three out of each four days.

This schedule offers students and staff great flexibility. The community has adapted and talks about "Four Days" and "Two Days" and "Three Days" in a positive manner. Since not all students take eight classes, there may be days when students have an open period. Upper classmen who do not have a scheduled class can leave campus to go to the local library, home, or to Starbucks. However, the campus is closed for ninth graders.

Appendix B Software Matrix

Software	Company	Links Classes	Groups Students	Schedules Multiple SLCs	Allows for Block Scheduling	Provides Common Planning Time	Builds the Master Schedule
ADM-2000 Student Information System	ACE Software	Yes	Yes	Yes	Yes	Yes	Yes
Aeries	Eagle Software	Yes	Yes	Yes	Yes	Conditional	No
CIMS Student	Pearson School Systems	Yes	Yes	Yes	Yes	Yes	Yes
eSIS	AAL	Yes	Yes	Yes	Yes	Yes	No
Facility CMIS	CCM Software	Yes	Yes	Yes	Yes	Yes	Yes
Infinite Campus	Custom Computer Specialists, Inc.	Yes	Yes	Yes	Yes	Manual	Yes
Modular Management Systems (MMS) for Schools	Computer Resources, LLC	Yes	Yes	Yes	Yes	Yes	No
Powerschool	Pearson Education, Inc	Yes	Yes	Yes	Yes	Yes	Yes
SASI Scheduler Pro	Pearson Education, Inc	Yes	Yes	Yes	Yes	Yes	Yes
Scheduling Plus	Rediker Software	Yes	Yes	Yes	Yes	Yes	Yes
SchoolMAX	Maximus	Yes	Yes	Yes	Yes	Yes	Yes
SIS Software	SchoolMation	Yes	Yes	Yes	Yes	No	No
SIS Student Data Management	School Information Systems	Yes	Yes	Yes	Yes	Yes	Yes
Solstar Student Scheduling System	M & J Data, Inc.	Yes	Yes	Yes	Yes	No	Yes
WinSchool / MacSchool	Chancery Student Management Solutions	Yes	Yes	Yes	Yes	Yes	Yes

Software	Website	Phone Number	Training & Support	Service Area	Additional Notes
ADM-2000 Student Information System	www.acesoft.com	800-837-2692	District, Workshops at Corporate Offices	Primarily OH	
Aeries	www.aeries.com	888-487-7555	District, Regional, National Conferences	Any State; Primarily serves CA, CO & AZ	Common planning time must be incorporated into the building of the Master Schedule.
CIMS Student	www.pearsonschools.com	800-736-4357	District, Regional, National Conferences	Any State: Primarily California	
eSIS	www.aalsolutions.com	866-852-3788	District and Web	Any State, system-wide in OH, NC & HI	
Facility CMIS	http://www.serco.com/markets/education/further_education/facility/	514-598-5347	Within the US, primarily web-based	Primarily International, Some US	
Infinite Campus	www.infinitecampus.com	800-850-2335	District & 19 States have Regional	Any State	Scheduling Wizard autobuilds Master Schedule. Software uses an algorithm to increase output speed of master schedule each run.
Modular Management Systems (MMS) for Schools	www.cri-mms.com	800-665-4046	District & Regional	Any State (also international)	Modular Approach: Software can grow with school; do not need to purchase all components at once.
Powerschool	http://www.powerschool.com/	877-873-1550	District, National Conference (University), Web	Any State	
SASI Scheduler Pro	www.pearsonschools.com	800-736-4357	District, Regional, National Conferences	Any State: Primarily California	student centered: schedules students first, then teachers

Software	Website	Phone Number	Training & Support	Service Area	Additional Notes
Scheduling Plus	www.rediker.com	800-213-9860	District, National Conference (in MA), Web	Every State (also international)	Modular Approach: Software can grow with school; do not need to purchase all components at once. Master Schedule Wizard, cannot be seen graphically in software.
SchoolMAX	www.schoolmax.net	480-467-4645	District, National Conference, Web	Any State	
SIS Software	www.schoolmation.com		Only via the web	Any State	
SIS Student Data Management	www.sisk12.com		District, Local Workshops	MO Only	
Solstar Student Scheduling System	http://mjdata.com/	800-752-2236	District, Phone, Web	Any State (Primarily TX, NY, IL, MA, MI, FL)	
WinSchool / MacSchool	www.chancery.com	800-999-9931	District, Phone, Web		

Appendix C

Glossary

Alternative scheduling – Scheduling courses in non-traditional ways – minutes, days – to meet different learning styles of students and needs of the high school

A/B schedule – Four classes meeting every other day for the full school year, “A” courses on one day; “B” courses on the second day

Blocked classes -- Those arranged one period after another during the day, not to be confused with "block scheduling"

Block scheduling -- Longer than traditional 45-60 minute periods, arranged in any of a variety of ways in the daily/weekly schedule

Carnegie unit – Developed via the Carnegie Foundation in the early twentieth century as a measure of the amount of time a student must study a subject to obtain credit toward high school graduation and eligibility for university entrance

Cohort scheduling -- Clustering students into smaller units within the high school, so that they move from one class to another within their SLC as a group

Copernican theory – Developed by John Carroll; posits that schools should focus on different ways to use time (as Copernicus helped us look at the solar system differently)

Credit recovery -- A system that allows students to make up failed courses, or parts of them, during the school year, to avoid falling behind in meeting graduation requirements

Distributed leadership -- Shared approach to management responsibilities, usually part of the move to SLCs/ Academies

Double dosing -- Enrolling students in two classes each semester in subjects in which they're behind, usually in grade 9 (and perhaps 10) in English and math

Late start/ early release – When students either arrive later than teachers in the morning or are released earlier in the afternoon, providing time for teacher planning and collaboration

Flexible schedule – Combinations of various schedules with a class length varying from day to day

Four by four (4x4) block schedule – Four courses taught per day each semester, each earning a full year's credit

Global classes -- Those open to students from all SLCs/ academies, such as physical education, foreign language, fine arts, and upper division advanced courses

House -- One type of SLC, often used with freshmen, which may or may not have a theme, but often simply means a smaller unit within the high school without a theme

Linked classes -- Those part of a given SLC/ academy, taught by a team of teachers, which students move to as a group

Links program -- Upper class students orienting freshmen to the high school campus, procedures and schedule

Master Schedule Builder -- Software that allows a computer to develop a schedule once the required data has been entered

Platoon -- A cohort of students kept together as a group in several classes

Quarter system -- Dividing the school year into four parts, each 9 weeks in length, in which students take four (36 weeks) to complete a year. Semesters are often divided into two quarters.

Modular scheduling -- Establishing different minutes and meeting times for courses, following the college model

Section -- One classroom of students. Some courses have many sections, some just one.

Singleton -- A course with just one section of students

Skinny -- A course that meets in a shorter period each day for a full year in the 4 x 4 or A/B block schedule

Teaming -- Bringing teachers together to work jointly with a subset of students

Themed SLC -- As the name implies, an SLC that has a theme, which may be academic (e.g., math/science, arts/humanities), career related as in an Academy (e.g., health, media), or neither (e.g., community, cross cultural).

Traveling -- Required movement from one classroom to another for a teacher who lacks her/his own classroom

Trimester -- Dividing the school year into three parts, usually each 12 weeks in length, in which students take three (36 weeks) to complete a year

Bibliography

- Bottoms, Gene and Gary L. Keller. (2004) *Students Will Take the Right Courses When Principals Lead*. Southern Regional Education Board, Atlanta, GA.
- Canady, Robert L. and Michael D. Rettig (eds). (1996) *Teaching in the Block: Strategies for Engaging Active Learners*. Eye on Education, Larchmont, NY.
- Canady, Robert L. and Michael D. Rettig. (2002) *Scheduling Strategies for Middle Schools*. University of Virginia and Virginia University.
- Carroll, J.M. (1999) *The Copernican Plan*. The Regional Laboratory for Educational Improvement of the Northeast and Islands. Andover, MA.
- Cushman, Kathleen. (1995) *Using Time Well: Schedules in Essential Schools*. Horace, The Coalition of Essential Schools, Oakland, CA.
- Educational Issues Series. (1996) *The Change Process and Alternative Scheduling*. Wisconsin Education Association Council. (www.weac.org)
- Hacknaian, D. C. (1995) Ten Guidelines for Implementing Block Scheduling. *Educational Leadership*, 53 (3), pp. 24 – 27.
- Hopkins, Gary. (2005) *The School Calendar: It's Time to Make Time for Learning!* Education World, Administrators' Center. (www.educationworld.com)
- Jenkins, William, with McPartland, James. Howard Gradet, editor. (2000) *Scheduling the Talent Development High School*. Center for Research on the Education of Students Placed at Risk, Johns Hopkins University, Baltimore.
- Kemple, James. (1997) *Career Academies. Communities of Support for Students and Teachers: Emerging Findings from a 10-Site Evaluation*. MDRC, New York, NY.
- Kemple, James and Jason Snipes. (2000) *Career Academies: Impacts on Students' Engagement and Performance in High School*. MDRC, New York, NY.
- Kemple, James. (2001) *Career Academies: Impacts on Students' Initial Transitions to Post-Secondary Education and Employment*. MDRC, New York, NY.
- Kemple, James and Judith Scott-Clayton. (2004) *Career Academies: Impacts on Labor Market Outcomes and Educational Attainment*. MDRC, New York, NY.
- Maxwell, Nan and Victor Rubin. (2000) *High School Career Academies: A Pathway to Educational Reform in Urban School Districts?* W.E. Upjohn Institute for Employment Research, Kalamazoo, MI.

Stern, David, Marilyn Raby and Charles Dayton. (1992) *Career Academies: Partnerships for Restructuring American High Schools*. Jossey-Bass, San Francisco, CA.

Stern, David, Charles Dayton and Marilyn Raby. (2000) *Career Academies: Building Blocks for Reconstructing American High Schools*. U.C. Berkeley, Berkeley, CA. (casn.berkeley.edu)

National Education Commission on Time and Learning. (1994) *Prisoners of Time. Report of the National Education Commission on Time and Learning*. U.S Government Printing Office, Washington, DC

Northwest Regional Labs. (2002) *Serving Smaller Learning Communities – Schools Making Progress Series*. Southridge High School, Beaverton, OR. (www.nwrel.org)

Roosevelt High School Scheduling Task Force, (2005) *Scheduling Report*. Roosevelt High School, Oahu, HI

The Education Alliance at Brown University. (1998) *Block Scheduling: Innovations with Time*. Northeast and Islands Regional Education Laboratory, Brown University. (www.lab.brown.edu)