

CASE
STUDY



Ma'arav High School

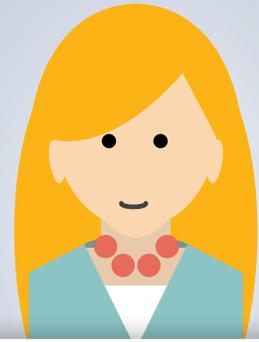
An Organic Approach to Implementing Blended Learning in an Established School

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Snapshot

Class begins in a very traditional way. The teacher is at the front of the room, reviewing for 15 10th grade boys the assignments he has written on the chalkboard: a crossword puzzle for vocabulary review, videos they are to watch and prepare a paragraph about, and projects that are due today. For the first four minutes, students listen quietly while he talks. Then the dynamics of the room quickly shift. The teacher walks to the front of his desk, moving into a serious and lengthy discussion or “conferencing” with two students and listening to their oral presentations on the Talmud text. Two students go to computers at the back of the room, engaging with the teacher on another platform – they see his face and listen to his videotaped lecture on one corner of their computer screens, while the text he is discussing occupies the rest. One progresses quickly through the assignment, pausing only to write answers on his worksheet; the other pauses more frequently, replaying phrase by phrase until he is ready to move on. Four other students move to computers at the side of the room, quickly and quietly starting work on their projects, with some consultation and conversation among themselves. Toward the center, four boys push their desks together, and actively (and constructively) argue about translation and interpretation. After about 15 minutes, the groupings change, as students move to ask someone a question, access a needed book, or regroup for their next task. Since conferencing is completed, the teacher offers that he is now “available if you want to ask me a question,” and one eager student quickly takes the opportunity to ask why he has not gotten as much credit as he thinks he deserved on his assignment. Instead of dismissing the question, as many teachers might, this teacher takes time to engage in serious conversation – about what the Gemara says about authority, about who can argue and how to “make an argument” – leading to encouragement and exploration rather than a pronounced answer. The teacher’s approach is “see what you can come up with, I want to see if you can figure it out.” In his grading as much as in his teaching, he explains, “It isn’t just about what you learn, it’s also important how you learn.” As he scans the room, one student is quietly staring at his screen, but the screen is blank. So he quickly walks over, identifies and fixes the login problem, and then continues to circle the room, offering help or encouragement to each student individually or in their small groups.

■ Introduction

Ma'arav¹ is an established Jewish day school that has begun bringing online/blended learning into some classrooms, like the one described above, with support from the DigitalJLearning Network, funded by The AVI CHAI Foundation. The foundation, through its work in Day School Educational Technology/Online Learning, “seeks to improve the quality of day school education by increasing individualized data-based instruction and enabling students to develop skills and ways of thinking needed in the 21st century as well as to bring down the costs of education” (<http://avichai.org/north-america/day-school-educational-technology>). To further that goal, researchers who have been studying the foundation’s efforts, in collaboration with AVI CHAI program staff, have selected schools as case study sites. Together, these cases reflect the range of the larger effort: new and established schools, different geographic areas and grade levels, and different implementation pace and paths in their progress toward online/blended learning. At the same time, each case reflects the unique context of a particular school and offers a distinctive example of what blended learning in day schools can and does look like in practice.



The intent is to bring in technology where, and only where, it is seen to offer a clear advantage – without disrupting what is already successful. This means Ma’arav is moving toward online/blended learning cautiously and slowly.

The case of Ma’arav is distinctive in three of its features that frame our analysis. *First*, it is a *long established* Modern Orthodox high school, with routines and norms developed over several decades. People point with pride to the stories and images of the school’s founding, and its prominent place

in the first generation of comprehensive Jewish day schools. Among the faculty, several talk of long tenures working at Ma’arav, and some are themselves proud graduates of the school. Students, too, have a strong sense of school history, and teachers note that many students’ parents, and even grandparents, attended Ma’arav. This is, they say, a place where “families understand the importance of tradition.” *Second*, it is a *well-established high school*, with a strong reputation for high-quality programs in both general and Judaic studies which staff describe as “intense and challenging.” Evidence of acceptances to top colleges and *yeshivot*, National Merit finalists and National Honor Society members, Advanced Placement scores and community service awards are displayed prominently and pointed to with pride.

Third, and in large part as a consequence of the first two features, Ma’arav has taken an approach to implementing online/blended learning that several staff members call “organic.” One administrator describes their approach as “opt-in rather than top-down,” explaining that meaningful change is unlikely to happen by mandate. According to the popular typology created by the Christensen Institute, their strategy is “sustaining” rather than “disruptive” — new technologies are being used to “help leading, or incumbent, organizations make better products or services,” to “serve existing customers,” and to meet existing “standards of performance” (Christensen, Horn, & Staker, 2013, p. 1). There is no innovative external model to adopt, nor even a new school-wide initiative to implement. Instead, teachers who choose to do so are experimenting with a variety of formats for blended learning, and some students are taking online courses. The intent is to bring in technology where, and only where, it is seen to offer a clear advantage — without disrupting what is already successful. This means Ma’arav is moving toward online/blended learning cautiously and slowly. Staff feedback includes: “In a school like ours, it’s a process; it takes more than two years” or, “It’s transitional, over four years.” As one administrator explained in the second year of the study, “To some extent, we’re a case study where things did not take off — yet.” They are steadily taking steps to implement the new technologies, and each year more faculty and more students are engaged in online/blended learning.

This case study provides an overview of Ma’arav as a long- and well-established day school taking cautious steps, and

¹ Conforming to norms of academic research for confidentiality, we have used pseudonyms for all individual schools and staff. This is primarily a matter of research ethics — the intent to protect the privacy of participants. It is also a reflection of the nature of a case, which is based on purposeful study, and constructed from the researchers’ perspective — the acknowledgement that a case study can only tell part of the story of a real school.

making careful progress, toward online/blended learning though their own organic change process. While the case is informed by all the research done for AVI CHAI, it draws primarily on three years of fieldwork at the school (Fall 2012 through Spring 2015). That fieldwork included annual site visits, classroom observations across grade levels and subjects, interviews with administrators and teachers, and a wealth of archival materials which staff graciously shared.² The case begins with a brief section on the background and history of the school and then moves to its philosophy and the organizational structures and staffing in place to realize that philosophy in practice. Next, it offers a closer look at what blended learning is like in classrooms where it is being offered, and also of its organic spread to other sites. The final sections consider the financial implications of implementation and the theory and trajectory of the organic approach. Together, this case study tells the story of how Ma'arav is managing the process of implementing online/blended learning through an organic strategy to sustain and expand the existing strengths of a long and well established day school.

■ Background

Like the new blended learning schools starting up with support from The AVI CHAI Foundation today (see [Zafon case study](#)), Ma'arav began with a small number of intrepid members of the local Orthodox community concerned enough about the conditions of Jewish education to create a new and innovative model. When they began planning, however, back in the mid-20th century, the concerns were a bit different: students were attending public school, and only after that, “when they were tired and unreceptive,” attending a yeshiva or Hebrew school for religious study. Moreover, too many continued only through the *bar mitzvah* year, and then gave up the demanding dual commitment. The innovative plan for their “brave experiment” at that time, as Ma'arav's school history describes it, was to bring together — “under one roof” — a comprehensive day school with high-quality programs in both Judaic and general studies,

with strong preparation through high school graduation for adult life beyond. They began with early grades and then added a grade at a time as students progressed, striving to reach enrollment numbers that would sustain their initially fragile institution. Within five years, they had grown from 40 to 100 students, hired 14 faculty, moved into a suitable facility, and become a fully accredited secondary school.

While the founding of the school took place generations ago, the story is kept alive in official documents and in images on corridor walls, and it continues to influence how the school approaches current issues. As an administrator explained, “Part of the challenge is to make sure decisions are made based on data, and that we maintain the history and the mission of the school.” More specifically, these original decisions echo through conversations about whether and how to implement online/blended learning. There are frequent references, for example, to the concern that too much conversation about online learning in terms of “reducing costs” or “affordability” could too easily lead families back to the public school option. Many staff talk of the continuing need to meet or exceed the offerings in neighboring public schools. Academic standards, a teacher observed, have to be high, which entails “making sure we have standards in general studies that are on a par with top schools; aiming to make sure we appear professional to the community, and that we have evidence, data on our graduates, to see if our kids are ready for Ivy League schools.” There is also a sense of increasing pressure to bring in technology since, as some teachers are very aware, in a nearby district “every entering freshman gets a Chromebook.”

Maintaining the mission involves adapting to new pressures to expand and strengthen academic offerings in an environment of rising standards and selective colleges that are becoming even more selective. Yet at the same time, the original concern of the founders regarding “tired and unreceptive” students resonates in current administrators' worry that the already “grueling” schedule of the dual curriculum could be exacerbated by strategies such as flipping classrooms: “Really, even if I assume the online offering is more efficient and other homework ends up in class, I still think students will sleep less.” While Ma'arav staff remain wary of the detrimental effects of overtaxing and overtiring students, as the founders were, they are also heavily invested

² A more detailed description of the research methodology is available on the AVI CHAI Foundation website ([Moving Forward](#) – AVI CHAI's interim report on blended learning initiatives in Jewish day schools)

in ensuring the quality of the programs they provide, and talk of the tension between the two interests is common.

In more recent history, two shifts in policy and practice stand out as particularly consequential to the online/blended learning effort. First, while Ma'arav has always stressed the expertise of its faculty and expected that as professionals and scholars they would continue to learn and improve, the administration has made a purposeful move to "raise professional development from an option to a focus" through a more centralized and formalized structure. The new focus shifted from individuals to departments or teams working together, on projects they themselves propose (discussed



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in more detail in the section on professional development). As one veteran teacher described it, teachers used to take courses at the university, because "the place to talk about educational concerns was there, not here; but that has changed over the past ten years. The environment here has changed, and we are having many of those conversations here." That infrastructure, once in place, became an enabling condition for faculty (at least some faculty) to learn more about online/blended learning. While these activities do not necessarily connect to new technology use, they did establish a new routine of collective "conversations" that encourage innovation in teaching, and "blended learning is one beautiful example of that."

Second, in the past few years Ma'arav has undertaken a comprehensive strategic planning process, bringing in an external evaluator to review programs and processes across the school, and to conduct regular "stakeholder" surveys

of staff, of current and former students, and of families. While the reports commended their efforts "to pay serious attention to instructional improvement by incorporating cutting-edge instructional technologies," they also identified technology as an area for improvement.

Many other things, of course, have changed over the decades of the school's history. As a senior observed in his look back on what the school stands for: "Don't live in the past, build on it." But overall, as Ma'arav has built up to an enrollment of approximately 300 students, expanded its program of course offerings, and become an established institution, they are proud to claim that the original vision of the founders and the philosophy of the school have been maintained.

■ Educational Philosophy and Design

Like Ma'arav itself, the statement of the school's philosophy reflects both preservation of tradition and adaptation to changing times and context; their current mission is to "prepare our children for life as Jews in the 21st century." The adoption of online/blended learning is described as anchored in that mission, as a way of keeping tradition alive — while keeping the school moving forward. The Head of School explained that the mission is to prepare "involved, active Jews in the modern world, so we will use any methodology and technology that will let us succeed." Another administrator expressed the same idea in slightly different words: "We want them to lead inspired lives as Jews in the modern world. So the mission demands that we take advantage of what's out there. We have always been at the forefront of academic innovation." Moving forward, they stress, will include online/blended learning only if and where it is consistent with, or furthers, the mission and core values of the school.

Over the decades, the six core values articulated in Ma'arav's original mission statement have not been displaced; rather, they have been distilled to four: 1) synthesis of Torah studies and general studies; 2) focus on the whole child, including emphasis on moral sensitivity and human decency; 3) community service and responsibility to others; and 4) making Israel an integral part of the Jewish persona. Indeed, multiple revisions suggest that people do pay attention to the mission statement, and

references to its content occur frequently in interviews. It seems that the values have become both deeply embedded and widely shared. The *synthesis of Torah studies and Judaic studies* (originally “integration”) remains a distinguishing feature of the school philosophy, and several of the new professional development teams are intended to foster cross-departmental collaborations. But several staff suggest that this value is more aspirational because “it’s not so simple in daily life,” or in the complex schedule of a dual curriculum school. The *focus on the whole child* echoes through staff concerns about exhausting students, across a remarkably extensive system of extracurricular activities, and into frequent references to the need for “tailoring” or “fine-tuning” course offerings to “support each student as an individual.” *Community service and responsibility to others* is structured into a 20-hour requirement for all students, and celebrated in the equivalent of an Honor Society for those who volunteer considerably more. It is also reflected in the distinctive number of students who offered assistance to seemingly lost researchers in hallways, or stepped up to act as blocker through a particularly boisterous and crowded corridor. Nurturing *the Jewish persona*, as a Judaic studies teacher asserted, is an essential value: “not all kids are going to be a historian, or a scientist, and that’s OK. If they walk out of here not [affiliated] Jewish, that’s not OK.”

Less formally, though perhaps just as fundamentally, other educational principles recur across the school frequently enough to be considered as part of a tacit philosophy.

There are repeated statements, and examples in both general and Judaic studies course descriptions, of the importance of learning to make an argument, or to develop “critical thinking.” In some cases, it appears as an explicit course objective: “the analysis of two conflicting ideas, the practical differences between them, and support for each side.” In others, such as in the snapshot above, or in a physics class where a student explained that “giving the explanation is more important than getting the right answer,” it is embedded in pedagogical techniques. This philosophical stance is also reflected in the central emphasis on the need for a strong argument for online/blended learning, with evidence of a good fit with the school’s mission and the benefits for student learning, and critical examination of “the risks if we do it” and the “risks if we don’t.”

■ Organization and Operations

Physical Space

Located at the edge of a large city, and drawing students from both city and surrounding suburbs, Ma’arav occupies a large building that looks in many ways like a typical 20th-century, comprehensive high school. An imposing entrance leads to the main office, and then to a complex of corridors and classrooms surrounding an inner courtyard. The upper two floors house classrooms, labs, a library, and administrative offices, with a large lunchroom and a gym/auditorium on the floor below. There is one room on the first floor dedicated as a faculty lounge, but it is quite small, and better suited for a quick cup of coffee or a copying machine errand than an extended collegial conversation.

While the space is large for a day school, administrators see it as constraining. This is not due to physical size; the building was designed to hold 400 students, while fewer than 300 are enrolled. But because Ma’arav’s curriculum has grown, both horizontally (the number of different subjects) and vertically (the number of levels in a given subject), compounded by the separation of Judaic studies courses for male and female students, demand for classroom space is high. Through what administrators describe as a “complex rotation-scheduling feat,” they offer a much larger range of courses and sections — approximately 250 — than enrollment numbers alone might suggest. Some classes have 20 students, but the average is just 14; classes with eight are not uncommon, and one observed class had only three students. Even with that wide array of “tailored” options, on occasion individual students present needs that cannot be well met: a student wants a course existing faculty cannot offer, the timing does not work, or they run into “that third rail problem we don’t talk about very much, when a student just doesn’t get along with a teacher.” For those situations, online courses offer a workable alternative — but even those “one-offs” still require an allocation of space.

According to both administrators and faculty, the building’s age is also constraining: “Technology is tricky because of the state of the building. It’s hard to implement anything school-wide when we don’t have the infrastructure.” Current demand for Wi-Fi and electrical outlets far exceeds what any mid-20th century architect could have anticipated, and over the course

of this study demand was steadily increasing. In the first year, the limitations were quite apparent: few classrooms had computers, some could not access the school's Wi-Fi signal, and a special password to access the Internet changed daily, in part to restrict use. Students and early adopters did find ways around the problem: "For a while, they were accessing the neighbor's Wi-Fi. It was one of the most useful tools we had." Over the three years of the study, several teachers reported that "the school has made it much easier to access the Internet" or "they have increased the bandwidth significantly." Still, even with more routers, the capacity is limiting, and "it becomes a problem when you use Java or Flash." Given what it would take to renovate and update this 20th-century building to meet 21st-century needs, and with plans to move to a new building in the near future already in place, administrators elected not to make major investments in the existing infrastructure. Staff are eagerly anticipating the increased capacity the new building will offer; at the time of this study, however, they "have to live with" the existing constraints.

Daily Schedule

Though the founders had originally hoped to fit the dual curriculum into a 9-to-5 day, the schedule has expanded over the years. Morning prayer, breakfast break, and then classes are held from about 8:00 a.m. to almost 6:00 p.m. (depending on the time of year), with extracurricular activities extending late into the evening. While many teachers talk about the "grueling" schedule or the "barbaric day" of 12 40-minute classes, some point out that returning students say it has made them well-prepared for college, which seems easier by comparison.

Judaic studies classes are held in the morning, with separate classes and somewhat different programs for boys and girls, and regular and honors sections for most courses. All students take four years of Hebrew. In the afternoon, the curriculum in general studies follows a traditional college preparatory pattern, with regular and honors levels in most subjects, and advanced placement in many. Four years of English, three and a half of history, and three years of math and science are required ("although most students take four"), along with one of the arts. Students also choose among a wide selection of electives, such as psychology, economics, and business law, as well as band, art, and film. Still, some

students look for options not in the school catalogue, and online offerings from the state have allowed several to elect courses such as advanced German, astronomy, or oceanography — "courses that wouldn't be available otherwise."

The divided schedule presents particular challenges for teachers' work, especially for efforts toward "synthesis," joint projects, or even common conversations between what are often described as "really two faculties" of Judaic and general studies. According to the school head, "it's complicated because of the structure of the school; we have two half days. There is a culture here that teachers give additional time, and try to meet after school or at lunch. It is a problem, but the school [faculty] is small enough that word gets around."

Faculty and Staffing

As a comprehensive high school (even a "small enough" one), with a complex schedule to manage and a considerable reputation to uphold, Ma'arav has a complex staff of administrators on their organizational chart, including: the Head of School, Associate and Assistant Principals, Directors of Guidance, Communications, and Admissions, as well as Department Chairs and Directors for Athletics and Student Services. In the third year of the study, they added a new administrative position, Director of Teaching and 21st Century Learning, to provide additional support for professional development in general, and for technology use and project-based learning in particular. Many of the administrative staff, including the Head of School, also teach.

There are approximately 50 faculty at Ma'arav, with slight variation in the number from year to year depending on enrollment and program changes. Almost all are employed as full-time faculty, although for many, a full teaching schedule fits into half of Ma'arav's long day. Overall it is a stable and experienced staff: many have 20 years or more of tenure at the school; a few have taught at Ma'arav for 30 or even 40 years. By Year 3 of the study, however, there was a "critical mass" of more recent hires brought in with the expectation that they would use online/blended learning, or at least technology, in their classes. In keeping with the school's academic orientation, academic qualifications are highly valued. Most teachers have not only college but also advanced degrees (about half hold master's or rabbinic degrees, and 11% PhDs) from top universities.

In general, teachers at Ma'arav have been hired because of their expertise in their fields, and they are given substantial responsibility for setting curriculum, selecting materials, and designing the learning activities in their own classrooms. After the general academic reputation of the school, that professional autonomy was the second most frequent response to the question of what drew them to teach at Ma'arav, particularly among the more senior teachers. As one general studies veteran teacher, recruited from a nearby public school, put it, the “big draw” was the “levels of professional freedom, and the chance to write your own curriculum.”



Each was secure in his own position, curious about what new technology could add to an already extensive repertoire of teaching strategies, and confident that the “levels of professional freedom” at Ma'arav allowed for trying something new – even if it failed.

In the first attempts to introduce online/blended learning, that level of autonomy offered an advantage to early adopters. Three veteran teachers independently experimented in their own classrooms: “I’m sort of the experimenter out there on the forefront.” Each was secure in his own position, curious about what new technology could add to an already extensive repertoire of teaching strategies, and confident that the “levels of professional freedom” at Ma'arav allowed for trying something new — even if it failed. But for taking a new practice to scale, or even for getting the word out, such autonomy has considerable limitations.

Moreover, by year three, a third group of teachers was emerging as distinctive, in addition to the veteran early adopters (by then numbering six), and the recent hires arriving with willingness and considerable expertise. A veteran group of administrators was described as “not so much resistant,” since “most are open to good ideas, and committed to the learning of their students,” but rather “reluctant” or “not

ready” for new technologies, or “brilliant, inspirational, but all frontal. It’s just beyond her to do this.” One such teacher arrived for her interview with the administrator’s introduction: “I told her you were looking for a Luddite and she’s up for it.” Two others used the terms “dinosaur” or “digital dinosaur” to describe themselves. Some are skeptical, “hav[ing] seen fads come and go, like filmstrips.” Others are concerned about the quality of online providers, or the effect of the digital shift on student learning: “Students are drenched in social media, so writing becomes fragmentary rather than elegant.” But they all share the sense that “we need a lot more training . . . if this [iPad] is something they want me to use. The older I get, the harder it is. It’s challenging.”

Professional Practice and Development

Over the three years of this study, evidence suggests that training and expectations for practice are undergoing a profound shift, as professional development moves gradually from “option” to systematic “focus.” While veterans talked of the value of autonomy and professional freedom, some noted, “Maybe five years ago, that level of freedom — the brakes were put on that. For reasons that were largely benevolent.” More recent hires, by contrast, described the need to “compromise between what I have to teach and the way I want to teach” as a normal condition of work. One teacher who had moved away several years ago found the change on her return “striking.” In the past, she said, “they just told you ‘Genesis’, and you’d teach what you want. The installation of department chairs, having an administrator responsible for PD, making sure all teachers turn in syllabi — all those things are new and improved.” Not all teachers find the change “new and improved,” and administrators do report some “pushback,” with faculty meetings and professional development seminars that are “not supposed to be optional . . . but.” Another observes that “the people who come the most are the people who need it least,” but most people do come, unless the logistics of scheduling interfere.

In addition to the difficulties of finding meeting time in an already “overloaded” and divided schedule, administrators recognized the need for different kinds of professional development for different teachers: “They are all in different places.” It might be teachers who teach different

subjects (“teachers have to have a content-driven reason for wanting to try things, and content area needs are quite different”), new teachers (“beginning and need help”), or veteran teachers (“who do not have a lot of technology skills” or “need to grow”). Given that range, an Assistant Principal explained, “We have to have differentiation in PD, or in how we approach it, in meeting them where they are. Where is there a need that we can help a teacher meet? We need more individualized outreach, and maybe some baby steps that meet with the culture here.” So in addition to the faculty meetings and “seminars” about general issues of 21st century learning and new technology, they introduced a number of smaller, more differentiated strategies — such as partnering new teachers with mentors, or offering targeted coaching.

The most distinctive step has been the organization of small self-selected groups, or teams, that identify a problem or need, and propose a strategy to work toward addressing it. Teams, it seems, are easier to schedule than full faculty meetings, and more readily tailored to the needs and interests of teachers. The projects themselves vary considerably, from problem-based learning in math to using educational research in practice. But what they have in common is providing a mechanism for sustaining the professional authority of teachers, without maintaining the isolation of individual ‘self-contained’ classrooms. One “wonderful” project, according to an English teacher, centered on Shakespearean drama, included an artist-in-residence who “talked to the department about ‘lifting the text off the page.’” Each quarter, she worked with a different grade level, leading to a performance at the end of the quarter. That kind of project, she explained, “hit every student in the school.” It even extended its reach into chemistry (through the production of false blood) and to Judaic studies, where “lifting the text off the page” was picked up as a meaningful cross-disciplinary skill. Rather than bringing in a consultant, another team focused on bringing in new ideas: “We pulled from the research practical suggestions; we also try to get clear about why we think they work, and what they are supposed to do . . . then we will talk about two or three, try them, and then come back and talk about what did and didn’t work. It’s very concrete, very grounded in research.” Their practical suggestions could be about “student learning in general” (i.e. the strategy of using summarizers at regular intervals in classes), “or it could be this is how to format

computer lessons, to have questions at the beginning, what to do during the lesson, and what to do after. That information was crucial in putting together those blended lessons.”

These groups, and the kind of collegial learning they are intended to provide — ongoing, active, collaborative, connected to content, and directly grounded in teaching practice and student learning — reflect what much of the research on professional development suggests is effective practice for “learning-centered schools” (Little, 2006). And, as noted above, structured “conversations” have provided an effective way of helping to move online/blended learning from being the “experiments” of a few early adopters toward becoming a school-wide expectation.

■ Implementing in Practice

Definitions and Decisions

While administrators and teachers at Ma’arav hold a range of opinions on whether, how, and how fast to adopt online/blended learning in practice, there is overall agreement on a general stance toward the topic: online/blended learning itself is not a goal; it is a tool, or set of tools, to improve opportunities for teaching and learning. For some, it opens up new possibilities: “I wanted to experiment with this new platform” in physics, or “taking technology and bringing in Talmud skills, and trying to bring that together, it’s two separate things coming together to create a new whole” in Judaic studies. But for most, it is a new resource to deal with existing challenges, whether problems of scheduling, classroom management, or curricular limitations. As a science teacher and early adopter put it, “We are thinking about what are the problems that online learning might help with, in a school with strong tradition and a rich capacity of teacher expertise and qualifications.” Since the “problems” they identify tend to occur at the level of the individual student (i.e. the need for a “one-off” course), an individual faculty member, or (rarely) a particular department, the idea of adopting one model of blended learning was never even considered. Instead, at Ma’arav, just as learning opportunities are tailored to the individual student, blended learning in practice is tailored to the needs, interests, capacity, and content area of the individual teacher and classroom.

Courses and Classrooms

While conversations about online/blended learning may be spreading school-wide, practice is changing more slowly. As a department chair acknowledged, “most are at least good at showing up. Implementation is different. Some come, say ‘it’s great’ and then go back into their classroom and do what they always did.” But by the third year, an administrator estimated that “about a quarter of the population is doing something online during the course of their day.” By “doing something online,” he explained, he does not include “a traditional teacher who shows a TED video now and then.”



In what one chairperson described as a “ripple effect,” the early adopters not only experimented; they also shared their experiments, and their enthusiasm, with others.

Given the levels of professional freedom, it is not surprising that “doing something” looks very different from classroom to classroom. In fact, the first three early adopters chose strikingly different strategies. In the classroom featured in the snapshot at the beginning of this report, the teacher began “flipping” a few lessons, found it effective in dealing with the range of student performance and pace that he faced, and introduced that method as a general practice. He also incorporates a range of externally produced resources into small group work as students undertake independent projects. In a physics classroom, the limitations of high school lab equipment are overridden as the teacher routinely reaches out to bring in online simulations, university lab sites, AP test preparation programs, a robotics competition, and even smartphones: “We’re using a slow-motion video off an iPhone to look at crashes, how much time elapses, frame by frame. Each is a 240th of a second. It’s neat because this is what people really use, and we can do it on our own devices.” The third “classroom” was really an administrative office, where a student could study Genesis working through video lessons from Aleph Beta. While instruction

is primarily provided online and the student could often work independently, an on-site teacher (and administrator) makes time to check in frequently, to pause the video and ask questions, such as: “What is it that makes us human? In what sense are we not snakes? What was [the presenter’s] approach?” This enables them to discuss both the text and the interpretation more fully, “to think, argue, present evidence, try again,” than any virtual teacher could do alone.

In what one chairperson described as a “ripple effect,” the early adopters not only experimented; they also shared their experiments, and their enthusiasm, with others: “I have told people, have shared with others. A new teacher, I offered him my method, and he said ‘that’s nice’ and is doing some, but I don’t know how many are really trying it. I’ve found this to be the total package.” By Year 2 we observed six veteran teachers who *were* trying it, but they, too, were experimenting rather than replicating, trying to find what worked (or worked better) for the particular challenges they face in particular classes with particular students. Another Judaic studies teacher, who observed the flipped classroom and talked with the physics teacher, uses video from an external provider (Daf Hachaim), which students watch in small groups. He provides a set of concept questions and phrases to translate — which they then prepare to teach to the rest of the class. The idea is “to have them do the basics at home, and have the discussion here be on a higher level. Like physics, the discussion in class should be on a higher level.” At the end of his class, a student commented, “We should do this more often; it’s good.” A math teacher and self-described “dinosaur” preparing a new calculus course in Year 3 also consulted with the early adopters, then spent time “watching YouTube videos of professors giving calculus lessons on limits,” and found “two I really like . . . I watched, and searched, and finally it clicked. I’m so excited . . . I’m the dinosaur here. But I can still learn.” While that might be only a “baby step” beyond showing an occasional TED talk in class, it represents a major change in practice for that teacher.

More recent hires are experimenting, bringing in new technology and teaching techniques as well, and creating new ripples through their departments and teams. One, for example, describes her honors class in which new technology plays a key role:

You can project the text... The students read; they take turns coming up to punctuate. Students do prefer to read Rashi on Sefaria. The text has connected verses; you can get that with one click. In previous classes, they would each have to bring a Tanach, or I'd have to find some way, because it is often important to see those verses. Now they can do it themselves, and it's just one click away... Then we make videos, upload them to YouTube; we have a class website... In an ideal world, Gemara would be coded by generation, by time period. We have the building blocks color-coded, to be able to see the structure of a page of Talmud. You need to know that there is a question there, and there is an answer there. Structure is key. Being able to see the layers of text. So the question red, the answer green, the responses can be other colors.

Strategies and resources are not only tailored to the teaching challenges and styles of individual teachers; they may be further tailored to the needs of individual students even beyond differences in pace. That means there is considerable variation not only across classrooms, but also sometimes even within. In Hebrew, for example, “We have students with hearing loss, but NETA is speaking and listening. So we have a couple doing Rosetta, which is more visually integrated.” Observation of that class scheduled to showcase the online learning hit a snag when internet access failed to function — evidence of the challenges of building infrastructure. It also gave evidence of the variation an experienced teacher can offer. She adapted: connecting a laptop to a projector, viewing the lesson as a whole class on screen, and then breaking into small groups to develop a script for ordering food in Israel. Students played family members of different genders, ages, and tastes (“who would really put tuna on a pizza?”) that they performed for their teacher and classmates — a direct response to expressed parental concerns that “My son studied in high school for years, but goes to Israel and can't order a pizza.” After a whole class conversation about how it went, they watched a YouTube video of a young American boy who joined the Israeli army. They

listened to the content in Hebrew, then composed their own reactions and the wishes they would convey to him.

While there has been little resistance or “pushback” from faculty or families, several teachers do report pushback inside classrooms where they are introducing these strategies. Students may be quite comfortable with digital devices in general (administrators estimate that 95% use them at home), but they are unfamiliar with their use as a teaching tool. And like adults, adolescents can be quite uncomfortable with what is unfamiliar. In fact, one of the original “goals” described in Ma'arav's grant application was to address the problem of the “handful of students who object vociferously” to the flipped materials and “implore [the teacher] to abandon the technology.” Other teachers, using other strategies, also find resistance from small numbers of students, regardless of which type of strategy they are using. Some are simply “frustrations” when students encounter “bumps in the tech world [and] give up when something doesn't work . . . but they also got frustrated when they lose their handouts.” Others find working in new ways challenges students, much as it does teachers: “They are having trouble with online learning, with the burden of managing your own time,” or, “They have to participate; you can't hide in the back row.” And still others, even in Year 3, are confronted by students who object on more general terms: “At first, students were very resistant; they felt I should read it to them. Eight of 12 wanted more frontal teaching, that I would tell them the material and they would be tested on it. When I first tried it, they said, “No, that's not the way it's done.” While no teacher had a magical solution to deal with the challenge immediately, across all teachers and all subjects, they did find that time and patience tended to alleviate the tensions: “Some students are resistant, and then they like it,” or, “After the start, students want to spend time this way, because they know that's what you do.” As long as “that's what you do” is only being done on a small scale, in a minority of classrooms, student resistance and questioning are predictable consequences. But by Year 3, in classroom observations, the only recorded resistance came on four occasions when students pushed to get through teacher-led introductions and to their computers to work on projects.

Administrators identified a growing expectation from students beginning to spread across the school: “Are students seeing this in other classes and expecting it? Then we need to notch it up.”

The level of attention to the needs of different students, combined with the level of professional freedom (and flexibility) of faculty, reinforces the value of custom-tailored approaches to adopting online/blended learning. But it also makes considerable demands on teachers’ time, and presents distinctive challenges to scaling up implementation.



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Scaling Up

By Year 3, there was evidence of efforts to encourage implementation at a larger scale — though still neither rapidly nor uniformly. Some departments took to using the team approach to deal with problems they identified. The math department brought in a consultant and textbook author to strengthen their understanding of problem-based learning and how new online tools could be useful — in all their classes. Another chair turned to a more local resource: “So, for example, when the [Talmud] department was discussing how to have students do more work aloud, and how to find time to listen to individuals read, the blended classroom structure [a teacher] uses, of having small groups and individuals working independently, that was discussed as a workable strategy.” They did not adopt the flipped classroom model, and in fact given their concerns about too many hours spent on too much homework with too little sleep, they

concluded, “Flipping classes seems workable only at very small scale.” But they did decide to experiment with online resources that could allow more small group or individual face-to-face time. That kind of conversation contributes to a wider sense that new forms of teaching and technology use are becoming an expectation, and that “if a teacher showed up now with a paper handout, they would be questioned.”

Technologies

While the ditto machine may have disappeared, overhead projectors are still present. Slowly, however, newer devices are being incorporated into classrooms. Like blended learning techniques, the variation in devices is striking. A few classrooms have sets of eight desktop computers so small classes or groups within a class can work online at the same time; some have one or two but primarily rely on the presence of students’ own laptops. When a group of teachers and administrators came back from a national conference enthusiastically arguing for iPads, the school bought a set — and then discovered that the teacher they anticipated would be most eager to adopt them declined, successfully arguing that for her purposes, Chromebooks work better. By the end of Year 3, however, technology choices were beginning to converge. As with professional development, the school at this stage is moving slowly, “organically” toward a more centralized and structured plan. A technology team of teachers and administrators explored possibilities, gathered evidence (including evidence of effectiveness, a cost-benefit analysis, and what students and families would think “cool”), and made a recommendation to the Head. The Head then announced that for the next year, 9th and 10th graders “will all be given iPads,” replacing the textbooks for science, history, and Hebrew. Some teachers are excited about the shift; there was a “full court press from the Hebrew department” to be included. Others, who might not have made the same choice, still see the advantage: “If we have a specific device that we can count on, even if it’s not everything for everyone, then we can plan.” Planning, however, involves not just knowing what hardware will be available, but also what software or online materials will be accessible and suitable.

Software and Programs

To meet the needs of students whose schedules or interests call for something beyond their own course catalogue, Ma'arav administrators turn to the state virtual high school catalogue, which offers about 175 semester-long online courses, ranging from art to world history and from remedial to AP level. These courses are designed to supplement the offerings of public and private schools at a cost of roughly \$250 per student. Ma'arav faculty report the content, aligned to state, national, and College Board standards, to be “adequate” or “quite good” — though most agree that they are not quite as good as what the school itself provides. A student who took an online AP course agreed, saying, “I think I would have learned better if I'd had a class,” although he did find the course “challenging,” he “was able to handle it and get ready for the AP test,” and did score a 4 (out of 5). Administrators also say the format makes it easy to monitor student progress (if not actual learning), since it “gives a set of tools: there are alerts if a student hasn't logged in for the past seven days. They do not push out reports on learning, just on what is completed. But I can go in, or the AP or Guidance Counselor can go in, and see the grade book.” In contrast to many of the instructional programs for elementary grades, finding available data only on compliance and task completion, rather than more fine-grained and immediate data on skills and content knowledge, is not uncommon. Teachers find the information frustratingly limited, and only “adequate.”

The challenge with blended learning software, where there are programs and providers that are more than adequate, is different: There is no obvious place to look. “We don't use it [if] we don't know it, and there is no easy place to go find out.” One teacher, for his flipped class, created his own video lessons — but said, “I can only produce so much material on my own.” A more recent hire found “little guidance” when she decided to create her own website: “Someone said I should have a website, so I Googled: teacher, website, fast...” Another teacher heard about a resource from “someone at synagogue.” But few of Ma'arav's teachers have the time to discover, or the technical skill to develop, their own resources.

Faculty across the school discuss (in remarkably similar ways) their desire to include more online resources (“I wish,” or “That's something I'd like to see a lot more of”); their own individual search processes (“I didn't get a lot of guidance”),

their frustrations with the quality of what is “out there,” and their excitement when they do find something (“Eureka,” or “Finally it clicked. I'm so excited”). Teachers in Judaic studies tend to think the challenge is unique to their subject: “There are not a lot of materials in Judaic studies that can be popped in.” However, teachers on both sides of the curriculum express the same frustration trying to find materials that are of high enough quality and a good fit for their own curriculum:

I wish. I have tried a few things available online for free. But there's nothing that's a real fit. We did use some optional videos that were from outside – on a bunch of Jewish sites. Like Aish.com. . . . [You can] look up pieces of Tanach, go online to places you can see, or one that translates with Rashi. But real curriculum material, no. I tried to do some Jewish law, [some] were pretty good, but they didn't have supporting materials . . . From what I've seen, I wouldn't [use them]. I was very disappointed with the video quality and the educational quality. A few are rigorous, but really boring and really dry. (Judaic studies teacher)

I found nothing that worked. There are lots of materials online that teachers have posted. So you watch them, and see what resonates. But they might be using a different textbook, with different symbols. Or it's how a teacher talks about the energy concept, whether they stay away from secretly reinforcing misconceptions. If I find that, then I check more. It wasn't something I did in a night; it took a lot of time. But then this one came up as a side in suggested search, and eureka! After months of searching. (Science teacher)

Teachers have become very resourceful in searching out online resources, and through the teams and department meetings they are beginning to share what they find. In some cases, as with NETA for Hebrew, Sefaria, or the Google suite of programs, there are the beginning signs of convergence and moving to larger scale of common tools. Primarily, however, even by Year 3, teachers are largely working on their own to search for products, making their own choices of what to try, and investing considerable amounts of the scarce resource of time to do so.

■ Financial Investments and Implications

While faculty are spending large amounts of their time, the school has been spending a relatively small amount of their financial resources, as they gradually and cautiously invest in the infrastructure for and implementation of online/blended learning. According to annual reports for the years of the study, the overall budget ran at about 7 million. Of that, approximately 46% was spent on faculty salaries and benefits, with an additional 24% on administrative costs (including administrator and staff salaries). Characterized as an expenditure, about 24% of the school budget was spent on scholarship. For the past few years, only 3 or 4% went to facilities costs, but that number is expected to increase as they move to the new building which will give them not only more space, but also space that is more suitably structured to meet the needs for the future they are imagining now.



“It does not reduce costs, but it does allow us to do things that would otherwise be cost-prohibitive.”

At Ma’arav, tuition (about \$18,000) and fees meet about 75% of operating costs, with the rest coming from grants and subsidies. The administration works actively on development and fundraising, both for small projects (like the alumni gift to “enhance and improve teaching” that underwrites the professional development projects) and large campaigns (the capital campaign for the new building). A major area for fundraising has been scholarship funding. About half of Ma’arav’s students receive financial aid, and while administrators do not see families choosing not to enroll in day school because of the costs, they do see a trend of increasing numbers needing assistance. With the goal of increasing enrollment, they have also raised special funding earmarked for students who

transfer in from public schools, which benefitted 11 students in the 2013 school year. While the overall budget is quite large compared to the new schools utilizing blended learning, income and expenses are carefully balanced, and there is little room for large new expenditures. Still, faculty convey their belief that if they can make a good argument for something (like computers or a consultant) that will benefit students, the Head “will find the money for it.”

Finding the money often means searching for external sources or affordable resources. First and foremost was the small grant offered by The AVI CHAI Foundation through the DigitalJLearning Network for established schools, which several staff say was a catalyst for moving them forward in online/blended learning: “I don’t know if we would have really started without that.” While the dollar amount was small (\$5,000), at Ma’arav it allowed for faculty time and an external consultant, as well as a RAM upgrade so existing computers could be used to show video and flip the first classroom. Moreover, that grant brought legitimacy from a respected foundation, membership in the DigitalJLearning Network, and motivation. As the Head of School described it, “three teachers were given ideas and support. Even the fact that something was happening was a motivator.” The school has also found other ways to keep costs low, for example beta testing a course for a provider at no cost to the school, partnering with a nearby university developing programs in STEM subjects and computational thinking, and purchasing unused SMART boards from a neighboring school district when veteran faculty taking “baby steps” began “begging for them.” Despite increasing scholarship need, they have been able “pass along” to families the costs of several of the online courses they offer to individual students. And while a small number of computers, Chromebooks, and iPads have been provided for a few classrooms, most students are using laptops that they provide themselves at no direct cost to the school.

Still, the Head of School explained, “Right now, we are adding into the budget, but I think we do a better job.” And while he is well aware of the argument that in the long term online/blended learning may offer cost savings, he remains not yet convinced: “You can do more, but it’s not going to save money.” As another administrator explained Ma’arav’s rationale: “It does not reduce costs, but it does allow us to

do things that would otherwise be cost-prohibitive.” While they may be spending more, moving slowly has meant there was no large surge in expenditures required. However, they say, cost was not a reason for the slow rollout, but a consequence of their deliberate decision to adopt a gradual and organic approach to implementing online/blended learning.

■ Theory and Trajectory of Organic Change

While references to the “organic,” “natural” and “slow” theory of change in Ma’arav’s approach to implementing online/blended learning are frequent across interviews with both administrators and faculty, staff describe that the leadership of the school, particularly the Head, both set the direction and the pace for change. And the Head is clear that the slow pace is purposeful: “We’re still slow compared to some, but this is because of how I view organizational change,” or, “I’m a believer in change, in evolution rather than revolution; I think that works better in terms of organizational change.” He explains this approach as arising out of a set of reasons, ranging from the philosophical to the practical.



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First, as a long-established school, Ma’arav has experience and institutional memory to draw on. They have learned from prior efforts at change: “One of our big beliefs is that to change teacher behavior, it has to be done organically. Coming from the top doesn’t work.” A veteran teacher and early adopter agrees: “We’ve had trouble with initiatives in the past that rolled out top-down. The Head said ‘we didn’t get enough grassroots support,’ and that was true.” Their experience with top-down initiatives is supported by generations of research on organizational and educational change: mandates that depend on changing the behaviors and beliefs of teachers all too often lead to the “predictable

failure of educational reform,” particularly in high schools (Sarason, 1990; McLaughlin & Talbert, 2001; Siskin, 2004; Tyack & Tobin, 1994). Ron Heifetz, a prominent scholar on leadership and organizational change, suggests that success in dealing with such “adaptive challenges” rather than “technical” ones is more likely to depend on “the collective intelligence of employees at all levels, who need to use each other as resources, often across boundaries, and learn their way to those solutions” (Heifetz & Laurie, 2001, p. 132).

Moving slowly and building support among faculty is also consistent with Ma’arav’s educational philosophy. Not only do adults place high value on human decency and caring for students, but administrators also do the same for faculty. A new teacher talks of the more authoritative approach of her former school: “They said, ‘This is a goal of the school; this is happening, and if you’re not on board you should probably leave.’” By contrast, the Head at Ma’arav repeatedly argued that existing, valued faculty should not be pressured to leave, or pressed to change too hard or too fast. In Year 2, he stressed, “We are a school that is still in process . . . in the middle steps. Slowly, that’s the natural way it happens. There are people who would say, ‘If you can’t do it, you’re out.’ But what am I educating toward if I can’t treat people properly?” And in Year 3 he continued to affirm that stance: “One teacher is Xeroxing still. She writes by hand. But her students are learning, and she’s a teacher that kids remember for all of their lives. She’s not going to get Word processing. Why should I drive her nuts?” A veteran faculty member confirmed the absence of pressure from the top as part of the school’s general philosophy and culture: “Viewing new things, they can gravitate toward the things they feel comfortable with, with no pressure here. The culture here is really chill; it comes forward organically if someone is going to move something.” Still, while trying not to drive anyone away, or “nuts,” by Year 3 faculty said the Head was delivering a strong message that change was coming: “The Rabbi has said he would like less frontal teaching, and to see reverse or flipped classrooms, or blended. He said those [things] to the entire faculty.”

Practical concerns about capacity, in terms of both personnel and products, drove the decision to move slowly as well. Whereas the Head was able to retain his veteran staff, he was convinced, “If I hadn’t waited, some of the people wouldn’t be

in place.” Gradual hiring meant that by Year 3 a Chair could report, “There has been an influx of younger teachers, who are more comfortable with computers. There is somewhat of a critical mass now. Technology is sort of a default, or becoming that. It has happened gradually, sort of naturally.” At the same time, differentiated support, and the encouraging of “baby steps,” convinced even some of the “digital dinosaurs” that change was possible, and even perhaps “exciting,” although “that took a few years.” In Year 1 as well, administrators were not convinced that either the quantity and quality of products available were adequate to their needs: “The amount of material, in terms of blended learning, is not good enough.” And teachers, as noted above, shared that opinion about many of the resources they did find. While those concerns continued through Year 3, the considerable investment of time spent searching and sifting through online materials had returned enough finds that were “good enough,” or even “eureka” moments, for staff to feel confident moving forward.

Both administration and faculty convey their sense that the school has, by the end of Year 3, reached a point in its trajectory where they are ready to accelerate the pace of change, and the anticipated scale has grown considerably. In part that is due to the slow build-up of momentum and the new “critical mass” of faculty; they are now ready to move from “baby steps” to bigger ones. But it is also fundamentally tied to moving to the new building, and to leaving behind some of the habits and tools they see as no longer useful — whether frontal teaching or the overhead projector which, students humorously wrote, had been used since the first draft of the Declaration of Independence.

Administrators anticipate major changes in staffing assignments and curriculum, and having the capacity to do new “fun stuff”: “So we will be seeing more blended, and we will have the devices available. We have also done, or redone, our networks. All students have an email address, the full Google suite, internet access, Microsoft suite, and can download to other devices and have things be on the cloud.” In addition to the new administrative position added in Year 3, plans call for “the equivalent of a full-time position” split between two teachers active in blended learning “to do peer mentoring. And the librarian will shift to be the help desk for the kids. So there’s going to be some fun stuff happening.” They plan to

introduce new courses in STEM (science, technology, engineering and math) subjects and in coding, and introduce more computational thinking to existing courses. To strengthen their capacity for professional development and teacher collaboration, plans call for shortening classes one day a week by 45 minutes, to allow teachers more time to work together.



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In what several staff see as the most significant change, they will move to new devices (iPads) at new scale (all 9th and 10th grade classes in three subjects). These changes signify not only a larger scale, but also a shift to what one teacher and early adopter views as a more disruptive implementation:

By September, who knows what we’ll be able to do on the iPad . . . The iPad is disruptive in ways most of the people here don’t understand. When people start using them for small things, it all changes. There is no set up. It’s intrusive.

[Some] had said, give it to the teachers who will use it. I said no, give it to the teachers and then they will use it. It’s more disruptive, easy. For all the teachers who aren’t comfortable with technology, the iPad is our friend. For breaking in, and changing habits. For some of the teachers, the change will be less, because they are used to it. They don’t need the disruptive technology. The Chromebooks are not enough to do that; iPads are, and are simple. We’re talking about, like a fair, an occasional thing, where teachers can present and share. The excitement is high, and we’ll get at least the first experiments in.

While some teachers welcome the shift to more disruptive change, an administrator reassures others that it isn't entirely new: "It's not radical change, but rather making good teaching more likely. Most of it is not new, not dependent on technology, but the technology allows more people the opportunity to do this." He, too, is eager to see what the new experiments will produce, and whether they will produce improved teaching.

After a deliberately slow start, Ma'arav has reached a point in its trajectory where excitement is not only high, but also widely shared. It is not yet school wide, and not everyone is sure that it ever will or should be. And as an administrator acknowledged, "Blending expands the horizons of what we can do in a classroom; but computers have made us more efficient, they haven't made life easier." As they continue to expand implementation, they still have difficult challenges ahead. Finding more efficient ways to search for online resources, for example, is a continuing need. And as they move to larger scale, finding ways to assess effectiveness of both teaching strategies and of student learning, as well as teacher and student satisfaction, will become increasingly important. Many teachers, too, long for expanded access to professional development and collaboration beyond the internal structures. They would like more systematic ways to find colleagues or consultants in the same subjects but in other schools, and to learn from their experiments. None of this will be easier, but faculty do see new possibilities on the horizon.

From our first visit in Year 1, when our hosting administrators warned "there is not much to see" and expressed concern that "AVI CHAI will be disappointed," this expansion and excitement marks a remarkable change. From three early

adopters, to six experimenting veterans, to a "critical mass" of experienced and new faculty beginning to blend, by Year 3, they were confident that progress was taking place, even if the process was far from complete: "This will happen, but we're not there yet." Ma'arav did not begin with a mandate for online/blended learning. They did not adopt a model to implement, as we saw in the case of Zafon. It is not clear that anyone could replicate their implementation path, given the resources they had — such as a Talmud teacher with the technical skills to videotape a lesson, compress it, transfer it to another program, and upload it to a platform students could access; a physics teacher who could coach his class through learning programming languages like C+ and Python; or plans to design and move to a new building. Nor is it yet clear whether all teachers will be able to adapt to the new tools and techniques for teaching, or whether students will actually learn better (beyond self-reports and satisfaction measures).

But we can learn from this case. It demonstrates that even a long- and well-established day school can find ways to innovate, can tailor new initiatives to fit with their unique capacity, culture, and traditions, and can slowly and gradually (organically) move toward implementation according to their needs. For other established day schools, with their own deeply embedded traditions, with budgets that have little room for large expenditures, and with faculty who may be less than eager to change or less than comfortable with new technologies, Ma'arav does offer words of encouragement: "It [blended/online learning] will help us with the challenges." And even though they are "not there yet," after cautious and small experiments, the Head is confident about where they are going: "I think online learning is the way to go. It opens doors for students, and gets us out of a rigid core."

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