Michael Fullan response to MS 3 questions about personalized learning:

Nov 2, 2009

"Educators do not believe that all learners are the same. Yet visits to schools throughout the world might convince us otherwise. Too often, educators continue to treat all learners alike while paying lip service to the principle of diversity."

1. What is personalized learning?

Personalized learning, at its most fundamental level, requires that schools and school systems engage all students in their own learning. It also requires that instruction and learning supports can be tailored to address the varied learning needs and dispositions of highly diverse student bodies. Such a challenge has been incredibly difficult to meet, for various reasons related to both the history of organized schooling and the challenges of blending efficiency with diversity/customization in a large system with limited resources. In our view, the key to successfully providing more personalized learning on a broad scale is twofold: first, focus on collective capacity building, through approaches such as professional learning communities and, second, strategic use of technology to address many of the challenges. Technology, as a support or accelerator, can ensure more effective collection and use of data to improve instruction. Technology can also facilitate communication, provide much more diversity in content for students, and help schools better meet the varied needs and preferences of students. And technology can be used as a direct pedagogical tool to enable learners to build meaning and knowledge with greater depth than hitherto possible. What is crucial is that technology must serve the core purpose of schools.

Personalized learning has been defined in various ways but the most fundamental principle is "putting the learner at the heart of the education system" (Leadbeater, 2008). According to Wikipedia, personalized learning involves bringing together pedagogy, curriculum and learning supports to meet the needs and aspirations of individual learners. Such personalization gives learners a degree of choice about what is learned, when it is learned and how it is learned. While learners will still have targets to be met, they have the opportunity to learn in ways that suit their individual abilities and learning styles.

The essence of personalized learning for me is that it involves creating learning experiences in ways that engage each and every student in meaningful learning that connects to their particular needs in the context of what they will need to be effective citizens in a diverse, challenging world. Among the key principles and design features that must be met are:

1. It must serve the moral purpose of meeting the learning requirements of each and every student, i.e. it must raise the bar and close the gap for all students.

2. This means it must do so on a very large scale which means in turn it must be feasible – efficient and effective for the whole system.

3. It must produce educational outcomes that are valuable to both the student and society.

While personalized learning may happen in traditional learning establishments such as schools and colleges, it embraces learning that happens anywhere, for example in the home, in the community - anywhere. Personalized learning can happen in partnership with other learners, for example learners working together in a group to study a particular topic.

What is most crucial for personalized learning is not just meeting student needs, but actually engaging students in the learning process. As one writer noted, personalization involves "tapping into the richness of students' individual experiences to engage them for optimal learning."

In the United States, the term "differentiated instruction" (Tomlinson, 1999, 2004; American Center for Development and Learning, n.d.) is more common than "personalized learning." In Ontario, the Ministry of Education is pursuing differentiated instruction, defined as "*effective instruction that is responsive to the diverse strengths, learning needs and preferences of individual learners. It provides a framework for thinking about teaching and learning. Differentiated instruction means responding to student needs with an awareness of the decisions that we make and taking deliberate actions to meet the needs of all learners.*"

With both differentiated instruction and personalized learning, teachers are helping students develop self-knowledge about how they learn best and how they are progressing towards a learning goal...and students are learning how to take responsibility for their learning. Perhaps "personalized learning" emphasizes the value of personal relationships in learning, while "differentiated instruction" focuses more on ensuring that instruction is responsive to learning preferences, interests and readiness of individual learners. It is more about creating organizing structures that support teaching and learning (human relationships are important, but not in the foreground). Other ways to personalize learning might be through teachers engaging with students in extra-curricular and co-curricular activities, and educators paying more attention to how they treat students as human beings (inside and outside of the classroom). Classrooms and schools that use programs such as Tribes emphasize personal elements of schooling to enable learning.

At the level of an individual classroom, clarity and precision about definitions and labels may not matter much. What matters is whether teachers are engaging students, gathering and assessing information about their progress, and using teaching strategies precisely targeted to needs of various students. For such successful practice to go beyond individual classrooms, however, to become characteristic of whole schools and systems, and to be sustainable, common understanding and communication are vital. At the level of a school or a district, people must agree on the meaning of the terms they choose to use. Without such clarity, goals will be fuzzy and assessing implementation will be difficult if not impossible.

Charles Leadbeater (2008) argues: "A mass, personalized learning service would be revolutionary. By giving learners a growing voice, their aspirations and ambitions would become central to the way services were organized. At the moment the heart of the

system are its institutions and professions – teachers and schools – that lay down what education is and how it should proceed. Studies of performance management across a wide range of organizational fields show that productivity invariably rises when people have a role in setting and thus owning their targets. The same is true for learning.
This implies far-reaching changes in the role of professionals and schools. Schools would become solution-assemblers, helping children get access to the mix and range of learning resources they need, both virtual and face-to-face. Schools would have to form networks and federations which share resources and center of excellence. An individual school in the network would become a gateway to these shared resources…"

2. Why is personalized learning not used on a large scale, and what is the evidence that it is possible/feasible on a large scale?

There seem to be several reasons why personalized learning has not yet been implemented on a large scale. We look here at five contributing factors. None of these should be fatal for the future of personalized learning in 21st century schools, although the challenges are evident.

1. *The traditions of schooling*: As mass education became widespread in the early 20th century, a "factory" model of schooling emerged as the most efficient way of delivering consistent and uniform instruction to large numbers of students simultaneously. Although teachers have always been aware of differences in ability and motivation, most have tended to "teach to the middle." The school cultures accompanying such a "one size fits all" approach to schooling have proved to be resistant to change; most schools still function as if all students were the same. Students use the same textbooks, study the same content and work through the same curriculum on the same schedule. Teachers most often talk with whole groups of students, delivering information at the same time to everyone.

2. *International educational policy trends*, especially in the 1990s: The introduction of international test comparisons, along with an increased focus on accountability, led to educational reforms designed to raise standards and increase levels of student achievement. Governments made legitimate arguments for general standards and equality across schools, districts, and states. However, such government initiatives often involved greater standardization of teaching, with less possibility for personalization and flexibility. Reforms included increased inspection and what have been termed "closely scripted curriculum reforms that severely reduced the latitude of teachers' pedagogical decisions – as in the widely used Success for All literacy program in the United States" (Hargreaves, 2003). In other words, the reforms may have inadvertently constrained teachers' efforts to personalize learning for the diverse students in their classes (an unintended consequence of a reasonable policy trend).

3. *Fear that implementing personalized learning on a broad scale would be overwhelming*. Many educators believe that developing separate teaching/learning paths for each student would be impossible (too many students, too little time). Sameness is always easier to accommodate than difference, and education practices often have been developed to consciously promote the same education for all students. The challenge is to develop approaches to personalization that can be readily incorporated into teachers' work. Personalization must be feasible on a large scale, across schools and systems. Fortunately, strategies for doing this are now available (e.g. DuFour et al., 2010; Fullan, 2009). These authors provide solid evidence that whole systems can do a much better job in engaging students and in providing instruction that is more precisely tailored to the varying needs and dispositions of today's diverse student bodies. Such success has been sustained over an extended period of time, even with changes in leadership; DuFour and colleagues give several examples, one of which I quote below.

4. *Lack of data about students and their learning*: Without good data on what students know and are able to do, personalizing or differentiating instruction to meet individual needs cannot be done with precision. In most classrooms, students are assessed after the teacher has "covered" a unit or topic; personalization or differentiation requires assessment before (and during) instruction.

5. *Gaps in teacher education and professional learning*: Many teachers have not had opportunities to develop the knowledge, skills and changes in beliefs that are required for more personalized approaches. Structures and processes in schools must provide support (and time) for teachers to be learners; only then will they develop new understandings and skills. As we have stressed throughout our work, such capacity building must be more than individual. If individual teachers develop understanding and skill, one classroom may improve. But the power of collective capacity building lies in the increased coherence and connection of efforts across many classrooms and many schools, leading to widespread and sustainable improvement.

Our work and that of others has recently demonstrated that a strong degree of successful personalization can be accomplished on a large scale. In our book *Breakthrough* (Fullan, Hill and Crevola, 2006), we started with the core principle that all children can learn given the right conditions, labeling this core the "moral purpose" of education. We then posited that what was needed was what we called "the triple p" model---**personalization**, **precision** of response to the learners needs and **professional learning** on the part of all teachers.

I comment here on our work in Ontario, and the most recent work of Rick Dufour and his colleagues in the U.S.* Our work, over the last twenty years and in many countries, has focused on how to achieve such broad-based change; we have unpacked elements of the change process in many books and articles. I am not talking about individual teacher change or even just school change; rather I stress that it is whole systems that need to change, from the bottom up and the top down, in an integrated fashion.

As I have argued, building *collective capacity* is the key to successful and sustainable change. But this is the component most likely to be neglected by policymakers. (Fullan, in press). Collective capacity is when groups get better—school cultures, district cultures and government cultures. The big collective capacity and the one that ultimately counts is when they get better conjointly—collective, collaborative capacity, if you like. Collective capacity generates the emotional commitment and the technical expertise that no amount of individual capacity working alone can come close to matching. We stress the critical distinction between collective capacity (which is exponentially powerful) and individual capacity (which is necessary but not sufficient).

Successful schools and larger education systems do not try to do everything; they focus on a few key priorities, hold that focus over time, and develop strategies for making measurable progress. Strategies require precision; vague strategies will not work. Fullan provides numerous examples of specificity and precision in particular strategies. With precision, he argues, the *speed of quality change* can be greatly accelerated. Incredible and convincing transformations can be accomplished in schools in one short year through precision strategies.

Quality instruction requires getting a small number of practices 'right'. These practices involve knowing clearly and specifically what each student can or cannot do, followed by tailored intervention that engages students in the particular learning in question, and then doing the assessment-instruction-correction process on a continuous basis, in dialogue with the student as appropriate. This is personalized learning; it is decidedly not drill and test. In our work in literacy and numeracy in Ontario, the instruction goals include higher order reasoning, problem-solving and expression, with the associated practices becoming more and more specific and precise.

In successful systems, strategies focus on and drill down to effective instructional practices so that *all* teachers, individually and collectively, become better at what they are doing while they continue to seek even better methods. This is the domain of expertise that John Hattie (2009) is getting at in his synthesis of over 800 meta-analyses of teaching practices related to student engagement and achievement. High impact strategies such as structured 'feedback to students', 'reciprocal teaching' (teaching students to learn cognitive strategies to facilitate their own learning), 'observation and feedback on ones' own teaching' all had high impact on student learning.
I am not talking theory here but rather actual practice that is on going on a large scale. I will use a hypothetical teacher, Albert Quah to illustrate what I mean. Only his name is false. Everything I say about him is now ongoing in practice:

> Albert Quah is a Student Success Teacher (SST) in a diversely populated high school of 1300 students in an Ontario city. His job is to help kids who might be on the verge of failing or dropping out to reengage in their education, and to connect to those who recently left to see if he can get them back in school. He knows the literature that says that often the difference between staying or going for many borderline students is whether they have a meaningful relationship with one or more caring adults. He also knows that it is not just a matter of caring, but whether these students, many of them bright, have something meaningful that interests them. Thus Albert must care but he also must help to make program innovations.
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> A radical and highly successful program innovation at Quah's school (as well as in other schools in Ontario) is called the High Skills Major. New specialties are created for students who find the abstract academic program not to their liking. They have little interest in and are not good at abstract thinking just for the sake of it. Normally such students get increasingly alienated, drop out or get streamed to dead end technical courses. HMS is not just for non-academic students; many 'academic students' are also in the program. This is what sets HMS apart from traditional (and dead-end) vocational programs. The idea is to combine intellectual and practical work in various ways for all students. (As an aside many so called academic course are not that theoretical or intellectual in any case; good theory must be grounded in practice and vice-versa).
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> The High Skills Major (HSM) programs allows schools and districts to work with employers and community groups to create packages of courses leading to employment and further learning. Albert knows that HSMs have been created in other schools in areas such as mining, tourism, agriculture, and manufacturing, which include links to colleges for further postsecondary learning and credentials. Albert given the interests of some of his students proposes and gets approval to offer a HSM in transportation. One of the girls, alienated from most of her courses becomes interested. It turns out that she and her father race cars on the weekend, and she knows a great deal about engines. Early in the course she asked her teacher if it would be okay if her father brought their racing car to school. Two weeks later a flatbed truck pulls into the parking lot with a gleaming racecar that looks like it has been plucked from the Formula 1 Grand Prix circuit. That girl is now reengaged! And she is doing well in her other courses to boot.
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> HSM is an elegant innovation that does not require major structural change and does not cost very much as it draws on the collective resources of partners that already exist. The program began in 2006-2007 with 600 students. Now in its fourth year more than 20,000 students are enrolled in 740 HSM programs in 430 schools involving 70 school districts. These programs are connected to 16 industrial sectors. This is truly an example of spontaneous collective capacity development that hardly cost the system anything.

To put this in another way imagine the following scenario – again something that is going on in practice in Ontario. I will omit the 0-3 year olds, as we don't have the necessary practices in place. Consider 4 year olds in all day kindergarten (Ontario is has just launched an all day integrated learning experiences for 4 and 5 year olds). In a tutor program, at-risk 4 and 5 year olds are identified and given extra learning suited to their needs. By the time they reach grade 1 their independent literacy skills are the equivalent of other grade 1 students. All through elementary schools personalized programs are conducted by teachers, the school and the district. They are continually engaged in implementing and refining learning practices that are individualized to each and every student. Monitoring and corrective customized interventions are a regular part of the work of these schools.

As students enter a given high school for example the Student Success Teacher, by name, the at-risk students and begins to design the intervention activities that will be necessary to re-engage them in purposeful learning. All other students are served with learning experiences suited to their situation. Since new students are entering the system all through the ages 4-18 constant monitoring and intervention is necessary.

Beyond Ontario, the approach of DuFour and colleagues (referred to earlier), like the Ontario experience, shows that personalized learning is feasible and within the reach of regular school systems. In page after page they show the specifics of how to do this. Although DuFour et al do not use the terminology of "personalized learning" much of their work over the last decade or more can be viewed as a variant of the personalized learning approach, applied and functioning at a system level. Their latest work shows precisely how this can be done on a large scale. The key concept is the development of "professional learning communities" or PLCs. As they indicate in their most recent book, their stress is on developing collective responses to emerging evidence that students are not learning:

> "In our writings on professional learning communities (PLCs) that have spanned more than a decade, we have challenged educators to confront the question, what happens in our school when, despite our best efforts in the classroom, a student does not learn? We have contended that traditionally the response to that question has been left to the discretion of individual teachers, leading to a kind of educational lottery for students. We continue to argue that this individualistic and random approach is neither effective nor equitable. We insist that a school committed to helping all students learn at high levels should provide a multilayered *collective* response that *guarantees* all students who struggle will receive additional time and support for learning. We propose that a school sincerely interested in the learning of each student should actually have a plan for monitoring that learning and a comprehensive pyramid of interventions for responding promptly, consistently, and effectively when some students do not learn." (DuFour et al, 2010, p. 1)

All in all, the work in Ontario and in the Dufours' approach is encouraging because it is being done on a very large scale by regular school systems, i.e. it is feasible and effective at getting at the individualized learning needs of all students, especially in literacy and numeracy – not defined narrowly but rather in association with 21st century learning skills. The limitation of this work is that it does not go deeply enough into creativity and innovation. The new work of Cisco, Intel and Microsoft on Transforming Education with respect to the 21st century learning instruction and assessment is entirely compatible with this Ontario/Dufour work and could extend it in its depth. The reminder is that the new work must be informed by what we have learned about building capacity on a large scale.

*Rick Dufour and his group (2010) just published a book—Raise the Bar and Close the Gap— that furnished evidence that all students in whole schools and districts can and are being served with strong, measurable results.

3. In what ways can technology help make learning more personal?

The role of technology is twofold---one concerns the **infrastructure** to support personalized learning (data, information, rich learning resources), and the other involves the use of technology to serve the **direct learning needs** of students. The former is more developed than the latter. New designs will be needed to maximize the use of technology for student learning, and it is here that the developmental investments are required.

It is sometimes suggested that 21st-century education policy should be about pupils accessing learning through the Internet and other technologies, whether this be inside or outside school settings. Leadbeater (2008) argues, however, that "[t]he key issue for this century is whether schools can provide more children with relationships that support learning. What tools, policies, and institutions we use to achieve that goal is secondary."

If relationships are key, and increasingly educators are stressing that they are, the challenge is to use technology as a tool for enhancing relationships and for enhancing learning. In our view, technology can contribute to personalized learning in at least four ways:

1. *Enhancing and facilitating human relationships*. Young people do not need anyone to tell them how technology enhances and supports personal relationships – their lives are now spent chatting on their cells, texting, tweeting, checking friends on Facebook and so on. A disconnect perhaps comes when schools see such social uses as distractions from learning. How can young people's constant use of interactive technology, with its strong focus on social interaction, be used as a vehicle to strengthen learning? Perhaps a beginning can be made through use of these technologies for enhancing and facilitating the human relationships that are most important for student learning – with teachers, peers, students in other schools, and even learners in other countries. Teachers and indeed whole school systems are now able to communicate with each other with an ease and familiarity that would have seemed impossible only ten or fifteen years ago. Again, the caution is to ensure that such communication helps focus on the key learning priorities, rather than be a distraction.

2. *Providing tools and programs that make it easier and quicker for teachers to collect, analyze and understand student data*: As we show in *Breakthrough*, personalized learning requires accurate diagnosis of each student's starting point, instruction tailored to engage and move the student forward, followed by assessment of "distance traveled." Schools need well designed systems for recording, keeping track, and reporting such data, along with solid training for teachers in how to interpret such data and modify instruction accordingly. In addition to providing the data foundation for personalized learning, such systems also free teachers to spend more time in dialogue with their students. As we show in *Breakthrough*, is intended to set the stage for classroom instruction in which the current sporadic data collection is streamlined, analysis is automated, and individualized instruction is delivered on a *daily* basis in *every* classroom. Now that is revolutionary.

We indicated earlier that among the reasons for personalized learning not being widely used were fears that it would be overwhelming and lack of data about students' precise levels of knowledge and skill. Breakthrough offers a way of linking all the core pieces of the puzzle for personalized learning on a wide scale – a manageable ongoing monitoring process that feeds into teachers' knowledge for informing instruction.

3. *Providing learners with online access to an infinite number of topics and issues*: Learners, in dialogue with teachers and/or other students, can work in a personalized learning situation, not limited by the resources available in any one school. Information and Communications Technologies can be powerful tools for personalized learning – they give learners access to research and information, and provide a mechanism for communication, debate, and recording learning achievements. However, the value of such technologies is greater within a framework of solid positive relationships between students and their teachers. Sensitive use of technology can enhance human connections; it is not a substitute.

4. *Supporting whole systems in collective capacity building*: We have argued that a relentless focus on collective capacity building across schools and systems is crucial if personalized learning is to become the norm and be sustainable. Technology provides the means of improving communication with colleagues, access to large amounts of relevant data, tools for collecting and analyzing current data concerning students, teachers, schools etc. We repeat our earlier warning about technology not replacing

human interaction; we add a further warning that technology can not replace human judgment and interpretation either. However, used thoughtfully, technology can not only enhance collective capacity building, it can overcome challenges of isolation, time, geographic dispersion etc., allowing teachers and schools everywhere to collaborate with others as they work to increase their capacity to better engage students and truly personalize learning for all.

An upcoming session scheduled by the American education weekly, Ed Week addresses these same strategies; an online professional development session Driving Achievement with Ed Tech will focus on techniques to ensure that technology is not a distraction but rather a support for student achievement. Topics include:

_ how online courses can affordably help rescue students who are in danger of dropping out, giving them a second chance in real time that would otherwise not be available in their brick and mortar schools;

_ how districts can more effectively analyze data to help improve academic achievement, including specific advice on how teachers should be using data-based decision-making to guide instruction; and

_ how one-to-one computing can give students access to higher-quality curricula, topical experts, and multimedia tools.

DuFour et al (2010) document the case of a Texas high school, serving 3000 students and using technology in a focused way as "an accelerator of the PLC journey:"

> "In his examination of the practices of organizations that make the leap from "good to great," Jim Collins (2001) found that those who made the leap were very focused in their use of technology. They were not interested in having the latest technology for technology's sake, nor did they believe that technology alone could improve their organization. They were, however, keenly interested in finding technology that "fit with their core purpose," and then using it to advance their purpose. As Collins states, "technology can accelerate a transformation, but technology can not cause a transformation" (p. 11).
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> Cinco Ranch High School has recognized that technology must always be a means to an end rather than the end itself. The staff there has done an exemplary job of using technology to accelerate momentum toward achieving the school's purpose of high levels of learning for all students. The district provides a data collection system, and teachers have been trained to access student scores by objective. Furthermore, some teachers have been released from a duty period to serve as data coaches for their department. They ensure that their colleagues receive the results of assessments on a timely basis and in a user-friendly format.
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> The district's science teachers have used video conferencing to create an electronic team that links them with all the other teachers of their course in the district. They have worked together to establish essential outcomes, create common assessments, and develop one common integrated lesson for each course. They then use video conferencing to review the results of their common assessments, reflect on the integrated lesson, and discuss best practices based on the results.
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> The school has also used both district funds and donations from its parent association to purchase smart boards that allow teachers to upload their lesson plans to their individual websites to help students review. Students also have access to an online discussion forum where they can post questions and seek assistance. As mentioned above, technology is also used to provide students with the individualized instruction that allows them to recover their credits …
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> A few of the school's teachers began to send a weekly email to the parents of their students advising them of upcoming topics and assignments. The parental response was so positive that all teachers have been trained to create email distribution lists to maintain steady communication with the homes of their students. Parents also receive either a progress report or a report card every three weeks from all of their children's teachers. Those who seek even more timely information can access teachers' grade books on the web to review their child's grades and completion of assignments. It is evident that parents sincerely appreciate the school's effort to make them partners in the education of their children, and parents devote over 10,000 hours of volunteer service to the school each year.
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> We have seen schools approach technology as if the primary goal was to collect the latest gizmos without consideration as to how the technology would align with the priorities of the school. The clarity of purpose that characterizes Cinco Ranch, and the constant focus on that purpose, has resulted in technology being used in a powerful way. This award-winning high school has demonstrated that technology can accelerate a school's progress on the PLC journey when it is used to provide teachers with the timely, specific, and user-friendly feedback that is essential to good instruction, foster greater collaboration with colleagues, create stronger links with parents by providing the information they need to be effective partners in the education of their children, and provide students with additional support and more opportunities to learn." (p. 124-126)

Much more is required to sort out the issues in ensuring that learning drives technology. Charles Leadbeater continues to be one of the best thought leaders in the field. Here are some snippets from a BBC interview last month.

> "I mean the web isn't a sort of utopian collective. It's life reflected on the web. But the nature of the web, because it allows this ability to create in a very distributed way and for people to connect and collaborate, it makes things possible in ways that they weren't before. It's now possible to collaborate more effectively than ever before without having a traditional organisation. It's created a new menu of options for us to get things done together in new ways that are significantly different. So in that sense it's not simply reflecting how society is, it's opening up options for us to behave and be in different ways, and that's what's really significant about it."
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> The Web I think is a great levelling, because the means of production to have your voice heard, to find an audience, to join in, have been hugely costly in the past, you've needed recording studios, or television studios or printing presses. Now someone with an iPhone can post a video, make a pod cast, connect to someone else, anyone with the means of communication through a computer can have access, potentially to a vast audience. In that sense, it has completely

blown apart and levelled access to communications and collaboration. You can have your say and find your audience, find collaborators in ways that were never possible before."

In summary, personalized learning, at its most fundamental level, requires that schools and school systems engage all students in their own learning. It also requires that instruction and learning supports can be tailored to address the varied learning needs and dispositions of highly diverse student bodies. Such a challenge has been incredibly difficult to meet, for various reasons related to both the history of organized schooling and the challenges of blending efficiency with diversity/customization in a large system with limited resources. In our view, the key to successfully providing more personalized learning on a broad scale is twofold: first, focus on collective capacity building, through approaches such as professional learning communities and, second, strategic use of technology to address many of the challenges. Technology, as a support or accelerator, can ensure more effective collection and use of data to improve instruction. Technology can also facilitate communication, provide much more diversity in content for students, and help schools better meet the varied needs and preferences of students. What is crucial, however, is that technology must serve the core purpose of schools.

Finally these new developments must meet the moral purpose and feasibility criterion of 'whole system reform". Thus the solution must be practical and deep on a large scale that serves all students. With the progress made by ourselves and others since 2003 I believe we are now in a position to achieve personalization on a very large scale. It is for the first time in educational reform a practical possibility to integrate the learning needs and aspirations of each and every student with the power of technology. The speed of quality implementation can be dramatically accelerated (Fullan, 2010, in press).

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