The Optimal Reference Guide:

Data Driven Decision Making 2016

Extraordinary insight into today's education topics

Glynn D. Ligon, Ph.D, ESP Solutions Group

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Foreword

There really have been incredible advances in education information. Life-changing events are rare, and these events or trends come close. Six changes made my list of incredible advances—ranked from the most significant to merely significant. The nature of education information changed with each of these, and I do not believe that the impact of each can be overstated.

1. Individual Student Records--LEA to SEA
    Florida and Texas get credit for taking this leap back in the 1980's, but all the other states are now doing the same. When an SEA converts from gathering aggregate statistics to collecting individual student records and calculating the statistics for everyone, that changes the entire data management equation.

2. Technology—as good as expected
    In 1996, many of us knew that technology was ahead of our capacity to take advantage of it—still true today. Budgets and the leadership of decision makers have not kept up with the technology. The drop in prices, E-Rate, and innovative educators have pushed technology use along.

3. Burden—standards and interoperability
    When data can be keyed in once and shared among all other software applications, that is a major change in the education information ecosystem. From ODBC to SIF, progress has been significant. Metadata standards across EDEN and the NCES Handbooks have influenced SEAs' standards. Wyoming is now moving weekly student/class/teacher data from school SISs to the SEA using SIF vertical reporting.

4. The No Child Left Behind Act of 2001—information systems were behind
    The major impact I saw for education information from the No Child Left Behind Act was the realization across policy makers and top leadership that their information systems and data management processes were inadequate. Playing out over a longer term will be the resultant advances in assessments—improved psychometrics, computer administration, longitudinal analyses, tighter alignment with standards, etc.

5. SEA and LEA websites
    Many SEAs, illustrated by Indiana, have built impressive websites to provide the explosion of information to everyone and anyone.

6. EDEN/ED*Facts*
    If the reality matches the design, then the USED will one day have a way for everyone and anyone to access official education information in a timely and user-friendly manner.

What's next? I have made some predictions in this paper. My colleagues here at ESP have many more. Our clients also have great ideas. The best part of writing them down in a paper like this is you can go back later and brag when you are right. Of course, someone is likely to remind you of all the others.

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Collection of individual student records by the SEAs is the top advancement of the last decade.

Perspective on Predictions

Accurate predictions are difficult.

I recall the morning after Kennedy defeated Nixon, one of my disappointed classmates waved his arm at our school and declared that within a year "all of this will be ruins." I recently drove past that old campus, and unless it has been converted to a Roman museum, it's not yet ruins (even by AYP standards). One of the most ridiculous predictions I ever encountered was on the back cover of a Sandra Brown novel, *Exclusive*, published by Warner Books, 1997. (Yes, I read that book.) The Ad Council's Coalition for Literacy predicted that by the year 2000 "2 out of 3 Americans could be illiterate." I called the National Institute for Literacy's toll free number and followed a trail through three other numbers to reach a dead end trying to track down their statistics. Even if they counted preschoolers, they were wrong. I guess a book publisher does have a high stake in preventing illiteracy.

Perspective on Information Management

At the end of August, after 10 years, we moved our corporate headquarters. We recycled several large barrels of paper that represented 13 years of our corporate working documents. Interestingly, little has been lost, because most is backed up in original data files. This is in contrast to the last big move in which I participated.

In 1991, the headquarters for the Austin schools moved after 25 years in the same building. A truly unbelievable tonnage of paper was tossed. Almost all of that was paper-only correspondence and curriculum documents created before word processors. Anyone working in an office prior to e-mail knows that when a typed memo was sent out, secretaries all over the school system would dutifully make copies for everyone and we would all file our copy away. Somehow we thought it was important that we each keep that annual notice about summer dress being casual.

During that move, I toured the old administration building periodically and barrel dived to find historic documents. I recovered a 1966-67 budget book (superintendent made $20,000 annually, state provided $83/student in funding), a 1947 facilities book (white and non-white schools denoted), a 1959 teacher handbook (lunch, hall, and playground duty required), and a book titled "The Mentally Disturbed Teacher" (boring compared to CNN).

A 1956 principal handbook provided these excerpts.

> "A record of work from the school previously attended is required of all pupils transferring into the Austin Public Schools. This is usually in the form of a report card."

> "The Principal of each school, as census director of his district, shall appoint as enumerators such persons as are necessary to complete the census enumeration. These enumerators must be approved by the President of the Board of Education in accordance with State law."

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In 1991, tons of paper had to be tossed or lugged when an education agency moved. In 2016, will we move any paper at all?

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1959 Teacher Handbook: Each school has one or more of the following types of equipment: sound motion picture projector, combination film strip and 2x2 slide projector, record player, and radio.

"Each teacher shall be responsible for the safe keeping of the attendance records throughout the year. At the end of the year, all records will be sworn to, notarized, and delivered to the Superintendent of Schools by the Principal."

Of course, I was most interested in the periodicity for reporting official statistics.

"Reports to be Made throughout the School Year: It shall be the duty of the Principal to make out the following reports at the appropriate times of the year.
1. G-21 report of all pupil transactions within a school during a period of time. This is a report of the number of G-7's, G-8's, G-15's, G-15a's, G-10's, G-10a's, and G-10b's.
2. Principal's six-weeks reports which are made out each six weeks period from the `Teacher's Register.`
3. Principal's `Term Report` which is the final report for the year made from the totals of the six-weeks reports.
4. Summary of promotions.

"Pupil Records (Elementary)
1. Form E-3 is the permanent white office `locator` card which is kept on file in the Principal's office at all times.
2. Form E-2 is the `pink` card which includes the same information that is on the E-3 and is kept up to date by the teacher and is in her custody.
3. Office record of all transactions involving the entering, transferring, withdrawing, and re-entering of all children throughout the school year.
4. Personnel folders including all confidential material about children. They include health records, intelligence testing scores, achievement test scores, reading scores, and may include duplicate report cards.

"When a child transfers from one Austin School to another, the receiving school shall telephone the sending school and ask that the pink cards and personnel folder of the child be sent to them through the school mail.

"Records from (sic) High Schools
1. It shall be the duty of each elementary Principal to see that his sixth grade teachers fill out the `Guidance Cards,` the `Pupil Response Slips,` and prepare the pupils' `Personnel Folders` for the junior high schools in which the school's sixth grade pupils will enter the following fall.
2. It shall be the duty of the junior high school Principals to see that their counselors and advisory teachers prepare the `Pupil Planning Cards,` the `Choice Slips,` and the `Guidance Cards` so that they may be sent to the senior high schools in which the ninth graders will enroll the following fall."

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In 1956, paper forms organized our information about students. Cards and slips preceded today's screens and information systems—and are still often the first media used for recording data about a student.

Well organized, very paper dependent, very deliberate, very slow—way too similar to what happens still today in too many small, rural schools and districts. However, SEAs are working diligently to support them to automate. Larger districts have moved far beyond this.

Perspective on Technology

When the old Austin district headquarters moved, in the ceiling was over a mile of copper wire for the Wang word processing system that required cables to run both ways to each work station from the central computer. In the basement were folders for tens of thousands of students who had left the district without graduating and who had not yet turned 21. In a closet were the ballots from a contested senior class president election at Lanier High School. Special Education had 80 file cabinets of carbonless paper records (very thin, each file cabinet held twice the number of regular sheets of paper that would fit).

When we moved our ESP Solutions Group headquarters, relatively little paper was taken. In fact, much of that will soon be scanned and saved as images, and that paper recycled. We have Voice over Internet Protocol (VOIP), a wireless network, networked printing and faxing from our laptops or workstations, and video conferencing. Instead of separate phone and data cables, we only ran data cables to our offices. Yes, wireless networking is everywhere, but we still need the wires for reliability (don't we?). None of this is too unusual these days. You are invited to visit us.

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If we send electronically our corporate data on ahead to a new office, why are we still sending paper student records to a new school?

The biggest change from one move to another? In 2006 contrasted with 1991, we can find the information we need, when we need it. Our history and institutional knowledge no longer gets filed or boxed away where its very existence is forgotten. Maybe that is a significant advance. If we truly depend upon data driven decision making, we cannot afford to lose track of our data.

Perspective on Confidentiality

If you saw our Optimal Reference Guide in August, "FERPA—Catch 1 through 22," then you know there is pressure to change confidentiality rules. In 1956, apparently access to school records was dictated by prudence rather than FERPA.

> "No Principal or teacher is to divulge grade equivalent scores to parents or children, nor are they to divulge the I.Q. scores to parents or children, except in extreme cases where prudence dictates that it is necessary."

ESP Insight
In 1956, prudence ruled access to confidential student information, not FERPA.

I can only assume that the 1956 "Partial Paid Lunch and Shoe Application" was confidential. Monthly income below $70 and four or more children netted free meals and shoes. (You are on your own for puns about servers and rebooting.)

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Retrospective on Predictions

In July, our monthly Optimal Reference Guide was "How Education Data Fared in the Last Decade." Some 1996 predictions for education information were evaluated by 2006 technology practice.

Predictions for 2016

In 2016, we will know if these next 10 years fulfill the promise that information technology offers.

In my top ten predictions for the next decade, I have focused less on technology itself and more on the changes technology will bring to education information and workflow.

Main Themes:

1. **The Cumulative Education Transcript (CET) and the Certified Individual Resume (CIR)**

   Consider how "effortlessly" the credit agencies track and accumulate our financial history. Now, imagine a similar, but less sinister process for consolidating all the relevant education credentials for each of us. From whatever we consider to be the meaningful starting point (e.g., first earned high school credit), this academic record or transcript would be consolidated and made available to authorized users. Those would be the individuals or agencies that you approve receiving the portions of your transcript that you want them to see. These recipients would then get an electronic, certified, official, and confidential transcript.

   Consider the proliferation of academic credits and credentials a person can accumulate. Course credits, degrees, certifications, continuing professional training, personal improvement seminars, and even employment history will be available. This encompasses anything and everything one might need to qualify for admission, be employed, be promoted, get a scholarship, participate in NCAA athletics, take the next higher course, satisfy a community service sentence, qualify for a tax deduction, etc. As of now, these credits and credentials are accessible only by contacting each and every one of the authoritative agencies.

   Expanding this notion, it is a small step to having a certified individual resume. Imagine applying for a job and providing the potential employer with a code. Using the code, the employer accesses your CET and your resume (again only the portions you authorize). The Certified Individual Resume (CIR) contents have been authenticated by the CIR service and certified with the authority of each reference within the record.

   Wondering how all these data about you get into the same database? Maybe they don't, but they are consolidated as needed from the schools and agencies you authorize to provide them to a trusted entity, for example, the National Transcript Center, www.transcriptcenter.org.

2. Secretary to Secretary (S2S)

Imagine a network of education information applications that share data electronically, using open standards. When a school secretary enters data about a new student into the local student information system, all other applications that need to know this student has registered are updated (e.g., transportation, food services, library services, instructional management, etc.). See "Secretary to Secretary: The Path from Data to Decisions" under Illustrative Posters on *My ESP Page* at *http://www.espsg.com/login.php*. The data originally entered by the school secretary follows a path of automated exchanges until aggregate statistics reach the U.S. Secretary of Education. Unattended processes, interoperability based upon open standards, and a growing confidence in the ability of systems to manage authentications and authorities will make this a reality. Schools Interoperability Framework (SIF) looks like the leading choreography to be adopted, but standards like SIF tend to morph as other industries lead the way for education.

3. D3M Framework

When the U.S. Secretary of Education wanted to support states struggling to comply with the No Child Left Behind Act, I was asked to write a whitepaper describing the technology framework a state needed. See "Technology Framework for No Child Left Behind – An ESP Report" available on *My ESP Page* at *http://www.espsg.com/login.php*.. That framework and the S2S process were later translated into an information system architecture for the D3M Alliance. See ESP Optimal Reference Guide "Our Vision for D3M" on *My ESP Page* at *http://www.espsg.com/login.php*. This framework and architecture represent the components of an information solution that puts timely data at the fingertips of a decision maker.

4. Unobtrusive Reporting and Analysis

Educators should educate, not stop the education process to fill out reports. With S2S and the D3M framework, the data needed for reports will be gathered from transactional systems, as work is accomplished, not as a separate task. Even student academic assessments will become benchmarks of academic standards met during on-going instructional activities, rather than the current separate measurement events.

5. Course Classification System

Even though most states do not yet have a statewide course numbering system, I predict that course classification for the sake of positive interpretation of course content will become a hot issue. Simply put, states and districts cannot do all they want with student academic records without a universal language for classifying courses.

Electronic transcripts, evaluation of course credits for scholarships, assessment of courses taken for NCAA athletic eligibility, certification of prerequisites for higher level courses, etc. all require almost universal interpretation of courses. I would not predict a single classification system to emerge. Instead I expect that a canonical system will be used as the

crosswalk medium. For example, the NCES SCEDS could be used to align each individual state or district course numbering system to a common standard from which any other aligned standard could be derived.

In the process of numbering courses, the classifications will advance the notion that it is not the course itself that should be defined but the academic standards that are taught in the course.

6. SecondaryPostSecondary

The space between high school and college will close. Secondary students may still be enrolled in a high school, but their course selections will span their own school, other high schools, technical schools, postsecondary institutions, and private corporations. Credits for "courses" at any of these will form the beginnings of a life-long transcript. That transcript will grow continually as the individual adds formal education, life experiences, work experiences, certifications, licenses, etc.

This prediction weaves together the Cumulative Education Record and the Course Classification System. The articulation of courses and credits across levels of education and across institutions will be necessary. This does not anticipate nor require a national curriculum, merely that each slice of a local curriculum must be interpretable by any other institution where the student uses those credits and credentials.

7. Authentication of Information Sources (criteria for trust, set by the user)

The Web has provided us an over-abundance of opinions and references that come from unknown sources. Very soon, we will begin trusting only those that are certified or identified to our satisfaction. That certification may come from references of other trusted individuals, government agencies, universities, corporations, political organizations, professional organizations, or your own personal experience. How this is accomplished on such an open and dynamic ecosystem as the Web will be a challenge. September's ESP Optimal Reference Guide, "Why MySpace Matters to the K12 Space," uncovers some of the dynamics of how this is done with today's popular web sites and looks ahead at how portals and communities on education sites can take advantage of Generation Y's innovation.

8. Data DNA (definitive nexus authentication)

Just as we demand certification of the individuals from whom we accept information, we need certification of the source, quality, and integrity of the data themselves. We will be able to click on a cited statistic in a report and trace the provider, definition, disclaimers, authoritative source, and derivation of it. Just as this provenance provides value to an antique, the origin and chain of possession of a statistic should establish its trustworthiness and validity for influencing your decisions. "Definitive" means that this statistic is valid and verified as what it represents itself to be. "Nexus" documents how the data got here. "Authentication" means who or what authority stands behind the statistic. Together, the DNA certifies a true identity.

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9. Cost Benefit Analysis (return on investment)

The ability to link educational services and programs to the resources expended to deliver them will allow education evaluators to calculate actual costs reliably. Then the academic progress of the individual students receiving those services can be related to the cost of delivery. We will begin to see education programs being evaluated, not merely on effectiveness, but also on the results they return for the dollars expended. As cold as this seems, the continual pressure to justify the cost of education, to find ways to stretch finite resources to achieve the greatest learning, and the demand by parents that their students get the most value possible from their investment of time in a school will push this methodology.

Dollars will not be the only metric used. Time will also be valued. Return on time invested by the student (opportunity cost savings) will become crucial as parents and students desire to accumulate the most credits in the least amount of time. Students will want to get on with their lives, go on to college, rather than spend four years in high school. Remedial programs will want to bring deficient students up to standards in the least amount of time. Schools and colleges will understand that their most valuable output is a graduate, a successful former student who has vacated a seat in the classroom for another student to occupy.

10. Max Yield Data

When everyone agrees that certain data are well worth the effort required to collect and report them, then those are Max Yield Data. Max Yield Data are not legacy data that have outlived their usefulness, nor are they redundant data collected by another more authoritative source, nor are they speculative data collected because they might be useful. These are the data that are so valuable for decision making that the burden is outweighed by the use. As time goes on, our information systems will focus more on Max Yield Data and jettison other data. Even better, the systems will avoid collecting new data that are not Max Yield Data. See My ESP Page under Other ESP Material.

Now I must admit, these are not so much predictions as wishes. These are 10 advances in the application of education information technology that if realized would solve some of our most troubling problems.

The following is a list of specific predictions that ***must*** come true for the 10 wishes to have a chance to materialize.

1. Family mobility and school choice systems will demand that student records move electronically with the students.

2. Official student records will become like credit reports—assembled from across data sources and provided on demand.

3. A national crosswalk of courses will be created. Not a single standard, but a library of crosswalks from individual systems to each other.

4. EDEN and ED*Facts* will morph into our virtual center for national education statistics.

5. NCLB's legacy will be to have put education data into overdrive. The next reauthorization will institutionalize flexibility. The impact of that will be even more reliance upon data and data systems to provide a richer and wider diversity of data types. But the demand will be to avoid the fatal flaw of authentic assessments—they were too expensive and too subjective to be practical.

6. A national student identifier will not be implemented. Instead, each state's identifier will follow students as they move. There will not be a need for a single system because every state will be able to concatenate a state's abbreviation with its identifier to create a national set of unduplicated, permanent identifiers. (If a national identifier for all U.S. residents emerges, then schools will adopt it as a way to exchange records across states.)

7. Benchmarking across schools and districts will provide a national improvement movement aimed at making the processes implemented by schools and districts more efficient and effective. This will happen after interoperability allows for reporting of metrics without excessive burden on staff.

8. Teachers need information about their students' families on a daily basis—what's happening, changes in contact information, vacations, illnesses, stresses and successes in a student's life, etc. The web and portals will be used to establish a real-time link between the teacher and the parent. Then the challenge will be to filter so much information about some students and to get anything at all for others. Signing and returning papers will be replaced.

9. Because the data that teachers need are so different from the funding and accountability data needed by an SEA and USED, the focus will be on building systems, independent of content, infrastructure, and user support. Local schools will determine the content (e.g., family events, out-of-school activities, community participation, etc.) and how to acquire it.

10. Almost universal access to education's enrollment, assessment, and program participation data will open the door for anyone and everyone to create their own statistics.

11. Identity and credential substantiation will become expected before the general public will search, find, and value/use information on the www.

12. Blogs and vlogs and the next generation of real-time idea sharing will create an underworld of information and misinformation about schools, teachers, and maybe even individual students. Education agencies will struggle to control this.

13. Data owners and providers will become much more insistent upon knowing who is accessing their data and how the data are being presented.

14. Agencies will be even more assertive in publishing—first—their official statistics. But they will have to be ever vigilant that they do not favor any one group or individual in the release of their data to the "public."

15. Protection will occupy everyone's attention. Security, confidentiality, disaster prevention and recovery, portals, firewalls, etc. will demand a major portion of all technology resources.

16. Portals will control access to everything.

17. Data repositories will become more virtual than single-location warehouses. Interoperability will link data repositories.

18. Something other than passwords will take over—something biometric. (Even behavioral patterns may be used for continual verification of identity, e.g., keyboards will verify finger prints and a user's typical pattern of which finger presses each key to allow continued access to systems, servers will analyze the periodicity of access to files and applications for individual users, new access patterns will require deeper identity verification, etc.)

19. National and international metadata standards will become necessities.

20. The footprint of hardware will continue to shrink. With electronic books, projectors, handheld devices, classrooms will become less cluttered.

21. Creativity will blossom in the way virtual group sessions are conducted. Businesses will lead the way.

22. Assessments will become on-demand, on-line, and on-going.

23. The psychometrics of assessments will change from single points in time, annual, benchmarks and norms to continuous scaling.

24. Accountability systems will be required to align the worlds of "opportunity to learn" and adequate yearly progress.

25. The use of hierarchical linear models (HLM) to judge teachers, schools, and districts will be taken to a point that far exceeds the assumptions for the data and the capabilities of the calculations. Failing to achieve face validity beyond more simple methods, HLM will return to be a tool for the academics.

26. The accountability benchmark that will emerge will be promotion and graduation—how many students are proficient enough to be promoted and eventually graduate. Finer benchmarks than annual, end-of-school counts will be established.

27. Cheating by use of the Internet will become a crisis. Students will need to be provided a "clean" computer and be required to produce work to be graded in class, on an intranet, or on the Internet while being proctored.

28. Education only handheld devices will be produced that have no use or value beyond the school. This will make them worthless for theft or misuse, so they can be provided to every student, just as textbooks are today.

29. The power crisis in schools will continue to exist until alternative sources of portable (battery-type) energy are developed.

30. Storage capacities will continue to make stockpiling data possible. Improved performance of databases will simplify the retrieval, analysis, and presentation of this greatly expanded quantity of data.

31. Transmission speeds, bandwidth, will continue to expand and that will make even more difference than storage. Wireless technology and satellite connections will support the other changes happening.

32. The music industry, games, gambling, and on-line banking will provide new technologies for education—and even more important ensure that all students, teachers, and staff are technology literate.

33. Standardization of user interfaces and shared functionality will reduce the amount of training and technical support people need even as more and more processes are automated.

34. Advances in paper and printing will be needed to provide the physical books and reports people still need—and prefer to work with. Faster cheaper printing, in color, will be needed along with recycling systems that recreate paper as needed. Why not a printer that produces a temporary copy that can be run through the copier later to be coated if it needs to be kept—or it can be run through again in an erase/print mode.

35. A national crosswalk of state assessments will continue to elude us. Differences in standards and assessment processes will thwart even equating studies with NAEP. Optimistically, though, crosswalking efforts will continue to push our understanding of the differences and commonalities across states' standards and assessments.

36. Rankings of schools by magazines will flourish—for awhile longer. Eventually they will be forced to refine their methodology, admit their shortcomings, and publish rankings that are very narrowly focused and less widely cited.

37. Data systems will no longer be designed to deliver all the data in every possible way. Useful reports will be generated only as needed. Access will replace dissemination—finally.

38. An international flavor will be imposed upon U.S. education data as emigrants, immigrants, and migrants become more acknowledged by school systems.

39. The line between high school and college will disappear. Secondary students may still be enrolled in a high school, but their course selections will span their own school, other high schools, technical schools, postsecondary institutions, and private corporations. Credits for "courses" at any of these will form the beginnings of a life-long transcript. That transcript will grow continually as the individual adds formal education, life experiences, work experiences, certifications, licenses, etc.

40. The definition of data will expand. Today's education data must be:
    - Defined adequately such that the providers, processors, and users of the data all have the same understanding of what is being described, measured, or reported. A metadata dictionary, a user guide, and technical documentation team together to provide clear and precise definitions and characteristics.

    - Aligned to an open standard such that when the data are exchanged between information systems, both the source and destination software applications correctly interpret the values/content. Individual applications conform to interoperability standards (e.g., SIF). Open standards allow data exchanges beyond the scope of a single vendor's reach.

    - Specified in their periodicity such that the providers, processors, and users of the data know the time period represented by the data and the collection and reporting schedule for the data. The metadata dictionary and user guide specify the time period from which the data are collected and reported. A data collection and reporting calendar document when the data are available for use.

    - Collected at a level of detail that allows analyses, queries, and reports aligned with the questions being asked by decision makers. The granularity of the data allows for re-analysis and disaggregation to meet changing decision needs without re-collecting data.

    - Collected because they are needed for a specified purpose and are not available from another source. An organization's overall data management process ensures that only useful data are collected, and that they are collected once and shared for many uses.

    - Stored digitally. To fit into today's information systems, anything to be saved and accessed later must be digital. By this definition, if information items are not digital, then they are not data. No value judgment is being made, just the practical reality that our new information systems process digital data. Practically everything can

be converted to a digital image these days—chemicals, classical paintings, music, colors, etc.

- Stored in a schema that optimizes access by a user, not efficient use of storage space. Recall when best practice mandated that our databases be normalized—every datum stored one time in such a logical way as to eliminate all redundancy? Now the emphasis rightly so is on speed of access. We store data so we can find them and use them. Who cares if that means having the same data element in the database a dozen times? A single data warehouse may not be the most efficient way to manage all of an education agency's data. Data consolidation and access are complex challenges that should be driven by the use of the data rather than a trendy data warehouse solution.

- Validated against data rules that ensure compliance with standards, definitions, database formats, etc. Definitional data rules ensure validity. Format data rules ensure interoperability and access. Relational data rules ensure that the data make sense in terms of the other data within the system.

- Related to other data that together provide the insights into what is really happening with students in our schools. Disaggregating data for subgroups as required by the No Child Left Behind Act means we must be able to put the same student in multiple groups dependent upon that student's characteristics. Growth, value-added, longitudinal, and other research and accountability models require linking across years, assessments, school characteristics, and student characteristics. Benchmarking and other comparative processes typically call upon multiple indicators across multiple entities. Calculating rates (dropout, attendance, graduation, retention, passing, discipline, etc.) requires both a numerator and a denominator with the appropriate periodicity.

41. An alignment will take place between some researchers and some practitioners. Practitioners will be required to follow standards for assessments, analyses, and reporting—and be less freewheeling. Researchers will be required to be less insistent upon random trials, and more excited about using the wealth of education data within state and local systems.

I have others that are more esoteric, technical, or of limited interest to others (e.g., sampling theory will be replaced by error measurement as the foundation of determining reliability for reporting adequate yearly progress, IRT (item response theory) will be debunked and shown to be over-sold in its precision, statewide assessments will be built for accountability rather than having to also pretend to provide diagnostic information for individual students, etc. Those need a more targeted audience and too much explanation for this paper.

I find making and later revisiting predictions is an entertaining and professionally useful exercise. After all, we base many of our most significant decisions on what we think will happen in the future. To rephrase an old saying, if you never document a prediction in advance, you can't say, "I told you so" when it happens.

What are your predictions or wishes?

About ESP Solutions Group

ESP Solutions Group provides its clients with *Extraordinary Insight™* into K-12 education data systems and psychometrics. Our team is comprised of industry experts who pioneered the concept of "data driven decision making" and now help optimize the management of our clients' state and local education agencies.

ESP personnel have advised school districts, all 52 state education agencies, and the U.S. Department of Education on the practice of K-12 school data management. We are regarded as leading experts in understanding the data and technology implications of the **No Child Left Behind Act (NCLB)**, **Education Data Exchange Network (EDEN)**, and the Schools **Interoperability Framework (SIF).**

Dozens of education agencies have hired ESP to design and build their student record collection systems, federal reporting systems, student identifier systems, data dictionaries, evaluation/assessment programs and data management/analysis systems.

To learn how ESP can give your agency *Extraordinary Insight™* into your K-12 education data, contact Greg Nadeau at (781) 370-1017 or gnadeau@espsg.com.

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(512) 458-8364
www.espsolutionsgroup.com
Austin • Boston • Washington DC