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A Time and A Place for Authentic High-End Learning

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Suddenly I remembered why I had gone into teaching in the first place. I had forgotten, and I didn't even know I had forgotten. Then I remembered what I had always thought teaching would be all about.

—Middle School Teacher in the Enrichment Cluster Research Project

Each week all of the students at the Brete Harte Middle School in San Jose California leave their regular classrooms to participate in interest-based enrichment clusters designed around a constructivist learning theory that focuses on authentic high-end learning. Under the guidance of their teacher, David Rapaport, one group of students is identifying, archiving and preserving documents from the 1800s that were found in an old suitcase belonging to the first pharmacist in Deadwood, South Dakota. Another group with strong interests in media, technology, and the graphic arts is converting the archives into digital format and developing a web site where this and other student research can be accessed. Others have prepared articles for publication in a Deadwood magazine.

These cross-grade clusters are scheduled on a rotating basis and usually last for eight weeks in the Fall of the year with a new series of enrichment clusters scheduled during the Spring months. Some clusters such as the one mentioned above go on for extended periods of time. Teachers develop the clusters around their *own* strengths and interests, sometimes working in teams that may involve parents and community members. Students make selections based on attractive descriptions that convey the action-oriented learning model that guides the clusters. (See insert)

The enrichment cluster concept was developed at Brete Harte Middle School and numerous other schools across the nation to deal with what many educational leaders believe has

become nothing short of a crisis in our schools. As the demands of standardized testing have increased, teachers and administrators have been under almost unrelenting pressure to “get the scores up.” This focus on “test prep” has had the effect of squeezing more authentic kinds of high-end learning out of the curriculum, thereby minimizing the one aspect of American education that has contributed to the innovativeness and creative productivity of our culture, our economy, and our leadership role in the world. Improved test scores are important, but a time and a place for the *application* of knowledge in authentic learning situations is what distinguishes a progressive education system from the perpetual memorization and testing that characterize education in third world countries.

What Exactly is Authentic Learning?

All learning exists on a continuum ranging from deductive (didactic) and prescriptive learning on one end to inductive, self-selected, and investigative learning on the other. The essence of inductive or high-end learning is the *application* of relevant knowledge, thinking skills, and interpersonal skills to the solution of real problems. It involves finding and focusing a problem, identifying relevant information, categorizing and critically analyzing that information, and synthesizing and effectively communicating the results of an investigation or creative endeavor.

Real-life problems share four criteria. First, a real problem requires a personal frame of reference for the individual or group pursuing the problem. In other words, the problem must involve an emotional or internal commitment in addition to a cognitive interest. A second characteristic of real problems is that they do not have existing or unique solutions for persons addressing the problem. If an agreed-upon solution or prescribed strategies for solving the problem exist, then it is more appropriately classified as a "training exercise." Even simulations based on approximations of real-world events are considered training exercises if their main purpose is to teach predetermined content or thinking skills. The third characteristic of a real problem is best described in terms of why people pursue these problems. The main reason is that they want to create new products or provide information that will change actions, attitudes, or beliefs on the part of a targeted audience. For example, a group of young people who gathered, analyzed and reported on data about television-watching habits in their community were contributing information that was new, at least in a relative way, and that would cause people to

think critically about the television-viewing habits of young people. The final characteristic of real problems is that they are directed toward a real audience. Real audiences consist of persons who voluntarily attend to information, events, services, or objects. A good way to understand the difference between a real and a contrived audience is to reflect on what some students did with the results of their local oral history project – a biographical study of all the men from Connecticut who died in Viet Nam. Although they presented their findings to classmates, they did so mainly to rehearse presentation skills. Their authentic audiences consisted of members of a local historical society, veterans groups, members of servicemen's families, persons who attended a local commemoration of Viet Nam veterans, and persons who chose to read about their research in the features section of a local newspaper.

Enrichment clusters are purposefully designed to create a learning environment that enhances these kinds of experiences. Enrichment clusters are *not* mini-courses! There are no predetermined content or process objectives, and the teacher's role is decidedly different from the traditional knowledge transmission goals of regular curriculum or mini-course experiences. The nature of the problem guides students toward the use of just-in-time knowledge, use of appropriate investigative methods or creative production skills, and professional methods for communicating the results of their work. In this type of learning students assume roles as first-hand investigators, writers, artists, or other types of practicing professionals. Although students pursue these kinds of involvement at a more junior level than adult professionals, the overriding purpose is to create situations in which young people are thinking, feeling, and doing what practicing professionals do in the delivery of products and services.

Enrichment clusters should be viewed as vehicles through which students can increase their knowledge base and expand their creative and critical thinking skills, cooperative group work skills, and task commitment by applying their time and energy to self-selected problems or areas of study. Authentic learning should be viewed as the vehicle through which everything, from basic skills to advanced content and processes, "comes together" in the form of student-developed products and services. In much the same way that all the separate but interrelated parts of an automobile come together at an assembly plant, so also, do we consider this form of learning to be *the assembly plant of mind*. This kind of learning represents a synthesis and an application of content, process, and personal involvement. The student's role is transformed from one of lesson-learner to first-hand inquirer, and the role of the teacher changes from an instructor

and disseminator of knowledge to a combination of coach, resource procurer, mentor, and guide-on-the-side. Although products play an important role as vehicles in creating authentic learning situations, a major goal is the development and application of a wide range of cognitive, affective, and motivational processes.

How to Develop Your Own Enrichment Cluster

Developing an authentic enrichment cluster draws upon skills that most teachers already have, especially if they have ever been involved in extracurricular activities, club programs, or any kind of sports and arts programs. As you begin the process of developing your own cluster, you should keep in mind four issues:

1. Reversing the teaching equation. Your role in planning and facilitating an enrichment cluster is very different from traditional teaching. The more direct teaching you do in the cluster, the less likely you will be to turn the responsibility for creative and investigative activity over to the students. Although various planned start-up activities may be part of a cluster, too much preplanning on your part will push the cluster toward deductive rather than inductive teaching and learning. A key feature of enrichment clusters is the use of just-in-time (J-I-T) knowledge rather than storehouse or declarative knowledge typically associated with prescribed learning. J-I-T knowledge has immediate relevancy because it is needed to address a particular problem, and students typically escalate to much higher levels of knowledge than levels found in their grade level textbooks.
2. Reversing the role of students. If you are to alter your role from instructor to coach, mentor, referral agent, general contractor, or guide-on-the-side, you must help students see themselves as young professionals. Young people working on an original piece of historical research, creative writing, journalism, or play production become young historians, authors, journalists, and playwrights, scenery designers, or stage managers. This change in how you view students is important because it brings with it a different set of expectations for what students do and how you help them. Instead of teaching lessons, you will begin to think about how to help a young poet get his or her work published, how to get the shopping mall manager to allow space for a

- display of models of your town's buildings of historical significance, and how to engineer a presentation by young environmentalists to the state wildlife commission.
3. Each enrichment cluster is unique. As long as the guidelines for inductive teaching are followed, there is not a right or wrong way to plan and facilitate an enrichment cluster. Differences in interests, personalities, and styles between cluster facilitators are assets that contribute to the uniqueness of this type of learning. Even if you teach the same cluster on two or three different occasions, each rendition of the cluster should emerge as a unique entity. Inductive teaching is a more natural and, in many ways, easier process than structured teaching, but it also involves breaking some old habits based on traditional teacher roles. You will find that a little experience in an inductive learning environment will help you hone the skills that will become a very natural part of your teaching repertoire both in clusters and in your classroom.
 4. When in doubt, look outward! Because you are striving for a different brand of teaching and learning in enrichment clusters and because clusters are modeled after real-world situations, it is a good idea to examine non-classroom conditions for models of planning, teaching, and patterns of organization. An athletic coach, the advisor for the drama club or school newspaper, or a 4-H Club leader are excellent role models for enrichment cluster facilitators. Similarly, tasks and organizational patterns should resemble the activities that take place in a small business, a social service agency, a theater production company, or any laboratory that must generate real products and services. Your enrichment cluster will be most successful if the learning environment is as different as possible from what happens in a traditional classroom.

Guidelines for Developing an Enrichment Cluster

1. Select a Topic

Your first enrichment cluster should be based on a topic in which you have a strong interest. Make a list of topics about which you have always had a special fascination. Reflect on your choices, discuss your list with colleagues (there may be possibilities for collaboration), and prioritize the topics so that you can decide what the focus of your first enrichment cluster will be.

Keep and add to the list and refer to it when choosing subsequent cluster topics. Experience has also shown that once you become involved in this type of teaching, you will begin to examine various experiences with an eye toward how they might make possible cluster topics.

2. Examine Key Questions

Enrichment clusters are always developed around the following six key questions:

1. What do people with an interest in this topic or area of study do?
2. What products do they create and/or what services do they provide?
3. What methods do they use to carry out their work?
4. What resources and materials are needed to produce high-quality products and services?
5. How and with whom do they communicate the results of their work?
6. What steps need to be taken to have an impact on intended audiences?

The questions do not need to be answered immediately, sequentially, or comprehensively at this stage of planning, but they should always be kept in mind as you follow the overall guidelines for cluster planning. Your examination of the key questions provides an orientation to the topic rather than definitive answers that you will then present to your students. As your cluster develops, early discussions with students should be geared toward leading them through the same set of questions and allowing them to reach their own conclusions about the activities, resources, and products that professionals pursue in particular areas of study. The introductory activities that you will develop for students should be designed to lead them through these questions and to discover for themselves the essential concerns that guide the work of practicing professionals in respective fields. If you have all the answers before the cluster begins, the excitement of pure inquiry on the parts of the students will be lost.

3. Explore Key Questions

In many cases the answers to the key questions are common knowledge or common sense, but for purposes of clarification, we will discuss some of the ways that you can address the questions yourself and how you can guide your students through the questions as the cluster gets under way. The first and most obvious way to find out about the work of a professional is to

find someone in a particular profession with whom you can talk. A brief interview based on the key questions with a cartoonist, a landscape architect, a fashion designer, or someone who works for the state environmental protection agency will give you the lay of the land and some recommended resources. When talking with professionals, keep in mind that you want to learn what they routinely do in their jobs, how they do it, and what they produce. Conveniently, almost all professions are organized into societies and associations. A quick Internet search will lead you to mountains of resources about these organizations. In a school that offers enrichment clusters teachers typed in “professional associations” on the Yahoo web site and found that there are approximately 3500 professional organizations that cover almost every imaginable field of study. A teacher went to the Association of Professional Genealogists web site (<https://www.apgen.org>) and found a treasure trove of resources on the many different roles that people fill in the field (researchers, archivists, historians, etc.), state and national conferences, newsletters, publications where findings are reported, books on genealogical research methods, places where family records can be found, a listing of local chapters, and a directory of members by state. Individuals found on association membership lists can be valuable resources as speakers, mentors, or sources of local records. They might even be considered as a facilitator or co-facilitator of an enrichment cluster or a mentor to an individual or small group of students. By clicking on Connecticut, this teacher found the names, addresses, and phone numbers of thirteen professional genealogists in our state, one of whom lives less than five miles away.

Another way to explore the key questions is to obtain methodological resource books—what we call how-to books or “Mentors-in-Print.” Below are just a few how-to titles listed on the Association of Professional Genealogists web site:

- Greenwood, V. D. (2000). *The researcher’s guide to American genealogy* (3rd ed.). Baltimore, MD: Genealogical Publishing.
- Meyerink, K. L. (Ed.) (1998). *Printed sources: A guide to published genealogical records*. Salt Lake City, UT: Ancestry.
- Mills, E. S. (2001, 1997). *Evidence! Citation and analysis for the family historian*. Baltimore, MD: Genealogical Publishing.
- Mills, E. S. (Ed.) (2001). *Professional genealogy: A manual for researchers, writers, editors, lecturers, and librarians*. Baltimore, MD: Genealogical Publishing.

A visit to the Genealogical Publishing Co. web site yielded an even more extensive list of potential resources (423 titles). Librarians and college bookstores can also help locate methodological resource books.

How-to books not only orient you (and students) in a field and provide information about how students can do authentic research, they will also give you ideas for specific studies, special equipment or materials you might need, sources of data, newsletters or other places where research results might be published or conferences that might offer opportunities for student presentations. Sharing examples with students of both typical and unusual products that might result from the topic upon which your cluster will focus is also a good way to deal with Key Questions 1, 2, and 5.

Key Question 6 focuses on an important part of the facilitator's work. In the real world, almost all work is intended to have an impact on one or more targeted audiences, and in order to find those audiences, you will be serving as a referral agent, promoter, or marketing manager of student work. Within school, student and parent audiences are obvious options and good places to practice and perfect performances and presentations, but young people will begin to view themselves in a much more professional role when you help them seek audiences outside the school. Local newspapers, shopping guides, and city or state magazines are excellent places to submit written work. Public buildings and business offices are often receptive to requests to display the young people's work. Local or state organizations such as historical societies, writer's clubs, civic groups, environmental preservation organizations, and advocacy groups also provide opportunities for young investigators, inventors, and entrepreneurs to present their work. You can help young dramatists and film/video makers take their work "on the road" by contacting senior citizen centers, day care centers, church groups, or professional organizations. One group of students who wrote and produced a legal thriller presented a synopsis of their plot at a county bar association meeting.

Your role in helping young people find outlets and audiences in their community should be both advisory and preparatory. You might, for example, suggest that students contact local banks for possible displays, and you also might provide students with the names of bank managers. But after rehearsing their pitch with you and others in their group, the students themselves should make the contacts (in writing and/or by telephone), set up the interviews, and be prepared to answer questions that the bank managers might raise. After hearing one student

pitch, a shopping mall manager exclaimed, “It’s hard to turn down such an enthusiastic group of kids!”

Other opportunities for outlets and audiences outside school abound. Many professional organizations have newsletters, both state and national, and there are a number of magazines and journals that publish the work of young people. Founded in 1987, *Concord Review* (<http://www.tcr.org>) publishes exemplary history essays by secondary students in the English-speaking world. Likewise, *Stone Soup* (<https://stonesoup.com>), the leading print magazine for young authors, publishes about 50 stories and 10 poems a year by young writers, and visiting their web site, you find information about other publications that take student writing as well as several no-cost Internet opportunities where young people can share their work with others around the world. In addition, *Kid News* (<http://www.kidnews.com>) is a free news and writing service for young people around the globe.

Almost every topic and area of study has directories that list sources where publishing opportunities exist for young people. *The Directory of Poetry Publishers* (Fulton, 2002) includes 21 categories of information on more than 2000 book and magazine publishers of poetry. *The Writer* (<https://www.writermag.com>) is another source of information for writing and publishing opportunities and includes specialty areas such as children’s literature, technical writing, and writing for teenage audiences.

All fields of organized knowledge have similar resources. Enter almost any subject area into a search engine (e.g., <https://www.yahoo.com/>; <https://www.google.com/>; <http://www.teoma.com>) and follow the links. Entering “Archeology,” for example, led us to numerous resources ranging from newsletters to specialty areas (e.g., Underwater Archeology), from places where students can take virtual field trips to active sites where real-time excavations are being conducted. In no time at all you will find all types of information and resources that deal with the key questions. In the process you will also multiply the options that your students might pursue as your enrichment cluster gets under way.

Contests and competitions are also great outlets and audiences. Most teachers are familiar with science fairs, National History Day, and Math League, but there are thousands of competitions in areas such as photography, fashion design, inventions, greeting cards, play writing, technology, and web page design. Preparing for and entering competitions creates a tremendous amount of excitement and enthusiasm in young people, although you should be

cautious about using competitions to put pressure on students. Making them aware of competitive opportunities is part of a good coach's job, but the decision to enter a competition should be made by the students themselves.

Remember, your job is *not* to know all of the possible outlets for students' products or the vehicles for reaching different audiences. Simply knowing that such resources exist, having a sample or two to illustrate what typical resources looks like, and being able to provide guidance about where and how to search for them on the Internet or in other places maintains the goal of encouraging young practicing professionals. The very search for outlets and audiences; writing query letters and submitting work for possible publication, presentation, or display; and receiving replies (even negative ones) are all part of the creative process and a major source of motivation for aspiring writers, scientists, artists and other action oriented young people.

4. Write Your Enrichment Cluster Description

Writing the enrichment cluster description presents special challenges. The description must convey (in approximately 100 words or less) the essence of what this type of experience is all about in a way that captivates students without being too specific. This task can be especially difficult because of habits formed from too much didactic teaching and established student perceptions concerning what learning in school is all about. The challenge is further complicated because you can't (and shouldn't) specify in the description exactly what students will be doing in the cluster, though you do want to provide some ideas as to the various roles students might take on in the cluster.

Several suggestions for writing cluster descriptions have emerged from our research. First, at all costs, you must avoid using "learn" in the cluster description. Students have come to associate learning in school with the school's traditional information transmission function. Enrichment clusters are different, and you should explore verbs that convey action (doing tasks) rather than transferring and assimilating information. Think about the specific tasks associated with a particular topic or area of study (e.g., in a cluster involving building and marketing compost bins, you might use verbs such as design, field test, construct, advertise, market, contact, display, and sell).

Another way to write cluster descriptions is to pose questions about potential student interests and possible types of involvement:

- “Do you like to express your feelings by writing poetry or short stories?”
- “Are you concerned about finding better ways to protect wildlife?”
- “Would you like to try your hand at designing fashions for teens?”

Each of these questions relates to a topic around which a cluster might be developed, and yet they are open-ended enough to enable a broad range of activities in specific interest areas.

5. Launch Your Enrichment Cluster

On a practical note, since students will be coming from different classrooms and grade levels, the first thing you will want to do is learn their names, help them to learn one another’s names, and make them feel at ease. You can distribute nametags (the ones on neck strings are best) and ask students to wear them at each cluster meeting. It is a good idea to collect the nametags at the end of each session so that they will be available for subsequent sessions. (You can use the nametags for an introductory activity in which students develop a logo for the cluster that they will place on their nametags. Have the students divide into groups to brainstorm ideas. Vote on the ideas and ask for one or more volunteers to draw a logo based on the most popular idea. You can then make copies of the logo and let students paste it on their nametags.)

Since students who have signed up for your cluster have expressed an interest in the topic, beginning a cluster is usually easier than introducing a new topic in the regular classroom. However, it may take some time for students to understand the different approach to learning that is the basis for enrichment clusters. A display of some of the products or tools typically used by professionals in your topic area is always a good way to begin. In a cluster on archeology entitled *The Trash Heaps of Mankind*, the facilitator showed slides of some famous and local archeological discoveries (obtained from the state archeologist). She then organized a short guessing game about what was in a “Mystery Box” in the front of the room. The teacher opened the box to reveal a trowel, a sieve, a pair of gloves, a dust brush, pegs and string, a marking pen, and a camera. She pointed out that these were the main tools of the archeologist and that an examination of material found in garbage dumps was one of the ways that archeologists analyzed both past and present cultures. A short videotape of a dig in their own state further built up interest in the work of practicing archeologists. At a subsequent session, an archeology professor from a nearby university made a presentation that provided several ideas for local research

opportunities and also cautioned students about the ethical responsibilities of maintaining site integrity.

6. Escalate Content and Process

The next step involves the various jobs in the cluster and the division of labor—all of which should be determined by students. In addition, this step involves escalating the level of challenge and the quality of the students' work, an extremely important part of your work in the cluster. One of the problems we encountered in our research on enrichment clusters was a failure for some facilitators to escalate the level of content and methodological processes pursued within a cluster. We observed many exciting, fun-filled activities, and this kind of enjoyment of learning is unquestionably one of the most desirable features of a good cluster. However, critics may say that clusters are nothing more than fun and games or that students carried out their work based on existing skills rather than acquiring more advanced skills. You can guard against these criticisms by examining each cluster with an eye toward what constitutes authentic and rigorous content within the field or fields of study around which the cluster is organized.

Ensuring Authenticity in Enrichment Clusters: Gathering Original Data

Original contributions to almost every field of knowledge are based on data gathered through the use of one or more instruments. Over many years of working with students in high-end learning situations, we have discovered that there is a certain magic associated with gathering original data. Young people are surrounded with an almost infinite number of data-gathering opportunities, and these opportunities provide them with the possibility of creating new knowledge. This knowledge may not be new for all mankind, but it may be original in a local and relative way. So, for example, when a group of elementary students spent an entire school year gathering and analyzing samples of rainwater for sulfur and nitrogen oxide emissions, the main pollutants responsible for acid rain, they were able to prepare a scientifically respectable report about the extent of acid rain that was falling in their region of the country. Their teacher helped them obtain a standard rain gauge and a kit for testing acidity, items that can be found in almost any science equipment catalogue. Additional resources enabled these students to prepare statistical and graphic summaries of their data, compare their findings with data from national and regional reports (easily accessible over the Internet), and design maps

showing acid rain trends over time and across geographic regions. The data provided the excitement and motivation to study environmental and health problems associated with various types of pollution, and they found receptive audiences for their work among state environmental protection groups, the U. S. Environmental Protection Agency, and the National Weather Bureau. The students also exchanged their report and findings with a group doing a similar study at a school in England, which they located by entering “Acid Rain” into a search engine on the Internet. A little data goes a long way in helping students feel like real researchers and do the advanced kinds of work that escalates the level of content and methodology needed to produce high quality products.

Putting It All Together

Most teachers have at one time or another had a vision about what they thought teaching would be all about. They pictured themselves in classrooms with interested and excited students dramatizing dangerous midnight journeys on the Underground Railroad, conducting science experiments to find out how things work, or experiencing the Ah-ha that occurs when a student developed board game unlocks the relationships between a set of numbers and experiences in their everyday life. And they saw in their mind’s eye a child’s joy when hearing praise for a creative story or science project, eager to work in suggestions for making the project even better.

For many teachers, there is a disconnect between their vision of a challenging and rewarding career and the day-to-day test prep grind so rampant throughout the profession. Perhaps most ironic about the separation between the ideal and the reality of today’s classrooms is that most teachers have the skills and motivation to do the kinds of teaching about which they once dreamed. Unfortunately, the lists, the regulations, and other peoples’ requirements that are imposed upon them “from above” have resulted in both a prescriptive approach to teaching and a barrier to creating a challenging and exciting classroom. Over-prescribing the work of teachers has, in some cases, lobotomized good teachers and denied them the creative teaching opportunities that attracted them to the profession in the first place. Enrichment clusters provide a time and a place in the overall school week where there still exists freedom to teach and where authentic learning is in the driver’s seat of our goal to make learning enjoyable, engaging, and enriching.