

Integrating the Curriculum Through Active Processing

James Pelech



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CONTENTS

Acknowledgments	vii
Foreword	ix
<i>Norman Weston</i>	
Introduction	xiii
1. Curriculum in a Perfect World.....	1
2. Building a Foundation	5
3. Creating a Definition	19
4. Buying (Into) the Integrated Curriculum	29
5. Planning Logistics and Choosing a Topic.....	51
6. Planning Learning Activities.....	93
7. Note-Taking, Active Processing, and Transfer.....	107
8. The Bridging Question Strategy.....	119
9. Some Ideas for Assessment.....	131
10. An Example of Planning.....	147
11. Creating an Environment for Implementation	155
12. Call to Action	171
About the Author	181
Index	183

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ACKNOWLEDGMENTS

I am going to start this section with one of my favorite sayings: “Not one of us is stronger than all of us, not one of us is smarter than all of us.” That being said, let me acknowledge the people who are very special to me, and who have helped me find the strength to succeed.

First, last, always, and everywhere in-between, let me recognize my wife, Gwen. Not only has she been my best friend, she has also blended many roles, from mentor to confidant, and she has done this while displaying great patience and love. Gwen’s role modeling of how to believe in myself, and how to react to disappointment with a great sense of humor, has been a tremendous benefit.

My son, Chris, is a living example of why parenthood is the best gift ever given to a person. Without question, he is the embodiment of desire, focus, determination, and energy. Chris’s personal accomplishments are true motivators for me to never stop creating and accomplishing goals.

I want to recognize my parents, Joe and Rose Pelech. They not only set high standards for me, they also never stopped encouraging me to reach them. They did this by teaching me how to “reach down inside myself” and to “find out who I really was.”

Having two great brothers is a true gift, and Ken and Mark Pelech are each one of the “good guys.” Thanks for not complaining about having me as a big brother (at least, not to my face).

If you want to really want to experience real friendship, look up my friend, Rich Shewmake. For over forty years he has always REALLY been there for me. Well Rich, here we go again—"Jim and Rich's Excellent Adventure Four!"

Gail Pieper, my personal editor, has been just a tremendous source of information, guidance, encouragement, and insight. She has been invaluable and a true friend. Thanks, Gail.

Let me get to the point about the next three gentlemen: Norm Weston, Ken Kantor, and Patrick Roberts—without these three scholars and educators, I would not have received my doctorate. Maybe more importantly, I would not have smiled as much as I did during the dissertation process.

I want to thank three of my ROTC instructors, for without them I would not have received my commission and started the process of knowing really who I could become. To Dave Spohn, Winston Fulmer, and Michael Collier, thanks for everything.

One of the reasons I was able to "keep on keepin on" was the energy and passion my students brought to the classroom. Thanks for making teaching a "great gig."

George Johnson must be recognized for having faith in me, providing me an opportunity, and in encouraging me to write.

FOREWORD

Norman Weston

You can't learn someone. What you *can* do, however, as a teacher or administrator at all educational levels is to create, develop and sustain educational environments in schools and organizations that promote active inquiry into real-world problems.

This I've learned in over 40 years of teaching, first in elementary and middle school, then in a field-based teachers master's degree program using action research, and later with principals and district-level administrators in an educational leadership doctoral program focused on professional practice.

At each level, I discovered that student-generated inquiry when combined with reflective writing produced the best results in terms of student engagement, skill development, academic achievement, and more perhaps most importantly, increased student satisfaction, self-confidence and the desire to learn.

Finding out what drives a student...what really interests her or him, I have found to be the key to igniting and keeping aflame the desire to learn and to go on learning.

So too has been the experience of Dr. James Pelech, author, theorist, researcher, and teacher practitioner. I've followed Jim's work since he was a doctoral student in Curriculum and Social Inquiry. I later became his dissertation adviser.

It's not often you come across a person so open and authentically themselves to say, "I needed to live what I was trying to learn," as Jim wrote in the introduc-

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tion to his dissertation. What he was wrestling with and trying to learn was how to translate constructivist learning theory and philosophy into a pedagogy.

Today, Dr. Pelech continues to live, research, and teach using “active processing,” a constructivist teaching and learning method he has developed over many years teaching at the elementary, middle, secondary and post-secondary levels.

In this his 4th book, Dr. Pelech turns his attention to the interrelationship between constructivism and curriculum integration. In it, you are invited to enter into a journey of discovery on how to plan, implement and evaluate an integrated curriculum that is engaging and stimulating for students and teachers alike.

A unique feature of this book is that you will get to experience and use active processing while creating *your own* version of integrated curriculum: one that fits within and complies with the real-world mandates and parameters of an existing curriculum, course, or professional program.

Curriculum integration is old and new at the same time. From the early to middle decades of the 20th century, under the aegis of progressive education, while not the dominant curriculum model of the era, there were schools where student interest, problem solving, and inquiry-based learning were primary curriculum drivers. As was applying knowledge and skills across two or more subject areas.

All based on constructivist learning principles.

That is to say, integrated curriculum methods and models like problem-centered, project-based, and student/teacher planning were accepted and common through the first half of the 20th century. Today, not so much.

Now, after year-after-year variations of back-to-basics education “reform,” in some states today verging on educational revanchism, the personal and societal ideals, values, and curriculum practices inherent in progressive education have been pushed so far to the side, that even the term “integrated curriculum” is almost unheard of among a generation or more of teachers.

Why is this? How *do* people learn best?

Constructivists believe people learn and grow through their own lived experience and interpretations of the world as they navigate through life. This is not to say traditional subject area knowledge has nothing to tell us. It does. Though it too continues to evolve. John Dewey, a leading figure in the progressive education movement believed in traditional subjects. But they should be integrated with the strengths and interests of the student.

Progressivist educators like the constructivists believe that people do not merely absorb and “bank” knowledge for use later on but are continuously engaged in creating new knowledge as we connect and integrate what we are presently learning with previous knowledge and understandings. Polanyi termed this new knowledge “personal knowledge,” positing it the original source and predecessor of what will become generally accepted objective knowledge.

For example, when seeking answers to one problem, scientists, researchers and professional practitioners often discover something more important than what they set out to find. In the past such unanticipated discoveries have birthed new

interdisciplinary fields of knowledge such as biochemistry, astrophysics, social psychology, and more recently paleobotany, paleoecology. And, in the not-so-distant future, so will new knowledge created from problems encountered in the introduction and application of ever more transformative technologies, such as artificial intelligence.

It's time for something old to be made new again. So, I commend and applaud Dr. Pelech for this timely book, a lifetime's work culminating in a research-based, theory-into-practice model for integrating curriculum using active processing. Active processing requires that we become Janus-like, recognizing and honoring what's been learned in the past, engaging with the present while looking toward the future as we transition into yet another new beginning.

The purpose of education as Dewey and other early 20th century progressives saw it, was the cultivation of critically reflective, socially engaged individuals rather than being ciphers to be filled and propped up with established knowledge.

So, now's the time for a dynamic, less static approach to curriculum and student learning. And, equally if not more importantly, a curriculum that will bring some badly needed excitement, imagination, creativity (and dare I say joy!) to students, teachers and teaching again.

The chapters are organized as a blueprint for the creation of an integrated and satisfying curriculum and learning experience for teachers and students alike.

In Chapters 1–3, using active processing, you are invited to create a definition for *your own* version of curriculum integration. In Chapters 4–6 you are shown how to tap into your own story, background and life experience to create an integrated curriculum. In Chapters 7, 8, and 9 you are equipped with practical tools and strategies for implementing an integrated curriculum.

For example, in Chapter 7 a note-taking process to transfer and apply knowledge across subject-area disciplines is demonstrated. The Bridging Question Strategy, a strategy that allows students to link prior knowledge that is conceptually aligned with a topic is introduced in Chapter 8.

Chapter 9 focuses on assessment. From beginning to the end, and at points along the way, it's important to know what impact your plan and learning activities are having on your students. Assessments specifically suited to gauging the impact and effectiveness of integrated curriculum are presented.

In Chapter 10, Dr. Pelech shares an integrated curriculum planning document from his own teaching that graphically shows you how to plan ahead to ensure students' analytical, creative and practical abilities and prior knowledge are put into play. Chapters 11 and 12 contain suggestions on how to introduce and sustain an environment conducive for teachers, administrators and other stakeholders to accept and adopt integrated curriculum.

Unlike the rising trend today in some states to mandate limits on what students are allowed to know, and teachers allowed to teach, an integrated curriculum offers students a learning experience that is alive, real, and relevant with no pre-set ceiling on what they can learn.

Because as it draws upon the learner's life experience and deals with real world problems and questions big and small, an integrated curriculum is also one that most young people and adult professionals will see as worth their time, effort, and attention. Moreover, it's a source and resource for learning that *lasts*.

When asked what they remember about school, few people mention the facts, dates and theorems they were exposed to, to be put to use later on. What most recall are experiences and connections made with other students, or an amazing teacher who awakened something within them that changed their life in a meaningful way.

Being that amazing teacher is not easy. But providing students with the opportunity to learn and grow within the framework of an inquiry-based integrated curriculum can lay the groundwork for that to happen. That said, teaching, like life, does not always go as planned. No teaching is easy as Dr. Pelech forthrightly states. It takes courage to teach, and a commitment to a critically reflective practice to continually hone your professional knowledge, skills and practice. An uncommon admission from the ivory tower professorate, but to me a real-life strength of this book.

It's said life begins at the end of your comfort zone. To rekindle the joy, love, and wonder of teaching, I urge you to step out of your comfort zone and explore and experiment with integrated curriculum. If you find something's not working as planned, pause, rethink, and change course! Remember, you are not *only* a teacher, but also a researcher of your own practice and of the teaching profession.

—Norman Weston

Note: For resources and information on incorporating student-centered integrated curriculum and pedagogy to promote 21st century skills into your classroom, see Self-Organized Learning Environment (SOLE) at <https://startsole.org>.

Norman Weston (PhD), University of Illinois at Chicago, is professor emeritus of educational leadership at National Louis University (NLU). During his 30-year career at NLU he has been a coordinator in the MEd field-based interdisciplinary studies program (IDS), advised students in the curriculum and social inquiry doctoral program, and served as director of the educational leadership doctoral program before retiring. He has chaired over 30 dissertations and served as a member on over 40 others. His research, presentations, and publications cover classroom action research, curriculum design, professional development, school/community relations, and arts in education. He is currently on the board of directors and evaluator for the "Arts Communities Engaging Students (ACES) Project." Chicago Public Schools, Chicago, IL

INTRODUCTION

Thank you for taking the time to read this book. Having been an educator for a long time, I realize how busy you are and the many choices you have for reading. I hope you will find this book helpful in your career as an educator.

FOUNDATIONS OF THIS BOOK

This book, like my entire educational philosophy, is based on the Constructivist philosophy. Now, I realize that many of you aren't sure what that word exactly means (though you may have heard it before). Don't be too discouraged, I was the same way. You might well be a Constructivist teacher but just don't realize it. Simply and quickly, Constructivism is a philosophy of how one *learns*—it does not tell you how to *teach*. Many definitions of this philosophy exist, but they all contain the following characteristics:

- Knowledge is not passed on from one person to another. People of all ages do not discover knowledge; rather, they construct knowledge.
- People create knowledge by relating or connecting it to their previous understandings.
- Learning involves active reconstruction of how one thinks.
- Prior and personal experience is blended with social interaction to create knowledge.
- When people are confronted with problems that they cannot solve with their present mode of thinking, they must create a new way of thinking. This is the stimulus for growth.

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The third bullet presents a theme for Constructivism and for this book, and that is the phrase “active reconstruction of how one thinks.” We learn by taking the structures for how we think and reorganizing them around new knowledge and experiences. I like to refer to these restructuring activities as “active processing.”

ACTIVE PROCESSING

Instead of frontloading this book with theoretical justifications and providing definitions, procedures, and concepts for curriculum integration, I will engage you in different activities that will help you create a knowledge base for an integrated curriculum. I strongly encourage you to participate in these activities as they will have you fully engaged in creating your own brand of the integrated curriculum. This approach aligns with the Constructivist philosophy and with active processing. Your personal engagement is what I hope will make this book a special experience for you.

RESEARCH-BASED APPROACH

I believe that the teaching profession is a rigorous profession and that it is based on structured principles. For this reason, I have worked to base my practice on research, and I have based this book—like effective classroom practice—on time-tested research and practice. Highly effective teaching strategies and philosophies are not a compilation of “recipes” but a cohesive and unified set of research-based concepts. I am proud to say that I worked diligently to follow this precept.

A NOTE OF THE UTMOST IMPORTANCE

An initial aim was to create a book which is as authentic as possible, meaning that it is based on “real situations,” based on authentic research, and is relevant to your practice. The Learning Activities and the research presented satisfy these requirements. I readily admit, however, that classroom teaching, like life, doesn’t always go as planned. So, the examples or concepts presented here might not have exactly followed my plan or might not have worked out as I had wanted. To make the examples and the concept of the integrated curriculum clearer, I have modified or added to certain examples, or outcomes.; however, be assured that this book is based on relevant and meaningful research and the classroom ideas, examples, and outcomes are based on authentic experiences.

This book was written not only for your practice and pleasure, but for myself; this book enabled me to create a new personal version of the integrated curriculum and active processing. This was a long and complex process, but it was worth it as I learned a great deal. I sincerely hope you learn as much as I did.

And now, enjoy!

CHAPTER 1

CURRICULUM IN A PERFECT WORLD

Let's start the exciting process of creating your unique version of the integrated curriculum, as promised, with an activity.

I also participated in this activity and quickly wrote down what came to my mind. [Figure 1.1](#) shows the results. I encourage you to compare and contrast your list with mine.

Learning Activity 1.1

Imagine, for a second, that you are living in a “perfect world” where your principal has given you the opportunity to design your own curriculum, with no interference or criticism from the administration or from parents—or students. How would you start this planning process? I am going to ask you to do this now; and while you can use your own prompts or guidelines, feel free to use the prompts below.

- What learning philosophy would be the foundation of your curriculum?
- Would you use educational theory?
- What about educational research?

(continues)

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Learning Activity 1.1. Continued

- Would you refer to national and local standards?
- Would it be possible to survey local and national businesses concerning the skills they look for?
- How about your personal philosophy of how one learns?
- Do you have data on what students think is important for them to learn?
- What subjects or domains would be included? How would you sequence them?
- How would subjects or domains be related to each other?
- What would be curricular outcomes?
- How would you prioritize curricular outcomes?
- What would assessment look like?
- What shareholders would be part of the assessment system?
- What would learning resources look like? Textbooks? Speakers? State test questions? Videos? Current events?

For me, the perfect curriculum would certainly enable students to apply their knowledge to their present situation and to their future lives — "How/when will we use this stuff?" Getting in guest speakers, or using videos could present some ways in which this is used. I hope I could get parents to participate, to discuss how they use the subject matter. Of course, must align with standards. All I know, students want to know if "school stuff" is use full, and if you are teaching at the elementary/middle/secondary levels, you better consider those standardized tests

FIGURE 1.1 Author Responses

By comparing and contrasting, you will be on your way to understanding what is meant by an “integrated curriculum.” And by being engaged in [Learning Activity 1.1](#), rather than being told, you will begin to decide what is important for your own curriculum.

PREVIEW

Let’s take a look at what is coming up in future chapters. As mentioned in the Introduction, you will create your own knowledge base, and then you will add to it or modify it through activities in subsequent chapters. Initially, you will create your version of the “perfect” curriculum and use it to create a definition of the integrated curriculum. You and I then will discuss how to “sell” the integrated curriculum to the educational community. Once this is intact, we will create a template for planning the integrated curriculum. There will be examples of the planning and assessing processes, but with the one caveat that is embedded throughout: What is presented in this book is intended not to be adopted by you as an end point, but rather to be a starting point for you to modify and mold to your particular situation.

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CHAPTER 2

BUILDING A FOUNDATION

Most people will agree with the statement “Teaching is one of the most demanding jobs one can undertake.” As an instructor in our Alternative Certification Program, I remember talking with a candidate after his first year of teaching. This candidate, who was a medical doctor, confided in me that teaching biology was much more difficult than any medical procedure he had ever been involved with! [Brooks and Brooks \(2021\)](#) provided some specifics about the challenges of teaching:

Parents want schools that offer their children the intellectual tools needed to make sense of what they experience, schools that are responsive to their children’s interests in challenging yet compassionate ways, and educators who teach their children with a balance of academic rigor and personal kindness. (p. 6)

The authors continued this theme by stating that business and policy leaders want students who can meet new working environments while still fulfilling civic requirements; additionally, students desire a curriculum that provides personal meaning and voice. One not only must appreciate this challenge but also must develop a “game plan” for constructing such a curriculum and delivery system. How can we get started? We need an overarching structure to manage the creation of our curriculum. This chapter guides us through the process, and at the end we will list specific parameters of our overarching structure.

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Learning Activity 2.1

Consider what you have experienced as a participant in the “real world” and what employers have deemed as necessary to be an effective employee. Then, think about how your teaching and your institution’s curriculum help develop these skills. Also, how can you do a better job of doing this? Are there any skills that you need to include?

A premise of this book is that the education field is not a “recipe-type” field; rather, it is a profession structured by accepted theories, research, and standards. We’ll start by looking at the ideas of professionals in the work world and in the educational field to search for themes that can be used for our guiding structure. We will then examine national standards and frameworks. The ideas and expectations of the “real world” and of statewide and national standards will work together to create the structure for designing and analyzing a curriculum, and this includes an integrated curriculum. Before examining what is expected by the “real world,” please try your hand at [Learning Activity 2.1](#).

PROFESSIONALS IN THE WORK AND PROFESSIONAL FIELDS

In this section we examine the ideas of people in various professional fields, and in doing so we look for emerging themes. These emerging themes will initialize our structure for developing an effective curriculum, including justification for a curriculum that integrates subjects and disciplines.

Knowledge as a Subjective Creation

In discussing the advantages of a liberal education, TV anchor and author [Fa-reed Zakaria \(2015\)](#) stated the following: “The crucial challenge is to learn how to read critically, analyze data, and ‘formulate ideas’” (p. 61). These activities, and especially “formulating ideas,” align with the idea of creating knowledge.

But how does one prepare students to achieve this? Problem-solving is one way. [Wagner and Dintersmith \(2015\)](#) discussed the ability to think critically and to “creatively solve problems” (p. 73). This idea is taken one step further by [George Couros \(2015\)](#). While he advocated and supported problem-based learning, Couros encouraged educators to think about how to “create a generation of *problem finders* [italics added]” (p. 50).

Another form of knowledge creation is that of synthesizing information. [A. L. Costa \(2008\)](#), in discussing flexible thinking, quoted Arthur Koestler in recommending “placing them [prior data] in a new system of relations with one another by giving them a different framework” (p. 21).

Knowledge creation actions such as formulating ideas, finding solutions to problems, creating problem statements, and creating a different framework/orga-

nization with the same information imply an autonomous learner. This has been recognized as far back as 1969 by Carl Rogers; in discussing participatory learning he stated that when a learner “formulates his own problems, decides his own course of action, lives with the consequences of each of these choices, then significant learning is maximized” (p. 162). [Brooks and Brooks \(2021\)](#), in discussing the difference between information and knowledge, made a case for such autonomy: “Information can be received. Knowledge must be purposefully constructed. This is true across disciplines” (p. 9). The phrase “purposefully constructed” points toward an autonomous learner.

This discussion of knowledge creation leads to the concept of the uniqueness of each person’s brain. [Caine and Caine \(1991\)](#) wrote:

Although we all have the same set of systems, including our senses and basic emotions, they are integrated differently in every brain. In addition, because learning actually changes the structure of the brain, the more we learn, the more unique we become. (p. 87)

The philosopher [John Dewey \(1910\)](#) expressed a similar idea much earlier: “Thinking is specific, in that different things suggest their own appropriate meanings, tell their own unique stories, and in that they do this in very different ways with different persons” (p. 39). And more recently, [John Medina \(2014\)](#), a developmental molecular biologist, has stated: “No two people’s brain store the same information in the same way in the same place” (p. 101).

The preceding paragraphs can be summarized as follows: *Knowledge cannot be transmitted from one person to another; rather, it is a subjective, autonomous construction.*

MULTIPLE WAYS OF KNOWING

We are all aware that there are many ways of being smart. And while some controversy exists about what really constitutes intelligence, let’s agree to substituting “ways of knowing” for the term “intelligence.” A key theme of educational research and theory is that there are many ways of knowing. While Gardner’s Multiple Intelligences Theory (1993) is a pillar, we must remember that other theories exist concerning how we show what we know. One is the theory of [Robert Sternberg \(1996, 2002\)](#). Sternberg discussed the concept of successful intelligence, which comprises analytical, creative, and practical intelligence (remember, we are considering these intelligences as “ways of knowing”). Examples of analytical intelligence include evaluating a political issue, explaining how to solve a geometric problem, judging the effectiveness of a local law or the method you used to solve a problem, or evaluating the effectiveness of your time management plan. Outcomes of the creative way of knowing include creating a game for remembering a new definition, creating a second and third method of solving a math problem, creating a poster for depicting class rules, or imagining what would hap-

pen to our economy if people were forced to retire at the age of 40. Implementing practical intelligence would enable students to apply their knowledge to a practical or authentic situation. One example is applying your knowledge of proportions to convert your bank account value to another currency. Other examples include applying the message of a poem to your own life, applying your knowledge of mental math to determine the amount of a tip, applying your knowledge of the French language to order at a French restaurant, or applying your understanding of long-term memory to prepare for an upcoming test.

Another perspective on the manifestation of knowledge comes from the cognitive and educational psychologist [Jerome Bruner \(1967\)](#). Bruner believed that there are three modes of representation: enactive representation, an action/hands-on form; iconic representation, image- or visual-based; and symbolic representation, based on language and symbols.

The knowledge to monitor and regulate one's emotions was described by [Daniel Goleman \(2015\)](#). Goleman referred to this as emotional intelligence (EI), consisting of five skills: (1) knowing one's strengths, and weaknesses; (2) self-regulation—controlling and managing disruptive moods; (3) motivation—appreciating something for its own sake; (4) empathy—addressing and understanding the feelings and emotions of others; and (5) social skill—handling the emotions and interests of others.

So far, we have focused on the physical manifestations of knowledge. Now let's look at other dimensions that represent the thinking process. [Costa \(2008, pp. 18–38\)](#) examined “Habits of Mind”; following are some of these habits:

- Thinking and Communicating with Clarity and Precision
- Gathering Data through All Senses
- Responding with Wonderment and Awe
- Finding Humor.

Our discussion presents a solid argument for designing a curriculum that enables autonomous students to express their knowledge in multiple forms, each of which is a subjective construction.

ACTIVE PROCESSING

The premise that individuals actually create their own version of different forms of knowing leads to the conclusion that the learner actively processes experiences in order to create knowledge. A general approach is given by [Fiorella and Mayer \(2015\)](#), who broke down generative learning into three processes:

- *Selecting* relevant information to focus to
- *Organizing* the information into a coherent structure in working memory
- *Integrating* this structure with prior knowledge