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Mission Statement

The mission of the [Journal of Multidisciplinary Research](#) is to promote excellence by providing a venue for academics, students, and practitioners to publish current and significant empirical and conceptual research in the arts; humanities; applied, natural, and social sciences; and other areas that tests, extends, or builds theory.

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Editorial

Bryan Alexander, a futurist and a researcher, once said that “we are living through the greatest time in history to be a learner.” Publishing the *Journal of Multidisciplinary Research* (JMR) for the past 11 years, I like to believe we at the JMR provide learners with exciting, viable, current, and significant empirical and conceptual research in multidisciplinary areas.

This Volume 11, Number 1, edition of the *Journal of Multidisciplinary Research*, features four interesting articles from around the globe. An article from Yale offers a perspective on our present environmental and educational “syncing” situation, and the philosophic and pragmatic challenges it presents. Another study from the Kibbutzim College of Education in Israel focuses on the perception of the practices that attribute the dual role of teachers who also are parents, with reference to two aspects: the overlap and the clashes between the practices of good teachers and good parents. An analysis from Florida Gulf Coast University describes meaningful and effective law study reform. A collaborative study by researchers from the State University of New York at Albany and the University of Washington in Tacoma proposes a comprehensive bug control framework modeled on the internal control framework of the accounting discipline, and critically evaluates the status quo of software bug prevention versus bug detection and correction.

We feature an interesting interview with Mustafa Cevik, a mining executive, and we review the book *Blue ocean shift: Beyond competing, proven steps to inspire confidence and seize new growth*, by Kim & Mauborgne, and the book *How to wash a chicken*, by Calkins. We also feature two interesting student articles from St. Thomas University and Babson College. I wish you a productive and successful 2019.

Onward,

Hagai Gringarten, Ph.D.

Editor-in-Chief



“Drop”
2019

Photography by Lisa Knowles

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Pathologies of Knowing (Epistemology) and Practice (Pragmatics): How to Recognize and Avoid them in Conservation and Education

Susan G. Clark
Yale University

Abstract

Put most simply, people (by our knowing, thinking, and practices) are out of sync with our selves and the environment and are growing more unconnected and destructive over time. This article offers a perspective on our present situation – environmental and educational. Our goal should be to sync us with ourselves existentially, each other socially in common endeavors, and sustainably with the environment, including all other life. This “syncing” is both a philosophic and pragmatic challenge. In terms of environmental conservation, I use the Greater Yellowstone Ecosystem example here. Tourists who visit there can easily mis-conclude that nature there is well and that the more recreational and business involvement we have with it is a good thing. That perception is misleading. The actual problem with such perceptions is that people who hold such beliefs cannot see the slow long-term harmful changes underway. Nor are those people able to see their own epistemological (knowing) error at base of their perceptions. This is so because they will not look at their underlying philosophic premises (and existential conditions), that if addressed would tell each of us we are overwhelming the Yellowstone ecosystem (e.g., climate change) and jeopardizing its rich non-human life. In terms of our social context, currently, it is sharply adversarial and growing more so, or so it seems. In terms of colleges and universities, the real question before us is, can we find a new awareness and capacity for deep cooperative enquiry with our present environmental and social context? As I see it, we must upgrade our consciousness and rationality to best deal with the diverse problematic complexity that we have created. We need to address the erroneous epistemological presumptions and follow on practices that we use to address that complexity. My applied work, thinking, and educational efforts are all focused on addressing and upgrading our capacity to address our problems – small and large in society, and personally with the environment, and in the academy. Perhaps our young people are more “with it” than past generations and our present leaders and institutions. We will see.

Keywords: problems, environmental, educational, assumptions, epistemology, pragmatics

Introduction

“Thanks for opening my eyes to what I did not know they were closed to.”

–Student

“This class has had an unprecedented impact on my thought processes, career intentions, and overall approach to many problems and situations.”

–Student

“I can honestly say this course has been my most transforming one during my time here [at Yale].”

–Student

Gregory Bateson, a world-class scholar, invited me to dinner in downtown Osaka City, Japan, in the fall of 1971, and I readily accepted as I knew of his great accomplishments. I made my way to his hotel from my nearby research site on Mt. Arashiyama, the former Imperial Gardens, where I was observing the social behaviors of Japanese snow monkeys. We talked about his decades of work in anthropology, psychiatry, semiotics, systems dynamics, cybernetics, and philosophy, which were legendary. Importantly we talked about his upcoming book, *Steps to an Ecology of the Mind* (Bateson, 1972). We had a long pleasant evening.

At that time, I was not capable of fully grasping the significance of all we talked about. Since then I have accrued decades of experience, traveled widely, and visited with many people who also attend to the subjects we talked about. I went on to read his 1972 book, later his *Mind and Nature: A Necessary Unity* (1979), and a great deal more by many diverse authors. Since my evening with Bateson, I have benefitted from my world travels, a lot of practical and intellectual work, and personal existential and cognitive development, and now have a much better understanding of what Bateson was educating and writing about – people’s epistemological errors and how to correct them. I have gained from many thoughtful people who are deeply concerned about our current social and environmental dilemmas, which are symptoms of our epistemological crisis (e.g., Lasswell & McDougal, 1992). Our central task is to better understand ourselves, the natural world, and the relationship between these two (Orr, Lansing, & Dove, 2015). Our current epistemological pathology is our choosing the wrong units for knowing, understanding, and action, according to Bateson. The proper unit of our attention and survival should be ourselves (and other organisms) in our (and their) environment – contextually. Put most simply, we (our knowing, thinking, and practices) are out of sync with ourselves and the environment and are growing more unconnected and destructive over time. Our goal should be to sync us with ourselves existentially, each other socially in common endeavors, and with the environment, including all other life. This “syncing” is both a philosophic and pragmatic challenge.

As I see it, the problem that we all face is an epistemological problem and it is little understood by most individuals or our society. The implications of this claim are hugely significant to colleges and universities, society, and all people. This essay comes out of my working life as a field behavioral ecologist, university professor, and change agent. Decades ago, I came to see the epistemological error as described in this essay. This recognition led me to an intellectual puzzle that has become a subject of a personal quest – what kinds of knowledge are honored in academia and what kinds of competence are valued in the agencies, nongovernmental

organizations, and professional practice? I address these matters and implications in five short sections in this essay.

The Greater Yellowstone Ecosystem (GYE) is one of my major conservation study areas, so I will use it as an example (Clark, 2008) of the intermixed environmental and educational challenge. The GYE is a globally-known 24-million-acre region that is an important ecosystem. Yellowstone National Park, established in 1872, is at the heart of the GYE (2.2 million acres) and is a rich laboratory for epistemological and pragmatic inquiry and learning. The GYE is a human construct and a working model, and an experiment that is slowly organizing for integrated management policy. The form and content of the dynamic social and decision processes playing out in the GYE have always challenged me to try to understand them. We have a very long way to go to make the GYE the kind of global model its potential promises. For us to get to that successful model, many epistemological barriers must be recognized and overcome first.

The Problem – A Definition

My experience, observations, and thinking have driven me to write this essay. You will soon see that our society is operating on errors in epistemology (knowing) and professional competence (skills). We are recycling and compounding those errors, and this is evident everywhere if one knows what to look for. The consequences of those errors are causing irreparable harm across society and the environment. Errors lead to our maintaining an erroneous view of ourselves in the world, limiting our practices, and causing environmental destruction. This essay develops this fact and offers suggestions to “What is to be done?”

Views on Our Epistemological Problem – In Brief

Let’s first focus on our epistemological problem that has been identified by many people. For example, Donald Schon of the Massachusetts Institute of Technology framed it this way:

I have become convinced that universities are not devoted to the production and distribution of fundamental knowledge in general. They are institutions committed, for the most part, to a particular epistemology [positivism], a view of knowledge that fosters selective inattention to practical competence and professional artistry (Schon, 1983, p. vii; also see Schon, 1987; Schon & Rein, 1994).

Professor Lynton Caldwell, University of Indiana, and principle author of NEPA (National Environmental Policy Act), put it this way (cited in Mudacumura & Haque, 2004):

The environmental crisis is an outward manifestation of a crisis of mind and spirit. There could be no greater misconception of its meaning than to believe it is concerned only with endangered wildlife, human-made ugliness, and pollution. These are part of it, but more importantly, the crisis is concerned with the kind of creatures we are and what we must become in order to survive.

Last, J. B. S. Haldane (Haldane, 1927), the great physiologist and geneticist, said the following:

I am a part of nature, and like other objects, from a lightening flash to a mountain range, I shall last out my time and then finish I have no doubt that in reality the future will be vastly more surprising than anything I can imagine. Now my own suspicion is that the Universe is not only queerer than we suppose, but queerer than we can suppose. (p. 286)

There are a great many other such observations, but the thought behind them is not central in our mainstream culture currently. Among the observations making this point is accounts by (Damasio, 2018, p. 6) – put most simply, we are out of sync with our biological reality. Most of our individual and social lives are dominated by thoughtless convention according to Ardenndt (1971; Kohm, 2018). If we are going to address our problems, we need a way to understand them with a much larger meta-framework for thought and action than what is conventionally used and taken as adequate today (Clark, 2002; Keesstra, 2019).

Much of what I am interested in epistemologically is outside the “box” (paradigm, convention, worldview) that many friends, colleagues, and students were raised to use to understand their world and decide what is worth doing with their life. We are all still friends and work together despite our different ways of knowing and working. From the cartoon (Figure 1), ask yourself “what are the dots” you’re paying attention to? And “how do you connect them in your world to make meaning for yourself?” Finally ask, “What might I be missing?”



Figure 1. A cartoon suggesting the deep epistemological knowledge and pragmatic issues at play in our lives and society.

How do we come to know problems and find adequate responses – make meaning? This cartoon raises questions about how a person can learn to pay attention (to the dots) and how the dots (information) should be interrelated for a realistic understanding (pattern) of our problems so we can avoid or address them realistically. Connecting the dots realistically can give us a picture of the integrated whole.

A Look at Epistemology – In Part

One of my deepest, basic interests is epistemology and professional competence, as it was for Bateson (1979). As well, it was an interest of Donald Schon and many other people (Figure 2).



Figure 2. A cartoon showing that we tend to see what is just before us from our own self-centered vantage point.

Epistemology is a branch of science combined with a branch of philosophy. As a science, epistemology is the study of how particular organisms or aggregates of organisms know, think, and decide. As a philosophy, epistemology is the study of the necessary limits and other characteristics of the process of knowing, thinking, and deciding. It seems that our deeply established ideas about epistemology (knowing, knowledge, reality) today reflect an obsolete physics and understanding, when contrasted with how little we seem to know about living things and natural systems (Bohm, 1980; Berger & Luckmann, 1966). Casting light on our conventional, everyday taken-for-granted way of knowing that is embedded unconsciously in our society reveals our problems about our presuppositions (Gibeau, 2012; McTighe, 2002). We know that epistemological errors led to errors of action (practice). Knowledge paradigms, if we can see them, answer why we do what we do – for good or bad.

Professor Schon's "particular epistemology" (he was referring to positivism) that he called out above is about a paradigm of dialogue of a certain kind. There are three major paradigms of dialogue: pre-positivism, positivism, and post-positivism (i.e., critical theory, constructivism, post modernism) in our society today (Guba, 1990; Kuhn, 1962). They vary in terms of their basic philosophy:

- (1) ontology (what is regarded as the nature of reality, truth),
- (2) epistemology (what is the relationship between knowledge and the knower), and
- (3) methodology (how knowledge should be found out).

The ontology, epistemology, and methodology of positivism suggest that reality, most

simply put, just exists as an objective phenomenon. Positivism, as an epistemology, is an understanding of perceived reality often driven by laws of cause-and-effect that we can learn about (Brunner, 2006). Because reality, according to positivism, can be quantified that is how we can know the truth of things. It also suggests that our inquiry can be free of value. Positivism uses hypotheses that can be empirically tested. In contrast, post-positivism believes that reality exists but cannot be fully understood or explained. There is a multiplicity of causes and effects (conditions) in the world as viewed by positivists and most nonscientific people. Finally, for positivists, methodological qualification is important and stresses truthful discovery.

For other people (post-positivists), reality exists as a mental (semiotic) construct and is a subjective matter relative to those who hold them. Although objectivity is an ideal, post-positivists argue that values mediate all inquiry and that objectivity requires a critical community of people. Thus, it is important to identify, compare, and describe the various constructions that exist hermeneutically and dialectically. Because positivism dominates our culture, it excludes the best parts of post-positivism. Thus, positivists see that false consciousness should be eliminated to facilitate human development and transformation. Accounting for these different paradigms of knowing is key to our understanding, living, and thriving (Trompf, 2011).

Problem Solving

Nowhere is the problem of epistemological error – philosophically and practically - clearer than in our conventional problem solving. Simply put, all problem solving is based on philosophic premises, that is positivism or otherwise (Bacchi, 2011; Weiss, 1989; Dery, 1984). Most people, it seems, are unaware of that.

So, what is problem solving? It is a way to think one's self out of a troubling situation, a situation in which things have been "de-arranged" and one's goals (values) are not being met because of circumstances. Problem solving starts with a disconcerting situation. The very aim of management and most all our work is to solve problems that threaten the personal and social long-term (i.e., sustainable) use of resources (natural and cultural values) and personal well-being. Much conventional problem solving sees nature as a collection of physical things to be manipulated for our material benefit. That approach greatly affects the environment.

Problem solving is often less effective than what is needed. Why is this? Typically, and conventionally, people go straight to offering up solutions and promoting them without adequately exploring the problematic situation, their own values, and context – so they can identify the real problem and create actionable definitions of it and a practicable path toward addressing it. Because of convention (and positivism), many times actual problems and their context are overlooked and the promoted solution may conflict, cause new problems, or offend some people (Terway, 2018). Even if people agree on a solution, it may address only part of the problem or not actually solve the problem at all.

Being conventionally "solution-minded" rather than more effectively "problem-minded" means that we tend to make assumptions about people's goals and rationality, pay too little attention to what has happened in the past and what might happen in the future, and focus uncritically on possible solutions. As professionals (knowledgeable about problem orientation) and responsible citizens, I maintain we must be aware of these epistemological limitations and know how to avoid them (the epistemological problem). Too often many people are not

cognizant of this need or set of problem-oriented operations and how to produce an actionable problem definition.

As I see it, we need to stop and think about how we problematize troubling situations (Bacchi, 2012). The word problematization is understood in different ways. In short, it means (1) a method of analysis and (2) reference to a historic process of producing objects for thought and work. In this second meaning, problematization encompasses a two-stage process: the first is about how and why certain things (behavior, phenomena, processes) become a problem, and the second is about how these are shaped as particular objects for thought and work. Conventionally, we seldom attend to either.

Assumptions, Premises, and Propositions

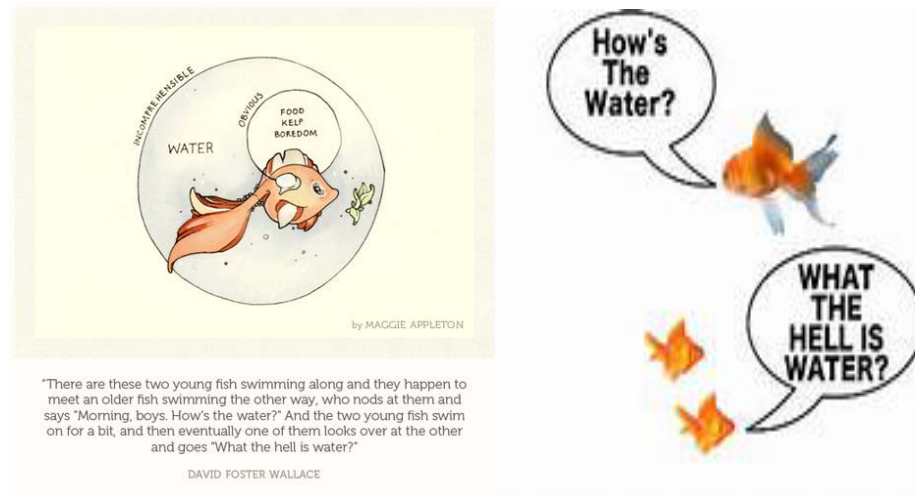
Each of us makes assumptions, many of them unconsciously. Life is so complex with so much coming to us through school, news, and online to make it almost impossible to get along without buying into myriad conventional assumptions, premises, and propositions at the very foundation of our society and culture. Some of these assumptions are well grounded in human experience and in positivistic science, but others may not be (e.g., all folk knowledge). Often, we do not think much about these assumptions and rarely look into the basis or wisdom of automatically buying into them. Typically, we just cruise along in life, carrying on as if our world will always be the same well into the future (i.e., the perpetual present problem). Consequently, the famous social theorist Hannah Arendt concluded that too many of us are caught up in thoughtless convention as we drift along in our daily conventional existence (Kohn, 2018). There are consequences for doing so though.

Our Perceptions

Mark Engle, a student of Bateson and in his Preface to Bateson's 1972 book, concluded that our central challenge is that we have created a world that we perceive. This is not because there is no reality outside our heads (e.g., matter, energy, gravity), but because our mental creation has consequences for ourselves, whether we know it or not. We select and edit the reality we see to conform to our beliefs (in our struggle for existential meaning) about what sort of world we live in and do so most often without knowing what we are doing.

Using the GYE example, for a person who believes that the raw, natural resources of the ecosystem are essentially unlimited, it is easy to conclude that if the GYE is well and healthy now, then the more involvement we have with it is a good thing. So, it is easy to conclude: let's all go out and enjoy it without thought of overuse and harmful consequences; better yet, let businesses make money in the process. Such people and beliefs typically cannot see the slower long-term harmful changes underway in GYE. Such people are not able to see their epistemological (knowing) error at the base of their perceptions. This is so because they will not look at their underlying philosophic premises (although doing so may be just too hard to think about). If they did, they might conclude that we are overwhelming GYE and jeopardizing its rich non-human life there (Clark, 2008).

These two popular pictures (Figure 3) metaphorically illustrate what I am talking about in this essay. They both speak to our assumptions, premises, and propositions and the perceptual blind spots and thoughtless convention they can cause.



"There are these two young fish swimming along and they happen to meet an older fish swimming the other way, who nods at them and says 'Morning, boys. How's the water?' And the two young fish swim on for a bit, and then eventually one of them looks over at the other and goes 'What the hell is water?'"

DAVID FOSTER WALLACE

Figure 3. Metaphorical cartoons illustrating our hidden conventional epistemological assumptions, and consequently our selective inattention to reality rooted in our society.

The point of the fish story is that our most obvious, ubiquitous, and seemingly important realities are the hardest to see and talk about. I am sorry to say, but much of what we take as automatically truthful is totally wrong and deluded. Most of us think that everything in each of our own immediate experience supports our deepest beliefs. In addition, our experience supports the conclusion that each of us is the center of the universe, the most important person in existence and that our perceptions are vivid. People rarely see these facts or talk about them because we are trapped in such conventions that are a sort of natural, basic self-centeredness. We all tend to do this.

Convention and self-referencing is our default setting. We are hard-wired from evolution and supported by the very strong socialization of our culture into conventional perceptions and thinking from birth. To put it differently, there is no experience that you have had that you were not the sole center thereof. As well, the world as you experience it is in front of your face or around you at least in gossip, social media, and on TV. In this context, you immediately get your own voice in your head, and feelings (emotions) from experiences and your self-centeredness.

Communication and Adjustment

As a consequence, people have to make efforts to communicate to you about what is going inside of them. Each of us is so hard-wired, default-set, and self-centered that convention is seemingly natural, so we seldom think about it (i.e., this is thoughtless convention). We tend to see what we see and interpret it through the prism of SELF. We are so very deeply and literally self-centered that we never see the water, as in the cartoons above. The take home lesson is that we need to be aware of what we are doing that distorts reality and adjust our natural default setting to become more functional and well-adjusted. We must question our knowing!

We tend to be blind about all these matters in our everyday living, working, and playing. This conventional blindness is the theme of Terway's (2018) seminal thesis at Yale University, which is about the fact that we typically overlook or misconstrue knowledge of our selves and our context in our perception and thinking. Furthermore, the consequence of this is causing terrible problems for us. In fact, what we doing now in our culture and individual lives too often

is simply to ignore the many growing environmental and social problems that we are creating due to our conventional blindness (really an epistemological problem). In short, the everyday conventional adult's existence is full of selective inattention or bounded rationality (Damasio 2018). This conventional omission or perceptual oversight (really a lack of awareness and thoughtful insight) has life-and-death consequences for us in the end and for the environment. This major point is not hyperbole or abstract nonsense.

For any person to change his or her basic perception-determining beliefs or epistemological premises, he or she must first become aware that reality is not necessarily as he or she believes or perceives it to be. For most people, this is not easy or a comfortable thing to learn. We seem unable to learn this in the GYE institutional context and in many other places. This is hard to do in the face of our dominant, powerful cultural beliefs about materialism, capitalism, bureaucracy, and more. In fact, most all people in society today and in history avoid thinking about their premises thus the term thoughtless convention that Arendt articulated. There are many built-in barriers to the kind of self-aware, functional learning that I am talking about and calling for (Clark et al., 2017; Wallace & Clark, 2017, 2018).

However, some individuals and groups are coming to question the consequences of our premises and behavior in the GYE and many other places globally. Many quotes are readily available from diverse people realizing that we are losing the GYE, and much of nature everywhere. At the same time, those individuals seldom go to the epistemological foundation for the problems that we are causing – the philosophic premises. It may be that the dissonance between reality (losing the GYE for example) and the false beliefs that all is well within GYE is just too much to consider. Maybe the good news is that for some individuals and groups, they are finding it impossible to avoid the awareness of the consequences of their premises, however understood or felt. In short, the world no longer makes the sense it once did for such people, perhaps because of different experiences. Now is the time for us to reconsider our epistemology overall in our society and in the GYE in particular. This is a tall order to be sure. Schools, colleges, and universities, as well as many citizen problem-solving groups in society, can lead the way.

Questions about Knowing – An Exercise

Our accepted beliefs about almost everything (within each culture and time) derive from our answers to five foundational philosophic questions that have vexed humans for millennia. In this essay, I explore these questions in various ways and depth, and the consequences of our answers for our living and our future based on conventionally accepted answers, especially those about epistemology. Yet, most people seem not to address these questions directly.

The questions are as follow:

- (1) What is? (the occurring world, ontology, reality, truth)
- (2) How do we know? (epistemology)
- (3) What is right? (axiology, ethics, rectitude)
- (4) What is our sense of things? (ordination, order)
- (5) What should we do? (pragmatism, practical)

At different times and places over history and even today in different subcultures, these questions are addressed indirectly and answers are different (Figure 4). Few people seem to ask these questions consciously, systematically, in dialectic social setting. Yet, we act on how we answer them unconsciously, one way of the other. As well, we form views of our selves and our place in the world from our answers (i.e., meaning). Different views are typically in conflict.

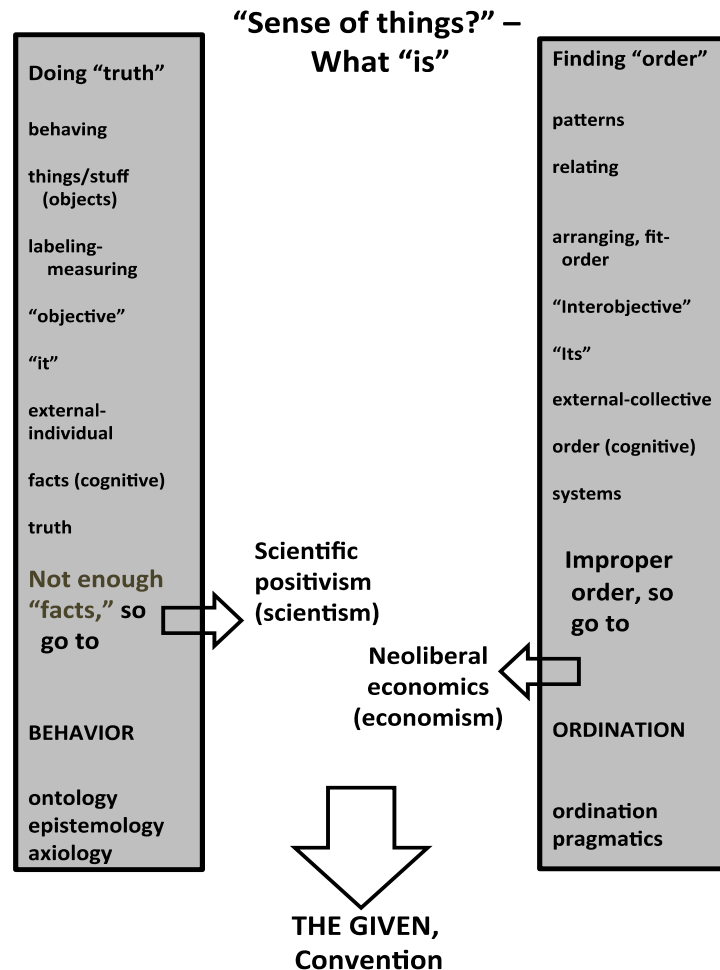


Figure 4. The philosophic foundation for our society’s commitment to scientism and economism.

As I see it, it is now possible and worthwhile to think about these questions more consciously and about our many problems of order and disorder in the biological and social world. We now have perhaps an adequate array of concepts and tools of thought and problem solving to make practical gains towards our problems (Lasswell, 1971). Unfortunately, most of us are unaware of these many philosophic and pragmatic concepts and tools, and the hard-won insights that come with them. As I see it, this knowledge is helpful to understand relations and patterns in our lives, and the problems we face individually and collectively. To put it another way, perhaps a simpler way, this body of useful knowledge is about how we connect the dots, as in the cartoon above. It offers us a framework for meta-pattern recognition. The reality is the

functional patterns in our lives that connect us to each other, other life, and the environment. This suggested meta-framework allows us to dig into these matters and our dilemma a bit more.

Take this exercise as it might help us at this point. Assume we are in a classroom or workshop, and I ask you for a show of hands about “how many of you have seen an ecosystem?” Often, I see many hands raised. However, in reality you do not “really” see an ecosystem. What you “see” is a bunch of pieces of information about land, plants, animals, rivers, weather, and the like; and you synthesize these fragments into a picture image of what you imagine an ecosystem is. You make that into an image that is really a semiotic (language) concept in your head. Semiotics is about you as an observer, the objects you apprehend, and the mental and language process and labels you invoke to interpret and verbalize what you see. It’s that simple. The term ecosystem was coined only in 1935 as a new semiotic concept.

The notion that “I see an ecosystem” or “I see you” and “you see me” is a proposition that I am calling “epistemology” (the mind’s way of knowing). It contains assumptions about how we get information (via sense organs) and how we make sense of it with our brain (Damasio, 2018). In doing so, we make assumptions about what kind of stuff is “information.” When you say you have “seen” an ecosystem or you “see” me and raise your hand in affirmation, you are agreeing to a certain epistemological proposition about the nature of knowing and the nature of the biophysical world in which we are immersed and live, and how it is that we know about things. This is all pretty complex. Perhaps that is why many people avoid these subjects.

To me, for epistemological and other philosophic and intellectual reasons, it is easy to see that many of our conventional, every day, taken-for-granted propositions happen to be false (as in the GYE case). Nevertheless, they are presumed to be true by many people, and widely shared and embedded in our culture and its institutions. In short, the fact is that we all share these false propositions through our conventional behavior. This presumed, conventional understanding is taken as “common sense” and “given” to us by our culture, typically without question. Yet, that presumed understanding can contain errors.

In the case of epistemological errors, most people and even academic disciplinarians cannot detect them (i.e., they lie outside of the conventional perceptual net). When anyone raises the subject of epistemology, it is much like the parable of the courtier telling the emperor that he’s wearing no clothes (Anderson, 2001). Pointing out epistemological errors or that the emperor is naked gets one very quickly punished. You and I, and everyone else, are able to get along in our communities in spite of very deep errors (because we share convention). We are able to get along in the world, read newspapers, and often agree in general, and to function like human beings with a shared knowledge of ourselves and the world in spite of very deep errors. Put simply, these are errors, erroneous premises – in fact work at some level! They work because we all share the same epistemological (and semiotic) errors and don’t know it. Yet errors produce problems, sometimes crises (e.g., climate change, species extinctions, ecosystem degradation, injustice) as is currently unfolding in the GYE and throughout most of the world (Ripple, 2017).

Epistemology – The Mind’s Way of Knowing

At some stage or under certain situations, if you are holding basic epistemological errors, you will find that they no longer work. Our premises work only up to a certain limit. How a person comes to the conclusion that things do not work anymore varies, if ever it is recognized at all. I and other people argue that it is vital to understand what we are doing philosophically as we

live out our daily lives, participate in society, and relate to the environment, including all other life (Nichol, 2003). Without that clarity, we are largely flying blind with convention as our pilot.

Epistemological Errors

We are beginning to see that in the GYE today, for example, our epistemological premises are not working as hoped. My several decades living in the region and my observations about the science, management, and policy used in the Greater Yellowstone Ecosystem shows that the premises we have historically taken as conventionally true are in fact showing deepening epistemological errors (Clark & Wallace, 2018). These accumulating errors call into serious question whether we will be able to recognize and overcome them in time to save the greater ecosystem with all its life forms and ecological connections. It seems to me, at present, many of these errors are not even recognized, much less addressed. In the GYE, we have already created massive and growing human disruption of natural systems with much more on the way. It is an open question whether we will come to see our errors and address them.

Currently, we now take unquestionably a mix of disciplinary science, agency management, and environmental NGO advocacy, and all their conventional approaches, as the one best way to “save” the GYE. We hope for the best while otherwise going about our work as usual. We continue to invest our faith and labor in conventional approaches, despite the fact that this approach is riddled with ever more visible epistemological errors. Most of those errors remain undetected currently, especially to the untrained eye and mind, yet a growing number of people sense errors, subconsciously at least. A few people are relatively aware of the errors and talk about them explicitly (as in this essay) and often in words different from I am using here (see Mountain Journal). However, some of these people do not know yet how best to verbalize their feelings, observations or experiencing. For some people at some point of awareness or feeling, they do discover to their amazement that it is exceedingly difficult to shed their own epistemological error – our basic problem culturally. That problem is socially shared and widely recycled without reflection. It is as though we are trying to hold a handful of fine sand but cannot stop trying.

In the GYE, a few people see that our current dominant premises (epistemological assumptions) work only up to a point. Some people see that things do not work as expected, for example the bison management case (Cromely, 2002). Often this conclusion is not understood in a sharp conscious way in epistemological terms, but instead is articulated as generalized complaints about the biology of the problem or the “system,” as individuals witness, for example, the removal and slaughtering on many hundreds of bison annually. Complaints take many forms, but all are about the notion that the “system” – people, the agencies, institutions – is just not functioning as it should.

Each error, however recognized and talked about, is like touching sticky candy - once touched, it is hard to get off, and even if you try, your fingers are still sticky. Those people perhaps perceive in various ways that under certain circumstances sense that their epistemology is causing errors or is in sharp conflict with other people’s assumptions. Epistemological errors in turn cause errors of action and behavior (individual and collective) in science, management, and policy, as well as errors of individual perception and thinking. There are many examples of epistemological errors in the current management policy in the GYE and most elsewhere (see Wilkinson, 2018; Mountain Journal). Typically, most epistemological assumptions and errors go unrecognized though, and thus unattended to. Epistemological errors lead to errors of action,

sometimes with great counter-intuitive consequence.

Revisiting Epistemology

How we attend to these philosophic matters sets what actions are possible and what kind of thinking and communication are permitted, say, in the GYE or the academy. We make answers (consciously or unconsciously) to the five questions above, even if we never clearly consider them, and in turn, we live believing in those answers. We use the answers in practice as our shared operating premises – individually and collectively. Yet very few people look at these assumptions (premises) explicitly and think their way through how sound our grounding really is.

In this article, I take these questions on more directly, and show that the traditional disciplines, hybrid disciplines, and conventional approaches in the academy and in society that widely accept culturally-given answers are, in fact, on thin ice (Sellers, 1997; Bohm, 1980; Rorty, 1979). The thinking and actions we take based on our assumptions result in our sometimes making and recycling epistemological errors. Given that our many social and environmental problems today flow out of our weakly grounded premises, we need to reconsider them (philosophically and metacognitively, Keestra, 2017). However, the good news is that a growing number of people are concluding that we have made devastating errors in our way of knowing and that these are turning out to be highly destructive to human dignity and environmental sustainability (Selby, 2007; Bohm, 1992). This may well lead to constructive changes. We need to recognize and correct this fundamental pathology before it is too late, notes Bateson (1972: pp. xxvi-xxvii). He suggested that our epistemologies come to rest on two kinds of propositions about our occurring world. First are metaphysical, tautological truths and beliefs (ontology) that form a system of propositions. Second are truistic ones (epistemology) about ontology, the occurring world, as questioned above. The second set of propositions (“laws”) is generally true, based on human nature and behavior over historic time across many cultures. He went on to say that among the truistic propositions are the “eternal verities” of physics and mathematics where truth is tautologically limited to the domains with those that human-made sets of axioms and definitions. Among propositions, he said that we describe as scientific or empirically true is the conservation “laws” for mass and energy – the Second Law of Thermodynamics - and the like.

In fact, as Bateson (1972) says, the line between tautological truths (#1 above) and empirical generalizations (number 2 above) is not sharply discernible, as suggested. In fact, there are many propositions whose truth no sensible person can doubt, but they cannot be easily classified as empirical or tautological. For example, the “laws” of probability cannot be stated so as to be understood and to be believed, but it is not easy to decide whether they are empirical or tautological.

Scientific Advances

The dominant view of science (positivism) and advancement is well established in colleges and universities, as well as in the agencies and nongovernmental conservation organizations. However, this dominant view contains epistemological errors as noted above that are being acted on and perpetuated. My colleagues, especially those in the traditional, disciplinary biophysical sciences, seem to believe that scientific advance is predominantly and

should be an inductive (positivistic) process. In terms of that view, they believe that progress is made by the study of “raw” data using quantification, leading to new theories and concepts (and prediction). They assume that they themselves are objective and neutral. And that new theories and concepts, in turn, are then to be regarded as working hypothesis and tested against more data. Gradually, they argue, through accretion, it is hoped that theories will be corrected and improved until at last, the theories are set among the great human accomplishments. Yet over many decades in which many thousands of clever scientific people have had their share of new theories, they have produced a very rich crop of thousands of new concepts and theories. Yet only a few are worthy of a place in the list of fundamentals about nature operates.

This brings up a comparison of what these scientists are doing inductively versus deductively. There are two approaches to knowing – induction and deduction. Using Merriam Webster’s dictionary (www.merriam-webster.com), induction is inference of a generalized conclusion from particular instances. First known use of the term is from the 14th century. It is a conclusion arrived at by bringing forward or adducing something, such as facts or particulars. The facts of science are then taken as reality and truth. They are purported to come from inductive reasoning. All of modern science, it is argued, is based on induction. That is, they are understood within existing epistemological frames of reference and organizational cultures that support them. Most conventional experts, especially those claiming a science-based outlook, rely on induction and existing organizational and institutional systems.

In contrast, deduction is the deriving of a conclusion by reasoning based on broad experience. This view has been around for millennia. This view is about inference in which the conclusion about particulars follows necessarily from general or universal premises. Deduction is about making a conclusion reached by logical deduction (which may also include some induction). Conventional science is based on induction today, whereas many in the humanities and social sciences, and people in everyday society, typically use deduction.

Much can be said about the entire scientific endeavor and about the propositions and direction of any particular piece of inquiry (these are matters of epistemology). Explanation is the mapping of data onto the fundamentals (assumed, answers that we take to the five philosophic questions above). The ultimate goal of science, in both the narrow positivistic and the much broader sense as I use it here, is the increase in fundamental knowledge and theory.

The sad reality today in academia is that the vast majority of the concepts of contemporary economics, psychology, anthropology, and sociology (as well as human ecology and environmental studies) are totally detached from the network of scientific and lived wisdom of the ages – the deductive fundamentals. Academia largely functions as a holding company for certain epistemologies (positivism) and traditional disciplines. Most modern public relations uses the language of sustainability, interdisciplinarity, and more thus creating the impression those activities are leading edge. That promotion masks, disguises the real underlying epistemology (positivism) and commitment of those programs to the disciplines and hybrid disciplines.

Beliefs, Society, and Power Myth

Why do we make epistemological errors and often fail to see them when we are doing so? Much has been written on this question. Some authors say we are able to stay blind to our errors because of the overpowering central origin myth that many of us hold (a belief system taken on faith) anthropologically speaking – the Judeo-Christian belief that now dominates our culture and how power is acceptably used to maintain it. To get to the bottom of these matters, we need to

understand the fundamental philosophic and scientific problems with which the myth is concerned (White, 1967). A careful sociological and political reading of this myth shows us some of the philosophic fundamentals that earlier peoples brought into our culture. These fundamentals are still used today and are behind the errors in our thinking, science, and work. First, let's get a better fix on how our beliefs function for us, given what we know of our brains/mind.

Beliefs – Body, Brains, and Mind

Different peoples and their myths, again anthropologically speaking, address their experiences and life challenges in different ways. Consequently, different people produce different responses to their own challenges, as each struggle to make meaning for themselves (this is an existential matter; Yalom, 1980). This meaning-making process brings us quickly to think about our brain and mind and knowing. The last 50 years have given us a broad conception of the world in which we live (Damasio, 2018). It has given us a new kind of thinking about what is “body,” “brain,” and “mind,” and our knowing. Let's briefly go into these matters.

We now know that our mind, according to Damasio (2018), includes the following: (1) a system that operates with and upon differences, (2) a system of loops or networks of pathways along which differences are transmitted, (3) many events within the system that are energized by the respondent's subjectivity rather than the external world, and (4) the capacity for self-correction directed at homeostasis (equilibrium, balance). Some trial and error is involved in its operation. Yet under scientific positivism that dominates today, some of these mind features are rejected, discounted, or ignored. As such, our potential for learning and adaptation are limited in practice. This is the root cause of our epistemological and pragmatic errors. It seems now that the unit of evolutionary survival is, in fact, identical with the unit (paradigm, beliefs, culture) of our mind (memes). Ecology, then, is really about the study of the interaction of mind and nature (recalling that “nature” is a human semiotic construct; Kockeman, 2011). This view of ecology is different from the conventional view of ecology, the biophysical study of nature.

The concept of mind is a relatively new concept, which is now a big subject of study. We know the mind works through perception, semiotic concepts, language, and culture to give us the system (stories, beliefs, myths) of meaning that we live inside of, seldom question, and often die for. Typically, our stories of solidarity and transcendence are believed without questioning their veracity. We come to meaning, both individually and culturally, by noticing differences in the world, in people, in the environment, and more. Across all the differences that we notice (different people notice different things) only a few of the differences really matter. These most important differences ground us and form the basis for our presuppositions about reality and truth (ontology), knowing (epistemology), and “right” behavior (axiology). The differences that I am talking about, and nevertheless we believe to be true and act on, are talked about today in terms of information theory, systems theory, and psychological theory in professional communities.

In the last few decades, this brain/mind system (e.g., cognitive, energy, and information) has come together to give us a new fundamental conception of the world in which we live. The neuroscientist Damasio's *The Strange Order of Things: Life, Feeling, and the Making of Cultures* (2018) is one example that give us the new synthesis. This new synthesis amounts to a new way of thinking and knowing about what the brain and mind is, what the world is, and how we should be living. This new conception is hard up against earlier views and in deep conflict

with our old conservative cultural belief system about our specialness and exceptionalism. Our belief and cultural system is actively rejecting this new synthesis as presented by Damasio. In the meantime, epistemological errors are accumulating because of our erroneous beliefs, thinking, and practices and causing many environmental and social problems. It is as though the human mind, belief, and cultural system is a closed loop of causation, analysis, and adaptation thus immune to self-scrutiny of the type Damasio presents.

It is obvious that different people around the Greater Yellowstone region and world have different ideologies (belief systems), different epistemologies, and different notions about the proper relationship between humans and nature. We now have well founded ideas about the nature of humans, the nature of reliable knowledge, and our different feelings and sense of our own agency. Regardless of what one thinks, it is necessary for enough people to share premises and views of knowledge, whether they are in error or not, to permit essential communication and a stable, yet open culture.

The fact is we live in a world (culture) where it is very difficult to illustrate the intangible nature of epistemological (and other) errors to people deeply committed to convention. It is very difficult to change premises and habits. This seems true, even though people perceive things are not right now or not working out as expected, but will not admit it or see that errors are significantly epistemological. It often is too difficult to get a clear diagnosis of epistemological errors and know what to do to correct them. It seems that first we need to better understand ourselves – brain and mind, beliefs, and society before we can talk about epistemology.

Society - Conventional Traps

What I am saying is that our survival and prospering depend on the unit of the body, brain, and mind (epistemologically speaking) that we use, often unconsciously, and live by. We now understand that human ecology in the broadest sense is the study of interaction and survival of ideas and policies (e.g., difference, systems of complexes of difference, patterns, all epistemological matters). What happens when we humans, as individuals and as a society, make epistemological determinations is that we choose units for knowing and behaving. It seems we have chosen the wrong units for our long-term prospering (Riemen, 2018; Arendt, 1971), choosing belief units that set up a view that humans are against and separate from nature. This belief has led to our practices that cause the worldwide degradation of the atmosphere, ocean and global pollution, and extinctions, to mention only a current few problems.

What conventionally dominates today is a view, both psychologically and culturally, that separate the mind from its structure (the brain, body) in which it is immanent. This separation or duality is deeply entrenched in our sense of self, humanness, and our human relationship. It is the central motif of our society. Having created this self-image sent us off into an epistemology error as noted in this essay. In the modern world, we are seeing ever more clearly the duality's devastating consequences. The error is hurting us greatly, generating a wide array of social and environmental problems (e.g., species extinction, devastating ecosystems, climate change). To put it most simply, our epistemology and circumstance in which we live are out of kilter with one another.

The conventional notice is that a person "sees" an ecosystem or me and that convention is not an epistemological error. This view dominates our thought and action despite the fact that you may know intellectually (consciously) that it is not so. In the same way, we are governed by epistemologies and other presuppositions that we, more or less, somehow know are wrong. The

overly specialized disciplinary professionals and ideological leaders who know little to nothing about the basic structure of science and culture, especially over the last 3,000 years of careful philosophic and humanistic thought, should hold their voice rather than pontificating and adding to the jungle of dormitive hypothesis (Tarnas, 1991). A dormitive principle is a type of tautology in which an item is being explained in terms of the item itself, only put in different usually more abstract and inferentially cause-and-effect words. All of our dormitive-based explanations, views, and beliefs (really hypotheses) set up a conventional understanding of beliefs, culture, and conformity.

It is common to make epistemological errors by choosing the wrong unit of our knowing, living, and thriving (within culture). Fortunately, in contrast, there is a structure and order to nature all around us. Our major task is a matter of learning about it. This structure and order is an appropriate source of knowledge and a metaphor that can enable us to better understand ourselves, thinking and knowing, and social organization and practices.

At present, our knowledge of nature is not fully realized by our dominant Judeo-Christian and neoliberal culture. Because many people live inside those two beliefs, we are making dormitive hypothesis that are in error. The Frenchman Molière in *The Imaginary Invalid* coined the term “dormitive.” He speaks to disciplinary frames (mental bounds, paradigms, beliefs) used by scientists today that too often ignore important systems and eco-human variables, such as self, subjectivities, context, and various philosophic premises.

We are living in a society (and belief system and power system) dominated by a kind of everyday living that is an ecology based on a questionable epistemology and set of ideas. Just as there is ecology of invasive species that can come to dominate a plant community, basic errors in our epistemology about nature and society continue to propagate themselves, errors and all. We have more or less settled into a closed loop system of thinking and acting built on dualism (humans vs. nature), materialization, objectification, and instrumentalization – neoliberalism. Over recent centuries, we have narrowed down our epistemology in support of neoliberalism. Let's further explore this trap.

Power Myth in Support of an Epistemology of Errors

The myth of power today is a very powerful myth (belief) that dominates in our society. Power is about influence over decisions of importance. It is about overriding any resistance to a person getting their way. Some people see this as the only, or at least the major, value people seek. In contrast, we know there are eight functional values that all people all the time care about, not necessary equally given the situation. They are respect, affection, well-being, ethics, power, wealth, skill, and enlightenment (Lasswell & McDougal, 1992). Perhaps most people in the world believe that power is the key value or at least the most important one today, a belief that can become self-validating. Perhaps this is behind the epistemological error I am talking about in this essay.

Our present power myth operates in support of a view of the world, and the latent and largely unconscious epistemology. It is out-of-date in several ways. It is out-of-date in terms of first, pragmatically leading to self-centeredness, greed, and worse pollution, extinctions, and degradation of life sustaining ecosystems. In the worst case, it leads to fascism and war. Second, intellectually leading to premises (e.g., epistemologically ones) that are out-of-date, obsolete. There are demonstrably better ways to know, understand, and behave in the world of biology and culture. And third, meaning making leading to premises about humans and nature that are

maladaptive, therefore, obsolete for 100 years or more. We live in a time when meaningless is on the rise.

This kind of thinking leads to theories of control and power over ideas and behavior. Thinking as described above, conventionally, when you do not get what you think you deserve or want, you will blame somebody. In turn, we single out a person or social group to blame, if you can identify them (e.g., White males, colonialism, White supremacy, racism). If you cannot identify a target to blame, it is easy to say, “It is the system.” Many younger people of all generations do so, blaming the establishment when in fact, the establishment is not to blame. The establishment embodies the same epistemological errors that I am talking about.

If you accept or believe a unilateral world of understanding and think that the other person believes that too, then the thing to do is hit that person hard and control them. What is true is that bad ideas corrupt. Power corrupts most rapidly those people who believe in it. Our democratic system tends to give power to those who hunger for it. As well, it gives opportunity to show people who do not want power to avoid getting it. This is not a very satisfactory arrangement to detect and correct epistemological errors.

One of the traps (perhaps the main trap – the conventional trap) is that we are deeply acculturated to the idea of self and our present understanding and organization that is hard to see for many individuals (Taylor, 1989). This conventional view tells us about our selves as a species, a social being, and our “right” relationship to nature. Science and experience in the last half century have given us much better ways to understand these phenomena and relationships. That knowledge has yet to seep into the conventional consciousness. Convention still dominates our beliefs, myth, and knowing.

In turn, this leads to something like the present state of human ecology in our society and in the GYE, which is a mass of quasi-theoretical views not well enough connected to basic presuppositions and pragmatic matters. Take the GYE example again: How long will it take, if ever, for enough people to come up against our epistemological errors (in the form of coming to a sense that things are not working) before we can move on? In the GYE case, given its very diverse human community, we all seem to get along, more or less, in spite of the fact that we hold deeply buried mind premises that are simply false. Typically, epistemological errors persist because they are reinforcing, self-validating, and deeply institutionalized in conventional culture, beliefs, and power arrangements in contradiction with one another.

My Pedagogy – Education and Practice

It became increasingly clear that the world was a glorious mess that wouldn’t sit still long enough for any one academic discipline to nail it down, let alone conduct controlled experiments on it. The best we could hope for would be little fragments of hard-won knowledge about tiny subsets of this roiling cacophony. (Primm, 2018, p. 33)

Colleges and universities are a key site to explore our epistemological challenges and how to avoid recycling errors. For me, it seems clear that the massive aggregation of threats that we humans now face (e.g., poverty, rise of fascism, to climate change, extinctions) come out of errors in our habits of thought at very deep, largely unconscious levels. To me, there is urgency in coming to grips with our epistemological errors and their potentially catastrophic consequences for our society (Lynch & Veland, 2018). Perhaps we have time to address the mushrooming challenges over the next 20+ years without major disaster, but many thoughtful

people do not think so (Wolin, 2008).

College and University Education

As I see it, our programs and curricula, given the dominant epistemological assumptions and technical focus in many cases, works pretty well. In technical education, we do rather well. We can teach students to be engineers, doctors, lawyers, and scientists. We are good at teaching the dominant epistemology and a technical focus on the world all the while avoiding a focus on ourselves, epistemology, and the context of our living (Terway, 2018). We know we can teach to reinforce the dominant epistemology of our present culture and turn students into economists, ecologists, and more to staff business, government, environmental and NGOs. We clearly can confer students with the skills that lead to what is now construed as success in the conventional array of available jobs. We know we can imbue in students the working philosophy (epistemological) that promotes the dualistic approach (humans vs. nature). Currently, this seems to be the main duty and function of many of our colleges and universities (Kronman, 2007; Wallace & Clark, 2017). Should we be doing more? To be sure, in recent decades, we have made great strides using conventional views that have dramatically enriched our lives. These gains come from advances in genetics, cybernetics, and systems theory, among others. This is good, of course, but unintended harmful side effects often come with these gains. What is to be done?

In sharp contrast to business-as-usual, the philosophic and practical foundation of my teaching and work, as well as my students' interactions through practicums, is well grounded in my own experience and that of many other scholars, educators, and professionals worldwide. It is an integrative approach. The integrative via interdisciplinary approach that I use has come together over the last 150+ years to give us a broad conception of the world in which we live (and ourselves), its growing complexity, and the best problem solving and thinking tools available. We can use those to address our postmodern situation or stay mired in traditional education and epistemology. The integrative approach that I and many others use amounts to a new way to thinking, living, and working compared to traditional disciplinary-based modes of teaching and researching that currently dominate in my school, The School of Forestry and Environmental Studies, Yale University (Wallace & Clark, 2018).

As I see it, we must learn to detect and correct our epistemological presuppositions and errors about knowing, thinking, and behavior that have real world consequences. In the case of the GYE conservation case as introduced in this essay, we have many opportunities to do so to upgrade real world problem solving in the common interest. I believe we need to rethink and create an inclusive dialogue about our learning, teaching, and our schools that goes well beyond what we often permit at present.

My Experience and Goals

As an educator and citizen, I have a responsibility, a duty to explore these matters about knowing and practice. I have found people in scattered communities around the United States and in Australia, China, and beyond who are concerned with the same issues as I am. It is clear there is a growing number of people in islands of openness, inquiry, and sanity throughout the world who see things as I do. These communities are trying to skillfully and consciously lead us out of the errors and their harmful consequences to a better future. We must find ways young people can engage in these communities of thought and action too and quickly.

Overall, I am interested in the integration of morals, science in the broadest sense, and policy. My moral value is that of an individual in a democratic society in which I have been reared and to which I am loyal: the dignity of the human personality in a free society. Science as I use it is the free use of reason on human experience, thus used more broadly than most people use the term (as positivists). Science is useful to generate insight, improve judgment, and upgrade decision-making. I invite whatever collaboration there can be on the part of all people who are benevolently disposed toward my aims or toward me.

My skill is analysis and creative, disciplined criticism. I seek to be an integrator of knowledge and action, thereby helping myself and other people practically solve problems. In meeting problems, I seek to elicit and give effect to all the rationality other individuals and groups are capable of giving at the time on whatever issue that is before them. Fortunately, the trend of our time is for integration and collaboration in problem solving.

I have always been interested in understanding. Over the years, I find that clarifying and re-clarifying my standpoint to myself and to others is increasingly important as a means of keeping my sanity in our present devolving, complex world. I consider my “window on the world” over and over again, relative to epistemological matters, among others, and the changing status of society, the environment, and problems I am interested in. I focus on colleges and universities here, yet my recommendations should be helpful to government and nongovernment entities alike. Feedback is always welcome.

Since I was a child, I always asked questions about “why?” and I have not stopped with conventional answers and boundaries. Growing up in eastern Oklahoma, I found few people I could talk with about “why.” Since then, I read and did what I could as I worked on various conservation and diverse other problems. My time at Yale University, since 1983 (over 50 semesters) furthered my inquiry and brought me into dialogue with a great many exceptional people on a broad range of powerful ideas. That experience sharpened my focus on our growing epistemological problem. I owe a great many people for where I am today. I now see my standpoint, my perspective on the world, a bit clearer than in 1971 with Bateson.

As well, we are collectively trying to run society and promote the best of our culture, as well as colleges and universities and the highest standards of secular humanism and excellence in a world full of growing distrust, politicizing of all values, vulgarity, insanity, exportation of resources and other people, victimization of persons, a quick crass commercialization (these amount to a receipt for the rise of fascism perhaps) (Riemen, 2015; Stanley, 2018). It is time for us to do some thinking that is more fundamental, technical, and theoretical than is demanded in our everyday, conventional society (i.e., in our many organizations and institutions). Our eco-mental system is in need of an opening up, reconfiguration, and adaptation.

What are the implications of this? Colleges and universities, as well as our culture more generally, should help us see things as they are. Yet they often teach only conventional views, the disciplines, and fragmented approaches. When my colleagues teach in traditional ways, lecturing for example, they are using a unilateral “therapy” in front of students, reinforcing their minds into conventional thinking. We all do this in our interactions all the time because this view is built into the details of our behavior as the “right” thing to do.

Teaching and Work

I treat students as whole human beings and seek to engage them individually wherever they are in their positions of development, interests, and understanding. I take students’

identities, expectations, and all into account as I work individually with students to advance their knowledge, skills, and development. I recognize that students come into our college and university programs at varying levels experience and cognitive and moral development, as noted in the Perry and Kegan descriptions of the human developmental sequence (Kegan & Lahey, 2009; Kegan, 1994). In doing so I use a high order integrative framework that is truly interdisciplinary using a lot of cases, exercises, and discussions. I dialogue with students. For some students, this approach is transformative (see quotes at beginning of this essay).

In my decades-long professorship, I found that our established, conventional problem-solving approaches and often what we do and think collectively rests on presuppositions (premises) that are philosophic. It's likely most people do not know this, instead assuming they have a true access to reality (truth and perfect knowing) using their sense organs and body, brain, and mind. All of our philosophic premises are about who we are (encoded in a sense of self and cultural stories and our institutions), what nature is presumed to be, and how we want to live our lives (Damasio, 2018; Castree, 2014). Helping people see this fact is much like telling the emperor he was wearing no clothes (Anderson, 2001). Many people do not want to move beyond their own relatively closed self-stories of meaning.

My approach is to offer a diagram that describes what I conceive to be the task of the successful integrative scientist and citizen – the problem-solving pragmatist (Figure 5). In using this diagram, it becomes clear to most students that any difference between my habits of thought and those of my students springs from the fact that students were trained to think and argue inductively from data to hypothesis (theory), but never to test hypothesis against knowledge derived by deduction based on the fundamentals of human existence, science in the broad sense of the concept, or hard won pragmatic insights. Our task as educators is to combine the best of both approaches given real world problems and contexts.

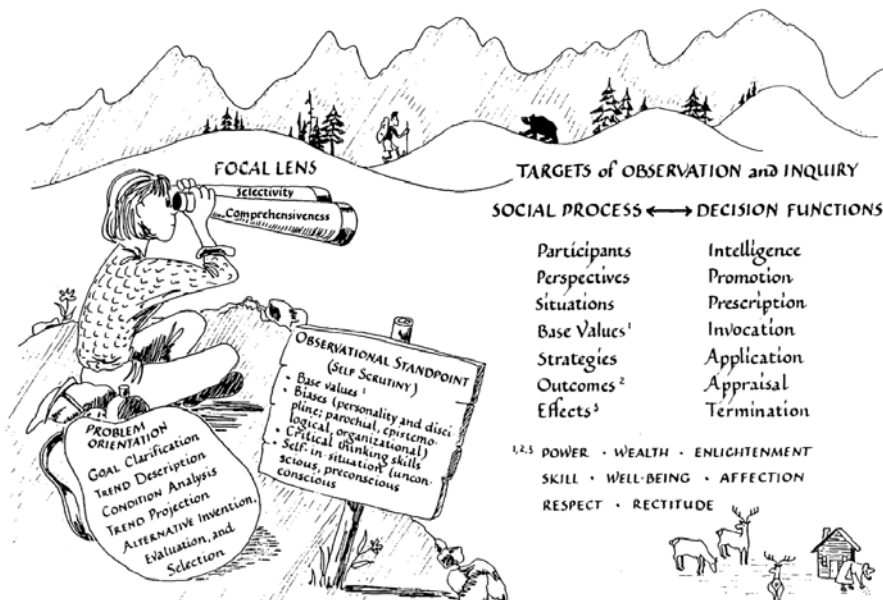


Figure 5. An illustration overviewing the meta-framework for real world problem solving.

In my graduate seminar (Society and Natural Resources, topic changes annually). In the spring 2018, I said that professional work in natural resource management requires attention to goals of conservation, sustainability, and justice (i.e., human dignity). In taking on these subjects

in that seminar, I recognized that some students were in transition to higher levels of development, authenticity, and self-awareness and moving towards greater knowledge of other people in real world contexts.

Students anonymously gave me feedback from that seminar and other courses about my integrated, transformation pedagogy. Some students stay well within the epistemological presuppositions they came in with in my courses. Here are a few quotes, among the many that I received at the School of Forestry and Environmental Studies (F&ES), Yale University:

I wanted to send a note to let you know how grateful I am to have had the opportunity to learn from you and with you over the last two years. Your classes will be far and away the most valuable thing that I take away from my time here at FES. Thank you for taking me under your wing as a student and mentee these past two years.

Our conversations have been enlightening and your advice valuable, but most of all you have opened a window to a new way of seeing the world. The power of your teaching is not just the subject matter but your delivery of it, your passion for understanding and your love of sharing. Thank you for that – it has been an honor to have you as a role model and mentor.

Thanks for a truly wonderful class. You are offering something unique at Yale that is invaluable.

Susan is one of the only truly interdisciplinary professors at FES. She actively works to create bridges between natural and social sciences, having worked extensively in both fields herself. Although many think she only teaches the policy sciences, her courses actually incorporate biology, sociology, ecology, anthropology, and psychology. There is really no one else who better fits the description of bridging disciplines.

The point here is that students rise to the occasion and are transformed.

Conclusion

We have come back to the place where we began this essay, only now seeing it (and ourselves in a world of problems) in a wider and deeper perspective – with an epistemological and pragmatic perspective. This wider and deeper perspective is about our knowing and practices. We now see there are problems with convention and the epistemology of disciplines, and real questions of urgency in the human-nature dynamic unfolding all around us. It seems clear that we face a threatening aggregation of social and environmental problems to our cultural systems and for ecological systems. We now know these problematic situations arise out of errors in our habits of thinking and behavior. Currently these habits when taken for granted are deep and largely unconscious at the individual and social levels. The real question before us is can we find a new awareness and capacity for deep cooperative enquiry with our present cultural and environmental context, especially in our colleges and universities, and for that matter throughout society. At present our social context is sharply adversarial and growing more so, or so it seems. As I see it, we must upgrade our consciousness and rationality to best deal with the problematic complexity that we have created. Those complexities, given the erroneous

epistemological presumptions that we use to address them, have some harmful and unintended consequences that are becoming ever more apparent. My work, thinking, and education are all focused on addressing and upgrading our capacity to address our problems – small and large. Perhaps our young people are more “with it” in this regard than the conventions of our present leaders and institutions. Will they come to understand the “water and connect the dots” in an integrated, practice way in time and develop the knowledge and skills to turn things around for the better? Time will tell.

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Discussion Questions

1. What is your sense of how well society functions today and whether we are sustainably managing the environment?
2. Is our society and its culture flexible enough currently to smoothly adapt to the onrushing environmental change evident all around us (e.g., climate change)?
3. What should be the role of colleges and universities in giving students the perspective, knowledge, and problem-solving skills to be responsible democratic citizens and leaders?

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Perceptions of Good Parents and Teachers by Parent-Teachers in the Jewish-Israeli Culture and Society

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Abstract

The Hebrew nouns for 'Parenthood' and 'Teaching' derive from the same Hebrew root (ה.ר.ה, H.R.H) meaning to order and command, but also to guide and show the way. Despite this commonality in lineage, the formal expectations of teachers differ significantly from that of parents. While the role of a parent does not require any training or screening processes, teachers must obtain a specialized teaching license and undergo extensive training and screening in order to enter the profession of education. There is no unanimous agreement among professionals on the degree of influence the home or the school has on a child's education.

One of the most common statements among university graduates undergoing professional retraining courses for teaching is "from the moment I became a parent I felt a desire to engage in education and to realize an old dream of mine." Such statements inspired me to search for the link between these two roles, out of a desire to understand why newfound parenthood often arouses a latent desire to become an educator and a teacher.

The role of parenting and the role of teaching are "taxing" both physically and emotionally. The teacher often deals with the emotional dimension when it comes to student-teachers with a variety of mental complexities and inaccessibility to learning, and has to function not only as a teacher but also as a kind of psychologist and to handle aspects of life that transcend the field of teaching and learning. No one has ever formally defined the role of the parent, and it, therefore, depends on the parent's personal perception, in addition to his or her culture. Parental responsibility is a physical responsibility as well as emotional and mental. The role spans the parent's entire life, whereas the teacher's role in relation to an individual student is short term and does not usually span more than three years. This study focuses on the perception of the practices that attribute the dual role of teachers who also are parents, with reference to two aspects: the overlap and the clashes between the practices of good teachers and good parents. It is worthy of mention that this duality in parents who engage in education is an issue worth exploration.

Keywords: parent-teachers, good teaching, good parenting, teaching experience, parental experience

Literature Review

Optimal Teaching and Parenting

Who is a good teacher? Researchers and policy makers agree that the teacher is the most important factor in the educational process (Steger, 2014; Sammons & Bakkum, 2012). The literature introduces categories and qualities of good teaching which includes: professionalism; the teacher as a human being; classroom management; organization of the teaching materials; teaching practices; monitoring students' achievements (Stronge, 2007); caring (O'Connor, 2008), patience, generating interest, courtesy, and organizational skills (Murphy et al., 2004); moral and ethical dimension, professionalism, professional development, learners' achievements (Liu & Meng, 2009), empathetic abilities (Ceyla, 2009).

The issue of good and excellent teachers is also relevant in higher education. Yair (2007) emphasized the extraordinary personal traits that emerged in 54% of the responses, and instructional strategies in 25% of the responses. Extraordinary professors are those who help students to decrease their uncertainty, suspicion, and disengagement, and provide them with the courage to raise innovative ideas. They are knowledgeable expert, who are passionate about their subject matter, and duties as a teacher. Vajoczki, Savage, Martin, Borin, and Kustra (2011) emphasized the connection between faculty and students; cooperation among students; the use of active learning techniques; prompt feedback; high expectations; and respect for diverse ways of learning. Good teaching in the literature equals scholarly teaching, and relies on "practice wisdom" (Allan & Field, 2005). Scholarly teachers view teaching as a profession, and the knowledge base on teaching and learning as their second discipline (McKinney, 2007; Biesta, 2013). Biesta (2015) objects to the use of extraordinary, excellent, and effective teaching, because this leads to a competitive mind-set and avoids the question of the desired results. Shayshon and Popper-Giveon (2015) found that being an excellent teacher depends mainly on personal traits, such as charisma, warmth, emotional rapport with the students, and much less on professionalism and knowledge.

Who is a good parent? Most studies on parenting tend to focus on problematic parenting practices, such as neglect and abuse (Hooper, 2011). There are conflicting studies about the causal relationship between the type of parenting and its impact on the child (O'Connor & Scott, 2007). Dermott (2012) states that the conclusion about who is a good parent often derives from the understanding of what a successful child is, and hence, the conclusion that his and her parents must be good parents.

Kachargin (2013) presents the qualities of competent and supportive parents in the context of parents to children with learning disabilities. Optimal parents take part in the educational act, bear moral responsibility with regard to the educational, behavioral, and social development of their children. The good parent is caring, has cognitive capabilities, and is able to understand the child's needs, and to demonstrate empathy. In contrast, parents of socially deprived children are dysfunctional, intellectually and emotionally limited, pessimistic, and defeatist. The mothers have no emotional stability, are immature for the role of motherhood, and ambivalent in their love for their children. These parents have limited interaction with their child and lack physical and emotional availability.

Meisels and Sherf (2009) presented findings on parental styles in the Israeli society and culture: 33% of Israeli youth perceive an *authoritarian* style by their parents; 22% report high levels of involvement, warmth and closeness coupled with forceful punishment; 30% reported a

permissive style; 15% perceived neglect, lack of warmth and forceful punishments by their parents. Parent-children relationship depicts closeness, involvement, and warmth with various levels of boundaries. Israeli parents also are part of their children's lives during their military service as young adults (Ben-Asher & Goren, 2004).

The Array of Practices Emerging from this Study

This part relates to the array of the main practices that emerged in the study in connection with good parenting and teaching.

Humanism. Non-academic definitions emphasize a belief in human distinctiveness, the value and dignity of human life, human superiority over the other animals, and the idea that human beings are inherently good. In the 20th century, following the horrors of the First World War and the phenomena of genocide in Rwanda, Bosnia, Cambodia, and, the Holocaust of European Jewry, the concept of man was no longer naturally associated with the concept of humanism among philosophers, and was redefined to the point of contradiction of the very concept (anti-humanism) (Zagorin, 2003). Universal humanism preserves human dignity in the spirit of the UN Declaration of Human Rights from 1948, which grants all people the right and opportunity for an honorable life of freedom, well-being, and self-fulfillment (Aloni, 2006).

Empathy. The ancient origin of the concept comes from the Greek (Pathos = Emotion). The term empathy sometimes appears as a concept synonymous with that of "mercy." Empathetic ability begins during the first months of the infant's life, and lays the foundation for the infant's ability for intimacy throughout life (Feldman, 2007). The empathetic process includes affective and cognitive elements, which are part of two different neuronal and clinical systems, which operate differently (Cox et al., 2011; Shamay-Zuri, Aharon-Peretz, & Perry, 2008). The basic empathetic system is an emotional component ("I **feel** what you feel"), while the cognitive empathetic system requires understanding of different perspectives and viewpoints ("I **understand** that you feel") (De Waal, 2007).

In Judaism, empathy is "the outpouring of the soul" toward the other, and it is characterized by sharing grief and expressing sensitivity for the pain of the other, even if it is not possible to satisfy his or her material needs (Rosenheim, 2003). While empathy means temporarily walking in someone else's shoes, identification means complete merging with the other. In education, empathy goes along with teachers' professional and moral commitment to their students (Weinberger & Bakshi 2013).

Containment and Inclusion. The concept of containment prevails on the personal level and refers to "the ability to accept emotionally and carry within us the feelings of others...and provide them with a safe zone for expressing sensations and emotions" (The Israeli Ministry of Education, 2012). On the educational level, however, the concept of inclusion prevails, and relates to the way in which the system contains diversity among learners and how it addresses differential learning needs. Studies in Israel indicate a complex reality and a discrepancy between the declared level of inclusion, and the level of implementation (Timor, 2006, 2007; Talmor, 2011). The social significance of inclusion relates to "different-others" as human beings beyond being anomalous; creating egalitarian laws in various aspects of life such as employment, housing, recreation and health; investing in resources for educating the public; abandoning the desire to "normalize" them while respecting their diversity (Timor, 2013).

Leadership. In the first half of the 20th century, studies depicted leadership as a set of personal, innate traits. According to the theory of “The Great Man” (Bolden, 2004), such traits included motivation, determination, initiative, energy and ambition, desire to lead, honesty and integrity, self-confidence and emotional stability, mental capacity and knowledge. More recent studies refer to the leader’s actions (Bolden & Gosling, 2006). *Educational leadership* relates to pedagogical understanding and passion, impartation of knowledge that generates meaning, educational vision, love of people, setting a personal example, having the courage to generate change, and emphasis on spiritual, intellectual, and emotional growth (Tadmor, 2009). Noddings (2006) argues that an educational leader should be knowledgeable in the goals of education, motivation theories, and practices of professional ethics.

The Goals of the Study

While the literature discusses ‘optimal qualities,’ the current study deals more humbly with **good** practices of parenting and teaching in the context of the Israeli-Jewish culture and society. It examines the perceptions of good parenting and teaching by parent-teachers, those bearing the dual role as educating figures at home and teacher-educators in the special school system. The research questions stem from the goals of the study:

1. What are the practices of good teaching and good parenting, and what is the degree of congruence between them?
2. What is the relationship between teaching experience and parental experience and the practices of good parenting and good teaching?

Method

Research Population

The study included 61 student-teachers in a Teacher Training Program in the biggest Academic College of Education in Israel. The program (M.Teach.) offers a Master’s degree in education and teaching, and a teaching certificate for secondary school in a variety of subjects. The reason for focusing on student-teachers from this program is their relatively advanced age; hence, a significant portion of these individuals are also parents. The average age of the participants: $M=39.82$; $SD=7.79$. The majority of participants are married (83.6%) women (86.9%); most of them have 2 or 3 children (44.3% and 36.1%, respectively); 55.7% of them already teach, while 44.3% do not.

Research Design

The process of gaining insights regarding good parental and teaching practices stems from the paradigm of cultural anthropology, which explores phenomena from a cultural point of view, in this case, the context of Israeli and Jewish society and culture. Data analysis combined the mixed method using qualitative and quantitative tools. The qualitative methods relied on bottom-up content analysis by the use of Emic and Etic. While Emic describes how people perceive and categorize the world, Etic allows the scientist to interpret their answers (Kottak, 2006). Jingfeng (2011) mentions the complementarity of the two seemingly controversial

approaches to anthropological research, which allow the researcher to obtain a full picture of cultural issues. The quantitative methods relied on cross-tabulation, and nonparametric tests: The McNemar test, and the Sign test. The use of the mixed method enabled a deeper view of what makes good parents and good teachers. The research tool was a questionnaire with five open-ended questions (Appendix A).

Data Analysis

Below, the researcher presents the data according to the two research questions using the mixed method.

Research question 1. What are the practices of good teaching and good parenting, and what is the degree of congruence between them?

The researcher conducted the analysis of research question 1 procedurally according to the questions that appear in the questionnaire (Appendix A).

Questions 1 & 2 from the questionnaire: Questions 1 & 2 set the framework for the study because they yield the practices and practice categories of good teaching and parenting by the participants, and the degree of congruence between their choices. The participants had to detail **the practices** that they would expect from good teachers and from good parents. After they had come up with two long lists, they formed **five categories** from each list of practices (Appendix B). According to the Emic-Etic method, the author interpreted the participant's responses and, where necessary in accordance with the literature, shifted a response from the suggested category to another. For example, "physically and emotionally available," "knows how to listen to student-teachers," "recognizes processes in the learning environment" were shifted from "Humanistic Approach" to "Professionalism" because they relate to the professional practices rather than to the general humanistic stance of the teacher). Details of the practice categories that came up are in the Findings section. On the basis of the five categories, the researcher performed a cross-tabulation between the practice categories for good parenting and good teaching, in order to check the **degree of congruence** between the two selections. The next step was data coding for each participant as follows: if a participant perceived a practice category as necessary for the role, it received a score of 0. However, if the participant perceived that category as unnecessary for the role, it received a score of 1. This allowed to identify three options for each practice category: Participants who selected 0/0 regarding a certain practice (e.g., chose "leadership" as an unnecessary practice for parents **and** for teachers); participants who selected 1/1 regarding a certain practice (e.g., perceived "assertiveness" as a necessary practice for **both** teachers and parents); participants who selected 0 for one practice category (e.g., perceived "patience and flexibility" as unnecessary for parents, and 1 for the same practice category as necessary for teachers). The McNemar nonparametric test for dependent variables on a nominal scale helped to determine whether there are significant differences for the dichotomous dependent variable: In this case, the variable is "necessity" with two dichotomous categories: "necessary" versus "unnecessary" for the two roles (teaching and parenting).

Questions 3 & 4 from the questionnaire. Questions 3 & 4 explore two roles with reference to one another. The question was whether it is possible to be good in one role (teaching) and bad in the other (parenting) and vice versa. In the scoring, 1=no; 2=possibly; 3=yes. The percentages of those choosing "yes," "no," and "possibly" introduce the attitudes of the participants as a result of the cross-tabulation. The nonparametric Sign Test for ordinal variables and related samples helped to determine whether the differences in the cross-reference

of two statements are statistically significant.

Question 5 from the questionnaire. The qualitative content analysis on Question 5 deals with conflicts between the two roles according to the personal experience of the participants, and presented in percentages and quotations.

Research question 2. What are the practices of good teaching and good parenting, and what is the degree of congruence between them?

The analysis of **research question 2** relies on the practices and categories that appear in research question 1. The analysis of the practice categories was according to two key background variables that appear in the questionnaire: Age of the children (**“parental experience”**), and teaching experience (**“professional experience”**). For this purpose, the researcher divided the participants to two parents’ groups and two teachers’ groups and performed a cross-tabulation on their choices in the following way:

Parents: Group 1 - Parents of young children aged 0-6 (45.9% of participants); Group 2 - Parents of children aged 7 and older (54.1% of participants).

Teachers: Group 1 - Teachers with 1-3 years of experience (32.8%); Group 2 - Teachers from their fourth teaching year onward (23% of the participants); 44% of the participants reported that they do not teach apart from their practice teaching.

Findings

Research question 1: What are the practices of good teaching and good parenting, and what is the degree of congruence between them?

Questions 1 & 2 from the questionnaire. Appendix B presents the detailed practices that appear in the responses and categorized into practice categories. Table 1 introduces the categories of identical (overlapping) practices and parallel (similar) practices for good parenting and teaching.

Table 1
The Practice Categories of Good Parenting and Teaching

Practice categories of good teaching	Number of answers received	Practice categories of good parenting	Number of answers received
Leadership	69	Educator figure	38
Humanistic approach	131	Humanistic approach	110
Professionalism	81	Capabilities of a responsible adult	31
Assertiveness	41	Assertiveness	43
Patience and flexibility	49	Patience and flexibility	31

The following findings indicate overlap (are identical) and parallelism (are similar) in the following categories:

1. There is an **overlap** (i.e., identical practice categories) in the following categories:
 - a. Humanistic approach (category 2)
 - b. Assertiveness (category 4)
 - c. Patience and flexibility (category 5)
2. **Parallelism** (similarity) appears in two categories.

Category 1: “educator figure” (parents) vs. “leadership” (teachers): the similarity in the two of categories emerged from the content analysis, which showed many common practices shared by the two categories. Here are some examples:

- “A long-term vision” (parent); “a sense of vision and vocation” (teacher).
- “Identifies natural abilities in a child and fosters these abilities” (parent); “Empowering and creating a sense of competence among student-teachers” (teacher).

Category 3: The “professionalism” category (teachers) vs. “a responsible adult” category (parents). The practices that relate to a responsible adult reflect the “professional” part in the parental role. Here are some examples:

- “Takes responsibility for the relationship with the child” (parent); “connects with the student’s inner world” (teacher).
- “Is involved and alert to the child’s needs” (parent); “is willing to differentiate teaching according to the student’s needs” (teacher).

Table 2 shows the cross-referencing between practices attributed to good parenting and good teaching respectively, and **the level of congruence between the two choices**.

Table 2

Cross-referencing Data and Congruence between Practices of Good Parenting and Good Teaching

Category no.	Practice categories of good teaching	Percentages selecting this category as necessary	Practice categories of good parenting	Percentage selecting this category as necessary	Percentage of agreement on the necessity of the category
1	Leadership	%61.4	Educator figure	%56.1	%73.7
2	Humanistic approach	%93	Humanistic approach	%94.7	%87.7
3	Professionalism	%70.2	Capabilities of a responsible adult	%38.6	%43.8
4	Assertiveness	%43.9	Assertiveness	%52.6	%63.1
5	Patience and flexibility	%59.6	Patience and flexibility	%36.8	%70.1

Figure 1 below demonstrates visually the percentages of congruence between practices of good parenting and good teaching.

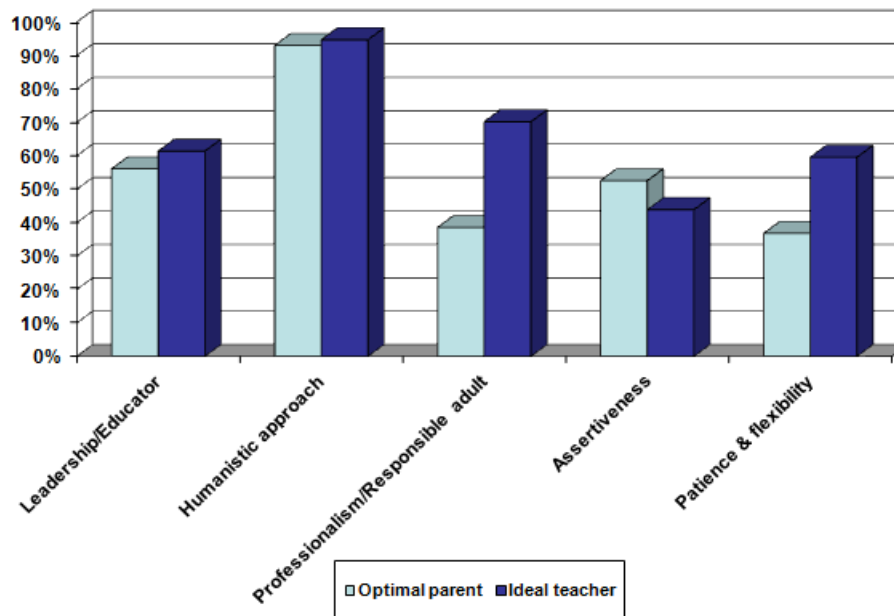


Figure 1. Good parenting and good teaching.

These data establish the following findings:

1. There is a high degree of agreement among participants who voted for the necessity or lack thereof practice categories (choice of 0/0 and 1/1). The category for which there was the highest percentage of agreement is “Humanistic approach” (87.7%), while the second highest percentage is “Leadership or Educator figure” (73.7%). The category for which there was the lowest percentage of agreement is “Capabilities of a responsible adult“ and “Professionalism”: While 70.2% believe that professionalism is a necessary practice of a good teacher, 38.6% believe that being a responsible adult (parental professionalism) is necessary for good parenting.
2. A large majority view the humanistic approach as the underlying foundation of good parenting and teaching (93% and 94.7%, respectively).
3. More than half of the participants (56.1% and 61.4%, respectively view the category of “Educator figure” and “Leadership” as important by A surprising finding that emerged was that assertiveness is more important in the parental category than in the teaching category (52.6% vs. 43.9%, respectively).
4. A higher percentage perceive the category of “patience and flexibility” as more important in teaching than in parenting (59.6% vs. 39.8%).

McNemar’s nonparametric test determined that there was a statistically significant difference in the selection of the following practice categories: category 3 (“professionalism” (teaching) and “capabilities of a responsible adult” (parenting): $p = .002$ (binomial distribution used); category 5 (“patience and flexibility”): $p = .002$ (binomial distribution used). This means that on these two categories the perceptions of good teaching and good parenting differ

significantly.

Questions 3 & 4 from the questionnaire. Table 3 presents data on the participants' attitudes on the following statements and on the possibility of whether they can exist concurrently:

1. "A good teacher can be a bad parent." (statement 1 in Table 4)
2. "A bad teacher can be a good parent." (statement 2 in Table 4)

Table 3
Cross-reference between the Two Statements

Answers	Statement no. 1	Statement no. 2	Cross-reference of statements 1+2
Yes	%56.9	%74.1	%44.8
No	%17.2	%17.2	%8.6
Possibly	%25.9	%8.6	%3.4

The data establishes the following findings:

- The majority (56.9% and 74.1%) agree with each of the statements.
- A higher percentage thinks that a bad teacher can be a good parent than those who believe that a good teacher can be a bad parent. The picture regarding the second statement is clearer indicating decisiveness, because the percentage of those who chose option 3 (possibly) is very small.
- A small percentage (8.6%) does not agree with either statement and does not see a possibility that the two statements can exist concurrently.
- The cross-referencing between the two statements shows that almost 45% of participants agree that the two statements can exist concurrently.

The nonparametric Sign Test showed that the differences yielded in the cross-reference of statement 1 + 2 are statistically significant: $p=.043$ (Binomial distribution used).

Question 5 from the questionnaire. This question explored **the personal experience** of the parent-teachers in their dual roles. Findings indicated that out of 56 participants, 44 (78.5%) believed that in their case a conflict exists between the role of the parent and the role of the teacher, while 12 (21.5%) expressed the position that no conflict exists between the two roles. The answers below present the themes with supporting examples.

Citations that represent those who perceive the existence of **conflict** between the two roles:

- "A desire to succeed at school necessitates a great of investment at home which will come at the expense of my own children."
- "What really bothered me is that I could not attend important events in my children's life, like the first day of school."

- “The teaching profession is exhausting, demanding long hours of work at home and preparing learning materials, and a meticulous daily management agenda. Sometimes work prevents me from spending time with my child.”

The following citations represent those who perceive the two roles as **not conflicting**, but rather as conducive to each other and complementary:

- “Being a parent helped me understand situations in the classroom and understand the place of the parent in the process. Being a teacher helps me understand my own children and provides me with tools for helping them in their studies.”
- “On the contrary! The advantage in the fact that the parent is a teacher is that the parent-teacher understands his [or] her children’s needs not only intuitively but also from a professional aspect.”

Summary of the main findings of research question 1:

- The practice categories attributed to good parenting and teaching are overlapping or similar.
- A high percentage of agreement regarding the practices of good parenting and teaching (63.1%-87.7%, with an exception of one category 43.8%).
- The high percentages that believe that a bad teacher can be a good parent and vice versa (almost 60% and 74% respectively) indicate that they perceive the two roles as distinctive entities.
- The fact that 45% believe that the two statements can occur simultaneously indicates that almost half of the participants perceive the two roles are distinctive entities.

Only 8.6% refuted the possible concurrence between the two roles.

Research question 2: What are the practices of good teaching and good parenting, and what is the degree of congruence between them?

Following is data from cross-referencing between background variables and practices attributed to good teaching (Table 4) and good parenting (Table 5) from research question 1:

Table 4
Cross-referencing Teaching Experience and Good Teaching

Practice category	Group 1 (1-3 years of experience)	Group 2 (4 years of experience and above)
Leadership	%85	%50
Humanistic approach	%95	%100
Professionalism	%70	%71.4
Assertiveness	%45	%57.1
Patience and flexibility	%80	%35.7

The data in Table 4 points to the following facts:

1. *Practices that depend on teaching experience:*

1.1 Novice teachers attribute the practice category of educational leadership to good teaching significantly more than veteran teachers do and much more than the overall percentage (61.4%).

1.2 Veteran teachers attribute assertiveness to good teaching, much more so than novice teachers.

1.3 Novice teachers attribute patience and sensitivity to good teaching far more than veteran teachers and well beyond the overall percentage (59.6%).

2. *Practice categories that do not depend on teaching experience:*

2.1 Teaching experience does not affect the practice category of humanistic approach. Novice and veteran teachers alike attribute it to good teaching.

2.2 Teaching experience does not affect the practice category of professionalism. Novice and veteran teachers alike attribute it to good teaching.

Table 5

Cross-reference between Children's Age ("Parental Experience") and Good Parenting

	Group 1 (0-6 years old)	Group 2 (over seven years old)
Practice category		
Educator figure	%55	%42.9
Humanistic approach	%90	%78.6
Capabilities of a responsible adult	%60	%21.4
Assertiveness	%40	%50
Patience and flexibility	%50	%21.4

The data in Table 5 supports the following findings:

1. Practices that depend on parental experience:

1.1 Parents of young children perceive the need for the parent as an educator figure more than parents of older children.

1.2 Parents of younger children perceive the practice of a responsible adult as essential for good parenting, much more so than parents of older children, and much more than the overall percentage (38.6%).

1.3 Parents of young children attribute the categories of patience and flexibility as essential for good parenting, much more so than parents of older children.

2. Practices that do not depend on parental experience:

2.1 Teaching experience barely influences the perception of humanistic approach as a basis for teaching. Both groups perceived it as essential, albeit in a much higher percentage among parents of young children.

2.2 The children's age does not greatly influence the perception of assertiveness, although parents of older children consider it as more necessary than parents of young children.

The findings of research question 2 corroborated the vital importance of a humanistic approach to good parenting and teaching that yielded from research question 1. Rates of

selection of this category, as they emerged from the cross-referencing, were the highest by a wide margin of all other categories, in the context of parenting and teaching, alike.

Discussion

The research questions explored the practices that refer to good parenting and teaching, and the degree of congruence between them. In addition, it focused on the relationship between parental and teaching experience on those practices.

Research Question 1

The semblance and overlap between the practice categories attributed to good teaching and good parenting indicated that student-teachers perceived the two roles as similar in some aspects, and identical in other aspects with high percentages of congruence between the choices they made. The similarity between the practice categories people attribute to good teaching and good parenting suggests that the Jewish-Israeli environment expects teachers to include parental practices in their teaching in order for people to consider them to be good teachers. Similarly, it expects parents to undertake teaching tasks as part of their role in order to be considered as good parents. The practices that emerged in this study were consistent with previous studies on the optimal teaching (e.g., Stronge, 2007; Liu & Meng, 2009), and with some studies on optimal parenting, particularly those related to humanistic approach and capabilities of a responsible adult (Kachargin, 2013). The identical and parallel practice categories that emerged in the study and the high degree of agreement among participants who voted for the presence or absence of a certain practice, indicates that parent-teachers perceive the two roles as intrinsically similar, and thus, a teacher basically needs the same qualities necessary at school and for the task of raising his or her own children at home (extensive details in Table 3).

The discrepancy between “capabilities of a responsible adult” (parents), and “professionalism” (teachers) which was statistically significant, indicates that the student-teachers perceive the parent’s role to a much lower extent than the teacher’s role as requiring a “professional” aspect. In this study, the parent’s “professional” role equals the “capabilities of a responsible adult” since it indicates the difference between from adults and from children. However, it is clear to most participants that teaching requires professionalism. The difference in the necessity of the professional aspect resonates with the low level of congruence in the selection of the two categories (43.8%). The category of “patience and flexibility” also proved statistically significant in terms of the difference in its necessity to parenting and teaching, indicating that parent-teachers believe that teachers need more patience and flexibility than parents. This resonates with the high degree of congruence (70.1%), which attests that parents require more of their children’s teachers than what they require of themselves, an interesting insight in itself.

However, almost 45% of the participants believed that a good teacher can be a bad parent and vice versa and that the two statements can be true simultaneously, and high percentages confirmed each statement separately. These findings are statistically significant. This means that despite the overlap in the practices necessary for the two roles, there is a clear distinction between the two roles, which represent two different entities for the parent-teachers. Thus, a person may fill one role well, but fail in the other. The answers to this question emphasize what separates the two roles in addition to the common denominator revealed earlier.

The vast majority of the participants sensed the conflict between the two roles in the reality of their personal life as parent-teachers, possibly because they had to explain the nature of the difficulty in the daily practice of the two roles, confront real-life situations, and relate to their personal experience as teacher-parents. This further supports the insights that emerged about the two roles being separate entities.

In conclusion, the answers to the more general questions on the practices of good teaching and parenting indicate that the parent-teachers perceive the two roles almost as one entity. However, the answers to the more concrete questions (questions 3, 4, 5 in the questionnaire) indicate that they perceived the two roles as distinctive entities.

Research Question 2

The study revealed the relationship between parental experience and teaching experience and the practice categories of good parenting and teaching. Using these data might help us understand the developmental process of novice teachers into the teaching profession, and the process by which parents raise their children.

With regard to teaching, the study showed that a “humanistic approach” and “professionalism” are essential for teaching regardless of the teacher's experience. However, as novice teachers find it difficult to adjust to teaching and to system requirements and usually lack confidence, they perceive “leadership” as an essential practice, which they lack. In the same way, they perceive the category of “patience and flexibility” as more important and necessary than among veteran teachers, perhaps because they first encounter diversity among student-teachers, which creates difficulties in their classroom management, and reflects for them again and again how much they need patience and flexibility and how complex the teaching profession is. Veteran teachers’ low rates of selection of “patience and flexibility” may be the result of their exchanging patience and flexibility for assertiveness as they acquire self-confidence.

Similarly, in parenting, it only makes sense that parents of young children need to be an educational model in the early years and demonstrate flexibility in their schedule and willingness to make concessions, more than parents of older children who require less supervision, less flexibility in terms of the parents’ schedule, less patience in daily monitoring, and when education becomes generally less intense. In contrast to “flexibility,” parents of older children regard “assertiveness” as essential, as teenagers test boundaries more often than young children. In the case of parenting as well, a “humanistic approach” is a necessary condition that is not dependent on the child’s age, and is more important than “assertiveness” for good parenting.

In conclusion, experience affects the perceptions of good teaching and good parenting but varies among different practices.

Conclusions

The implications of this study are relevant to parent-teachers in their dual role.

The fact that parent-teachers see a great deal of overlapping between the two roles indicates that the Jewish-Israeli environment expects teachers to include parental practices in their teaching in order to be good teachers, and in the same way it expects parents to undertake teaching tasks as part of their role in order to be good parents.

Teachers studying in the various retraining courses are parents, and they often compare class-situations to home-situations with regard to education. The personal difficulties of those

bearing the dual, energy-consuming roles of parent-teachers leads to the conclusion that it may be helpful to teach them how to “lend” good teaching practices to their parental role and how to “lend” good parental practices to teaching. The fact that most participants perceived what distinguishes between the two roles in addition to the common denominator when asked about their daily practices, calls for an active incorporation of this topic into teacher education, as it attests to the confusion they experience. The introduction of this discussion into teacher education programs will facilitate parents who are also teachers to separate the two roles emotionally and practically and diminish the clash between them, and to create an emerging professional identity that bears the buds of an educational agenda.

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Appendix A: Questionnaire

Hello,

The purpose of this study is to examine the connection between the role of parenting and the role of teaching among parent-teachers. Please send the questionnaire by return email.

Personal information

Age: _____

Gender: 1. Male. 2. Female

Familial Status: Single / Married / Divorced / Widower / Other

Number of children: _____

Children's Age: _____

Is teaching your occupation (beyond training)?: 1. No 2. Yes

If yes, please state the number of years of teaching practice (beyond training): _____

Scope of employment: Third / Half / Full time

Please answer the following questions:

1. What are the practices that are required from good teachers? Categorize the practices into 5 categories of practices.
2. What are the practices that are required from good parents? Categorize the practices into 5 categories of practices.
3. Is it possible that a person can be a good teacher and a bad parent?
4. Is it possible that a person can be a bad teacher and a good parent?
5. Can the two roles come into conflict for you and if so, how? In other words, what could cause each of the roles to interfere with the performance of the other?

Thanks for your cooperation!

Appendix B: Practices and Practice Categories for Good Parenting and Teaching

Suggested practice categories	Practices that were suggested for good parents and good teachers
Good teaching	
Leadership	Self-aware, expressive, capable of self-criticism, has a sense of vocation, sets a personal example, emphasizes values, meaningful for the student-teachers, energetic, demonstrates resourceful and entrepreneurial abilities, empowering, creates a sense of competence among student-teachers, has a desire to bring about change and success, sees the 'larger picture', displays openness, feels responsible for the student-teachers' progress, mentally mature, demonstrates a high level of emotional intelligence
Humanistic approach	Empathetic, forgiving, loves human beings and student-teachers, dedicated, has good interpersonal skills, demonstrates a respectful attitude towards student-teachers, understands that learning is also a social experience, grants a sense of security and belonging, provides sympathy and support, sensitive and caring towards student-teachers and their needs, understands the student-teachers' inner world
Professionalism	Dedicated, invests time in lesson preparation and teaching materials, professional knowledge, general world knowledge, pedagogical knowledge, physically and emotionally available, listens to student-teachers, understands learning processes, "tailors" teaching to student-teachers' needs, mentoring abilities, capable of imparting knowledge and deliver material in a clear, hands-on, up-to-date and experiential manner, organization skills, diligent, makes clear demands, challenges student-teachers to high-order critical thinking, curious, has a passion for teaching, believes in life-long learning, motivational, able to work alone and in a team, able to access student-teachers in their present situation, creates a positive and respectful classroom environment
Assertiveness	Sets limits but knows how to 'let go', consistent in demands, able to create a balance between freedom and boundaries, identifies class 'hotspots', determined and authoritative
Patience and flexibility	Curricular and personality flexibility abilities, able to manipulate changing situations, able to "read the crowd" and adjust the instructional planning accordingly, knows how to 'flow' on the personal and professional level, not rigidly set in a particular mindset, patient in relation to challenging student-teachers and learning processes
Good parenting	
Educator figure	Clear and consistent in demands, has a long-term educational vision, exemplifies morality and values, leads and lays out a path as a parent, assists the child in identifying his or her natural abilities and strengthening them, guides toward critical thinking, provides tools for life, communicates openness, expresses physical and emotional availability, diligent and willing to invest

Humanistic approach	Altruistic, forgiving and tolerant, empathetic, sensitive to the child's needs, capable of endless giving to their child, dedicated, provides warmth, security and support, energetic, expresses love and unconditional acceptance, respects children and relates to them on 'eye level'
Capabilities of a responsible adult	Forgiving, takes responsibility for the child's physical and emotional maturation over the years, displays maturity and judgment, distinguishes between relevant and irrelevant, takes responsibility for the relationship with the child, has self-control and self-awareness, is involved in raising the child, alert to his surroundings, perceives parenting as a deep and meaningful experience, shows care, is willing to make concessions to the child, not self-centered, able to take criticism, maintains open dialogue with the child and the environment, is resourceful and entrepreneurial, reliable, has a sense of proportionality, exhibits personal resilience
Assertiveness	Sets limits but also allows independence and demonstrates respect, knows how to persuade, free from the need to control and criticize, is authoritative
Patience and flexibility	Displays flexibility and adaptability to the child's needs, recognizes the growth process as an ongoing one which requires patience.

About the Author

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Discussion Questions

1. The findings indicate that practice categories attributed to good parenting and good teaching are overlapping or similar. Does this mean that a good teacher is necessarily a good parent and vice versa?
2. Novice teachers attribute the practice category of 'educational leadership' to good teaching significantly more than veteran teachers do. Should this finding present a challenge to teacher training programs?
3. What aspects is the dual role of a parent-teacher conducive to a conflict, and in what aspects is it complementary?

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Debugging Debugging

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Abstract

When a computer program fails to accomplish its intended task, software developers typically conduct debugging to identify and remove bugs. This debugging operation itself is not immune to flaws. Empirical evidence suggests many costly bugs appear after shipping of software, which calls into question the effectiveness of the current debugging operation. Failing its mission, the debugging operation itself needs to be debugged. Just like computer professionals, accountants care to safeguard their work against errors. This paper proposes a comprehensive bug control framework modeled on the internal control framework of the accounting discipline, and critically evaluates the status quo of software bug prevention *versus* bug detection and correction. We conduct Google searches to count matches corresponding to error prevention *versus* error detection and correction in the contexts of software development and accounting. Relative to accounting, the computer profession tends to emphasize bug detection and correction, which are costly tasks. This article recommends shifting emphasis to bug prevention, and suggests new focuses on programmer training to strengthen bug control.

Keywords: bug prevention, debugging, internal control, COSO

Introduction

Debugging is software developers' primary defense against bugs. While consuming a major share of development resources, it misses many bugs with severe economic consequences. For instance, a bug in General Electric's energy management software caused \$7 billion of economic losses in the Northeast blackout in August 2003. In 2012, a bug in Knight Capital's trading system sent out many unintended trading orders to the stock exchange, triggering \$440 million of losses within just 45 minutes and leaving the firm insolvent. NIST's (National Institute of Standards and Technology, 2002) estimate of software error cost to the U.S. economy is about \$59.5 billion annually. It is fair to say debugging has failed its intended mission, and it needs to be debugged. Leveraging the accounting profession's lessons on error-control and distinguished computer scientists' wisdom, this paper sets off to debug debugging. [Note: This paper collects insights on programming and debugging from pioneer computer scientists. They include Turing Award recipients Maurice Wilkes (1967), Marvin Minsky (1969), Edsger Dijkstra (1972), Donald Knuth (1974), C. A. R. Hoare (1980), Niklaus Wirth (1984), and Alan Kay (2003). Brian Kernighan coauthored "The C Programming Language" with Dennis Ritchie, which is the *de facto* standard for the C Language. Linus Torvalds is the creator of the Linux kernel for operating systems such as Linux, Android, and Chrome. David Parnas developed the concept of information hiding in modular programming.]

The Accounting Experience

A programmer puzzled by a mysterious bug may consult a colleague for debugging suggestions. In a similar spirit, this study borrows error-control ideas from the accounting (including auditing) discipline to help diagnose debugging. There is a long history of accounting errors wreaking economic havoc. Investors lost \$74 billion in the 2001 Enron scandal, and \$180 billion in the 2002 WorldCom scandal. The auditor's job is to determine if the client has effective *ex ante* safeguards against errors, whether fraudulent or inadvertent. Therefore, just like software developers, auditors seek to reduce the risk of error.

While protective licensing agreements shelter software developers from lawsuits, accountants and auditors have no such luxuries, and are frequently subject to prosecution and penalty for substandard work. Accounting is a regulated profession. The regulatory and legal environment has continually chastised, disciplined, and refined accounting over the past 100 years. The 2002 Sarbanes-Oxley Act further raised the auditor's responsibility. When accounting errors are fraudulent, as in the Enron scandal, the audit firm could be subject to criminal investigation and revocation of license. The adversarial regulatory and legal environment forces the accounting profession to constantly evolve and hone its error-control framework. The resulting framework, formalized as the Internal Control Integrated Framework (ICIF), is time-proven and offers valuable insights on error-control to other industries (Committee of Sponsoring Organizations 2013).

Software Error-Control Integrated Framework

Internal controls are safeguards to assure that firms, by reducing the risk of error, achieve their intended business objectives. ICIF suggests strengthening internal controls against errors along five fronts (a.k.a. components), namely (a) control environment, (b) risk assessment, (c)

control activities, (d) information and communication, and (e) monitoring. As a framework against errors, ICIF is arguably applicable to software bugs, which is also a kind of error. Adapting ICIF's components to software error-control produces the following software error-control framework:

Control Environment. Senior management's level of emphasis on quality sets the tone of the firm, influencing all subordinates. The control environment in software development relates to the ethical values, attitude, and consciousness of the software firm. The control environment strengthens if management takes software quality seriously, but weakens if management is eager to rush out buggy software to boost sales.

Risk Assessment. Risk assessment involves identifying various risks that detract from achieving the objectives of software development, and devising corresponding risk control strategies. Identifying and assessing software risk sources (such as module coupling, inexperienced developers, newly discovered system vulnerabilities, etc.) is a prerequisite for devising proper remedial strategies.

Control Activities. Control activities are the preventive, detective, or corrective policies and procedures taken to control and reduce risks. To address software risks, preventive control activities prevent bugs from getting into source codes. Detective control activities discover bugs that have sneaked into source codes. Corrective control activities correct source codes and remove bugs after bug discoveries. Based on the results of risk assessment, developers are to identify effective control activities and decide on the optimal mix of preventive, detective, and corrective control activities to reduce such risks.

Information and Communication. A software firm must obtain or generate software quality information (e.g. testers' bug reports, users' complaints, reports on error-control effectiveness, etc.) to support the functioning of internal controls against software bugs. It must clearly convey software quality and bug controls objectives internally, and communicate software risk issues with external parties such as customers, subcontractors, system security organizations, hardware vendors, and system developer communities.

Monitoring. Firms must continually monitor the effectiveness of error-control systems. Monitoring assures that effective quality control policies and procedures are in place to reduce software error risk. Software firms must design and perform evaluations to ascertain whether internal controls against software errors are present and functioning.

Insights from the Integrated Framework

While ICIF highlights the people factor and extends error-control to the managerial environment, computer scientists customarily seek to address errors within the software lifecycle. Therefore, the current focus of the computer science discipline, in regards to software bugs, may not correspond to the software error-control integrated framework outlined above. The following literature summary, although admittedly limited, offers a glance at the computer science discipline's current focus in each component of the framework:

Control Environment

Computer scientists tend to emphasize other environments such as runtime environment, deployment environment, integrated development environment (IDE), etc., which are not

control-related (e.g., Dascalita et al., 2018; Jones et al., 2018; Kor & Pattinson, 2018). The literature mentions the managerial environment of bug control only occasionally as in Nancy Leveson's (1995) software safety research.

Risk Assessment

Fault proneness studies (Gondra, 2008; Al Dallal & Morasca, 2018; Boucher & Badri, 2018) and Leveson's (1995) work emphasize risk assessment. The general literature on risk analysis, however, tends to focus narrowly on the risk of computer attacks (e.g., Bailey, 2018).

Control Activities

Preventive. According to Niklaus Wirth (1971), the lack of discipline and structure in professional programming style undermines software reliability. Corresponding preventive controls include modularization, standard coding style, logical indentation, code reuse, clear and logical source codes, developer training, clear system specification, clear comments, self-documenting variable names, defensive coding, and removing pointer arithmetic and the Goto statement in programming language design (Dijkstra, 1968; Ellemtel, 1992; Zukich, 2010; MISRA, 2016).

Detective. William Lewis (2008) suggests testing not just the program, but also the requirements, design, code, and the tests themselves. Self and peer code reviews, pair-programming, source code scanning and analysis technology, and dynamic testing are common techniques to detect program defects (Viega et al., 2000; Zukich 2010; Christopher et al., 2015; McIntosh et al., 2016). Shifting testing to earlier stages of the software lifecycle, as in the Test Management Approach (Pol et al., 2002; Koomen et al., 2006), helps catch errors before they propagate downstream.

Corrective. Donald Knuth (1973) suggests building a publicly shared bug archive as a debugging resource. C.A.R. Hoare proposes designing programming languages that can assist the programmer in debugging (1973). The process of correcting program defects, relying on manual (as in walkthroughs) or software (as in debugger software) means, is an area of active research (e.g., Naidu Pujala & Thirupathi, 2017).

Information and Communication

Jim McCarthy (1995) criticizes most software teams as behaving like dysfunctional families. Communication between developers helps fix software errors (Bernardi et al., 2018). As testing moves upstream to earlier stages of the software lifecycle, testers are working more closely with designers and programmers as in Joint Application Development (Liou & Chen, 1993), Agile (Collier, 2012), and Scrum (Alliance, 2016) to improve information sharing and communication (Robinson 2003).

Monitoring

Developers do not always follow the existing quality management guidelines, indicating inadequate monitoring of quality controls (Schultis et al., 2016). Researchers typically focus on monitoring software development progress but not the effectiveness of quality controls (e.g.,

Kitchenham & Walker, 1989; Chen et al., 2004; Hazir, 2015; Madison & Wheeler, 2016).

The preceding summary of software bug control literature reveals uneven emphases on various ICIF components. In particular, the “control activities” is the most discussed component. However, the literature on “risk assessment” has a narrow focus while “control environment” and “monitoring” are rarely the subject of discussion. Focusing heavily on control activities is suboptimal. Instead, a comprehensive approach to address software bugs must strengthen all components of the integrated framework. The risk of software bugs may decline, for instance, if top management of software firms emphasizes quality, if software firms carefully identify risky development tasks, if software developers clearly know software quality objectives, and if software firms closely monitor the effectiveness of safeguards against errors.

In addition, the massive research efforts on debugger software are arguably misdirected. Software testing and debugging often come into a project too late, contribute too little, and cost too much (Robinson, 2003). Considerable efforts and time are necessary to (1) recognize that a bug exists, (2) isolate the cause, (3) determine bug fixes, and (4) fix and test. The prospect of laborious debugging notably prompted Maurice Wilkes to disappointedly remark, “a good part of the remainder of my life was going to be spent in finding errors in my own programs” (Hendry, 1986). In contrast, bug prevention reduces these costs by addressing bugs at an earlier and less costly stage.

The Bias towards Debugging

Unfortunately, bug prevention never gains the same spotlight as debugging. To show this disparity, we conducted Google Scholar searches at <http://scholar.google.com> and Google Web searches at <http://www.google.com> to compare the counts of matching bug prevention versus debugging documents on Mar 24, 2018. The search operator `site:edu`, when added, limits the search to the edu domain. Use of multiple searches allows for (a) equivalent expressions such as “bug prevention” and “prevent bugs”, (b) synonyms such as “defects”, “errors”, “faults”, and “failures”, and (c) related terms such “debugging”, “debug”, and “debugger”. The additional search term “software” assures a relevant context in matching documents.

The prevent-to-debug ratios (i.e., total prevent divided by total debug) in Table 1 Panel A Columns 1 to 3 show appalling biases of scholars, educators, and the world towards debugging. Historical averages of these ratios between 2011 and 2018 presented in Panel B reveal persistence of these biases over time. The same order of magnitude in currently reported ratios as well as historical averages testifies to the reliability of these ratios. Bug prevention is well behind debugging in recognition and acceptance.

Table 1
Prevent-related versus Debug-related Matches

	(1)	(2)	(3)	(4)
search type	Google scholar	Google Web	Google Web	indeed.com
search operator		site:edu		
Panel A. context: "software"				
Search terms:				
(a) bug prevention	225	228	118000	29
(b) prevent bugs	668	865	50800	16
(c) defect prevention	5896	4520	105000	82
(d) prevent defects	2360	1130	85,100	15
(e) error prevention	14700	9060	116000	33
(f) prevent errors	15600	12700	183000	53
(g) fault prevention	3680	1340	50300	1
(h) prevent faults	1510	751	28500	4
(i) failure prevention	6410	2710	60500	9
(j) prevent failures	5090	2340	56200	7
Total prevent	<u>56139</u>	<u>35644</u>	<u>853400</u>	<u>249</u>
(k) debugging	307000	328000	29200000	13048
(m) debug	155000	675000	50500000	9500
(n) debugger	60700	70600	10900000	870
Total debug	<u>522700</u>	<u>1073600</u>	<u>90600000</u>	<u>23418</u>
prevent-to-debug ratio	0.1074	0.0332	0.0094	0.0106
Panel B. average 2011-2018 prevent-to-debug ratio				
	0.0710	0.0446	0.0065	
Panel C. context: "accounting audit auditing"				
Search terms:				
(o) preventive control	2540	1860	75900	
(p) detective control	745	582	20900	
(q) corrective control	1030	568	11800	
Total detective & corrective	1775	1150	32700	
prevent/(detect +correct) ratio	1.43	1.62	2.32	
average 2011-2018 prevent/(detect +correct) ratio	1.42	1.64	1.64	

Table 1
Legend

Corresponding Google searches and indeed.com searches:

a1,a3,a4	"bug prevention" software
a2	site:edu "bug prevention" software
b1,b3,b4	"prevent bugs" software
b2	site:edu "prevent bugs" software
c1,c3,c4	"defect prevention" software
c2	site:edu "defect prevention" software
d1,d3,d4	"prevent defects" software
d2	site:edu "prevent defects" software
e1,e3,e4	"error prevention" software
e2	site:edu "error prevention" software
f1,f3,f4	"prevent errors" software
f2	site:edu "prevent errors" software
g1,g3,g4	"fault prevention" software
g2	site:edu "fault prevention" software
h1,h3,h4	"prevent faults" software
h2	site:edu "prevent faults" software
i1,i3,i4	"failure prevention" software
i2	site:edu "failure prevention" software
j1,j3,j4	"prevent failures" software
j2	site:edu "prevent failures" software
k1,k3,k4	debugging software
k2	site:edu debugging software
m1,m3,m4	debug software
m2	site:edu debug software
n1,n3,n4	debugger software
n2	site:edu debugger software
o1,o3	"preventive control" accounting audit auditing
o2	site:edu "preventive control" accounting audit auditing
p1,p3	"detective control" accounting audit auditing
p2	site:edu "detective control" accounting audit auditing
q1,q3	"corrective control" accounting audit auditing
q2	site:edu "corrective control" accounting audit auditing

The bias towards debugging seems ubiquitous, and is clear in the recruitment of computer professionals. Using the same queries as described above, we conducted searches at indeed.com, the world's largest job search engine, for U.S. software jobs on Mar 24, 2018. Results presented in Panel A, Column 4, again reveal disproportionately more debug-related than prevent-related

job postings. Debugging clearly dominates over bug prevention in the employer's mindset.

As a comparison, we conducted Google Scholar searches and Google Web searches for “preventive control,” “detective control,” and “corrective control” in the context of “accounting|audit|auditing” on Mar 24, 2018. As reported in Panel C, in the accounting and auditing domain, preventive control matches exceed those of detective and corrective control combined, consistent with the notion of prevention being more cost-effective. These observations from error-control in the accounting discipline suggest ample room for bug prevention to assume a bigger role in safeguarding software quality.

For more thorough and cost-effective software bug control, the software profession should shift emphasis from debugging to bug prevention. This shift echoes Edsger Dijkstra's view that “programs should be composed correctly, not just debugged into correctness.” Dijkstra (1969) warns against a debugging-based software development model of testing and correcting: “Program testing can be used to show the presence of bugs, but never their absence.” NIST (2002) shares a similar concern that “even with substantial testing, software developers do not truly know how their products will perform until they encounter real scenarios.” The best way to remove bugs, according to Dijkstra (1972), is to avoid creating them in the first place.

Computer science pioneers have contributed unique insights on bug prevention. Dijkstra (1982) and Hoare (1973) suggest that simplicity is a prerequisite for reliability. In addition, source codes need to be readable and understandable. Programmers need a clear and systematic mind to avoid writing buggy codes. Better program structuring, programming style, and forms of discipline will give rise to better programs (Dijkstra, 1970, 1982).

Programmer Training as a Preventive Control

The emphasis on education as a control over the quality of audit work is evident in professional accountants' qualification requirements. In the U.S., the CPA (Certified Public Accountant) qualification requires completion of a 150 credit hour accounting concentration, passing the Uniform CPA Exam, and a year or more of supervised audit experience. Many states require the CPA candidate to pass an ethics exam before licensure, which is a preventive measure against ethical misconducts.

Likewise, a licensing system for software engineers, as Wong et al. (2017) suggest, is a preventive strategy against software errors. The foremost bug control arguably starts with properly training future programmers. Recognizing the human dimension of the software bug problem, Dijkstra (1972) calls for identifying not the best debugging aid, but the careless programmers making the errors. Concurring with Dijkstra, David Parnas regards incompetent programmers as the most overlooked risk in software engineering (Eickelmann, 2007). According to Dijkstra (2000), how to program well is a teachable topic and should be taught. To better train programmers, Dijkstra advocates teaching Boolean algebra and logical connectives in introductory level programming courses, and suggests that programmers must master effective reasoning techniques. Providing the right training to future programmers is arguably a foremost preventive control against software bugs.

Debugging remains indispensable as long as not every bug is preventable, but there is little formal and systematic teaching of debugging in universities. Should debugging training focus on manual debugging or use of debugger software? According to Andreas Zeller (2009), the debugging problem is more an issue of humans and their debugging process than debugging tools. Dijkstra (1982) and Linus Torvalds (2000) criticize debugger software as failing to

encourage programmers to think carefully. Marvin Minsky (1970) recommends helping students develop debugging models in their minds, and training students on debugging techniques such as formulating simple but critical test cases. Brian Kernighan (1979) suggests using careful thinking, not a debugger program, to track down bugs: "The most effective debugging tool is still careful thought, coupled with judiciously placed print statements." Based on the collective wisdom of these computer scientists, a core objective of debugging training seems to be developing careful and logical thinking, which could also help prevent software bugs.

Just like solving riddles, debugging requires creative hypotheses, and could be fun if programmers logically think through these hypotheses. Knuth sees debugging as an art, and praises the beautiful, artistic, and enjoyable side of programming: "Programmers who subconsciously view themselves as artists will enjoy what they do and will do it better." Knuth (1973) further suggests making room for creativity in programming to increase programmers' enjoyment of work. Torvalds asserts that programming for fun is the highest level of programmer motivation and learners who are passionate about programming should be encouraged (Torvalds & Diamond, 2001; Torvalds, 2012). Linux's success story testifies to the might of volunteer developers coding as a hobby and debugging for fun (Butler, 2005). Training students to reason logically and showing them the fun side of debugging could cultivate their passion in tracking down bugs, which will be a formidable defense against buggy software.

Alan Kay relates today's software to "an Egyptian pyramid with millions of bricks piled on top of each other, with no structural integrity, but just done by brute force and thousands of slaves" (Feldman, 2004). Hurried software release schedules quickly push software products onto the market, encouraging hasty designs. With bugs hidden in bulky programs, programmers struggle in grueling, stressful, and frustrating detective work. Training future software engineers to defend quality and renegotiate unrealistic market-dictated release schedules could be another promising bug prevention strategy.

Conclusion and Future Research Directions

Software error-control awaits improvements. Relying disproportionately on debugging as the only means of bug control is uneconomical. Rather, adopting a multi-dimensional control framework, emphasizing bug prevention, and improving programmer training constitute a more thorough bug control strategy.

Given the persistence of software bugs, the relevant question to ask is "what has been missed in software development?" rather than "what has been rightfully done?" Praising, "what has been rightfully done" does not help eradicate existing bugs. Taking the position of a colleague stepping in to offer debugging ideas, this paper intends to contribute by criticizing rather than praising current practices. Therefore, it focuses not on existing bug-prevention or quality assurance initiatives already well known to the computer science community, but on their collective deficiency.

Selling criticisms, however, is a challenging task. A considerable cultural gap exists between computer science and accounting. Computer science researchers and accounting researchers are understandably skeptical of each other due to divergent research conventions and the scarcity of interaction between the two domains. This skepticism follows from Putts' Law, which describes technology as "dominated by two types of people - those who understand what they do not manage and those who manage what they do not understand" (Putt, 2006).

After all, why should computer scientists heed criticisms from accountants who are not

known for technological superiority? There are two reasons. First, as Leveson (1995) argues, technological fixes alone will not prevent all accidents. The effectiveness of technology ultimately depends on managing human developers and human users. Therefore, the framework proposed herein seeks to strengthen efforts to prevent, detect, and correct bugs along multiple technological and managerial fronts. Second, people with similar backgrounds are likely to suffer from similar blind spots. Just as a colleague brought in to help with bug hunting can contribute more if she thinks differently from the original programmer, the value of this study lies in contributing insights on the control of errors from a time-proven framework of a vastly different discipline.

Despite the abovementioned skepticism, there is plenty of room for knowledge transfer between computer science and accounting. Computer science has contributed profusely to accounting as many computer applications are handling and processing accounting data. Innovations in computer science will continue to benefit multiple accounting areas, such as automation of internal controls, design of markup languages for financial reporting and business transaction processing, application of computational linguistics to accounting and finance research, and presenting sensitivity analysis of accounting and finance information as dynamic web content.

Reciprocations from the accounting discipline to computer science are rare. Making a step in this reverse direction, this study borrows internal control ideas from the accounting discipline to help diagnose and strengthen software development. This paper hopes to highlight the potentials of this reverse contribution, and stimulate future learning and sharing across disciplines. For instance, future accounting research can contribute to computer science by refining the measurement of software development productivity, revising the modeling of software development costs, and improving the reporting of software maintenance costs to potential end users.

The overlaps between computer science and accounting are fertile research opportunities. Taking on research questions straddling the line between the two disciplines will trigger more sharing of insights already accumulated on both sides. After all, research is a continual process, frequently sparked by our curiosity over mysterious bugs, of knowledge creation and sharing.

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Discussion Questions

1. How do we know insights and knowledge transferred-in from accounting are not harmful to computer science?
2. What other insights and knowledge are transferable from business disciplines to natural and applied sciences?
3. What are the impediments in transferring insights and knowledge from a less IT-intensive discipline to a more IT-intensive discipline?
4. Are transferable insights and knowledge always present between two disciplines?
5. How do we teach students to apply what they are learning in a given discipline to bigger questions (e.g. career, family, health, etc.) about life?

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Legal Education Reform—Unmasking the Multidisciplinary Constitution of Law

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Abstract

Law is a business. Education is a public good. Legal education must teach law students that the business of law is to promote the public good. Students are knowledge consumers. Law is one of several interconnecting social systems. Law study must focus on the multidisciplinary nature of law practice. The doctrinal Socratic Method pedagogy is inadequate in its present form. It fails to integrate theory with practice skills in accurate context. Good public service requires understanding how to use law to improve life. Traditional pedagogy instructs on meaning only peripherally, subordinating knowledge of purpose and action to theory. Students need instruction that more directly focuses on teaching problem-solving skills so students understand better how theory blends with action. Meanwhile, neoliberalism locates its subjects in a competitive market. Law study programs must take their consumers as they find them, transform thinking by developing skills of knowing and being, and promote competent practice skills by training using simulation. Successful reform of legal education requires integrating theory with practice skills and public good values, combining community-engaged critical service-learning with a foundational doctrinal base, adding context to experience and thereby broadening and deepening knowledge and understanding of law system functionality. This describes a meaningful and effective law study reform.

Keywords: Socratic Method, critical service-learning, interdisciplinarity, legal education reform, multidisciplinary teaching, professionalism, case method

Introduction

Law is multidisciplinary but legal education does not sufficiently recognize this. Adversarial pedagogy is the norm. Legal education reform requires shifting the focus of law study to a broad array of approaches that minimize competition by emphasizing interpersonal and investigative capacities (Sturm & Guinier, 2007, p. 516). Legal education lacks meaning. It needs reforming, restructuring, and resequencing to acknowledge there is more to lawyering than litigation and legislation. Law is an important tool in the toolbox of political transformation and

policy revolution—but it needs better implementation (Edley, 1991, pp. 297, 305). The Socratic Method of teaching is necessary, but insufficient. It ensures students learn analytical reasoning but does not promote development of the legal imagination necessary for effective advocacy (Sturm & Guinier, 2007, p. 516). Lawyering and policymaking interrelate because law's intellect is parasitic—it interpenetrates multiple disciplines blending concepts in action (Edley, 1991, pp. 298-299). Law study instructors realize this but cannot get beyond the narrow, confining barrier of too much focus on theory with not enough attention on context. Legal education reform is necessary to change the model and rebalance the elements. Presently, there is too much focus on doctrine and not enough on interdisciplinary and experiential learning. Correcting this imbalance demands a reallocation of proportionate weight in teaching doctrinal pedagogy, replacing that emphasis with the role of culture using multidisciplinary discourse and experience to integrate all component parts.

Integration through context encourages creativity, a sense of community and flexibility diminishing certainty, individualism, separateness, and stability. It is a holistic method of teaching that rehumanizes law using experiential modeling with corrective feedback. Students learn by modeling proper responses in real-life practice-settings. Instructors simplify complex patterns to deconstruct problems (Ruan, 2014, pp. 462-463) and elucidate solutions. Such a law study approach engages students in practical problem-solving producing benefit for the community (Aiken, 2004, p. 81). Some theorists argue the bar examination already adequately measures the practice competence of law study graduates, but because there is no practicum, no experiential role-play testing, and no guarantee of professional effectiveness, students must learn perspective, insight, litigation knowledge, evidence-gathering, courtroom techniques, negotiation skills, and practice competence in practice. This training is possible by means of clinical work where learning occurs through feedback, guidance, modeling, and mentoring pedagogies (Ruan, 2014). Student learning in such settings reinforces how law is not autonomous (Menkel-Meadow, 2007, p. 557), how random actions impact results. Collaborative problem-solving activities actualize knowledge and encourage reflection on performance (Lockwood, 2013, p. 117, citing Collins, 2006, pp. 54-55). This is better teaching for practice. Experiential learning reinforces thinking, judgment, and values skills (Aiken, 2004, p. 83). Although law study in its present form is useful, it is imperfect. Although doctrinal instruction is transformative, teaching students to “think like a lawyer,” practice deductive and inductive reasoning, synthesize ideas, understand policy-based reasoning, proper application of law to facts, and how to resolve complex problems using such skills (Fruehwald, 2017, p. 715), there is more learning needed.

The problem with doctrinal training is it teaches “what” without teaching “how” or “why.” Instruction is more effective when students in clinics learn to restructure their thinking beyond text-based constructs and focus on skills training, targeting client-centered problem-solving. Clinical instruction reintroduces students to the impact of law on life. Students engage in social relations. Student learning outcomes develop when prior-acquired knowledge mixes with newly-acquired skills in proper context producing broader, deeper meanings and understandings. For example, Washington and Lee Law School focuses instruction on professional development encouraging students to combine new knowledge with old (Lopez, 2017, pp. 563), build on prior-acquired knowledge, identify what is relevant, what evidence reveals, and how the results of data analysis produce better solutions (O'Brien, 2011, p. 131, citing Kelk, 2009, p. 12). Students learn to articulate coherently a client's story (Cooper, et al., 2001, p. 233). They use writing, discussion, communication, collaboration, mentoring, research, community engagement, and simulated and experiential learning precepts, along with reflection, to learn law better

(Lockwood, 2013, p. 102). New Mexico University Law School identifies seven learning outcomes (Student Learning Outcomes, n.d.) that encourage curiosity, exploration, and understanding theory-context-practice variations (Carpenter, 2013) that include content, thinking, research, problem-solving, cultural/ethical awareness, and communication competencies (Lopez, 2017, p. 560, citing Van Zandt, 2009, p. 1136).

Teaching law is a business. Doing that well is good business. A successful business is one that effectively responds to stakeholder needs. Law students (as customers) must learn professional competence. Law students seek knowledge useful for practice. Firms seek competent lawyers. The trick is transforming students into competent practitioners. Law schools must create functional outputs. To that end, law study programs must increasingly borrow effective pedagogies from other disciplines to teach learners how to transform knowledge into practical results more effectively. Opposition to reform exists but is not insurmountable. Overcoming opposition requires implementing changes capable of producing benefits and minimizing disruptions. A meaningful, effective law study reform requires rethinking the teaching-learning model. This article outlines a plan for that.

To minimize doctrinal cognitivist dependency, instruction must implement interdisciplinary behaviorist pedagogies that seek to integrate theory with practice to promote effective problem-solving. Chang (2017) observes the need for this as students fret, perhaps over-excessively, about bar pass-rates, institutional reputation, and how those factors influence their life-chances for successful employment. Law school administrators worry about the same things. Lopez (2018) envisions a legal education approach to prepare students better for career challenges focusing on practice-skills training. Such reform enhances the value of a legal education. Community-engaged critical service-learning is an effective method for integration of practice-skills with theory using experiential constructivist pedagogies. Experiential learning can be a centerpiece for bridging the gap between thinking and doing using meaning and purpose as a connector. However, I do reject proposals to remove Socratic pedagogy entirely from the curriculum as some theorists, including Lopez (2018), call for.

Clinical education empowers students to work with real-life clients to provide legal aid to those in need and learn practice-skills in the process (Giddings, 1999, p. 34). Simulations are effective pedagogical tools that contextualize theory. The structuring of a curriculum impacts student learning outcomes. Service-learning and doctrinal instruction are equally important methods (Giddings, 1999). This article proposes to reform law study by providing students with a more accurate understanding of what lawyers do, what law is, and how practitioners function within a political economy (Lopez, 2018, p. 251). Effective curriculum redesign must begin with reinforcing the solid doctrinal base in traditional law study, but it also must encourage intellectual curiosity (Lopez, 2018, p. 259). A multidisciplinary pedagogical intervention would promote civic virtue, enhance student learning outcomes, and facilitate economic development, teaching students capacity to respond effectively to the challenges they will face in the workplace. The way to achieve such results is by mirroring the pedagogy used in the medical profession where physicians-to-be learn to actualize theory in practical emergency room settings with instruction that produces a benefit for the community. Assessment studies reveal learning improves when instructors share learning objectives with students (Jones, 2013, p. 87). Learning that actualizes theory reinforces understanding. The sage on the stage must scale-back doctrinal pre-eminence to afford students the opportunity to engage in useful context and practice-skills training for knowledge-building success.

Literature Review

The literature on law study reform contains a century's worth of writings that excuse, explain, apologize for, and criticize Christopher Columbus Langdell's Socratic Method pedagogy. The gist of the criticism identifies a desire to shift from doctrinal predominance to a better balance of doctrinal-contextual-practical approaches in education (Editorial, 2018). Inputs traditionally are the determinative factor for instructional quality; but this is changing, and outputs are becoming increasingly important in evaluating progress that links specific learning objectives to programmatic success (Jones, 2013, p. 89). The question arises whether law study is more effective when apprenticeship learning is the operative mode. Opinions on this vary. I suggest practice-skills training and doctrinal pedagogies are equally deficient if their use is in isolation with context lacking. Integrating context requires a multidisciplinary openness of mind (Staver, 2008, pp. 383-384). Academics acknowledge there is a need to better integrate theory with practice-skills training in social context (Croucher, 2006). The literature describes the Socratic Method as outdated in a market-focusing environment (Moliterno, 2013, p. 73) such as ours. Reform is, therefore, necessary to teach practitioners to manage effectively in competitive economic environments. The rise of neoliberalism supplanting social welfare liberalism (Thornton, 2001), resulting in the privatization of law and society, illustrates the privatization of the state and social relations is real. Practitioners must navigate this complexity to succeed in the business of law practice.

Method

Lawyers play leading roles in business, civic affairs, government, and politics (Sullivan, et al., 2007), and depend on communication and critical thinking skills. Lawyers manage inconstancy recognizing patterns in context and selecting among alternatives. Problem-solving is not optimally effective due to the frailties of human beings. Human nature often expresses pattern-free action. There is uncertainty when events are random or unpredictable. However-much lawyers claim to follow a course of logic, law is a device of social construction and product of emotion. Consequently, an effective program of law study teaches adaptability. Doctrinal instruction lays a necessary foundation but that alone is insufficient. Lacking, but essential, is context of an interdisciplinary nature that provides meaning. The university must repackage instructional offerings to teach adaptability (Lockwood, 2013, citing Sullivan, et al., 2007, and Stuckey et al., 2007). Reallocating the respective weights of theory, context, and practice-skills in law study is essential for effective reform (Lopez, 2017, p. 477).

Doctrinal pedagogy teaches deconstruction of legal principles to discern component elements (Lopez, 2017, p. 492). This encourages reflective critique as students practice reading for relevance and applying law to facts (Sullivan et al., 2007) to problem-solve. There are limits to the value of a doctrinal Socratic pedagogy, however. Doctrine usefully develops critical awareness but offers inadequate preparation in managing complexity. It tells us "what" happened but only superficially touches on "how" and "why." Socratic Method fails to tap into broad knowledge resource pools (Lopez, 2017, p. 528). Law study needs to break the surly bonds of discipline-specific thinking (Sullivan, et al., 2007), to encourage seeing beyond knowledge-gaps left by deficient pedagogies (Bathurst, 2012, p. 11). Learning is more effective when theory blends with practice in context concretizing significance. Higher-order thinking using patterns drawn on prior-acquired knowledge to reexamine past experiences in a new light produces more

effective results (Sullivan et al., 2007, p. 118). Theory is good for criticizing process and introducing independent lines of inquiry, but ineffective at stimulating responses from a holistic perspective (James, 2000). Thus, it is evident, doctrinal and experiential pedagogies in combination are insufficient when context is lacking (Lopez, 2017, p. 531).

Reform implementing a broad-based, context-driven awareness is necessary to develop better counsel. This is what Webster Law School offers its students—effective integration of theory with practice. It works because when student-learning outcomes are examined, participants demonstrate superior achievement (Gerkman & Harmon, 2015, p. 12). Webster engages its students in blending theory with practice teaching them to exchange ideas productively. Law study must encourage developing professional relationships, taking reasonable risks, learning from experience, embracing challenges, and understanding reality by understanding the perspective of learned Others (Gerkman & Harmon, 2015, p. 6). Webster succeeds in this by guiding student learning using a mix of pedagogies acknowledging the value of a multi-disciplinary instructional method (Gerkman & Harmon, 2015, p. 6, citing Garvey & Zinkin, 2009, pp. 117-119).¹

Results

The neoliberal state influences law study (Luhmann, 1985; Macrate, 1992; Thornton, 2001; Luhmann, 2004; Sullivan, et al., 2007; Stuckey, et al., 2007; Hertz, et al., 2013). Law responds to expressions of social needs altering itself in autopoietic transformation (Luhmann, 2004). Legal theorists acknowledge law study must teach students to manage relations and adapt to transforming influences. This article offers an all-encompassing intervention model for reform to make law study purposeful. A holistic study achieves integration of theory, practice, and professional responsibility (Sullivan, et al., 2007). The parts depend on an effectively functioning whole. The way to compete more effectively for limited resources in a competitive environment is to do more with less. Thus, law school programs that actualize such methods to capitalize on such results do so to improve their competitiveness among other law study institutions. They consequently attract better students (those apparently more qualified by dint of their performance on standardized tests and so seemingly appear more promising for career-success); thus enhancing institutional reputation. Lopez (2018, p. 270) describes lawyers as problem-solvers making meaning out of experience by transforming conflict into solutions. With his “Guru” narrative he describes how lawyering improves people’s lives (Lopez, 2018, pp. 275, 284) admitting law operates in the shadow of cultural, economic, political, and social realms, and everything operates in the shadow of law requiring lawyers to navigate among cultural, economic, ideological, political, and social forces that create and sustain the very problems lawyers must resolve (2018, pp. 285, 305). This can make for an effective loopback network system or may produce difficulties. Law study is more successful when practitioners learn how to understand and effectively communicate with others. Lawyers must be sensitive to issues of age, class, culture, gender, ideology, race, religion, and sexual orientation (Lopez, 2018, p. 310). This is precisely why law study must be interdisciplinary—to broaden experience and knowledge by introducing contextualized understanding. The legal system is complex because social relations are complex. For dispute resolution to be effective, situational decision-making in the

¹ Offerings include doctrinal discussions, simulations, and mock trials to reinforce understanding using constructive feedback and contextual elaboration encouraging reflection to produce self-correction leading to greater proficiency.

enforcement of rules is necessary. There is always a degree of discretion possible, however small it may be under the circumstances. Law study must instruct students that prior cases are useful guides for better-informed decision-making.

Students learn meaning and purpose, critical thinking, recognizing dependent and independent variables, and mastery of effective decision-making under this proposed more-integrated legal education system. Legal process organizes a set of generally accepted rules around a core system for “reasonable” interpretation to promote just and equitable solutions to problems; but creativity is also vital. This is the essence of the need for adaptability. Related to this, neoliberalism is a consequence of globalization and a response to social change. It supplants social liberalism as the predominant political philosophy of our time substituting the objective of securing the common good with an arrogant individualism (Thornton, 2001, p. 38). In response, a new knowledge economy emerges that values legal knowledge and encourages production of adaptable knowledge workers (Thornton, 2001, p. 38) to promote a privatized system of economic self-sufficiency. This is the environment in which law operates and in which law study must prepare its students to practice. The legal profession can support profit-creation in economic relations (Thornton, 2001, p. 38) even as it promotes social justice ends. The education system must reshape itself to meet the demands of its constituency and reciprocate its needs. Law study produces two sets of student-product—those accepting the capital accumulation project and those who despise it and seek to minimize it.

There has been talk in recent years of phasing-out “articles of clerkship” in commonwealth law nations (Fish, 2014). This traditional mentoring device is undergoing reevaluation. Defenders claim “articles” prepare students for practice (Hargreaves, 2014) while challengers criticize the value of unsupervised learning. This article posits critical service learning is necessary for professional development (Latta, et al., 2018). Students learn from the experience of making mistakes. While harm to clients is a result to guard against in all manner of circumstance, supervised learning allows for trial and error discovery without harming clients. The rush to phase-out “articles” in favor of more effective supervision (Ocheje, 2012) makes sense—shifting practice skills training to clinical forms using simulated instruction is useful. Yet “articles” are a more cost effective, albeit possibly less pedagogically effective tool, and effective instructional supervision using “articles” is possible with some additional effort to ensure the experience is as valuable as possible. To be certain, it is in the best interest of all participants when the experience is as meaningful and effective as possible. Students must learn to protect client interests (Evans, et al., 2017, p. 123) as they serve client needs. The organized bar agrees supervision is important, and associations are beginning in response to require pro-bono service as a prerequisite for licensing (New York’s 50-Hour Rule, 2013).

Lopez (2018, p. 333) observes teaching is more effective when it takes the form of coaching providing students with knowledge and skills to improve performance. The Canadian Bar Association (CBA) recommends law study programs offer practical opportunities for learning through work placements (Smyth et al., 2017, p. 154, citing Canadian Bar Association, 2014, p. 58) which is, after-all, what “articles” are about. Many law study programs now better integrate doctrine with practice skills training, but more of this is necessary because not all law students have the opportunity for such learning. Some advocates bemoan the lack of funding and prioritization of doctrinal instruction. This follows from the marginalization of clinical instructors and because the deficiency of pedagogical coherence in Socratic Method persists (Smyth et al., 2017, p. 155). A possible solution is altering thinking on what constitutes good practice. Reform is possible when a majority agree it is necessary. A sequential curriculum

design using a part-part-whole (PPW) approach can produce meaningful, effective reform by organizing instruction around a core theoretical base, and building into it context and practice-skills training layers of meaning (Experiential Learning, n.d.).

Discussion

Improvement Using a Practice Orientation

Law study falls short in preparing future lawyers for practice challenges. Reform that leads students to rethink their knowledge by drawing on relevant doctrinal principles, understanding purpose in the context of multidisciplinary experience and applying critical thinking to problem-solve improves law study. A practice orientation is necessary because law is not purely scientific as Langdell opined. Rather, law is artistic, humanistic, and interpersonal. Law study must integrate the three pillars of theory, context, and experience to produce better practice results. A law study that limits learning to theory cannot fully prepare graduates for real-life practice boundary-crossing challenges. Lawyers must be able to understand how norms impact decisions, multi-tasking, thinking critically, communicating effectively, mastering knowledge, and reflecting on performance constructively. Teaching law from a theoretical perspective alone makes this impossible. Effective reform that retains doctrinal elements will capitalize on its benefits but must also guide students in developing the intellectual freedom they will need to link thinking with feeling and doing (Sullivan, et al., 2007, p. 35).

Lopez (2018) would ban Socratic pedagogy entirely. I disagree taking the position there is value in traditional doctrinal question and answer dialectical exchanges that challenge students to ponder opposing lines of thought, pick apart inconsistencies, identify slippery slopes, and consider the legitimacy of policies that underlie decisions (Lopez, 2018, p. 349). At the same time, collaborative pedagogies and practice-oriented instruction improves student learning by moving instruction beyond the narrow confines of a limiting appellate-decision parsing case-method approach (Lowry, 1972, pp. 185-186, citing Frank, 1933, p. 90; Frank, 1947, p. 1305; Frank, 1951, p. 20) that is in fact only partially useful because teaching must be relevant to prepare students for practice (Tal, et al., 2015).

Langdellian case method dialogue encouraging hypothetical gymnastics addresses in instruction only a portion of what lawyers need to know. Innovative critical thinking develops by connecting multiple disciplines through service-learning activities (Ertmer & Newby, 2013; Tal, et al., 2015). A more effective law study is one that encloses practice with theory blending content knowledge in context with realistic applications in a realm encouraging critical reflection (Tal, et al., 2015). The whole-part-whole (WPW) learning method is useful, but when learning occurs in a sequence that integrates theory with practice in linear progression it is more effective by far (Swanson & Law, 1993). Business and medical school pedagogical case study designs are worth replicating in law. Practitioners can learn advocacy, negotiation, and problem-solving strategies by modeling and simulating. Training in boundary-crossing intentionally designed structures moves law study away from traditional, doctrinal close-case analysis to a broader set of resources capable of teaching students how to translate messy human social conflict into productive results (Kift, 2008; Lopez, 2017, p. 493; Sullivan, et al., 2007, p. 54). Legal education should focus on building a content-knowledge structure framework, adding in an awareness of functionality and higher-order thinking for application to integrate prior-acquired knowledge with action more effectively. This teaching model uses problem-solving pathways to enlarge the

scope of learning, connects concepts and principles with beliefs, values, and results that encourage learners to mix theory with practice in context thereby serving to fill in the gaps of their understanding (Sullivan, et al., 2007, p. 54; Tal, et al., 2015). While Socratic case method is effective for teaching large numbers rudimentary elements of reading, interpreting, and using law cases (Lopez, 2018, p. 365), that learning design is only a good first step that needs supplementing. Doctrinal pedagogy effectively broadens discipline-specific content knowledge in context making it practically useful. None of the three pillars can achieve this result on its own. In fact having all three in combination is absolutely necessary.

Community Engaged Service-Learning

Community engaged service-learning produces a deeper understanding of social relevance in learners providing them the skills needed to think innovatively, manage unfamiliar content, reinforce understanding using pattern recognition, and facilitate construction of associations to solidify capabilities (Tal, et al., 2015, p. 65). The primary purpose is educational (Tal, et al., 2015, p. 66) and compensates for, and remediates, deficiencies in doctrinal instruction. Students learn doctrinal black-letter law then move beyond what it can offer. Students should proceed beyond theory to rethink their understandings (Tal, et al., 2015, p. 71). Learning is an enduring process that evolves through experience (Sullivan, et al., 2007, p. 45). In frustration, one might ask why so much time has passed since using clinical programs in law study grew fashionable with so little progress made to reform law study (Smyth, et al., 2017, p. 153) and recognize its tripartite structure. The answer is case method pedagogy is a staple for its tethering effect, but educators over-rely on its utility.

Experiential learning is sequential—one learns to ride a bicycle by first preparing oneself to do it, next by watching someone do it and imagining oneself doing it before trying. Doing it correctly requires practice. Law study is the same. Students prepare by studying content knowledge. They communicate and critically reflect on their understandings in context. Students can engage practically to actualize their knowledge and review their performance. Reading and understanding law provides a foundation in formalism that grounds, justifies, and legitimizes comprehension. A doctrinal base makes for a solid foundation. Interdisciplinary context helps learners develop higher-order understanding (MacCrate, 1992; Sullivan, et al., 2007; Stuckey, et al., 2007; Hertz, et al., 2013). Actualization is the culminating process in sequential learning. This gradual transformation toward expertise justifies rational decision-making from knowledge to knowledge-based contextualized practical understanding (Tal, et al., 2015, p. 72). This model incorporates practice-skills training into a theoretical base. Student learning outcomes are more effective when students train in self-reflection (Smyth, et al., 2017, p. 153). The joining of social science theory with practice-skills experience enriches student knowledge and competence. For example, students at New York University Law School learn to think about practice, collaborate, and plan to execute effective responses to real-life legal problems. This pedagogy is not the norm because Socratic Method predominates (Sullivan et al., 2007, pp. 38-43), but it is effective and counteracts the identified deficiency of a disconcerting but false perception of a problematic “gap” existing between the legal education community and the profession “that requires narrowing” (MacCrate, 1992, p. 3), in addition to offsetting the controversial sentiment about education’s failure to “do enough to prepare students for legal practice” (Hertz, et al., 2013, p. 1, n. 5, citing Segal, 2011, and Goodwin, 2011). MacCrate (1992) claimed there is no “gap”; rather, there is the task of assisting students to develop the skills and values necessary to transform them

into qualified lawyers (1992, p. 8).

Reform is necessary to integrate better legal education elements in law study to respond to the market's demand for "practice-ready" lawyers. Those who embrace a global world-view that values collegiality and teamwork over capitalist, competitive individualistic gain (White, 2014), fail to acknowledge law's capture by neoliberalism (Thornton, 2001, p. 41) and that the privatization of law is a real phenomenon. Reform reverses the damaging effect of doctrinal pedagogy on learning (Leering, 2017, p. 50, n. 7) by replacing the sage with an interdisciplinary guide (King, 1993) who appreciates the value of experience. In a 1972 article on clinical pedagogy Lowry (1972) called for greater use of "clinical law" describing such programs as legal aid deliverable in an accredited academic course or on a voluntary basis whereby faculty-supervised clinics would enhance student learning by encouraging them to engage in lawyer's work reinforcing the importance of service (Lowry, 1972, p. 183, citing Pincus, 1969, p. 18).

Lowry's proposal wasn't novel—multiple calls for reform beginning with Frank (1933) identified the need. This view that training must include a mix of theory and practice reinforces the value of a holistic law study (Tal, et al., 2015, p. 74). For Lowry (1972), it made sense to integrate legal aid with academic teaching. His definition of clinic as training students to serve communities, provide advocacy and advice, and integrate learning with practice to promote competence is consistent with calls for teaching students to appreciate diverse perspectives for creative problem-solving (Symth, et al., 2017, 156; Tal, et al., 2015, p. 76). Collaborative instruction that combines action with critical reflection produces more effective practitioners (Cooper et al., 2001, p. 231, citing Mullen et al., 1985; Tal, et al., 2015, p. 76). Studies show students who exercise reflective learning techniques develop a deeper appreciation of professional responsibility (Leering, 2017), and learning improves when students practice newly acquired skills in context (Ertmer & Newby, 2013, pp. 44-45). Innovative course design encourages activities that broaden student understanding of professional roles, knowledge-gaps, and limitations (Cooper, et al., 2001, p. 233, citing Kirkpatrick, 1967). Such study teaches clearer recognition, understanding, and reproduction of quality thinking (Lopez, 2018, p. 380). For a lawyer to understand a problem more thoroughly, she must comprehend conflict in cultural, economic, political, and sociological terms and in its accurate context. This is how meaning is ascribed to life's endless variations (Lopez, 2018, p. 381) and legal analysis categorizes life into theoretical compartments using contextualized experience to expand understandings (Lopez, 2018, p. 385). To improve student-learning outcomes, students must develop a well-formed sense of critical awareness (Tal, et al., 2015, p. 79). Interdisciplinary connections built on a firm doctrinal base provide students with the tools they need to do so leading to practice success (Cooper, et al., 2001, pp. 233-235). I agree with Lopez (2018) that certain learning objectives are necessary to prepare students for practice-competence. Among them are problem-solving skills, knowledge of context, mastery of practice, and the ability to converse fluently in policy debates (Lopez, 2018, p. 452). However, doctrine remains an important foundational base with value worth preserving. Doctrinal theorists satisfy a useful purpose but must not persist in holding practice-skills subordinate to theory (Sullivan, et al., 2007, p. 94). To successfully reform law study, teaching must embrace innovative, experiential pedagogies that encourage students to explore multidisciplinary connections.

The Thinking-Knowing-Being Model

The thinking-feeling-doing model of experiential education is more accurately a thinking-knowing-being construct that merges theory with action in context. The American Medical Association (AMA) lauds integrating discipline-specific theory with clinical practice-skills training using simulation-learning to promote problem-solving skills (Sullivan, et al., 2007, p. 94). The AMA posits that practice-competence follows reinforcing content knowledge with actualization. However, there is more to learning than just knowing and doing—one must understand “why.” Certain doing (“what”) is a better choice, sometimes. The trick is understanding when certain options are better choices than alternatives. Feeling and being are interdisciplinary integration skills that begin with the “what” inquiry, continue with the “why,” and motivate the “how.” Effective instruction requires feedback, guidance, and supervision to develop an understanding about why the “how” may better fit with the “why” and “when” (Neumann, 2013, p. 156).

Law school enrollments declined in the Great Recession with contracting commercial activity reducing the need for lawyers. Law supports business. Law study must teach this. Technology reduced the demand for new lawyers. Declining law school enrollments and resulting declines in tuition revenues followed. Law study programs adjusted by cutting costs. The legal education literature laments the inability of schools to produce the “practice-ready” lawyers firms demand, but such skills training is expensive, and each party has sought to externalize costs. Schools advertise their competitive rank earned by the quality of education they provide while the competitive marketplace pressures schools to maintain quality ranking. MacCrate (1992) observed the “gap” is between “expectation and reality” marked by the trading of barbs between law schools and the practicing profession over the incompetence of new lawyers (1992, p.4). What in fact makes for program and educational quality? The measure of quality is a function of outputs. Instruction improves when education is the object (McAuslan, 1989; Katz, 2013; Tal, et al., 2015, p. 81). The goal of teaching ought to be to make learning as effective and efficient as possible (Weiss, 2012; Watson, 2012). Therein is law study’s competitive advantage. Medical school training focuses on patient well-being; law school training must focus on client gain (Neumann, 2013, p. 157). Neoliberal privatization demands the highest quality product be available at the lowest possible price, which requires competitive efficiency in operations, disfavoring use of more costly experiential pedagogies. Traditional lectures are front-end useful but outputs matter.

Restructuring legal education to integrate interdisciplinary resources would resolve each identified deficiency. In the 1800s, the Langdellian focus divorced law from other disciplines to strengthen it, but this is now its weakness. Today, theorists recognize the need for multidisciplinary approaches that reconnect law with society. The literature on service-learning highlights students ought to perceive the service community as “people in need” with themselves “facilitators” although some theorists claim teaching should focus on developing strengths and encourage students to jettison the disadvantaged–power relations rhetoric (Tal, et al., 2015, p. 81, citing Cohen, 2000). I find learning is more effective when instruction occurs incrementally—gradually expanding with each successive achievement deconstructing the base to make room for a collaborative work-ethic blending purpose with theory in practice. This is contrary to Langdell’s claim the law of books is not real-life (Neumann, 2013, p. 165). Better decisions do result from a pathway connecting law with other disciplines. Teaching law reflectively means using creative teaching, group-work, experiential and collaborative service learning (What’s the

difference, n.d.) to reveal, rather than dissemble, truth (James, 2000; Moliterno, 2013). Students learn effective problem-solving skills by practicing integrating thinking, feeling, and doing (Stuckey et al., 2007, pp. 33-35), which helps them to understand better how to formulate more effective solutions to complex problems (Jennison, 2014).

Jurisprudence is the space where interpersonal relations arise and people interact in relations of production (Luhmann, 1985). Law study must address how those relations connect social exchange processes (Lopez, 2017, p. 527). Law students who learn theory in the absence of context cannot fully appreciate how connections form and cease. Instruction must reintegrate the divided disciplines (Bathurst, 2012) admitting interdisciplinary instruction is a co-equal component of law study with all the rest (O'Brien, 2011, p. 133). Clinic does its part actualizing theory in context. Seminars using collaborative exercises and innovative simulations lay a foundation for framing a broader, deeper understanding in learners. Faculty might engage with peers from diverse disciplines, attend interdisciplinary trainings, and recruit new faculty who value boundary-crossing. Joining interdisciplinary instruction to doctrinal pedagogy by experiential activity is an extension of what Langdell had in mind (Neumann, 2013, p. 167), and effectively fills gaps left by deficient doctrinal design. MacCrate (1992) in Appendix E recommended using innovative curriculum design to enrich student learning. Modern legal realism encourages students to develop an awareness of the human social condition to assist the disadvantaged (Tokarz, et al., 2014, p. 30). Law study reform rebalances different orientations of task and process, and uses familiarity to develop fluency so that better problem-solving solutions may arise. This constructivist pedagogy enhances learning outcomes encouraging deconstruction and reassembly, so students better comprehend meaning-making in lived-experience. Contextualized awareness of the life-world improves knowledge-acquisition making it more effective. Clinical legal education guides learners teaching them to do, reflect, and adapt (Smyth, 2017, pp. 162-163; Tal, et al., 2015, p. 82). Doctrinal pedagogy as a method in isolation fails because it does not even recognize let alone focus on boundary-crossing. Multidisciplinary teaching is necessary to supplement this deficiency.

Langdell's casebooks omitted statutes and evidentiary records focusing exclusively on judicial opinions (Neumann, 2013, p. 170). The result was students did not comprehend how rules of law take expression in life. Doctrinal instructors minimize the value of practice-skills training suggesting practice is mere finding, drafting, and arguing of theory (Sullivan, et al., 2007, p. 114, citing Garth & Martin, 1993). Doctrinal instructors do not recognize the value in complementary pedagogies (Clark, et al., 2012). Students require instruction in self-sufficiency, competency, and social awareness (Archer, 2017, pp. 17-18, citing Aiken, 2004, p. 85) to develop capacity to select better problem-solving solutions among viable alternatives but cannot develop those skills under doctrinal pedagogies (Lopez, 2017; 2018). Law impacts human lived-experience (Menkel-Meadow, 2007, p. 557) providing a framework for social interaction. The study of law must deliver awareness to students, enabling exercise of imagination to encourage an outlet for equitable resolution despite law's inconstancy (Tokarz, et al., 2014, p. 13).

Doctrinal Reform

The problem with an exclusive focus on doctrine is it leaves students with an incomplete record of client needs and how to satisfy them (James, 2004, p. 588). ABA standards for legal education require effective instruction in legal writing, yet faculty teaching theory delegitimize such efforts (Beazley, 2016, pp. 298-299, 322-323). Legal education implicitly promises to

prepare students for careers in law, but limiting the focus to doctrine makes that end impossible. Latta et al. (2018), following Mitchell (2008, p. 50), recommend law faculty adopt a critical approach to focus instruction on social change, power redistribution, and developing authentic relationships. Traditional legal education reform entails maintaining the status quo ante while marginally correcting deficiencies in piecemeal fashion. The literature suggests reducing class sizes, providing intensive-writing and clinical experiences, expanding learning beyond theory, and integrating the essential elements of law study to promote professional competence in students (Sullivan, et al., 2007) is sufficient, but in all honesty, it is not. Latta et al. (2018) argue an iterative reflection-learning process is necessary to encourage self-discovery. Lisa, the enthusiastic, young law student dissuaded from participating in clinic, symbolizes opportunity lost. Archer (2017) explains that Lisa was not a good fit—her political conservatism was at odds with the social justice mission of the clinic. Closer to the truth, clinic could have broadened Lisa’s perspective, and Lisa’s perspective could have broadened the experience of her peers, not to mention Lisa could have developed essential practice skills participating in the clinical experience. Essentially, students need to engage in a wide variety of boundary-crossing events to test their prior-held beliefs and develop their awareness more perfectly. Experience denied is educational opportunity lost.

Blending theory with practice in context develops deep-knowledge in learners (Fruewald, 2017, p. 745). This is not advisable in first-year study as proposed by Fruewald (2017, p. 714) because the foundational skills of first-year are more deeply ingrained when learned in purity. By this, I mean the antiseptic detachment experience of first-year study should remain in its present, undiluted form. It is harsh intentionally to teach students to be more logical, unemotional, rational, and objective in their decision-making, and less interpersonally-oriented (Daicoff, 1997, p. 1394). I agree with theorist claims that students after first-year do need a replenishment of humanization to reinforce values in social relations (Fruewald, 2017, p. 714, citing Sullivan, et al., generally). Latta, et al., (2008) describe their aim was to better understand how to integrate service learning in their teaching. Faculty collaborated to identify how cultural factors “trouble” the relationship between practitioner, practice, and theory. They concluded a critical service learning pedagogy requires diligent perseverance admitting that while their objectives might never be fully realized, it was worth the effort of making progress in self-reflection that pushed them outside their comfort zone, encouraging a liberal perspective and positionality capable of leading to deeper personal and social understandings of constructivist pedagogies.

Legal education reform requires changing the model. In this article, I propose resequencing to correct the deficiency of a predominantly doctrinal focus. I propose repurposing the component parts of law study expanding the breadth and depth of critical thinking, communication, practice-based research and writing, and training in professional responsibility and intercultural knowledge awareness. I suggest using inter-institutional resource-sharing and combined degree offerings to encourage more innovative and collaborative instruction (Woods, 2007, pp. 863-864; Manor College, n.d.). The benefit of joining diverse disciplines in interdisciplinary connection is it promotes a richer, more integrated, and broader-based knowledge. Faculty enhance student learning by pushing students closer to the true face of the law allowing them to slip the surly bonds of Socratic pedagogy² and shed artificial distinctions between theory and practice (Ruan, 2014, p. 437, citing Sullivan et al., pp. 8-9) thereby promoting transcendence beyond the status quo. Teaching that integrates service learning and encourages students to question their assumptions and prior-held beliefs makes for better

² With reference to the poem *High Flight* by John Gillespie Magee, Jr.

practitioners (Latta, et al., 2018, p. 36-37). Following Mitchell (2008), faculty must explore service learning as a tool to develop authentic relationships between students and community to facilitate a meaningful and effective reform and thereby produce better lawyers.

The doctrinal base must be solid. Strengths in multiple academic units across the university offer available resources to strengthen learning (Molitero, 2013, p. 81). Cooperative and collaborative pedagogies support holistic teaching (Cooper et al., 2001, p. 229, citing Hammick, 1998) and guide students in developing pattern-recognition, insightful reflection, innovative problem solving, and fluency in managing uncertainty (Tokarz, et al., 2014, p. 13). Law study improves by blending critical thinking, communication, content knowledge, and practice-skills training in context, transforming lectures into simulations that elucidate theory (Lopez, 2017, pp. 546-548; Lockwood, 2013, p. 102). An example is Hamline Law School's cross-listing of Alternative Dispute Resolution (ADR) with management and public administration offerings to combine distinct yet significantly related subjects to enrich instruction while reducing costs (Sullivan, et al., 2007, p. 105). Another example is British Columbia Law School's delivery of Perspectives on Law where students explore first-year doctrine with sociological discourse (Sullivan, et al., 2007, p. 153). At Toledo Law School, students study law and social thought in a richly embroidered mosaic of humanistic, social science connecting diverse disciplines to promote creative thinking (Welcome to Law, n.d.). As noted above, law study is more transformative when it alters one's thinking (Sullivan, et al., 2007). Doctrinal pedagogy is effective because it achieves this in leading students to "learn to think like a lawyer" although "thinking like a lawyer" isn't always necessarily best (Daicoff, 1997, pp. 1385, 1401). Law students commit to a rigorous, competitive, costly training beginning as novices puzzled by law and ending as experts accepting of law's indeterminacy. But, while necessary, such doctrinal focus is insufficient and can produce damage in terms of social welfare harm which is why the study of law is not appropriate for everyone (Daicoff, 1997). Those who do not know better might assume the study of law involves memorizing rules and drafting documents solely. Closer examination reveals law concerns much more including interrogating norms to discern critical consciousness (Latta, et al., 2018, p. 39) with an eye toward problem-solving. The study of law exposes students to a process of integrative complexity wherein disciplines converge to produce new results. Understanding legal process means developing the capacity to blend theory with practice in context using performance skills to translate knowledge-based synthesis into action (Lockwood, 2013, p. 104; Borrego & Newswander, 2010, p. 74). Traditional doctrinal pedagogy is too individualistic, antagonistic, and competitive to be effective without supplement. Legal education reform requires introducing collaborative pedagogies to open a productive dialogue between dueling perspectives to encourage students to master skills necessary for practice (Lockwood, 2013, p. 120, citing Glen, 2003). Collaboration promotes communication, shared responsibility, and cooperation (Lockwood, 2013, p. 126). It reverses the dehumanization imbued in Socratic pedagogy. Effective reform retains doctrinal gains while eliminating negative costs, broadening and deepening understanding through encouraged reflection (Evans et al., 2017, pp. 159-161).

Interdisciplinary Reform

Legal education reform requires better managing the interconnected nature of social categorizations that establish interdependent systems of critical theory, service-learning, and practical application recognizing human action consists of economic, political, and social

relations. This is blending law with culture (Mezey, 2001, pp. 35-36). Latta et al., (2018, p. 41) describe a knowledge gap among practice faculty in critical theory. I suggest a knowledge gap exists among doctrinal theorists concerning actualization. Despite the MacCrate (1992) denial such a “gap” exists, practice and theory are deficient when apart. While operating together, the two deficiencies combine and effectively counterbalance one another. Teaching must reinforce the integrative value of an intentional, iterative interrogation through self-reflection. One’s positionality influences one’s sense of self and sensibility. Discovery requires an open mind. Law and culture are related realms of action and discourse—sometimes conflated as law alters culture (Mezey, 2001, p. 36), or has no effect. Legislation is capable of producing change, but beneficial change is hard won. Law’s influence on culture produces harm and causes slippage in the purpose of a legal rule in relation to its social effect (Mezey, 2001, p. 37).³ Multidisciplinary knowledge is useful as a counterweight to negativity.

Mezey (2001, p. 39) describes culture as a tool for explaining human action. If correct, law study must recognize this characteristic and make it an integral part of the curriculum. I find the claim compelling. Critics of legal education argue reform should lead to encouraging students in exploring connections between law and related disciplines to lay bare the differences in an emotionally supportive learning environment (Stuckey et al., 2007, p. 82). Such instruction would improve learning by normalizing modeling, coaching, and reflection; integrate theory with practice and professional sensitivity (Sullivan, et al., 2007); and guide learners in accessing beliefs about justice, civic action, prejudice, and other relevant factors to improve service learning outcomes (Latta et al., 2018, pp. 41-42). The result could be a better preparation of students for practice through contextualized training (Lopez, 2017, p. 561, note 233, citing First Year Curriculum, n.d.).

Cultural context reveals connections in society among components. Culture symbolizes intellectual and artistic production in relation to systems of human social interaction. These reflect meaning expressed in art, learning, and ordinary life-world experiences (Mezey, 2001, pp. 41-42, citing Williams, 1966). Law study would do well to acknowledge the value of these influences in preparing students to manage the impact of rule and decision-making on the human condition (James, 2000). Latta et al. (2018) argue service learning is continuing, is not a determinant destination, and does challenge existing social structures that reproduce social inequities (2018, p. 44). Public good objectives can result from developing a cultural awareness and using it to contest meaning (Mezey, 2001, p. 42). The case-dialogue pedagogy fails to prepare students to manage such complexity in extra-legal roles (Dopierala, 2008), which is a significant problem that demands redress. Students who understand law’s inter-connection with other disciplines—its multidisciplinary nature—appreciate its source of meaning derives from empirical claims about life based on norms, desire for change, and social considerations that connect with social forces (Lopez, 2017, p. 479). Because culture and law are inseparable, lawyers must know this and know how to navigate within its confines. Law produces and responds to cultural mores (Mezey, 2001, pp. 46-48), and when lawyers recognize this, they are better lawyers for it.

Interdisciplinary sensibility encourages students to translate knowledge across boundaries, develop higher-order thinking and skills of establishing a common ground among rivals to improve communication, overcome disciplinary isolation, produce innovative solutions

³ For example, a rule prohibiting sexual orientation discrimination may result in compelling a person to exercise artistic talents in conflict with religious beliefs in violation of First Amendment free exercise protections, thereby frustrating law’s purpose (Masterpiece Cakeshop, 2018).

to problems, and create opportunities for innovative design. An overreliance on doctrine significantly limits the possibility of achieving these socially considerable objectives. Expanding clinical instruction promotes practice-skills development and a sense of professional responsibility (Lopez, 2017, pp. 512-513). The literature on legal education acknowledges instructors must guide students in making sense of chaos, integrating parts that do not neatly fit together and learning to see the forest for the trees (Sullivan, et al., 2007, p. 101). Defenders of Socratic pedagogy rightly claim critical thinking skills are necessary but wrongly suggest expanding the curriculum beyond doctrine would convert law schools into intellectually-shrunk trade schools (Lopez, 2017, p. 513). Nothing would be further from the truth. Practice-faculty member perform important functions that better prepare students to navigate legal system complexity.

Interdisciplinary inquiry helps students understand “why” in ways that go beyond “what” or “how.” This promotes comprehension of the richness of interpersonal relations—the “why” and “so what” questions that require systematic reflection and need addressing. Culture is not a political device devoid of content. Legal constructions do not exclusively animate social practices (Mezey, 2001, pp. 62-63). Preparation for practice-competence requires study in doctrinal fluency, contextual recognition, and experiential applications. Curriculum design must facilitate knowledge-transfer and skills-development merging law study with other-discipline approaches (Kilgour, 1955, p. 83). Multidisciplinary study prepares students to be better problem-solvers encouraging them to engage in exploring diverse, innovative, synergistic solutions to seemingly irreconcilable differences (Ruan, 2014, p. 439; Woods, 2007, p. 857).

Clinic is an appropriate vehicle to enhance student learning. It encourages students to partner with community members in need of counsel, allows them to experience lawyering in a simulated environment (Ruan, 2014, pp. 442-443), and facilitates the forming of community partnerships that effectively integrate extra-legal discourse into legal education in ways that promote learning to diagnose needs, identify problems, formulate plans, set goals, track progress, collect data, and analyze results. Peer teaching and community-of-practice learning promote a fuller understanding of law’s role in society (Lockwood, 2013, pp. 99-102, 111-112, 121; Sullivan, et al., 2007; Swanson & Law, 1993). Meanwhile, interdisciplinary study elucidates essential economic, political and social implications, encourages a sense of purpose and higher-order thinking, and facilitates the capacity of students to perform lawyering tasks innovatively (Borrego & Newswander, 2010, p. 62) thereby teaching students to perform effectively in conditions of uncertainty, learn from experience, and better manage complexity (Welch Wegner, 2009, p. 21) reinforcing law’s role in achieving equitable results (Legal Theory, n.d.; Borrego & Newswander, 2010, p. 74; Woods, 2007, p. 863). Law impacts capitalism, inequalities of race, class, gender, identity, orientation, and preference. Students must learn how language and culture connect with law to reverse the doctrinal decontextualization and separation of law from humanity (Swanson & Law, 1993, p. 47). Doctrinal instruction is decidedly damaging, but the harm is reversible with use of collaborative pedagogies (Lopez, 2017, p. 490, citing Schill, 2008; Marshall, 2017, p. 139, n. 11), actualizing performances using modeling and simulation, and recognizing the value in retaining the more useful lawyer attributes beneficial to client representation while jettisoning those more appropriate to discard (Daicoff, 1997).

Conclusion

The redesign of teaching and learning I propose in this article encourages problem solving in ways Langdell had in mind when he sought to make legal education more scientific (Lopez, 2017, p. 522, citing Langdell, 1887), but moves reform along a step further. While Socratic pedagogy is effective in teaching analysis and reasoning, it is deficient to the degree it does not teach lawyers-to-be, to be liberal-minded, collaborative, or “practice ready.” Students must learn to recognize patterns to resolve client problems more effectively (Ivanitskaya, et al., 2002, p. 99). They must learn to appreciate law as a sub-system of society that transcends boundary-limiting constraints (Aiken, 2004, p. 87; Lopez, 2017, 523). Students must accept that law is not autonomous, inputs from other fields are necessary, and supplementing legal understanding is advantageous. Legal education reform can produce desirable ends more quickly than the time it would take a practitioner to learn such skills on her own in the course of a frustrating career, if ever at all. Legal education reform must encourage modifying the pedagogy of law study to place graduates of law study programs at a more useful starting point at the beginning of their careers to make the future practitioner that much more competent (Baron, 1999, p. 1085), sooner.

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Questions for Discussion

1. The article describes three pillars for legal education. List and describe each.
2. Which pillar connects the discipline of law to other subjects? How does it do this?
3. Is any single pillar (of the three) more important than the others to teach law effectively? To learn law well? To practice law competently? To serve clients and society well? Explain your answer.
4. Do you agree with the author's premise that a meaningful and effective law study reform is possible? Explain your answer. Why do you think such reform has not yet occurred?
5. Do you believe the learning model the author describes in this article would help you to learn the subject matter of interest to you (law or another subject)? Are there any connections between your learning interests and law? Can you think of any learning techniques that you could add to the proposed model to improve it? Explain your answer.

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Life Forward

Mustafa Selcuk Cevik *Mining Executive*



Background

Mustafa Selcuk Cevik was born in 1988 in the state of Kayseri, Turkey, where most businessmen are from. He grew up in Ankara and attended the private Yuce College of Ankara.

He started to work with his father at the age of 16, helping the detergent sales team as their organizer and scheduler, and with customer visits at the Karizma Chemical Corporation. At the age of 17, he moved to Miami, Florida, and attended St. Thomas University, and founded Sefa Stone, now a major travertine and marble supplier in Miami, which he later sold. In 2014, he was elected as a board member of the Istanbul Mining Exporters Association. Also that year, he became the vice president of the Mining Sector Presidents Council in Turkey.

Interview
By Hagai Graingarten
Editor-in-Chief, *Journal of Multidisciplinary Research*

1. Life is about stories. Do you have a favorite story you use as an icebreaker?

I have always thought the Indian legend “The Broken Bucket” is as thought-provoking as it is integrating the people.

One of the buckets was older than the other and had slight cracks on it, so the man who carried home water with the bucket found that half of the water in the old bucket was gone during the trip.

The man made the same trip for two years. The younger bucket was proud to be doing its work well as it was sure that it was perfectly created for its assignment; on the other hand, the other bucket was deeply embarrassed for doing its work by halves though it knew very well that the cracks on it were the result of long years of work.

Its embarrassment was so big that, one day, it decided to speak with the man as the man was about to fill it with water.

“I want to apologize for my being old,” it said. “You can take home only half of the water you put in me, so you can satisfy only half the thirst at home.” The man smiled and said, “Look around the road with greater care as we walk home.” The bucket did as it was told and saw that only one side of the road was covered with flowers and other plants.

“Do you see how beautifully is your side of the road decorated with nature?” asked the man. “I knew there were cracks on the bucket and I decided to take benefit from this. I planted flowers and vegetables on this side of the road, and you watered them every time you pass by. Thousands of roses I picked from here added joy and beauty to my home, and my children ate the cabbages, pumpkins, and onions that grew here. All of this would be impossible if you did not have that trait.”

2. What are the top three characteristics that contributed to your success?

I think the three characteristics that contributed to my success are my infinite thirst for success, my being a hard-worker, and my making the concept of sustainability my lifestyle.

3. What life-changing events or decisions have guided your career?

When I was a kid, my father would take me and my brothers to the mining quarries he operated. These visits instilled love for marble and minerals in me and my siblings. When my father sold the chromium mines and I had only the marketing side of the business to deal with, a constant longing for the past grew inside me and finally led me to found a marble company in the United States where I stayed for my education.

4. Tell us of any expressions your parents often repeated with you.

“No business can be yours unless you physically attend to it.” That’s why I will be at my work until the end, and I will always own my business with full control of all relevant details.

5. What is the biggest misconception about you?

I believe the biggest misconception about me would be if someone thought I could not be a fun person just because I was over-mature and business-oriented.

6. What books have you read lately?

The latest book I read was *Amir Timur*. Written by Harrold Lamb, the book tells the life of Amir Timur, who was one of the greatest world-conquerors of not only the Turco-Islamic world but also of the entire history of the world.

Although he was not of noble descent, Amir Timur established a brand new administrative organization without any example, shaped the entire history of the Middle East and Central Asia, and made deep impact on world culture.

His life story is truly very inspiring.

7. Imagine your phone rings and it’s you from 10 years ago. If you only had a minute to talk, what would you say? (Yes, I know, buy AAPL.)

I would tell him to do the work he knew well only. Don’t be afraid, you can overcome all obstacles by working firmly. Do everything possible to do good to your family, country, and humanity.

8. What elevator speech would you give children about success in life?

Life is a journey. There is time and place for everything. Try to grasp, and not memorize, your lessons; learn by founding cause-and-effect relationships. Spend your free time by doing what gives you the biggest pleasure. And, always remember that family comes before all.

9. What is the best advice you've ever received, and who gave it to you?

My Kayseri origin stepped in when I went to the United States for my education. People from Kayseri have this financial acumen by birth. The cuneiform script tablets found in Kültepe, 24 kilometers from the center of Kayseri, showed that Assyrians established their great mercantile colonies in Kültepe. In these 4,000-year-old tablets, there are the letters of the Assyrian traders, the first trade agreements of history, bills, and seals. The entrepreneur spirit in me was invigorated by my origins in this city and pushed me to found a company.

Doing business in such a competitive industry at such a young age was really a great challenge. Dr. Fikret Aytaç, one of the founders of Koç Holding, which is among the top industrial groups of Turkey, was my guide. Uncle Fikret would always repeat the Rumi’s words, “I have never seen anyone hungry on the right side, and full on the wrong side.” These frequently-repeated words were the best advice for me throughout my life. You will never end up

hungry if you persistently act with honesty, but you can never win if you go on the wrong way deliberately. You will not benefit from what you may think you have earned.

10. What would you like to see as your life's legacy?

To be a person who managed to change, improve, and make a difference in the world.

11. Who are the people who contributed to your success?

My father and my grandfather, who passed the passion of their life to me.

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Plausible Impact of Mega Sports Events on the Economy and Stock Market of the Host Countries

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Abstract

This article reviews the economic and financial impact on countries selected to host mega sports events, such as the World Cup and the Olympic Games. Mega event includes a large number of visitors, large mediated reach, high expenses, and great impact on the local population and the built environment. The short-term benefits include increases in Gross Domestic Product (GDP), tourism, jobs, stock prices in host countries, and enhanced country-of-origin effect. The long-term benefits include increases in the tax base, infrastructure, energy provisions, tourism, and leisure consumption in host countries, and enhanced country-of-origin effect.

Keywords: Mega sports events, economy, stock market, host countries

Introduction

Mega sport events on a global scale, such as the Olympic Games and the World Cup, are stately and important events for countries around the world. The Olympic Games first began in ancient Greece in the 8th century BC with the name *Olympia*, and in 1894, Baron Pierre de Coubertin founded the International Olympic Committee. The modern Olympic Games have changed and developed over the years, which gave rise to the Winter Games, games for disabled people and athletes with disabilities, and the Youth Olympics. The Olympic Games are considered the world's leading sports competition with more than 200 countries including summer and winter sports competitions with the participation of thousands of athletes in a variety of sports competitions, and they take place once every four years ("Definitions for olympic games," n.d.). The World Cup in soccer started in 1930 the *Fédération Internationale de Football Association* (FIFA) about 40 years after the Olympic Games started. It is the most popular sports event in the world, which attracts billions of audiences in every tournament. The World Cup takes place once every four years, with 32 national teams coming to the final stage (Britannica, 2018).

These events are unique and, although occurring in four-year intervals, are presented as one-time events. For their time, mega sports events were less grand and spectacular; however,

with the development of technology, global communications, and increasing use of social media, and out of a desire to raise awareness, participation, and the potential income of the host country in the short and long term, these sports events have become much larger, more complex, interactive and mass communicated to individuals around the world. The arrival of millions of tourists from all over the world to watch these competitions has a great financial impact for the host country. Therefore, the host countries should be prepared in terms of accommodations, service, hosting, and sports facilities in order to provide the best service and experience (Barreda, 2017).

Hosting a mega sports event comes with many potential advantages and disadvantages. In order to analyze whether it is worthwhile for a country to host mega sports events, it is necessary to examine the economic impact before, during, and after the events. For the host country to benefit from mega sport events, it is necessary that the event total revenues, such as tourism, support services, and other, be higher than the costs of hosting the event, such as infrastructure improvements and services.

Brückner (2015) asserts that when customers and firms respond positively from the announcement up until the commencement of competition, the host country can enjoy lower different variables such as unemployment rates, higher industrial production, and more personal-income. The host country also experiences fluctuations in exchange rates, interest rates, and long-term forward rates. Taken together, the state of the business cycle in the country changes, which can affect the prices of assets in the stock, bond, and other financial markets.

In the past, global travel was costly and slow moving, and travel between countries was somewhat limited to well-to-do people. However, today people can travel quickly and cheaply to almost anywhere in the world. In many countries, such as China, India, and South Africa, there is an upward trend in the number of tourists, which allows the national income and GDP to increase in those countries. This phenomenon reinforces the commitment to develop these countries by combining various sporting and cultural events that will enable them to invest money in the economic development of their region, improve infrastructure, facilities, accommodations, businesses, and the standard of living of residents (Pop, 2016). Mega sports events can revitalize cities that have faded and developed urban problems, and create a change in politics, as in Japan in 1964 (Andersson, 2008).

The fact that undeveloped and developing countries have begun to host mega sports events allows researchers to examine how these big events affect countries with a small and developing economy, compared to their larger counterparts.

An examination of the reaction of the local stock markets is important and significant, but alongside this figure, it is important to examine the market fluctuations, the effect of the news, and the effect on other sectors in the market (Abuzayed, 2013). Ashton (2003) asserted that there are two potential reasons for the expected changes in the stock market. First, there may be an emotional factor that binds the nation to national sports success. Second, the closer the event comes, the greater the media coverage, which raises the expectations of the potential economic impact.

Economic Impact

The bid period for hosting the Olympic Games ranges between 8 and 10 years before the event happens; therefore, this is the timeframe in which relevant parties examine carefully the influence on the economy (Brückner, 2015). The main reason countries are applying to host the

Olympics is the economic impact of these events, prestige, and enhanced country-of-origin effect. Revenues from local and foreign investors drive the economic effects through the development of event infrastructure, additional revenues, fans and competition participants, and the development of short-term employment for the preparation of competition facilities. In the long-term, the host country may increase its tax base; create employment; increase construction such as ports of entry, roads, train lines, and energy provision; and promote tourism and leisure consumption (Cornelissen, 2011).

Mega sports events create a great deal of public interest all over the world, especially in the countries that submit their candidacy for hosting the games. Such events are likely to have a major impact on the regional and national economy through the required public investment; therefore, these decisions affect the general public. These events have great potential to promote and develop mature cities lacking infrastructure (Andersson, 2008). The 21st century has opened many opportunities for the world to expand and develop mega sport events. Global accessibility and inexpensive travel attracts a great many tourists to countries hosting the games (Pop, 2016).

Andersson (2008) explains that the value of the resources in use for production and the assessment of value the events produce are the basis for economic impact. In the past, economic science linked to the philosophy of utilitarianism, and the goal was to increase the overall benefit in society, which included, among other things, the quality of life. Today, the focus is on economic values and market prices; therefore, it does not take into consideration other factors such as traffic, air pollution, and social welfare. Since the hosting of the mega sport events necessitates an increase in accommodations, food supply, transportation, and adequate infrastructure, it is necessary to evaluate the difference between the value produced and costs consumed in order to examine the economic efficiency of the games. Andersson (2008) states that since in the short-term the host countries are not able to earn the same amount they invested, in order to establish the events, some say the efficiency in the short-term is negative. Long-term effects are more difficult to measure because the potential to return the money invested after the games relies mostly on tourism (Andersson, 2008).

Short-term Effects

Brückner (2015) examined the relationship between the economic effects of the host country between the announcement of the games and the date of the event. After controlling for various factors such as climate, continent, language, global business cycle, and differences in per capita income, Bruckner (2015) found hosting countries showed increases in investment, output, and private consumption between seven to nine years before the Olympic Games took place. He also showed that investment increased first, then output and private consumption growth.

Another effect the study shows is a significant increase in host country real per capital growth GDP about five years before the event begins. However, the peak of the growth occurred about four years before the competition date and stood at two and a half percentage points in the GDP per capital index (Brückner, 2015).

The significant increase in GDP per capital is the result of a large and positive increase in the volume of investments, which rises with the peak output effect. In addition, the researchers found that the consumer price index and the nominal exchange rate among the hosting countries increased. The rise in consumer prices index occurs about five years before hosting games while the nominal exchange rate about seven years before. Nevertheless, in a situation in which the country that will host the Olympic Games discovers it made the economic wrong decision, the

dimensions above will return to the original index relatively quickly (Brückner, 2015).

Since many variables exist surrounding the announcement of the hosting of the Olympic Games, such as changes in infrastructure and the number of tourists, the structure of development of the economy cannot always indicate an unequivocal reason of the rise of various variables. What researchers have found is that the kind of publicity, positive or negative, can have an impact on GDP growth, inflation, and exchange rates (Brückner, 2015).

While the tourism industry is one of the dominant economic brands in general, and especially when talking about hosting mega sports events, examining the trend around the event is important. Pop (2016) asserted that an increase is visible in world tourism revenues from \$526 billion to \$1.434 billion between 1996 and 2015, which mainly political, demographic, social, and economic drivers influenced. In countries such as China and Russia, which have hosted mega sports events such as the Olympic Games and World Cup in recent years, the number of incoming tourists was massive and measured 55.6 million in China, which ranked 4th in the world. Russia, with 29.8 million tourists, ranked 9th in the world. Local businesses and all citizens who benefit from improved infrastructure enjoy the increase in the number of tourists. At the same time, however, an examination of the number of tourists who entered China a year before the games, and up to three years later, shows that the number of tourists fluctuated. Nevertheless, thanks to the hosting of the Olympic Games, China built a reputation for attracting a great many tourists from all over the world (Pop, 2016).

Long-term Effects

Since the competition between countries is increasing and more countries are submitting their candidacy to host mega sport events, countries are taking extreme steps to improve various factors, such as reducing air pollution, cutting off the industrial activity, and restricting auto traffic (Pop, 2016). Another factor that has grown in the country hosting mega sports events is tourism. Growth in tourism in a host country can lead to economic growth and additional jobs in the long term (Preuss, 2007).

However, since the mega sports events require a very large amount of investment but with unpredictable expectations and revenues, and risky financial exposure, some countries end in financial failure as happened in Greece in 2004. In this situation, what remained was damaged reputation and pride in hosting the Games. In order to prevent economic collapse after hosting the Games, while a country is building the budget for the Games it must consider the country's GDP index in use to assess the economic strength of the country (Pop, 2016).

Another example for an extensive financial expenditure occurred in the Winter Olympic Games in Sochi, Russia, for which the competition was the most expensive in history. Hosting the Winter Olympic Games brought a great many benefits to Russia such as rapid city development, broad infrastructure construction, an increase in the number of employed persons, and an increase in the number of tourists. However, for these Olympic Games, the country built six new stadiums without any designation after it hosted the Games. Even the facilities that had a plan for use after it hosted the Games required very high additional costs in order to accommodate the facilities for the new use as well as annual expenses for the facilities. Krasnodar Krai, the company that built and maintained these facilities, was in bankruptcy shortly after the Olympic Games because the expenses of building and operating the facilities after the Games led to very large amount of damage (Müller, 2014).

Brückner's (2015) study examined the existing effect on host countries after the end of

the Games. Up to six years after the Olympic Games, a positive effect on output and private consumption is visible, while investment falls two years after hosting the Games. The study found no significant change for other variables such as government consumption expenditure, the consumer price index, and the nominal exchange rate. Therefore, when examining the economic benefits that the countries hosting mega sports events gain, in the long term, it is not significant, and most of the benefits will appear in the years preceding the games, but not after.

Stock Market Reaction

Since the stock market and asset prices have the potential to feel the effects of huge news such as hosting mega sports events, two theories can explain the phenomenon: the first is the rationality existing in investors, while the second relies on the fact that investors are irrational – that is, behavioral finance. After the announcement of the hosting of a sporting event, three expected price trends are visible: positive, negative, and no change. The expectation is that international exposure related to the event, the improvement of the public infrastructure, and the doubling of revenues to bring net economic gains will lead to positive effects on the aggregate market. The stock market index shows the economic base of the country, and relevant information for investors for the future of the country and its corporations. Therefore, if as a result of the announcement, the investors expect the benefits to outweigh the costs, it is reasonable to assume that stock prices will increase, and vice versa. Another aspect of influence is the psychological factors, which often lead the stock market to react beyond the economic fundamentals (Abuzayed, 2013).

In recent years, major sports organizations, such as FIFA, have decided to allow small countries to host mega sports events. Qatar, which has 1.8 million residents, will host the 2022 World Cup and is an example of a country that now has an opportunity to develop its economy and infrastructure. Since a variety of factors influence the long-term effects of mega sports events, Abuzayed's (2013) study examines three main areas: (1) whether there was a positive market reaction in the national stock exchange from the moment the mega sports event was announced; (2) whether certain markets are producing more benefits and positive market response from the events; and (3) what the impact of the announcement was not only on the host country but also on the other countries associated with it economically.

However, since discussions were hinting at a bribe for the purchase of the World Cup tournament by Qatar in the international community, commentators reported that there was a decline in the attractiveness of hosting the game in the country around the world (Brannagan & Giulianotti, 2015). This study showed that share prices in Qatar rose, but stock prices did not rise in countries with a regional economic relationship with Qatar. In addition, a review of shares in different Qatari industries – including services, insurance, manufacturing, banking, and finance index – revealed that the services industry was the most affected sector. This is not surprising given that mega sports events are expecting a high level of service that includes the development of tourism in the country (Abuzayed, 2013).

An example of a country that fell financially after hosting the Olympic Games is Greece, which hosted the Games in Athens in 2004. Greece invested in setting up the Olympic Games more than five percent of the country's annual GDP, which led it to invest \$12 billion. Floros (2010) examined three trends of the financial influence of the Olympic Games in Greece. He first examined whether the Athens Olympics had an impact on the general Athens Stock Exchange (ASE) index. Then, he observed whether the Olympic Games were having an impact on the

pricing of the sponsors traded on the ASE. Finally, he studied the effect of the winners of the ASE. The study included data from before the announcement of the Olympic Games in Athens until after the end of the events. In addition, the data came from the official sponsors, which were Coca-Cola, Alpha Bank, OTE, and Cosmote. The result of the study showed a slight, but insignificant, positive impact of the Athens Olympic Games in the general index of the ASE. In addition, despite the large amount of money the sponsors invested in the events, no change in the price index emerged in Coca-Cola, Alfa Bank, or Cosmote; however, a positive and significant influence was visible in OTE. In the end, the impact examined that observed the effect of the Greek winners on Olympic medals on the ASE General index found positive in gold and silver medals (Floros, 2010).

Conclusions

Mega sport events are a powerful experience for athletes, fans, participating countries, and especially for the host countries. The country that hosts mega sports events such as the World Cup or the Olympic Games has a great deal of responsibility to provide high service and experience to all participants; nevertheless, it must consider the expenses for establishing these events since the future direction of the country or its political establishment may depend on their decisions. In addition, the host country should examine the potential for return on investment when calculating expenditure. A great many studies separate the benefits and the consequences for short-term and long-term benefits of the host country. In the short term, for example, in Veraros's (2004) study of the Olympic Games in Sydney in 2000, statistics showed that the GDP grew from 6.4 to 7.3 billion dollars, and tourists increased by 1.3-1.5 million, and new jobs increased to about 90,000 employees six years before and after the Olympics. In addition, in the short term, if the expectation is that the stock market will have a positive profit opportunity, it is reasonable to assume that more investors will buy shares and that their prices will increase (Abuzayed, 2013). In contrast, in the long-term, the expectation is for an increased tax base; construction such as ports of entry, roads, train lines; and energy provision, tourism, and leisure consumption to occur in host countries (Cornelissen, 2011).

The hosting of mega sports events requires a great deal of resources, and thus, the committees that choose the host country should examine in depth the country's ability to meet these expenses, to receive a return of the money in the future, and most importantly, to ensure that the country has enough collateral to prevent the country's collapse after hosting the events.

The economic and financial effects of the host countries are clear but fluctuate; and in some sectors, such as the stock market, GDP, and return on investment, there is room for improvement. Some expressions of the problems arise at the end of the events because many large sports facilities are not in use and have large expenses. As part of the construction of the mega sports events hosting program, there should be deeper and better thinking about the use of these facilities after the events' future use of these facilities to promote the community, reimburse expenses, and provide places to work for citizens. The tremendous pride in hosting mega sports events is important, but future economic prosperity and positive county-of-origin-effect should be the country's primary concern.

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Discussion Questions

1. What is the relationship between the short-term and long-term effects?
2. Where can a higher impact in the host country be seen? In the short-term or long-term?
3. What types of effect are most significant and why?
4. Are the short-term advantages and disadvantages also affecting the long-term, and if so, in what way?
5. What difficulties can appear in the host country before, during, and after hosting Mega Sports events?

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Marriott International: Exploring and Understanding Disruption in the Hospitality Industry in South Florida

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Abstract

This article explores and seeks to understand disruption in the hospitality industry in South Florida through a detailed evaluation of the Marriott International, Inc. hotel company. Using interviews, research, and brainstorming, the authors develop four specific disruption ideas for Marriott and an action plan for their implementation. The concept behind these disruptions is to create new revenue streams to maximize the use of existing resources without major investments.

Keywords: hospitality industry, disruption, revenue streams

Introduction

In this article, we explore and seek to understanding disruption in the hospitality industry in South Florida through a detailed evaluation of the Marriott International, Inc. hotel company.

We tackle this project with two distinct approaches.

Methodology

Approach 1: Fact Finding. First, we visited several Marriott hotels operating under different brands in Miami-Dade County, Florida. We then conducted personal interviews with various industry leaders who gave us great insight into the hotel industry (see Interview References).

Approach 2: Research. This approach included reviewing news articles, Marriott's Annual Report and 10K, and several other data sources that we reference throughout the article. We used the information to analyze trends and facts of the industry. We then used Tableau to produce several charts and visualizations that help to illustrate our findings.

Brainstorming. Finally, we had several brainstorming sessions and came up with four specific disruption ideas for Marriott and an action plan for their implementation. The concept behind these is to create new revenue streams to maximize the use of existing resources without major investments. In our report, we dive into the history of Marriott and analyze the scope within the industry.

Marriott: A Brief History

Marriott is a company not unfamiliar with disruption and innovation. In fact, the Marriott website shows that J. W. Marriott, together with his wife Alice, and his partner Frank Kimball, opened Hot Shoppes as A&W Root Beer stands in 1927. In 1953, Hot Shoppes became a publicly traded company and in 1957 opened its first motor hotel in Virginia. Through its history, J. W. Marriott and family have successfully navigated disruption such as the Cuban Missile Crisis, the Oil Embargo in the 1970s, and the Cold War. Marriott continued to innovate in the 1980s by offering the first automated reservations system in the hospitality industry and in the 1990s by offering the first website in the industry. Most innovative, and pioneering, was the strategic decision to separate the real estate from the hospitality management business throughout the 1980s, culminating with a restructuring in 1993, the year in which the company divided into Marriott International and Host Marriott Corporation. The former became the operating company with long-term contracts, and the latter owned the real estate. Host Marriott Corporation became the largest hospitality Real Estate Investment Trust.

Since the late 1990s, Marriott International has continued to expand through organic growth and acquisitions of complementary hotel companies such as The Ritz-Carlton Hotel Company, Renaissance Hotel Group, ExecuStay Apartments, and Gaylord Hotels Brand. Most notably, Marriott International acquired Starwood Hotels & Resorts in 2016, creating the world's largest hotel company (Marriott International, 2019). In early 2019, Marriott International combined loyalty programs from previous acquisitions to launch a unified customer loyalty platform called BonVoy, a strategic move to secure customer loyalty and attract customers to its website (Slotnick, 2019).

Industry Analysis

Marriott International is an incumbent in the hospitality industry. The global hotel industry retail value is worth \$570 billion USD (Statista, 2019), with the U.S. hotel industry

taking about a third of the revenue, valued at \$208 billion USD (see Exhibit A). The hotel industry measures itself with three main Key Performance Indicators (KPIs): Revenue per Available Room (RevPAR), Average Daily Room Rate (ADR), and Occupancy. Marriott outperforms the U.S. hotel industry in all three KPIs (see Exhibit B). When analyzing the market in Greater Miami-Dade County, we found that 86% of visitors come with the purpose of Leisure/Vacation while only 7% come for business (Greater Miami Convention and Visitors Bureau, 2017). When performing a deeper analysis of Marriott's target segmentation, we determined that Marriott has a target market of 11.29 million people (see Exhibit C).

The main competitors within the hotel industry are Marriott, Hilton Worldwide, Wyndham Hotel Group, Host Hotel & Resorts, Hyatt Hotels, Oriental Land, Accor, and InterContinental Hotels Group (see Exhibit D). These major players compete against one another in an oligopoly market. Marriott, the main player, generated \$22.3 billion in revenue in 2017. This is 145% more than its closest competitor, Hilton (see Exhibit D). Marriott has innovated continuously with its 30 distinct brands and unique hotel offerings to target different segments of the market by delivering on its value proposition of quality service and by staying alert to disruptive forces in the global economy and within the hospitality industry.

How Competition Affects Market Structure

We identified two main dimensions of competition within the hotel industry: reputation and offerings. In the first dimension, hotel companies around the world compete on reputation. Marriott has built its brands on the values of service excellence and reputation. Consumers thus have developed loyalty to these brands, and they choose them based on previous experience and recommendations and the knowledge that they will receive consistently the level of service they expect, as opposed to peer-to-peer rental platforms. The second dimension of competition, based on offerings, refers to the industry's effort to appeal to a wide range of customers at all price levels. Thus, the hotel industry also competes on location, amenities, and other offerings to attract consumers based on the market tier in which they compete. Therefore, over time, the industry has created a structure of six tiers based on average daily rate. These tiers are the following: Economy, Midscale, Upper Midscale, Upscale, Upper Upscale, and Luxury. Marriott's brands compete only in the Upper Midscale tier and above (Exhibit F).

Marriott's Dimensions of Competition

As the world's leader in the hotel industry, Marriott invests into three main components: innovation, personalization of service, and human resources. Marriott's achieved its reputation of high-level customer service by placing the customer at the center of its decisions and operations. Over time, the company has launched initiatives that create value for consumers by answering to their specific needs without offering a one-size fits all approach. For example, Marriott's BonVoy, its new loyalty program, offers unique experiences such as Backstage tickets to the 2016 Emmys or a two night stay at the original Hangover Movie Suite at Caesars Palace, in Las Vegas. Its focus and dedication to training and development at all levels of the organization has allowed the company to thrive. When it comes to quality standards, Marriott ensures the level of service is consistent with the brand expectations across the board. Unlike peer-to-peer rentals, by having strong standard operating procedures in place, Marriott guarantees it can monitor and replicate excellent service.

Business Model: Marriott's Strategy to deliver on its Value Proposition

After pioneering the asset-light model in the hospitality industry, Marriott became an operator, franchisor, and licensor of hotel, residential, and timeshare properties, operating under an umbrella encompassing more than 30 brands and targeting different segments and geographies. "At year-end 2017, we had 1,959 company-operated properties (554,642 rooms), which included properties under long term management or lease agreements with property owners, properties that we own, and home and condominium communities for which we manage the related owners' associations" (Marriott International 10K, 2019, n.p.). The asset-light model has allowed the company to operate with limited fixed costs and has freed up capital to invest in variable costs, which often translate into meaningful innovations and a better delivery on its value proposition.

Corporate Social Responsibility

Marriott's success does not focus solely on the corporate financial performance but also on its social performance. According to Marriott International's Corporate Social Responsibility website, its core mission is SERVE 360: doing good in every direction. This means it has a compass that focuses on four different angles: Nurture, Sustain, Empower, and Welcome. Nurture focuses on the vitality of children, community engagement, disaster relief, and natural capital investment. Sustain is geared toward reducing environmental impacts, building and operating sustainable hotels, and local sourcing. With Empower, Marriott creates opportunity among people. It partners with nonprofits to help create jobs for youth and people of diverse backgrounds, women, people with disabilities, veterans, and refugees. For the fourth angle, Welcome, Marriott collaborates with nonprofits that implement training, awareness, and advocacy for the respect of human rights. Marriott allows its guests to donate their reward points to the different nonprofits with which it is in partnership. Some partners include UNICEF, Clean the World, Youth Career Initiative, and Immigration Equality.

SWOT Analysis and Vulnerability to Disruption

Marriott has a worldwide presence with properties in 130 countries and the largest inventory in the hotel industry, with 1.3 million rooms (Tully, 2017). One of its biggest **strengths** is their adherence to operational norms to ensure consistency and transparency in operations. The company has a robust workforce of over 177,000 employees who receive excellent training in the art of customer service at the different levels of its brand offerings (Tully, 2017).

The company's heavy dependence on Online Travel Agencies (OTA's) such as Expedia, Booking.com, and Priceline.com to drive reservations, represents a significant **weakness** (Tully, 2017). Marriott has **opportunities** to drive traffic directly to its own sales channels (via its website, reservations systems, and app), circumventing the OTAs and maximizing RevPAR.

The outlook of an economic downturn is a **threat** to the entire tourism industry. As consumer spending declines, companies may have to let go of those properties that are lagging in revenue. Another danger to operations is terrorist attacks, inclement weather such as hurricanes, and diseases. In fact, in an interview we conducted with Brandi Sanchez, she stated, "Health threats such as the Zika virus affected travel to South Florida in 2017" (n.p.). Fluctuations in the

global economy and currencies also affect global and inbound travel to the U.S. and, in turn, influence the demand for hotel rooms.

Hospitality Industry Disruption

The hospitality industry has a history of disruption. Over the years, the need to adapt to the changing demands of the consumers has disrupted the industry. An example of this was the Marriott Automated Reservation System for Hotel Accommodations (MARSHA), which Marriott launched in 1986, improving efficiency in operations. In today's fast-paced innovation and disrupting environment, technology and communications are changing the way people plan and book travel. We identified three major sources of disruption in the industry: peer-to-peer rentals, online travel agents, and loyalty programs.

Peer-to-Peer Rentals. Airbnb is the best-known disruptor in this category. Airbnb has become the platform of choice for those using peer-to-peer solutions, even when competitors may have the same or more inventory on their websites. In South Florida, 9 out of 10 visitors booked through Airbnb when booking a peer-to-peer rental in 2017 (Greater Miami Convention and Visitors Bureau, 2017). It is important to point out that these peer-to-peer platforms have not taken a significant portion of the overall industry revenue, but they have disrupted the way people make bookings. They also have disrupted the overall industry by creating more supply in the market, especially in high-demand concentrated areas. They have forced hotels to keep their prices low during high-demand dates such as New Year's Eve; as more properties come on the market, supplies goes up and individual demand for hotel rooms goes down. The hotel companies had to respond with improved booking solutions and offering revamped loyalty programs. In this reaction, the large hotel chains have shown their ability to respond quickly to disruption in the industry.

Online Travel Agents (OTAs) have been the real disruptors in the hospitality industry in the last 20 years (Tully, 2017). The ability to book a complete trip (including hotels, flights, and car rentals) in one place has proven very successful. In 2015, the bookings OTAs completed were growing at 33%, while the bookings through the main hotels' websites were growing at just 5%, a gap of 28%. The industry showed its muscle, and the gap narrowed to 7% by 2018. Hotels did this by attracting customers back to their websites (Tully, 2017). The hotels invested in loyalty programs and improved their booking platforms. Marriott's acquisition of Starwood in 2015 was, in part, due to the need to increase its negotiating power against the OTAs (Tully, 2017).

The OTAs and the peer-to-peer platforms have been industry disruptors. However, a larger possible threat to the hotel industry is the **online giants** such as Amazon, Google, and maybe even Apple (Tully, 2017). These companies can use their monopolistic power to ensure visibility to any enterprise they want to promote. Similarly, they could ensure Marriott receives a low SEO ranking for a consumers looking to book a hotel, representing the real threat to hotel companies, possibly forcing them out of business (Tully, 2017). Marriott, as other large hotel chains, quickly deployed strategies to deal with these disruptions:

The BonVoy Customer **Loyalty Program** consists of more than 120 million members and creates seamless communication, booking, and sales as well as an application to enhance the user experience. This is a great example of how Marriott creates disruption within its own industry. The company believes the seamless use of its application for bookings will attract customers to its own booking system, rather than that of OTAs. The strategic acquisitions of

brands, such as Starwood, have given Marriott stronger negotiating power, in particular with the OTAs. This is reflected in the recent agreement with Expedia that lowers commissions for Marriott to 12%, significantly below the industry average of 15% to 18%. The aforementioned disruption strategies have manifested by the increase in the Key Performance Indicators company wide. In 2018, Marriott saw Revenue Per Available Room, Occupancy, and Average Daily Rate increase companywide. This is even more impressive considering the continued addition of lodging unit supply.

Disruptive Recommendations

During our brainstorming sessions, we generated four ideas that Marriott could implement as tools to innovate, create further disruption, and increase revenue. Marriott's occupancy rate is in the 70% to 80% range (Marriott International, 2019), meaning a significant portion of resources sit idle, creating opportunities for new revenue streams.

Our first suggestion, which we call ***Siesta***, offers rooms by day for business travelers who need a break between business meetings, or flight layovers, or both. Guests would be able to reserve a room between 10 a.m. and 4 p.m. in any of the participating Siesta locations. They can make reservations directly via the BonVoy app, earning or using BonVoy points. Our second idea, which we call ***Agenda***, aims at the business market, and allows remote employees and business travelers to see availability for conference rooms and meeting spaces in real time. Users are able to book a space online, or using the BonVoy app, without the tedious process of filling out a Request for Proposal (RFP) form and interacting with a sales agent. The third recommendation, which we call ***BeachHouse***, we designed with families in mind. Amenities include access to oceanfront rooms plus all property amenities such as the pool, beach, gym, and recreational areas. Rooms are available between 10 a.m. and 6 p.m. and often are available as last minute deals, attracting locals and staycationers who like to indulge every now and then. Last, we suggest Marriott adopt ***LuxePool***, an idea that enables locals and tourists to access the highly coveted pool area and private beach at any of the participating hotels. LuxePool guests pay a fraction of the traditional nightly rate for a LuxePool pass, thus targeting individuals who would not pay to stay at the hotel but still place a high value on visiting and spending the day on the premises.

Since the traditional industry indicators would not be able to track the success of these initiatives, we developed a set of performance indicators that track revenue by **daypart**. We also developed a tentative action plan that includes developing quick prototypes during a pilot phase (see Exhibit E).

Conclusion

As the incumbent in the hospitality industry, Marriott has a culture of innovation and disruption. Historically, Marriott has been at the forefront of the changes in the industry. New ways of communication and new technologies are changing the way people book hotel rooms, and new platforms are creating new supply of lodging alternatives. Marriott, similar to other large hotel chains, has responded quickly to this disruption by disrupting itself, acquiring strategic brands, launching new and enhanced loyalty programs and booking systems, and using its size and power for strategic negotiations. In this transformation, Marriott has stayed loyal to its DNA, keeping the focus on CSP, its employees, and its customers.

Based on our analysis and findings, we proposed four actions for Marriott to implement that will improve the utilization of idle assets and generate new sources of revenue at a low marginal cost. Each of these proposed actions target different segments of Marriott's customer base and build on the existing company values, systems, assets, and brand.

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Exhibits

Exhibit A

Revenue of U.S. Hotel Industry v. Marriott (in USD) (Statista, 2019)

Revenue Hotel Industry vs Marriott

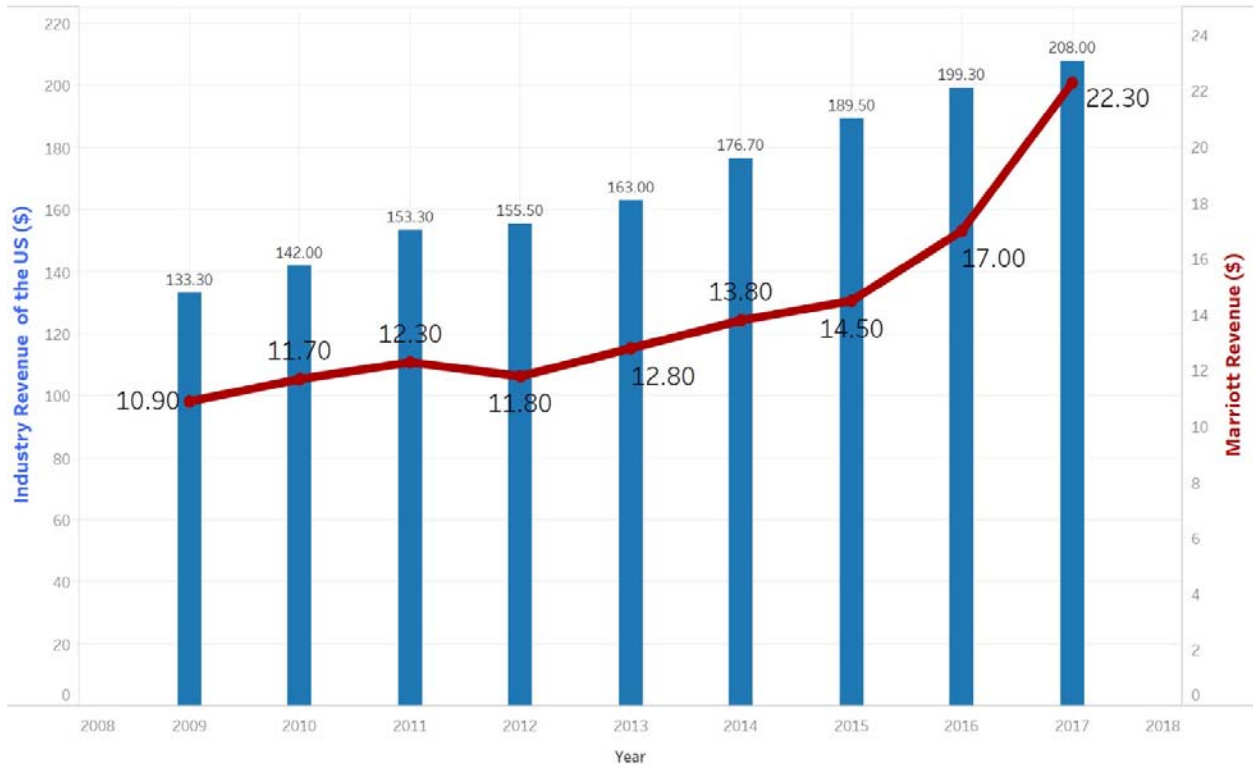


Exhibit B

Key Performance Indicators for Hospitality Industry (STR Report and Marriott 10K, 2018)

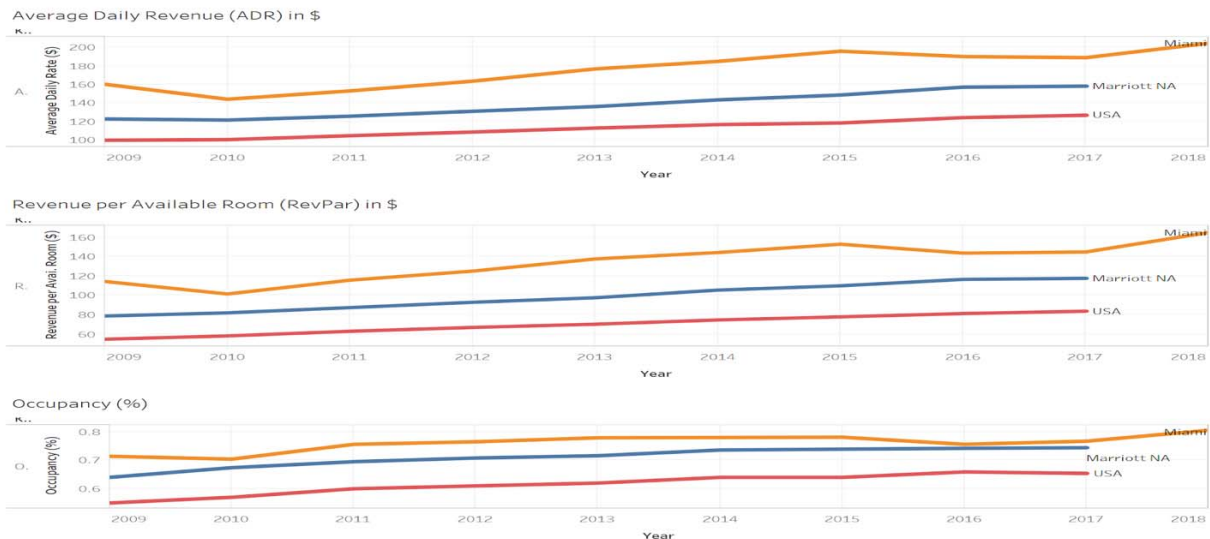
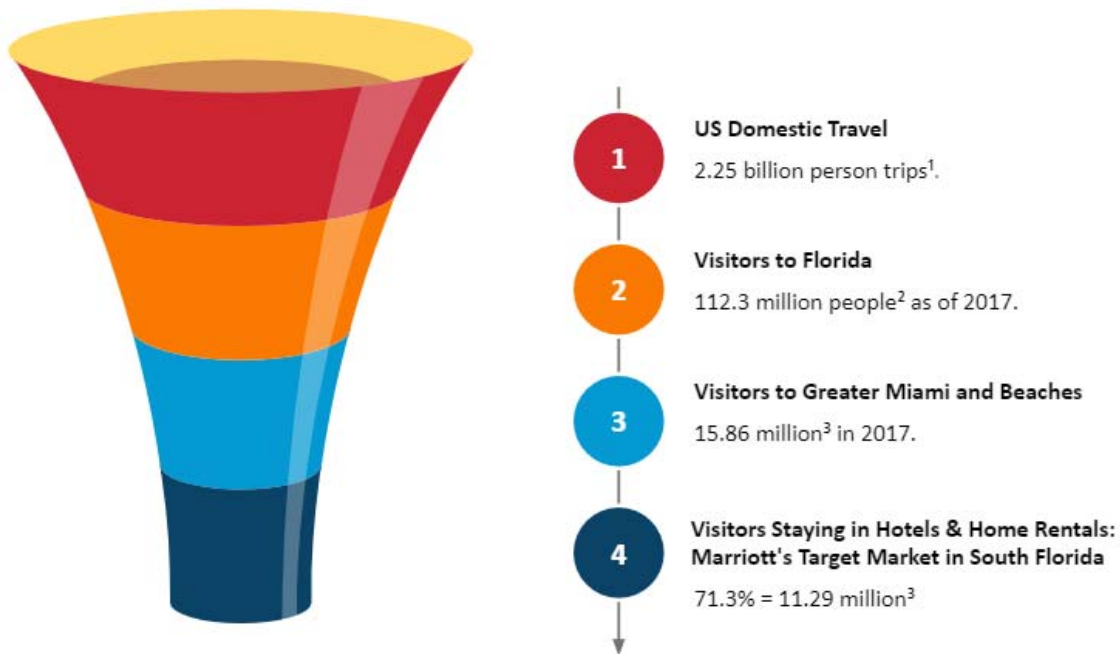
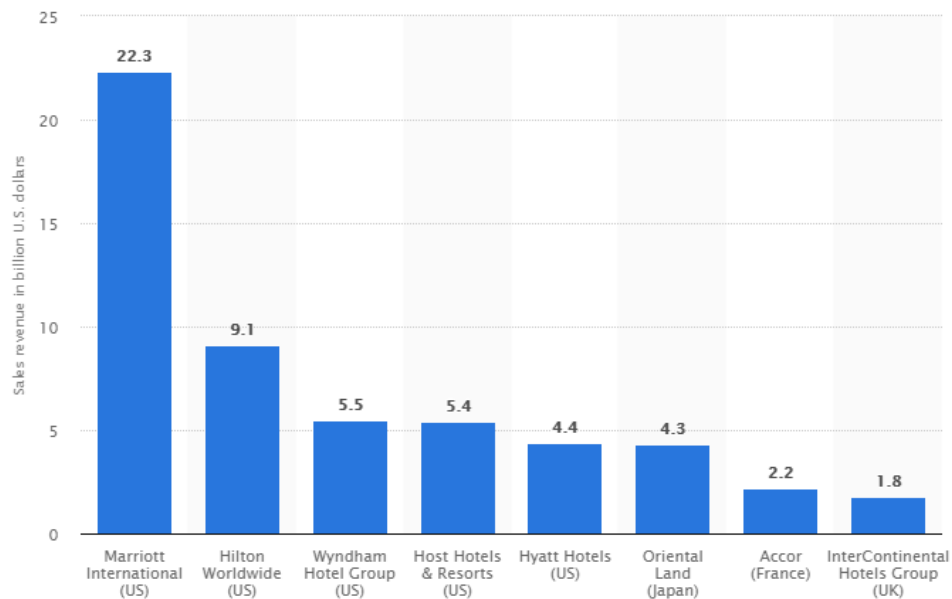


Exhibit C
Marketing Funnel (designed by Cristina Urdaneta, 2019)



Sources: 1. https://www.ustravel.org/system/files/media_root/document/Research_Fact-Sheet_US-Travel-and-Tourism-Overview.pdf
2. <https://www.visitflorida.org/media/37150/2017-2018-vf-marketing-plan.pdf>
3. Greater Miami Convention and Visitors Bureau (2017).

Exhibit D
Hotel Industry Global Revenue by Brand 2017 (in USD, billions) (Statista, 2019)



© Statista 2019

Exhibit E
Proposed Ideas and Action Plan (PowerPoint, Babson Blended MBA Group Three, 2019)





				
Description	Offers rooms by day for business travelers who need a break between meetings or airline layovers	Conference and Meeting space rental platform for the last minute meetings by hour or by day	Provides Oceanfront day rooms on short notice for locals who live in the City or Suburbs	Amenities only daily access and billing account for the finest resort locations
Idle Asset	Rooms and Amenities	Business Amenities	Rooms and Amenities	Resort Amenities
Target Segment	Business Travelers	Business Travelers/ Remote Employees	Locals/ Staycationers	Locals/ Staycationers
Tier	Upper Midscale	Luxury	Luxury	Upper Midscale
Action Plan: We activate existing spaces and Infrastructure with minimal capital expenditures				
Step 1: Launch Pilot Program - Prototyping Step 2: Once concept is validated: <ul style="list-style-type: none"> • IT Integration • Launch marketing campaign: Social Media, TV, Print, Direct Mail, and Email Marketing • Strategic Alliances with complimentary services • Housekeeping Operations • Revenue Operations 			Step 3: Monitoring performance with various KPI's <ul style="list-style-type: none"> • Rev by Daypart • Occupancy by Daypart • RevPAR • Occupancy • Bookings per month • Time to book • Net Promoter Score 	

Exhibit F
Hotel Industry Tiers based on Average Daily Rate (STR Data 2018)

	Economy	Midscale	Upper Midscale	Upscale	Upper Upscale	Luxury
Marriott			  	  	  	  
Others	  	  	  	  	  	 

Appendices

Appendix A

Airbnb vs. Hotels in Miami-Dade (Ruiz, 2017, cited in Herrera, 2017)

Airbnb vs. hotels in Miami-Dade

Data and analytics firm STR has released the first comprehensive report comparing the hotel industry and home-sharing platform Airbnb. The key takeaway? Airbnb accounts for a small percentage of the total demand in the lodging industry, but it is growing, and so is its influence in the tourism industry.

Airbnb's share of supply, demand and revenue in the overall lodging industry*

Supply **8.5%**



Demand **3.6%**



Revenue **2.8%**



Hotel and Airbnb occupancy*



Hotel



Airbnb

Hotel and Airbnb average daily rate*

\$169



Hotel

\$149



Airbnb

*All numbers represent a 12-month moving average from July 2015 to July 2016.

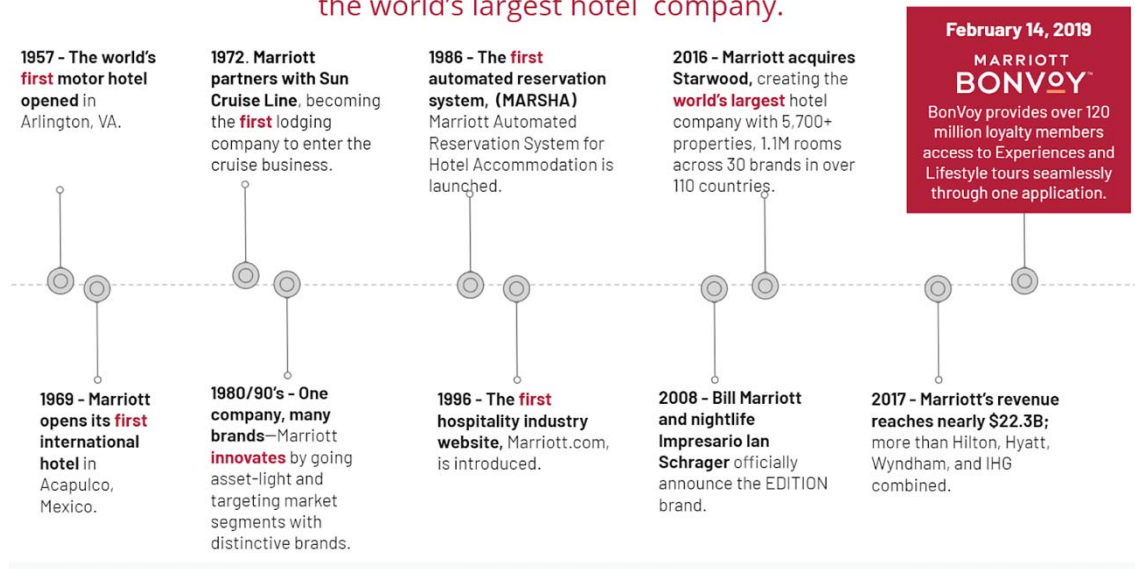
Source: STR analysis of Airbnb and hotels from Dec. 1, 2013 to July 31, 2016.

MARCO RUIZ mruiz@miamiherald.com

Appendix B

Timeline of Marriott (PowerPoint, Babson Blended MBA Group Three, 2019)

J. Willard and Alice Marriott opened a nine-seat A&W root beer stand in 1927, and now Marriott International is now the world's largest hotel company.

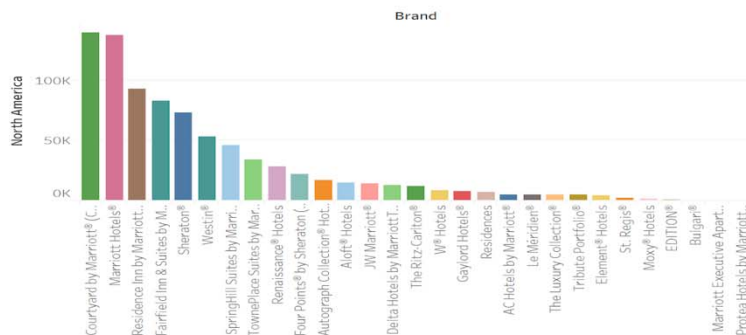


Appendix C

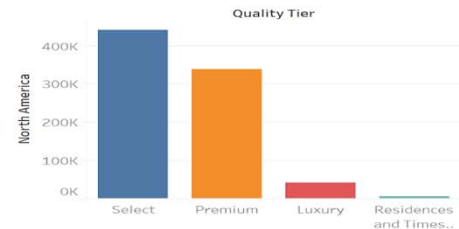
Marriott North America Room by Brand and Quality Tier (Marriott International, 2018)

Marriott North America Room by Brand and Quality Tier

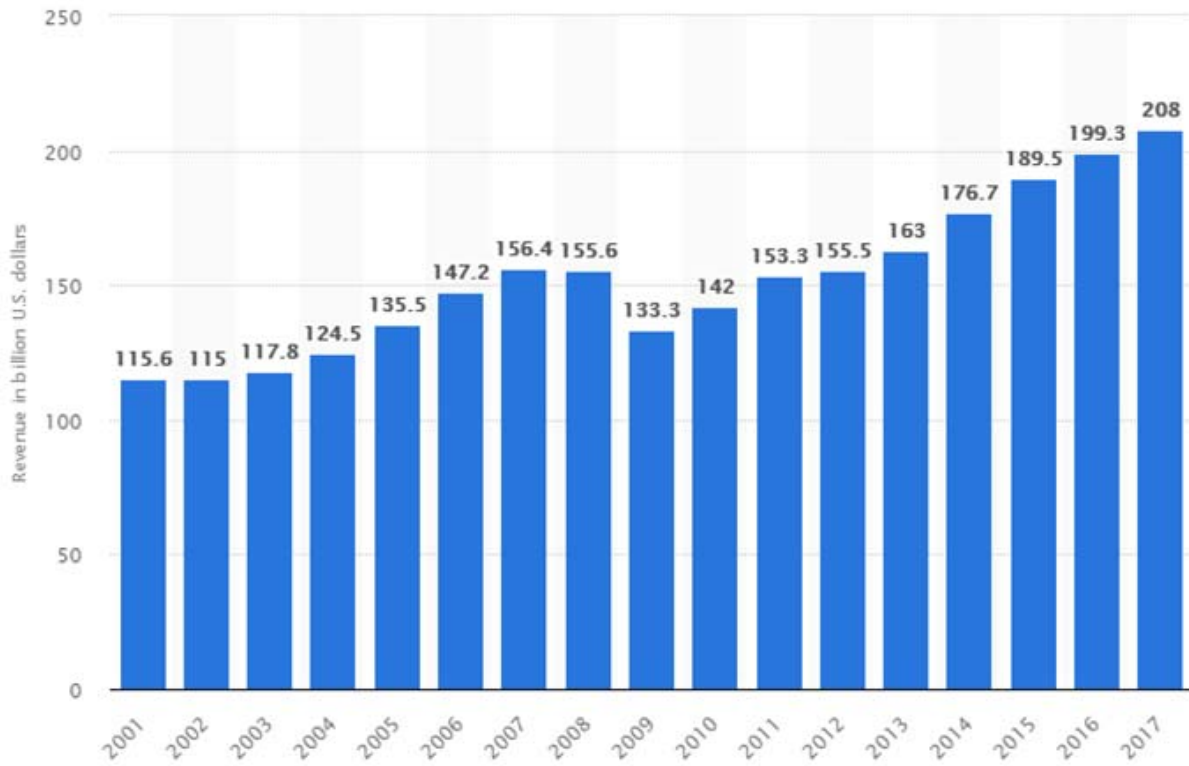
North America Rooms by Brand



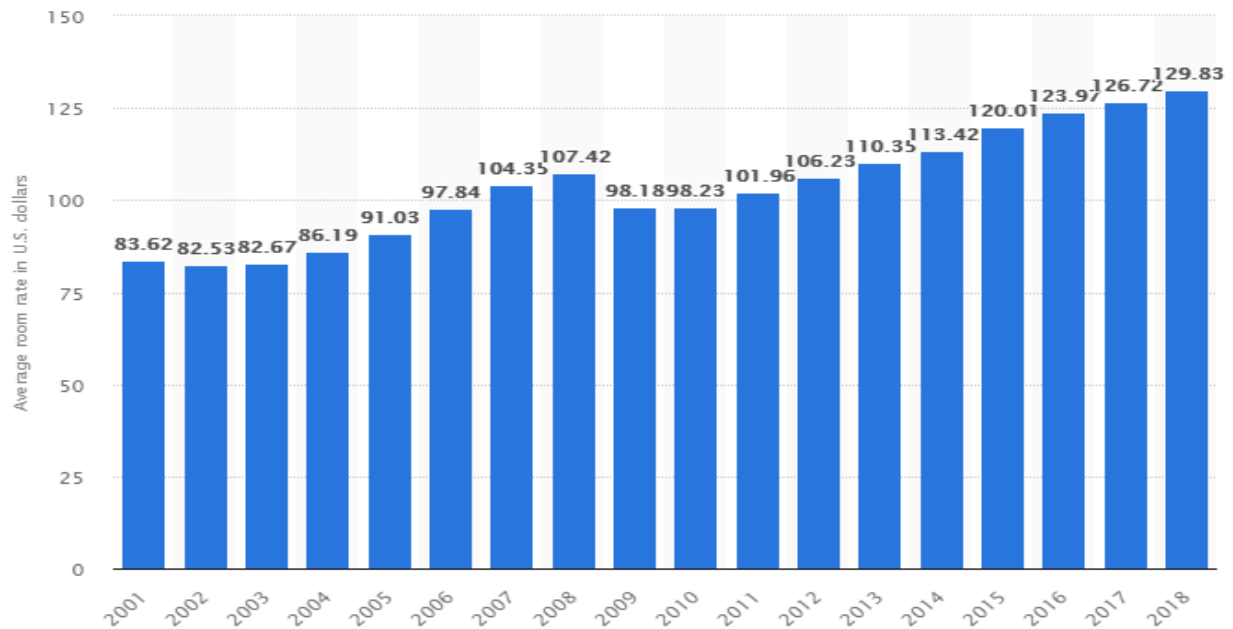
North America Rooms by Segment



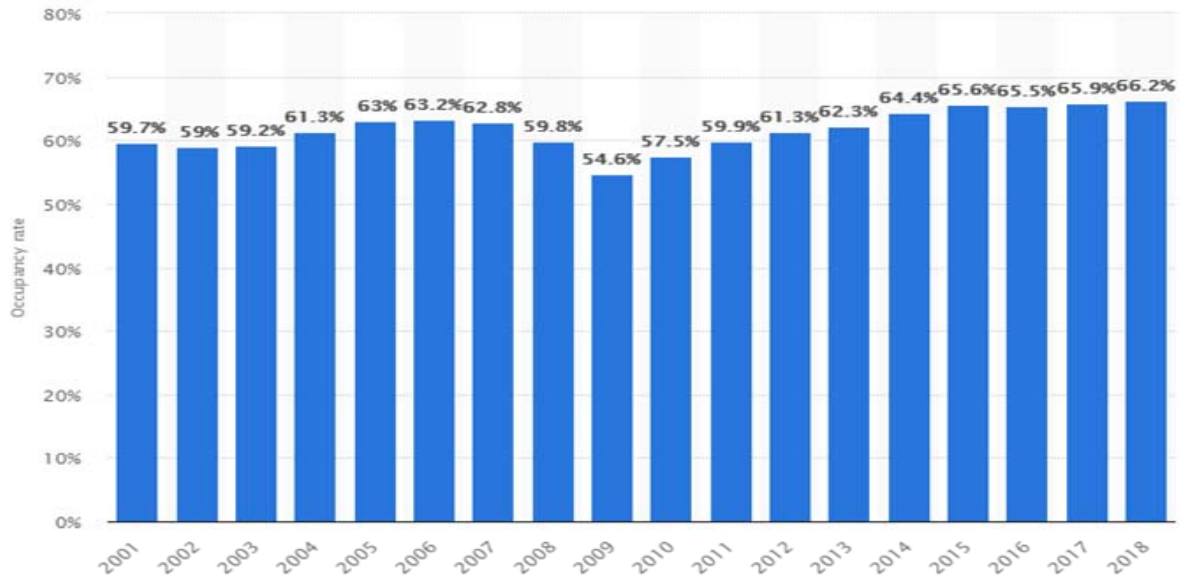
Appendix D
United States Hotel Industry Revenue (2001-2017) (in USD billions) (Statista, 2019)



Appendix E
Average Daily Rates (in USD) (2001-2018) (Statista, 2019)



Appendix F
Occupancy Rates (2001-2018) (Statista, 2019)



Appendix G
U.S. Lodging Industry (STR Host Almanac, 2018)

Looking Back: The U.S. Hotel Industry in Charts and Graphs

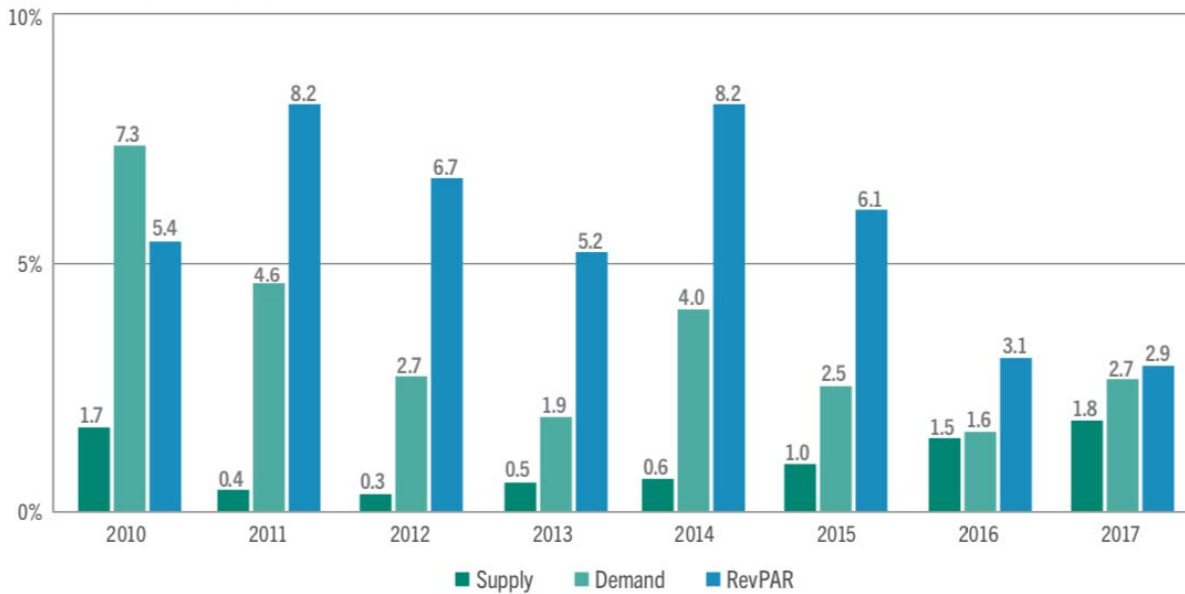
U.S. Lodging Industry: A Decade of Selected Performance Measures (2008-2017)

	Occupancy (%)		ADR (\$)		RevPAR (\$)		Supply	Demand	GOP	EBITDA*
	This Year	% Change	This Year	% Change	This Year	% Change	% Change	% Change	RTS	RTS
2008	59.8	-4.8%	107.37	2.9%	64.24	-2.0%	2.4%	-2.5%	36.8%	24.9%
2009	54.6	-8.8%	98.16	-8.6%	53.55	-16.6%	2.8%	-6.2%	32.0%	19.2%
2010	57.6	5.6%	98.02	-0.1%	56.45	5.4%	1.7%	7.3%	33.1%	20.9%
2011	60.0	4.2%	101.75	3.8%	61.05	8.2%	0.4%	4.6%	34.5%	23.1%
2012	61.4	2.4%	106.04	4.2%	65.13	6.7%	0.3%	2.7%	35.5%	24.1%
2013	62.3	1.4%	110.03	3.8%	68.51	5.2%	0.5%	1.9%	35.8%	24.2%
2014	64.4	3.4%	115.15	4.7%	74.12	8.2%	0.6%	4.0%	37.4%	25.9%
2015	65.4	1.5%	120.33	4.5%	78.64	6.1%	1.0%	2.5%	38.4%	26.8%
2016	65.4	0.1%	123.94	3.0%	81.08	3.1%	1.5%	1.6%	38.2%	26.4%
2017	66.0	0.8%	126.54	2.1%	83.46	2.9%	1.8%	2.7%	37.4%	25.7%

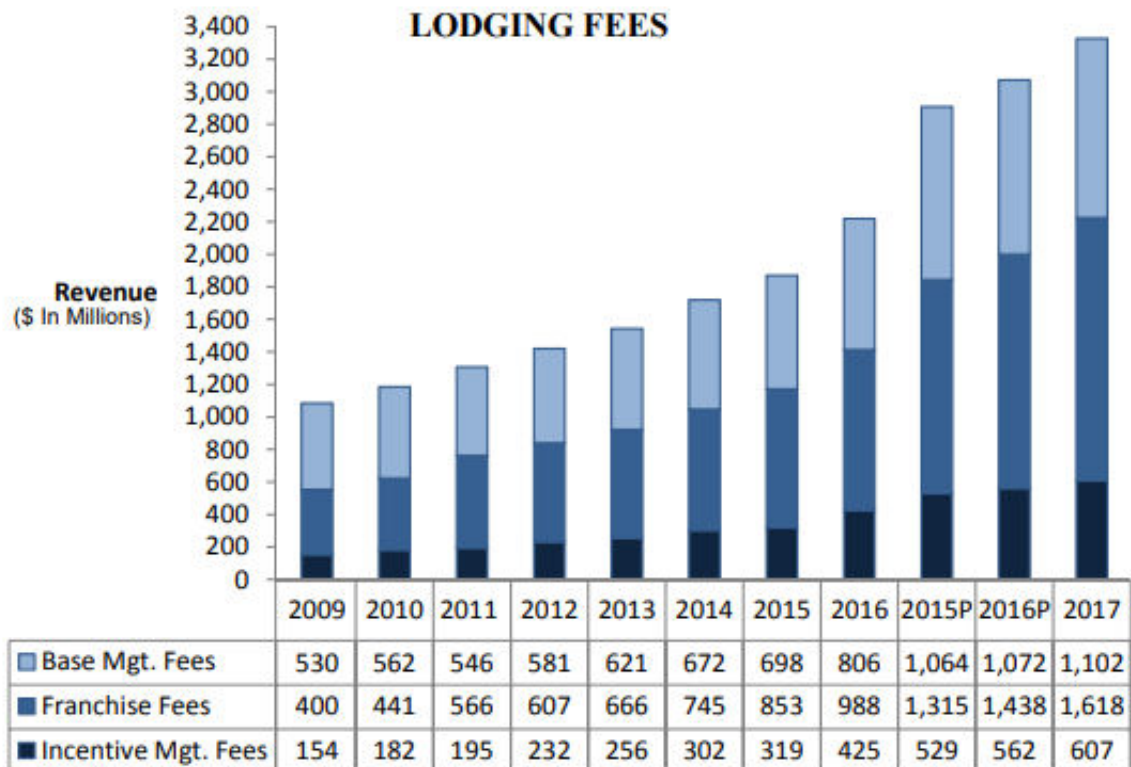
*After fixed charges and an imputed 4.0% reserve for replacement expense

Appendix H
Annual Changes in Supply, Demand, and RevPAR (STR Host Almanac, 2018)

Annual Changes in Supply, Demand, and RevPAR (2010-2017)



Appendix I
Hotel Lodging Fees (STR Host Almanac, 2018)



About the Authors

Jose Darsin, Joshua Rosner, Cristina Urdaneta, and Mariana Yepes are graduate students at Babson College.

Discussion Questions

1. What is the relationship between disruption ideas and an action plan for implementation?
2. What other strengths, weaknesses, opportunities, and threats apply to this company?
3. What are other possible sources of disruption in this industry?

To Cite this Article

Darsin, J., Rosner, J., Urdaneta, C., & Yepes, M. (2019, Spring). Marriott international: Exploring and understanding disruption in the hospitality industry in South Florida. *Journal of Multidisciplinary Research*, 11(1), 99-117.



“Cacti”
2019

Photography by Susan Buzzi

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Book Review

Book Details

Kim, W. C., & Mauborgne, R. (2017). *Blue ocean shift: Beyond competing, proven steps to inspire confidence and seize new growth*. New York NY: Hachette Books, 319 pages, hardcover, ISBN 978-0-316-31404-6.

Reviewer

Lisa Knowles, Ph.D.

Synopsis and Evaluation

Kim and Mauborgne made waves with their first book introducing blue ocean strategies back in 2005. They have come back even stronger with *Blue Ocean Shift: Beyond Competing, Proven Steps to Inspire Confidence and Seize New Growth* providing even more discussion on this unique strategic perspective. This book not only identifies the concept of blue ocean thinking for new business ventures, but it presents itself as a “how to” book with a step-by-step process into blue ocean strategic thinking.

The first several chapters relay the concept of blue ocean thinking for creating new market-based strategies. Going beyond outside-the-box redefines innovative thinking. Instead, *Blue Ocean Shift* is totally recreating the box, which seems to sum up the twist of the blue ocean strategic perspective. Creating a whole new market space is the premise behind the blue ocean shift.

The concept of the blue ocean represents a place for a clear new immersion, as opposed to the red ocean space, where competition is drawing out bloodthirsty sharks. The blue ocean is a place of calm seas with clear skies ahead, laying the scene for smooth sailing into new horizons. The authors provide several corporate examples showing just how a blue ocean shift has made several successful companies that have taken this innovative approach to the market. Not a “push” or a “pull,” the description in traditional marketing theory, but rather, a whole new dimension, new space that people have not ever considered. The best example in the book is the ingenious reinvention of the circus by the Cirque de Soleil company, presenting a whole new type of entertainment with music and visual artistry unlike anything before, all under a circus theme. They then present additional support with several other corporate examples of this extraordinary blue ocean shift.

While they discuss several components of a successful blue ocean shift, the fundamental key is the aspect of “humanness,” driving people’s self-efficacy to be a major force to move

forward onto new, yet undiscovered horizons. The formula for the blue ocean shift consists of grasping a blue ocean perspective, connecting market-creating tools with inspiration from growing self-efficacy, leading to develop successful accomplishments.

The remainder of the book provides a “how-to” step-by-step process of making a blue ocean shift with a precise, easy to understand recipe that includes guidance and direction. This book is relevant and timely as businesses continually look for new markets and ways to address ever-growing competition with technologically driven new dimensions. The simple process begins with getting started, moves into understanding one’s present position, developing vision as to where you want to go, finding how to get there, and finally making a move in the new direction – a true blue ocean shift. Creativity and innovation are ever in the forefront, while building one’s confidence to move forward, so one can follow it only with Nike’s adage: “Just do it!”

In the Author’s Own Words

“Since 2009, the Malaysian government has initiated more than 100 blue ocean moves involving over 90 ministries and agencies from finance, to education, to rural and regional development to agriculture, to urban well-being, to defense, to housing and local government, to women, family, and community development” (p. 287).

Reviewer’s Details

Lisa Knowles, Ph.D. (lknowles@stu.edu), is an Associate Professor of Management in the Gus Machado School of Business at St. Thomas University in Miami Gardens, Florida. Her research interests include the recreation marine industry, organizational culture, organizational behavior, strategy, and entrepreneurship. She teaches organizational behavior, organizational development, organizational design and theory, and policy, planning, and strategic systems in the Master of Business Administration and Master of Science graduate programs.

To Cite this Review

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Book Review

Book Details

Calkins, T. (2018). *How to wash a chicken*. Vancouver, BC, Canada: Page Two Books, 252 pages, \$19.95, hardcover, ISBN: 978-1-989025-03-1.

Reviewer

Hagai Gringarten, Ph.D.

Synopsis and Evaluation

Calkins's *How to Wash a Chicken* (2018) is a clever, clear, and practical guide on creating and delivering powerful business presentations. This book offers point-by-point advice on how to master the art of effective personal or business presentations, written by a well-known marketing professor. Tim Calkins, a world-renowned strategy consultant, business writer, and an award-winning clinical professor at Northwestern University's Kellogg School of Management, combines personal experience, academic research, and amusing stories to explain and demonstrate how to create relevant, pragmatic, and engaging presentations. This book is an excellent guide, whether you are presenting to your Board of Directors, your CEO, investors, your professor, or your colleagues.

Calkins (2018) asserts that, "the reality is that all too many people just don't know how to create and deliver an effective presentation" (p. 9). According to Calkins (2018), British Prime Minister Winston Churchill, "one of great orators of the twentieth century...was not born with a gift for public speaking. On the contrary, he stammered and had a lisp" (p.10), but he worked hard to improve his skills and became a great speaker.

When it comes to presenting, Calkins has a great point – don't present. Only present if it is really necessary, and if you do, present with vigor and energy. A good presentation can elevate your personal brand, while a poor performance can possibly do serious career damage. He created 25 presentation tips divided into 5 sections as follows:

- Before You Start – Only present if you really need to, and have clear objectives.
- Creating the Presentation – In every presentation, you should include a title page, an objective page, an agenda, an executive summary, and a conclusion. Also, have headlines on every page, make slides easy to follow, and use credible sources. In short, keep it simple and visually attractive.
- Preparing the Presentation – Check and double check grammar, spelling, and

formatting, and use easy-to-read font such as Ariel. Also, practice in front of people, and try to pre-sell the presentation.

- Setting the Room – Get to the room early, arrange it to maximize presentation effect, such as planning where will you stand and where people will sit, including the decision makers.
- During the Presentation – Tell them a story. Explain, and don't move too fast. Read your audience, and last, but not least, time your presentation.

Clever, clear and practical guide on creating and delivering compelling business presentations, Calkins's *How to Wash a Chicken* (2018) is thought-provoking, smart, and an enjoyable book. This is a must-read book that will benefit anyone who would like to differentiate him- or herself from the competition, and create and deliver effective presentations and pitches. As Calkins (2018) asserted, "It is a guide for business leaders and, in particular, people on their way up" (p. 19).

In the Author's Own Words

"You can have the best idea in the world, but it will only catch on if you can present it well. In some respects, taking a recommendation to business leaders is like taking a chicken to a poultry show. You want to clean it up so that it looks its best." (p. 5).

"This book has one simple goal: to help you create and deliver an effective business presentation. If you read this book – and apply the lessons – you will present with more confidence and conviction. You will be smoother in front of a group and more in control of the room" (p. 7).

Reviewer's Details

Hagai Gringarten, Ph.D. (hagai@stu.edu), has research interests including branding, consumer products, and marketing. He has coauthored *Ethical Branding and Marketing: Cases and Lessons* (Routledge Publishing, 2019), and a bestselling book *Over a Cup of Coffee* (Shiram Shachar, 2000). He also pursued postgraduate studies at Harvard Graduate School of Business and the Kellogg School of Management. He currently teaches branding, marketing, and other business courses at St. Thomas University and has been a consultant to several organizations, primarily in the international business and branding area. He is Founder, Publisher, and Editor-in-Chief of the *Journal of Multidisciplinary Research* and serves on the Editorial Review Board of the *Journal of International & Interdisciplinary Business Research*.

To Cite this Review

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