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On the Correlation Between Knowledge and Satisfaction in Pre-Professional Pharmacy Advising

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This manuscript assesses the relationship between perceptions of advising effectiveness and actual knowledge related to gaining admission into North Dakota State University’s Doctor of Pharmacy program. The survey developed by Shields (1995) and revised by Davis, Haugen and Friesner (2015) was used to measure satisfaction with advising. This survey was supplemented with a series of items that characterize knowledge of the NDSU Doctor of Pharmacy admissions process. Using descriptive and inferential statistics, we find that overall advising satisfaction was statistically associated with specific knowledge questions. However, no statistically significant association exists between advising satisfaction and knowledge of the admissions process.

Mentoring and Socialization of Future Senior Student Affairs Officers

Michael C. Mason

Little research has been conducted on the academic preparation of Senior Student Affairs Officers (SSAOs). This study investigates the perceptions of mentoring relationships between faculty mentors and their doctoral student protégés who were in training to become SSAOs. Kram’s (1985) theory, identifying psychosocial and career aspects of mentoring in organizational development, examines these relationships. Given the findings, a stronger emphasis upon the SSAO applied theory component of the doctoral program is recommended in multiple ways.

Maximizing the Adaptive Learning Technology Experience

Bryan Forsyth, Carmen Kimble, James Birch, Gary Deel, Trisha Brauer

This paper explores the impact of Adaptive Learning (AL) on students and teachers who use automated grading systems to improve overall learning and effectiveness. Enhanced learning effectiveness improvements are attainable for both students and teachers with the use of Automated Grading Learning Systems (AGLS). Students trained on the use of technology, become self-directed and motivated to evaluate their progress. AGLS lightens the workload for teachers with steadily increasing enrollment, allowing them to provide students with feedback that is accurate and immediate, while creating additional opportunities for positive interaction with students to reach them where they are.

Diving into the Blended Learning Pool: One University’s Experience

Vicki J. Jobst

This is a study of the experiences of a private university in preparing their faculty for teaching blended and online courses. A three-day workshop was conducted in a blended format in January 2014 to train faculty to teach in these formats during the following summer semester. Participants completed a survey after the workshop and after teaching the courses. The purpose of the survey was to examine the effectiveness of the workshop components. The results are discussed in this paper, along with an examination of the university’s other efforts to incorporate blended and online learning successfully into their curriculum.
The ultimate goal for college faculty is to achieve the rank of full professor. Accomplishing this is a matter of what counts. Factors related to teaching, research, and service are used as promotion criteria. Higher education administrators may exalt teaching and service; yet give more credence to research when determining pay, promotion, and tenure. This current research is born out of these ongoing discrepancies in what is purported and what is rewarded. Business faculty’s opinions on promotion criteria, that is, what counts and should count were analyzed. The results indicate differences now and compared to the past.
GUIDELINES FOR SUBMISSION

Journal of Higher Education Theory and Practice (JHETP)

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The Journal of Higher Education Theory and Practice (JHETP) is dedicated to the advancement and dissemination of academic and intellectual knowledge by publishing, through a blind, refereed process, ongoing results of research in accordance with international scientific or scholarly standards. Articles should combine disciplinary methods with key insight to contemporary issues central to faculty, administrators, and industry specialists. Articles of regional interest are welcome, especially those dealing with lessons that may be applied in other regions around the world. Accepted manuscripts should make strong empirical and/or theoretical contributions and highlight the significance of those contributions to the higher education field.

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Make main sections and subsections easily identifiable by inserting appropriate headings and sub-headings. Type all first-level headings flush with the left margin, bold and capitalized. Second-level headings are also typed flush with the left margin but should only be bold. Third-level headings, if any, should also be flush with the left margin and italicized.

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Embedding the PRME in Business Law Classes

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The Principles for Responsible Management Education (PRME), the educational counterpart to the UN Global Compact, seek to disseminate best practices through business education toward the next generation of managers who will create a more inclusive and sustainable global business environment. I address business law as an area for active PRME engagement in any topic within the purview of the UN Global Compact and Sustainable Development Goals, with a more in depth examination of labor rights, gender equality, and Indigenous inclusion. These materials and methods are appropriate for both general and specific business law courses at the undergraduate and MBA levels.

The purpose of the Principles for Responsible Management Education (the “PRME” pronounced as “prime”) is “to develop the capabilities of students to be future generators of sustainable value for business and society at large and to work for an inclusive and sustainable global economy” (PRME Secretariat, 2016c). There is a vital role for business law professors in furthering the purpose of the PRME. For those who may not be familiar with the PRME, I briefly review it as the educational counterpart to the UN Global Compact and argue why it is important to embed the PRME in business law courses, providing some simple suggestions about how to do so.

THE PRME

In the absence of laws requiring sustainable practices by business, so-called “soft law” voluntary initiatives such as the UN Global Compact endeavor to progress corporate social responsibility. The UN Global Compact began in 2005, is led by the United Nations, and joined in by more than 12,000 participants worldwide. UN Global Compact participants agree to make continuous improvement toward 10 Principles in four areas: human rights, labor rights, environmental protection, and anti-corruption (UN Global Compact, 2016b). The sheer size of the UN Global Compact attests to the broad appeal of corporate social responsibility. In 2007, following a recommendation by the UN Global Compact to create a principles-based platform to engage the academy more deeply in developing the next generation of socially responsible business leaders, an international task force developed the PRME (PRME Secretariat, 2016a). The PRME Task Force included the UN Global Compact, 60 business school deans, university presidents, and official representatives of leading business schools, and academic institutions including AACSB International, European Foundation for Management Development, The Aspen Institute Business and Society Program, the European Academy of Business in Society, the Globally Responsible Leadership Institute, and Net Impact (PRME Secretariat, 2016a). Thus, it is supported by accrediting agencies, those who seek to make businesses more accountable to society, and students interested in a better world. Participating business schools and organizations agree to further the Six
PRME Principles, provide biennial reports on their progress, and share best practices (PRME Secretariat, 2016a).

The business sector is increasingly interested in creative means to balance three sometimes competing goals necessary for long term sustainable development, referred to as the triple bottom line: economic development, social equity, and environmental protection (Berger-Walliser & Shrivastava, 2015). PRME Principle 1 asks business faculty to build our students’ capacity to reimagine a future in which business operates to sustain profitability while also contributing to societal and environmental sustainability and including within the scope of economic development those who have been marginalized or excluded (PRME Secretariat, 2016c). This effort requires faculty engagement. Indeed, Muff et al. (2013) argue for a “new breed of faculty” (p. 151) who possess a commitment toward the common good and the mission of the college or university, are passionate about teaching, learning, and discovery, and enlarge their competencies beyond domain-specific specialization toward transdisciplinary knowledge, including ethics and sustainability, coaching ability, action learning, systems thinking, an ability to network with stakeholders and develop partnerships, and an understanding of and an ability to measure outcomes relative to environmental, social, technical, and economic trends. The PRME focus is on continuous improvement to ourselves, our curricula, our teaching, our research, our engagement with business, and businesses’ engagement with stakeholders in change. Through an iterative process we can inspire students to become managers who tackle the challenges of sustainability armed with good information, practical, empirically based solutions, and a resolve that the future can be better than the past.

PRME Principle 2 incorporates by reference corporate social responsibility values found in “initiatives such as the UN Global Compact” (Italics added, PRME Secretariat, 2016c). It also provides the flexibility to expand to encompass new social responsibility initiatives. The UN Sustainable Development Goals (SDGs) are a comprehensive set of 17 goals with 169 targets adopted by world leaders on September 25, 2015 as an ambitious 15-year agenda (UNDP, 2016). In 2016, the UN Global Compact began to incorporate the SDGs. Broadly speaking, these goals attack poverty, injustice and inequality, and support environmental health, including tackling climate change (UNDP, 2016). Member states may address some of these changes through new law and regulation, with clear implications for expanding the scope of business regulation. Voluntary action by responsible businesses have a key role too. As of this writing, the UN Global Compact is convening a summit of business leaders to provide a blueprint toward this Agenda (UN Global Compact, 2016c). The SDGs have considerably broadened the targets to be supported by the UN Global Compact and, by extension, the PRME.

PRME Principle 3 charges participants to create “educational frameworks, materials, processes, and environments that enable effective learning experiences for responsible leadership” (PRME Secretariat, 2016c). This space awaits creative and innovative teaching strategies for embedding the PRME in business law courses. The first step is awareness, not only by faculty, but also by students. In the interest of advancing certain issues within the purview of the PRME, a number of working groups emerged from the PRME effort, some of which have been active in creating or disseminating teaching resources. Greenleaf Publishing has an entire series of books dedicated to topics within the PRME initiative, with several oriented specifically at teaching topics (See e.g., Amann, et al., 2015; Flynn, Haynes, & Kilgour, 2015; 2016; Sunley & Leigh, 2016), and Business Expert Press has a PRME series mostly aimed at practitioners, but including teaching titles (See, e.g., Ogunyemi, 2014, and Stachowicz-Stanusch & Hansen, 2013). Cengage Learning, Business Expert Press, and Sage Publications have textbooks specifically tied to the PRME and/or the UN Global Compact (see, e.g., Laasch & Conaway, 2015; Lawrence & Beamish, 2013; Ogunyemi, 2015). Although to date none of these books is a business law textbook, law is implicated in much of this work. As the PRME initiative grows and matures, we may begin to see explicit inclusion of PRME issues in business law textbooks, as well as new types of textbooks which embrace a shifting paradigm in business education from lecture and tests toward co-creating learning (see, e.g., Muff et al., 2013). Research, specifically encouraging “conceptual and empirical research that advances our understanding about the role, dynamics, and impact of corporations in the creation of sustainable social, environmental and economic value” is the focus of PRME Principle 4. The Journal of Management
Education, Academy of Management Learning & Education, and Journal of Management Development have devoted a special issue or section to PRME issues. Other PRME-related research has appeared in a variety of management and business ethics journals. Greenleaf Publishing’s book series devoted to the PRME includes research into PRME-related topics. However, research relative to the PRME in business law literature has lagged. While my search on June 16, 2016 of “Principles for Responsible Management Education” in the EBSCO Host Business Source Complete database produced 38 scholarly results and ABI Inform database produced 113 peer reviewed articles, the same search in the EBSCO Hosts’ Legal Source database found no results, merely two results in the Lexis/Nexis database of Law Reviews, and a Westlaw database search of Law Reviews and Journals turned up four results. The four articles found in the Westlaw search included the two from the Lexis/Nexis search. These are mere mentions of the PRME, rather than descriptions, discussions, teaching materials, or research findings. There is one mention each in an article about the UN Global Compact (Wynhoven, 2011), sustainability (Berger-Wallis & Shrivastava, 2015), and fair trade (Stenzel, 2012). Blackburn (2016) includes the PRME in a list of sustainability codes for colleges and universities. This evidences an opportunity to fill this gap.

PRME Principles 5 and 6 involve outreach and engagement with businesses. Principle 5 asks that we help managers to overcome challenges to realizing the purpose of the PRME. This requires the creative reimagining of how businesses may thrive and not just survive a change to sustainability. Here, business lawyers could advocate for government funding for research into innovations needed to improve processes toward environmental sustainability, government policies that support social sustainability rather than a rush to the lowest possible labor costs, and longer term incentives for financial investors so that the short term thinking endemic to capital markets gives way to longer term financial sustainability. Principle 6 requests that business schools bring stakeholders together for dialogues that can help to bring about positive change. Business law faculty can lead this effort, participate in it, and use their analytical problem-solving skills to come up with creative solutions to intractable problems.

Next, I argue that business law professors begin to consider the PRME as an imperative for the future of our students, business, society, the environment, and the economy and provide starting points on select topics for those who wish to do so.

PRME AS A BUSINESS LAW IMPERATIVE

As noted above, Muff et al. (2013) have asserted a need to move beyond disciplinary silos. Business law is, by its very nature, cross-disciplinary. Laws affect all aspects of business, including human resources, marketing, IT, accounting, finance, operations, management, and leadership in business organizations. Business law professors may be uniquely positioned to see the big picture relative to inclusion and sustainability. They understand the legal system’s positive and negative forces on business. Moreover, lawyers are at the table when voluntary initiatives are crafted. They understand the power of such initiatives to begin, without forcing, change processes. Moreover, lawyers are there to help when things go wrong, when business actions cause harm to people, property, ecosystems, society, and the economy. It is at this time when the legal system either provides remedies for the harm or leaves those harmed without recourse. When the latter occurs, some lawyers are there to encourage changes to the legal system to bring justice to the harmed, and other lawyers argue that no change is needed. Muff et al. (2013) propose that business faculty have a commitment to social good. In business law classes, such an orientation may shift discussion from defensive positioning resisting change or fighting against compensating those harmed by corporate actions, and toward imagining what is possible if the legal system fully embraced inclusion and sustainability and to assist businesses to innovate and change to make that happen. It is a proactive rather than a reactive stance vis-à-vis business law and regulation. This may well be an imperative in order to tackle global threats posed by climate change, environmental degradation and exploitation from unsustainable and exploitative practices, and human suffering and lack of opportunity to participate in the global economy due to poverty, hunger, disease, and discrimination.

We should consider whether students support this change in management education. Haski-Leventhal (2014) surveyed 1,285 MBA students in PRME-participating universities, finding that overall, the
students value “living according to their values” and had attitudes toward CSR that included the highest level of overall agreement with “Social responsibility and profitability can be compatible,” “Business has a social responsibility beyond making profits,” and “Good ethics is often good business” (p. 33). She concludes:

Students in PRME signatory schools across the globe do not ascribe to Friedman’s (1970) premise that the only social responsibility of a business is to maximize shareholder value. As such, they do not agree that the only responsibility of business schools is to teach their students how to make a profit. These business students are socially active through volunteering and donating money, and they report that it is more important for them to make the world a better place than it is to make a lot of money. The students who participated in this study demonstrated positive attitudes towards CSR and business ethics, and expect their business schools to focus on these topics, particularly through critical thinking, real life examples and guest lecturers (Haski-Leventhal, 2014, pp. 37-38).

Thus, there is evidence that contemporary business students are receptive to the PRME. Reflective writing is one method for embedding the PRME into business law classes. Reflective writing helps students to develop their critical thinking skills (Badley, 2009). Levit (2009) urges that reflective writing be incorporated across the entire law school curriculum as a means to develop ethical thinking, create legal stories as a way to recall information, develop professional identity, and foster experiential learning about decision making. Similarly, in business law classes, reflective writing on PRME topics asks students to frame their thoughts, recall information, develop their moral judgment and moral identity, and gains participation from all students rather than just those who choose to speak up. Reflective writing assignments can range from short five minute papers to semester long journals that invite students to think more deeply and critically about the material they encounter in the class, in service learning, and/or in research on a particular topic. In my business law classes, I present an overview of the UN Global Compact and the PRME, and then ask students to reflect on PRME Principle 1. Nearly all students support the PRME’s purpose and would like their business professors to help them develop the capacities to contribute to inclusion and sustainability.

Sustainability education in business schools is on the rise, which Wu et al. (2010) attribute to the emphasis on ethics and social responsibility by business school accrediting bodies. As the SDGs initiative disseminates through the UN Global Compact and the PRME, environmental sustainability, social sustainability, and economic sustainability will undoubtedly become topics of discussion in business law classes. Businesses will need to understand the shifting legal environment that will accompany work toward the SDGs. UN member states are likely to invoke treaties, law, and regulation in pursuing the SDGs. And, the voluntary participants in the UN Global Compact will be pressed into service as private sector action and partnerships with government and civil society are formed to address these broad social, environmental, and economic sustainability goals.

Next, I discuss a few issues that may be addressed in business law classes with starting points for doing so. Professors may choose other topics, continuous improvement under the PRME may be course-specific and college-specific, and the SDGs provide ample room for individual interests.

**Labor Rights and Wages**

The UN Global Compact includes four labor principles. These principles are that businesses allow workers’ freedom of association and recognize their right to collective bargaining (Principle 3); eliminate forced and compulsory labor (Principle 4); effectively abolish child labor (Principle 5); and eliminate discrimination in employment or occupation (Principle 6) (UN Global Compact, 2016b). My students are surprised to learn that, despite its illegality in developed countries, slavery exists, even in the United States, and in some countries forced and compulsory labor is legally allowed. This human rights issue has a place in business law courses.
The ILO estimates that about 21 million men, women, and children are in forced labour – trafficked, held in debt bondage, or working under slave-like conditions. The vast majority of these forced labourers – almost 19 million – are exploited in the private economy, by individuals or enterprises (International Labour Organization, 2016).

In a labor law class, students reflect on the UN Global Compact’s four labor principles and what they mean in the United States where hostility toward unions has rolled back labor protections. I introduce “living wages” using the MIT Living Wage Calculator (Glasmeier, 2016), provide them with URLs to explore purchasing power of minimum wage work (Department of Labor, 2016; Desilver, 2015), who works for the minimum wage (Bureau of Labor Statistics, 2016a), state minimum wage laws (National Conference of State Legislatures, 2016) and local minimum wages (National Employment Law Project, 2016). Once they have explored living wages and minimum wages, I ask them to write a reflective writing paper, considering: 1) whether the minimum wage should give way to a living wage; (2) if employers have an ethical obligation to pay their employees a living wage (specifying ethical theory(ies) used in the analysis) (3) the legal tradeoff between government assistance and better wages (i.e., if employers do not pay a living wage, federal, state, and local government safety nets pick up the slack through food stamps, subsidized housing, public transit, subsidies for health care, etc.). Students are generally unaware of living wages or facts about minimum wages. This topic relates to the SDGs to alleviate poverty (1) and hunger (2), provide decent work (8), gender equality (5), since more women work for the minimum wage (see, Bureau of Labor Statistics, 2016a), foster health and wellbeing (3), and create sustainable cities and communities (11) (UNDP, 2016). I now turn to gender equality, considered by the UNDP to be so critical as to have a separate SDG (5) in addition to being applicable across the SDGs (UNDP, February 2016).

Inclusion Through Gender Equality

Addressing gender equality may also address women’s underrepresentation in business education. Davis and Geyfman (2015) examined undergraduate women’s enrollment in a sample of AACSB–accredited U.S. business schools and colleges, finding that between 2003 and 2011 the percentage of women enrolled in AACSB-accredited colleges decreased from 44.7% to 41.1%, despite comprising 60% of undergraduate students. The gender gap increases in graduate business education, women make up only 35% of MBA students (Baron, February 12, 2015). The Graduate Management Admissions Council (2015a) reports that approximately 59% of GMAT® test takers are male, and 41% female. Most MBA programs require this test as a part of admission. A “chilly climate” may dissuade female students from pursuing a business degree:

[Chilly climate] refers to a cluster of kinds of systematic discrimination that disadvantage women in an academic environment. Examples of such behavior can include sexist use of language, presentation of stereotypic views of women, and instructors favoring male students (Davis & Geyfman, 2015, p. 82).

Many business schools and colleges have begun initiatives to mark progress in creating gender equality, perhaps most notably, Harvard Business School (Byrne, January 29, 2014; Harvard Business School, May 18, 2015). Catalyst published a research-based guide called Engaging Men in Gender Initiatives: What Change Agents Need to Know (Prime & Moss-Racisun, 2009). It recommends helping men to recognize and acknowledge that gender bias exists and then break down barriers to men acting as change agents such as fear and apathy. This would be a best practice for business schools as well, since women business faculty report a chilly climate (see, e.g., Fotaki, 2011; Verbos & Dykstra, 2014; Verbos & Kennedy, 2015).

For these reasons, I argue that both male professors and female professors may begin to strengthen gender equality in business law classes by mindfully incorporating positive female business examples and
cases, finding role models in the news, and inviting women lawyers or businesspeople as guest speakers. This may help our female students’ to picture themselves as attaining success in business.

Moreover, business law professors often introduce students to laws which prohibit sex discrimination in pay and employment, but this does not help students to understand the extent to which illegal sex discrimination persists. In the United States, despite more than 50 years since the U.S. Congress passed the Equal Pay Act of 1963, there remains a persistent gender pay gap. The Bureau of Labor Statistics (2016b) reports that men earn a median of $895 weekly and women earn $726, meaning that women earn $0.81 for each $1.00 earned by men. Affirmative action has been weakened by a political and legal backlash (see, e.g., Harper & Reskin, 2005), and can create a paradox where women who are promoted are viewed as less competent irrespective of their actual competence, thereby stalling their careers (Williams, Kilanski, & Muller, 2014). Harper & Reskin (2005) state:

The visibility of race-conscious AA in higher education has probably led Americans to assume that AA in employment is also race conscious…The existence of open preferences for minorities has probably led whites to overstate AA’s prevalence, to believe that AA limits their own opportunities and to conclude that AA prioritizes minority group status over qualifications (Davis & Smith 1996, Reskin 1998, Royster 2003). Surveys show that Americans believe that minority preferences in employment are rampant (Davis & Smith 1996). This perception is not supported by either the law or the body of empirical evidence attesting to the persistence of race and sex discrimination in employment (Bertrand and Mullainathan 2004, Kirschenmann & Neckerman 1991, Pager 2003, Turner et al. 1991) (p. 370, citing Bobo, 2001).

Affirmative action myths hurt not only the beneficiaries of such programs, but also foster dissent and conflict within organizations, pitting men against women and white employees against minority employees. Correcting these misconceptions could help businesses to be more effective.

At the highest levels of corporations, the executive suite and the boardroom, women are not attaining gender equality. Catalyst Inc. (June 6, 2016) reports that just 21 (4.2%) of Fortune 500 CEOs are women. Although women increased board seats from 16.9% of 971 active companies in 2014 to 17.9% of companies in 960 active Fortune 1000 companies in 2015, in those 199 companies that are smaller (based on revenue) or newer (joined the Fortune 1000 since 2010), only 13.5% of board seats were held by women (2020 Women on Boards, n.d.). In addition, 2020 Women on Boards 2016 midyear report (to increase the number of women on the boards of public companies to 20% or greater by the year 2020) finds that of the Fortune 1000 companies with a female CEO or Board Chair, 88% and 86% of companies respectively have already met or surpassed 2020 Women on Boards’ goal of having 20% or more women on the board. This compares to 42% of all Fortune 1000 companies. It is also noteworthy that this push is for just 20% participation on boards, which does not come close to the percentage of women in the workforce.

The PRME Gender Equality Working Group is working toward teaching and research in support of the voluntary business initiative set forth in Women’s Empowerment Principles (WEPs). The WEPs, adopted in 2010, were derived from the Calvert Women’s Principles® by UN Women and the UN Global Compact (Women’s Empowerment Principles, 2011). The WEPs, adopted by 1,239 companies as of June 12, 2016, contain seven principles to guide business about how to empower women in the workplace (Women’s Empowerment Principles, 2016a). The WEPs not only would address the issues outlined above, but also seek to engage employers in the global economy where women’s workplace opportunities vary considerably (Women’s Empowerment Principles, 2016b). Given the substantial difference between participation in the UN Global Compact and in the WEPs, there is much work to be done toward awareness and voluntary action towards gender equality in business schools and in business. One initiative by the Gender Equality Working Group is a discipline-based resource repository (including business law) to assist business professors in bringing gender equality into the classroom (PRME Working Group on Gender Equality, n.d.).
In classes dealing with employment discrimination and affirmative action, it is more conventional to focus on cases and statutes rather than ways to proactively create gender equality as envisioned by SDG 5 and the WEPs. I ask students to reflect on and discuss gender equality gaps despite U.S. laws prohibiting sex discrimination, affirmative action and the backlash against it, the WEPs, the 2020 Women on Boards initiative, and the legal stance taken in some European countries requiring women on public corporation boards (see, e.g., Barnard, 2007; Rubio-Marin, 2012). Discussion provides room to dispel the myth that there are not sufficiently qualified women. Moreover, it provides a basis for students to question their underlying assumptions about affirmative action and anti-discrimination laws. The issue of regulation over cultural change makes an interesting and lively discussion. Moreover, students can work in groups to brainstorm how business can step up to remedy this inequality. These business students are the managers of the future. They may be in positions as business owners and managers to either perpetuate present disparities or proactively create the kind of change needed to bring about gender equality in business.

The mindful incorporation of gender equality can be helpful to break down psychological barriers to female student success and warm the chilly climate. This will take effort in material selection, textbook writing, and case development. Harvard Business School has included in its gender initiatives a plan to increase the number of women protagonists in its cases to 20% over five years, more than doubling from 9% in 2014 (Bryne, January 29, 2014). Note the disparity. Women are slightly over 40% of business undergraduates, 35% of MBA students, but only 9% of the protagonists in Harvard cases, and increasing it to 20% is considered a big leap, demonstrating the scope of the work needed toward gender equality.

The next section discusses Indigenous rights and the PRME, a topic that may not be on the radar for many business law faculty.

Inclusion of Indigenous Rights

Indigenous issues are marginalized in business schools (Fitzgibbons & Humphries, 2011; Verbos & Humphries, 2015a, 2015b), but I argue, they are an appropriate and relevant topic for business law classes. Many times, law institutionalizes discrimination against, displacement of, and even attempted cultural genocide against Indigenous peoples (see, e.g., Verbos, Gladstone, & Kennedy, 2011). According to the United Nations, the state of the 370 million Indigenous peoples residing in 90 countries worldwide is bleak (United Nations Department of Economic and Social Affairs, 2015). The threats to Indigenous people include high rates of ill health, shortened life spans, poverty, lack of access to safe water, employment opportunities, basic sanitation, health care, and even food. Moreover, their lands are taken and resources usurped or destroyed. In addition, environmental degradation and contamination as well as issues posed by climate change negatively impact Indigenous people (United Nations Department of Economic and Social Affairs, 2015).

In 2007, the United Nations Declaration on the Rights of Indigenous Peoples was adopted by the General Assembly (the “Declaration”) (United Nations, 2007). It outlines those rights as including human rights, right to be free from discrimination, the right of self-determination and self-government, rights to their own political, economic, cultural, and other institutions, rights to maintain their cultural and spiritual practices, their languages, and their lands and territories, and to access to their traditional lands, among other rights (United Nations, 2007). In recognition of the role that business plays in either positively or negatively affecting Indigenous peoples, the UN Global Compact issued a Business Reference Guide to the Declaration (the “Guide”) (UN Global Compact, 2013). This brings it clearly within the purview of the PRME (see, also, Weybrecht (June 1, 2016)). The Guide asks businesses to understand, respect, and support Indigenous peoples’ rights. Future managers should be familiar with the Declaration and the Guide, to develop their capacities to understand and respect Indigenous peoples’ rights. In addressing Indigenous peoples’ rights, businesses may work toward several SDGs, including 1 (no poverty), 3 (good health and wellbeing), 6 (clean water and sanitation), 8 (decent work and economic growth), 9 (industry, innovation, and infrastructure), 10 (reduced inequalities), 11 (sustainable cities and communities), and 17 (partnership) (UNDP, 2016). This would provide an excellent topic for organizing stakeholder dialogues.

American culture tends to marginalize or ignore the plight of its Indigenous people. The 567 federally recognized American Indian and Alaska Native tribes (Bureau of Indian Affairs, 2016) have traditional
territories that traverse the U.S. The myth of the United States as a melting pot suggests that Native Americans should give up their identity and assimilate into a dominant culture, something that belies tribe’s sovereign status, rights under the Declaration, and many aspirations that they have for themselves and their future generations. Tribes did not cede sovereign status and, pursuant to the Indian Self-Determination and Education Assistance Act of 1975 (25 U.S.C. §§450 et seq.), the U.S. government policy shifted, ushering in an era of self-determination. This policy was reiterated in Executive Order No. 1364778, establishing the White House Council on Native American Affairs:

As we work together to forge a brighter future for all Americans, we cannot ignore a history of mistreatment and destructive policies that have hurt tribal communities. The United States seeks to continue restoring and healing relations with Native Americans and to strengthen its partnership with tribal governments, for our more recent history demonstrates that tribal self-determination—the ability of tribal governments to determine how to build and sustain their own communities—is necessary for successful and prospering communities (78 F.R. 39539, 2013).

More than ever, as a part of self-determination, Native American people need business education in order to build sustainable tribal economies that benefit the communities (See, e.g., American Indian Business Leaders, 2016). Across the United States, Native American tribes are investing in diverse business ventures as a means to create income, employment, and community development. For example, Ho Chunk, Inc. (2016), is a holding company with more than 30 subsidiaries in a diverse array of industries, owned by the Winnebago Tribe of Nebraska, the Seminole Tribe of Florida owns and franchises the Hard Rock Café brand (Hard Rock Café International, Inc., 2016), Potawatomi Business Development Corporation (2016), the business development arm of the Forest County Potawatomi, owns at least 15 companies in diverse industries, including commercial construction, data storage, and hotel industries. Nevertheless, it can be difficult for tribes to find business leaders amongst their members. Native Americans are underrepresented in undergraduate and graduate education, including business education (Graduate Management Admissions Council, 2015b; National Indian Education Association, 2015; Verbos, Kennedy, Gladstone, & Birmingham, 2015). The National Center for Education Statistics (May 2013) reports that the percentage of Native Americans 25 to 29 years old with a bachelor’s degree or higher in 2012 was lower than for any other race at around 12%. I argue that a key aspect of a PRME commitment to inclusion includes support for our Native American business students.

In addition to this need, there is another side to how businesses intersect with Native American rights. A recent example pertains specifically to law, business, and Indigenous rights to a sacred site. In December 2014, Senators John McCain and Jeff Flake inserted a provision into a “must pass” Defense Authorization Bill, ironically titled Southeast Arizona Land Exchange and Conservation (16 U.S.C. §639p) that swapped 2,422 acres that included Oak Flat, the Apaches most sacred site, to Resolution Copper, LLC, a subsidiary of Australian-British mining giant Rio Tinto, for other private land (Millet, May 29, 2015; Toensing, July 20, 2015). This site was taken from the Apache tribe in the late 1800s and made a part of the Tonto National Park in 1905 (Toensing, July 20, 2015). It gained special protection from mining under a decree by President Dwight D. Eisenhower in 1955, renewed by the Interior Department under President Richard Nixon in 1971 (Millet, May 29, 2015). Thus, for a very long time this site was considered a public treasure worthy of special protection. Apaches have had access to the site for their ceremonies for many generations, specifically, coming of age ceremonies for girls, but that will end. The swap had been tried as a standalone bill for years, but failed due to a lack of support. In part, that may be because the public enjoyed access to it as well (Millet, May 29, 2015). It is also undisputed that Sen. McCain received campaign support from Resolution Copper, and that Sen. Flake was previously a paid lobbyist for a Rio Tinto group subsidiary (Millet, May 29, 2015; Toensing, July 20, 2015).

The type of copper mine the company intends for the site will destroy it and likely contaminate local aquifers. The mining will hollow out a large chamber which will collapse eventually, leaving a pit two miles wide and 1,000 feet deep (Toensing, July 20, 2015). Although the law contains provisions that
require consultation with Indian tribes and environmental impact statements, it also contains a provision that no additional restrictions may be placed on the mining (16 U.S.C. §639p, 2014), so the company can destroy the property in the mining process. This law demonstrates a blatant disregard for the cultural and religious rights of the Apache tribe. A bi-partisan bill to repeal the law called Save Oak Flat has been introduced in the House and Senate, but has not, so far, and is unlikely to garner action in a Republican Congress.

This contemporary example demonstrates several things: (1) the continuing disregard for Indigenous peoples’ rights and needs in the United States; (2) the failure of elected public representatives to protect those rights; (3) the reach of multinational corporations into the political system in the United States; and (4) the use of law as a tool to advance corporate interests over Indigenous interests today. It is also perhaps ironic that Rio Tinto PLC, the parent company of Resolution Copper, LLC, is a participant in the UN Global Compact, and has been since July 26, 2000 (UN Global Compact, 2016a). The underhanded legal route taken by its subsidiary to gain land that had been under federal protection from mining since 1955 flies in the face of what the UN Global Compact purports to be about. Resolution Copper could have chosen a more sustainable, albeit more expensive, method of mining, but instead has been given the legal right to destroy the property. This example further suggests a need to more closely examine the actions and reports of companies that seek the positive impression gained by becoming participants in the UN Global Compact.

There are many lessons contained in a focus on Indigenous rights and the PRME. Important outcomes include: raising awareness of the existence, needs, rights, and issues pertaining to Indigenous peoples worldwide and within the United States as they pertain to the intersection with business and law; examining our collective conscience regarding these most marginalized and endangered cultures; finding the flaws in voluntary regimes such as the UN Global Compact and the need to bring attention to the plights of Indigenous peoples vis-à-vis business and law; helping our students to increase their moral development around issues that may not have yet reached them otherwise; and committing ourselves to reach out to Native American students and help Indian Country create sustainable economic development through appropriate business education for future Native American managers.

The UN Global Compact also works to stamp out corruption worldwide.

Anti-Corruption and the PRME

There are gaps in what students know about corruption in business. In a study of 1,511 undergraduate and graduate students about their knowledge relative to corruption and its legal consequences in Switzerland, Becker, Hauser, and Kronthaler (2013) found that a majority of students were unable to accurately identify the legal consequences of most of seven scenarios presented, demonstrating a serious lack of knowledge. The PRME Working Group on Anti-Corruption in Curriculum Change has published online an Anti-Corruption Toolkit for use in business classes (PRME Working Group on Anti-corruption, n.d.). This could be a first step in tackling this knowledge gap.

Other Topics

There are dozens more PRME topics that are ripe for reflective writing including climate change, protection of water, land, and air, innovation, etc. For inspiration, you might turn to each of the substantive areas covered by the Principles in the UN Global Compact: human rights, labor rights, environmental protection, and anti-corruption (UN Global Compact, 2016). For example, I ask students to compare the relative merits and ethics of free trade treaties versus fair trade practices (see, e.g., Stenzel, 2012). While most students are familiar with free trade treaties generally, they are not as aware of the concept of fair trade, which supports living wages for workers in developing countries.

CONCLUSION

Even if your academic institution does not officially participate in the PRME, the purpose of the PRME is an important charge to business law professors. Business law is inextricably intertwined with
business ethics, and the way that corporate leaders view and engage with the law is an important aspect of corporate social responsibility. For example, some businesspeople take an aggressive and adversarial posture toward law and regulation, while others go above and beyond law to create more sustainable and socially responsible business practices, considering law as a minimum standard. Business law classes present an opportunity to influence across business disciplines because our students come from all majors and represent the next generation of businesspeople. Moreover, the PRME present a platform to engage students toward moral development and can be both inspirational and aspirational for them. Thus, business law courses are a perfect place to discuss and embed the PRME and the underlying corporate social responsibility initiatives as a part of the fabric that enhances their positive impact on students.

There are many compelling and urgent issues that could be incorporated into business law classes by choosing to embed the PRME. Herein, I discussed some starting points to integrate the PRME, UN Global Compact, the WEPs, and the SDGs business law courses. My efforts focus on the purpose of the PRME, gender equality, labor rights, and Indigenous peoples’ rights. I also note that anti-corruption materials are available. Methods include reflective writing, mindful incorporation of gender equality, supplementing or substituting cases that demonstrate the PRME and corporate social responsibility in business practice as it relates to legal issues, and introducing Indigenous peoples’ rights as they intersect with business, both in the United States and abroad. Business law professors are particularly well-positioned to become PRME champions within your business schools. I encourage you to do so. The purpose of the PRME is to help our students to become future managers who will be inclusive and do business in a sustainable manner around the globe. This laudable goal is just waiting for you to address it in small ways or to make it a significant part of your teaching, research, and service.

ENDNOTES

1. The courses referenced herein as business law include such general business law classes as Business and Commercial Law, Legal Environment of Business, and Advanced Business Law, but also specialty courses such as Labor Law, Creditors Rights and Bankruptcy Law, Administrative Law, Real Estate Law, etc. Certainly the information contained herein would also be beneficial to Business Ethics, Business and Society, and Corporate Social Responsibility classes.


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Fostering Development of Agile Thinking Skills

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This research explores potential psychological and neurological impacts of teaching-to-repeat (i.e., methods that rely heavily on content memorization and recitation). The researchers argue that behavioral assumptions implicit to these methods produce educational outcomes that inhibit development of agile thinking skills valued by managers and marketing practitioners. Further, evidence reported by neuroscience researchers now reveals the possibility of persistent neurological effects that may oppose these capabilities as well. Applying these neuroscience findings, we propose and illustrate an alternative method we call teaching-to-vary that fosters the development of business graduates with agile thinking skills.

INTRODUCTION

While the growth in the number of students in colleges of business has been called nothing less than phenomenal, business graduates increasingly are criticized for their lack of relevance in today’s marketplace (Diamond & Robinson, 2008). Criticism of business education extends to all levels. MBA graduates are characterized by corporate recruiters as lacking the ability to deal with today’s problems, and described as “… unable to step outside of their comfort zones to explore new ways of thinking and doing.” Employers commend graduates for their degree of specialized knowledge, yet find them unable “… to face today’s problems and to acquire new knowledge” (Wankel & DeFillippi, 2006: 387).

Similar problems are reported at the undergraduate level as business students consistently score lower than those from all non-business fields on the Collegiate Learning Assessment tests of writing and reasoning skills. Paradoxically, those with undergraduate business degrees also score lower on the Graduate Management Aptitude Test (GMAT), used to determine admission to graduate business programs, than do those with undergraduate degrees in virtually all non-business fields. Reviewing specifically the failures of marketing education to produce skills valued by marketing practitioners, Finch et al. (2013: 65) warned that if change was not forthcoming “we could see social science graduates succeed, with increasing frequency, in competitions for entry-level marketing positions.” Armstrong (2011: 2), referencing meta-analyses of business and marketing curricula, summed up the situation as
follows: “… much of the material that is taught in universities has no value in the real world. The material that is taught in some fields is often unsupported, incorrect, or harmful.”

Chia and Holt (2008: 471) characterize discussions of the difference between business school outcomes and practitioner-valued capabilities as follows:

“The debate brings into focus both the nature and impact of formal knowledge realized through management research and the apparent lack of practical skill, self-critical insight and awareness instilled in students of such knowledge… (Mintzberg, 2004).”

Addressing issues of form and content in professional business education, they offer the following observations – “So, in being trained as a professional there is risk that business school students simply ape what is required of them rather than creatively engage with the problems of practice” (Chia & Holt, 2008: 472). These outcomes have been attributed to an over-emphasis on representational knowledge that “stymies any sense of management as an immersed perceiving, coping, and sense-making process …” (Chia & Holt, 2008: 473). Harrison, Leitch, and Chia (2007: 339) offer a similar conclusion, advising “business schools to move beyond the rule-based, procedural imperatives underlying competence and best practice so that proficiency and genuine mastery of the art of management [and marketing] become realizable.”

In search of such a solution, we begin by exploring teaching-to-repeat (the dominant category of instructional methodologies used today) to reveal the implicit assumptions involved in such methods. In application, it appears that these assumptions, taken together, contribute directly to the negative learning outcomes described above. We then present findings from neurological research, and apply them to offer an alternative methodological category, teaching-to-vary. In opposition to the assumptions of teaching-to-repeat, teaching-to-vary is designed to practice students in methods designed to develop a comfort level with varying and adapting, and a capacity for agile thinking. In closing we provide suggestions for classroom implementation of the teaching-to-vary approach.

TEACHING-TO-REPEAT: THE IMPORTANCE OF STABILITY AND CONSISTENCY

Behaviorally, the constancy required by teaching-to-repeat fosters an efficient and stable view of the things (e.g., Armstrong, 2011). There is a certain comfort in learning that “If this, then that.” But lost to response efficiency in the teaching-to-repeat experience is the development of students’ own skills for producing their own answers, to know when to deviate from past methods (or utilize divergent thinking), or how to come up with unique approaches. These are the very skills needed when businesses confront situations that vary from past experience in significant ways (e.g., Finch et al., 2013).

Further, when stability and consistency are preferred, consideration of possible conflict among ideas and perspectives is not encouraged. This serves to actively discourage questioning. Consequently, whether or not by intention, “teaching-to-repeat” serves to impede questioning and avoid revelations of potential conflict between new ideas and accepted conclusions. Through its “answers” perspective on learning it offers consistency with familiar approaches and “accepted knowledge.” Provision of predetermined answers offers closure.

In contrast, questioning of accepted responses invites variation from “accepted norms,” thereby threatening stability. Moving away from one perspective and toward another requires openness to the possibility of change. In turn, this necessitates a willingness to consider perspectives that may be different. To move from one perspective to another or to challenge one perspective from another perspective is to involve oneself in change. And change represents conflict with stability of the sort implicit in teaching-to-repeat. So behaviorally when teaching-to-repeat methods are applied in the education of future business practitioners, these methods serve to reinforce stability, discourage questioning, and condition consistent, predictable views and approaches.

From the behavioral, we now turn to the neurological and what that research reveals about the potential of neurological effects of repetition. We apply these in a repetition-based educational context to more fully demonstrate the issues involved.
Developmentally the brain is driven by a preference for neurological efficiency and utilizes the processes of pruning and conditioning to achieve that goal. Synapses are the brain’s connections in which patterns or experiences are stored. If a connection ceases to be used, pruning occurs and the connection is discarded, “freeing resources for connections that matter” (Breznitz & Hemingway, 2012: 109). The brain, then, develops along lines of consolidation around developed patterns, connections, or experiences, increasing the emphasis of the left hemisphere. These patterns allow one to navigate environments continuously along familiar paths, even though the means or paths used for navigation may not be optimal. This prejudice toward developed patterns, toward assuming that what worked in the past should work in the present and beyond, causes tendencies toward less-than-optimization, which is illustrated by the psychological phenomenon of satisfying and the mental rigidity and automaticity which accompany it. We “…stop searching when we find a solution that is good enough. Satisfying, together with partial reinforcement of seemingly ‘good enough’ solutions, lead to mental rigidity” (Breznitz & Hemingway, 2012: 51). Following its preference for efficiency, the brain in turn moves toward greater levels of automaticity. “… (A)utomaticity despite being efficient and often useful, precludes innovation and change. It is inappropriate in situations that are different enough from the past situations to require new thinking” (Breznitz & Hemingway, 2012: 32).

Another part in the neurological processing that we call “thinking” is played by the corpus callosum, which controls the communications between the two hemispheres. While little is known about the corpus callosum, it is believed that it can play the role of both activating and/or inhibiting brain regions (e.g., Bloom & Hynd, 2005; van der Knaap & van der Ham, 2011). From an evolutionary perspective it seems to have developed to allow the brain to operate more efficiently (i.e., Aboitiz & Montiel, 2003). Assisting in the brain’s processing of information, the corpus callosum becomes conditioned to inhibit accessing the right hemisphere and aids in the process of pruning or eliminating weak brain connections that aren’t frequently activated by use (e.g., Garrido et al., 2009; Larson & Smith, 2011; Grill-Spector, Henson & Martin, 2005). In time, the right hemisphere shrinks along with corpus callosum (e.g., Fling et al., 2011). So the implicit behavioral biases in teaching-to-repeat, biases favoring familiar patterns; toward stability and conformity; and in opposition to conflict or moving away from accepted norms are compounded by experiential and efficiency biases of the brain itself.

Clearly it is not enough to criticize teaching-to-repeat. Educators have long recognized behavioral advantages and limitations of such educational methodologies. But given newly revealed neurological implications, perhaps the question for business educators should be, Can different methods be used more productively? What alternative methods can be used to produce outcomes more in keeping with the preference for agile thinking expressed by those who employ business graduates?

We propose consideration of one alternative approach, teaching-to-vary. It is founded upon the use of full brain methodologies, designed to work toward, not against, improved hemispheric balance and toward, not away from the development of more original and adaptive decision-making capabilities.

THE CASE FOR MORE AGILE THINKING

To deal with the complexity, dynamism and ambiguity of today’s world, Lazarra et al. (2010) found that “people must possess mental agility and the ability to adjust quickly yet accurately. Therefore, there is a need to train adaptive expertise to perform successfully” (Lazzara et al., 2010). Neuringer (2002: 672) points to the desirability of being able to respond to situations in a novel way as well:

“Behaving in an unusual, variable, or unpredictable manner is sometimes functional. An individual may sample new paths to reach a goal, invoke varied strategies when competing with an opponent, and generate novel combinations of images and concepts when doing scientific or artistic work.”

In collegiate marketing education, the need to instill capabilities for functioning in dynamic environments is pronounced. Yet here too, concerns have been expressed. Finch et.al (2013) surveyed marketing practitioners to identify areas in the marketing curriculum where the gap between importance
and performance were the greatest. The biggest gaps identified were in what they termed meta-skills (i.e., skills that transcended the field of marketing) such as the ability to identify, formulate and solve problems or to adapt to change. Even more significant, they reported that such meta-skills outweighed marketing knowledge in the marketplace and should form the core of any marketing curriculum.

“This validates the assertion by the panel that a new graduate who demonstrates the priority meta-skills will be more competitive in the marketplace when compared with the one who possesses only marketing knowledge. By extension, it is recommended that learning outcomes linked to meta-skill development take priority over marketing knowledge outcomes in both program and course development” (Finch et al., 2013: 65).

These findings would seem to both confirm and extend those of Walker et al. (2009) who examined employers’ perspectives on what college graduates would need to make a successful transition to becoming professional marketers. A key finding of this research is that graduates need to understand more than the “what’s” and “how’s” of marketing. But in the varying business situations they must navigate, they must also be prepared to demonstrate agility in choosing the “which” and the “when,” as the path itself is a dynamic one. However, as Neuringer asks:

“Where does such variability come from? Why can some individuals ‘be loose,’ avoid ruts, and engage in novel actions, whereas others seem set in their ways? How do we increase or decrease variability when it is important to do one or the other – to behave in a nontraditional or creative way when that is needed, and to repeat practiced, predictable response when situations so demand” (Neuringer, 2002: 672)?

This flexible, adaptive thinking has come to be more commonly referred to as mental or thinking agility. Koutstaal (2012: 12) offers an extensive review on discussions of mental agility in her book titled The Agile Mind. She finds that debates in the literature have largely been “about whether skill in process or skill in content was most important in problem-solving,” concluding that mental agility encompasses both, and that both are necessary for navigating diverse and variable situations. From her perspective, mental agility is the ability to move back and forth along a continuum from automatic (habitual) processes to controlled (more involving, engaged thinking) processes and at the same time, be able to move back and forth along a continuum from concrete to abstract content (or information). Yet while Koutstaal’s mental agility perspective offers an encompassing description of the agility phenomenon from a psychological perspective, it, like the work of those she criticizes, neglects the neurological aspects of agility.

Combining perspectives from neurology and from psychology, the following definition is offered as a more comprehensive attempt to describe mental agility or thinking agility (here simply referred to as agility):

**Agility** is the inclination and ability (skill) to more fully utilize existing brain connections/neuro-networks across hemispheres and also to continuously create new ones. These new brain connections/neuro-networks allow differing forms of content to be formed or utilized via differing means of processing. Agility involves not only the movement/synchronization along existing brain connections/networks but also the inclination and ability (skill) to continuously create new ones – that is to vary – while developing a greater tolerance to the psychological/physiological tensions created through utilizing higher energy usage to create the new connections.

Agility so defined involves both seeking new forms of representation, and developing an inclination to continue progress through seeking, resisting or avoiding automatic acceptance of already formed representations. The movement within the agility phenomenon is characteristically stochastic and driven (motivated) by an unsettled-ness, a discomfort or tension resulting from leaving the established groove of repetition (e.g., Von der Malsburg, Phillips, & Singer, 2010).
TEACHING-TO-VARY: ON THE ROAD TO AGILITY

It is through the practice of varying that skill in agility develops, creating the neurological movement and the creation of new neural connections. At its most basic level, teaching-to-vary is about teaching students to ask new questions instead of teaching students to deliver old answers. Teaching-to-vary asks students to think beyond the given, to view problems from new perspectives, or generate different or alternative solutions, or to craft original responses in changing competitive situations. Students taught in this manner learn and practice the skills to vary, developing agility skills. In teaching-to-vary, the educational emphasis on content is replaced by an emphasis on the development and application of skills. In the teaching-to-vary environment, the reward process must serve to motivate variance along with recognition of the resulting psychological tension that comes from creating difference. Suggested methods for accomplishing this in educational application are discussed next.

REWARD WHAT YOU VALUE, TO GET WHAT YOU REWARD

In teaching-to-repeat, students are rewarded when they demonstrate their ability to “give back” accurately content provided by others. In teaching-to-vary, original thought and application - varying - is encouraged, so it is important that reinforcement techniques used reflect this. The following research addresses some of the key issues for consideration in this regard.

Rewards and Motivation

Schwartz (1982) found that rewards within a classroom setting can be counterproductive to variability and can cause a negative effect on the intrinsic motivation. Therefore, activities that are already intrinsically rewarding need not be externally rewarded. Rewards may be decreasingly used to encourage activities that are increasingly intrinsically interesting. This would suggest that using rewards for the purposes of encouraging engagement (extrinsic motivation) with an originally negatively perceived task could be used until a more positive disposition develops (intrinsic motivation). But once this development occurs, the rewards should be discontinued.

Differential Reinforcement Effects

In sports as in business strategy, varying one’s responses to an opponent’s action may be critical to being able to win. This requires not only having a repertoire of maneuvers/techniques, but also having the ability to use these in varying combinations and/or sequences to out-maneuver one’s opponent. Harding et al. (2004) report findings from a series of sport-based studies showing that differential reinforcement procedures can be used to improve this type of variation in performance. Their investigation of differential reinforcement procedures to promote response variability in sports competition found that reinforcement of varying techniques during practice led to an increase in response variability in play, and also led to the extinction of repetition behavior.

Temporal Effects of Rewards

Cherot, Jones and Neuringer (1996) found temporal negative effects with rewards. It seems that the proximity of the reward has an “attractive pull” against variability. In other words, with the approach of the reward, the perceived need for the “varying” in thinking decreases and ultimately shuts down. In this sense, the increasing proximity of the reward acts as a de-motivational element. They also report a variety of other studies that show negative effects of rewards on variability in various types of activities.

Potential Age-Related Differences

Lopatto et al. (1998) examined potential age-related differences in cautiousness, stereotypy, and variability using continuous versus intermittent reinforcement. They found that: (1) continuous reinforcement led to higher levels of stereotypy than intermittent reinforcement for both college students and adults, (2) intermittent reinforcement revealed an age difference in effect where adults showed greater
levels of stereotypy than college students, and (3) utilizing intermittent (differential) reinforcement led to learning varied response patterns for both groups.

These results in conjunction with the findings of Cherot, Jones and Neuringer (1996) suggest that varying responses are more likely to occur with varied reinforcement and that as the reinforcement event approaches the varying will decrease. In contrast, stereotypy or repeated response patterns develop in conjunction with regular or continuous reinforcement. So it would appear that Neuringer was right when he said that “variability is controlled by its consequences,” and that “repeating and varying, in part, are learned skills under the control of reinforcing consequences” (Neuringer, 2004: 891).

SUGGESTIONS FOR TEACHING-TO-VARY

Teaching-to-vary requires thought in reshaping rewards away from the patterns adopted as a part of a teaching-to-repeat model in order to encourage the development of more agile thinking. It requires recognition and avoidance of various forms of mental fixedness. In teaching-to-vary, the back and forth or conversation replaces the lecture. The ability to ask a good question becomes more important than the ability to recite answers provided by others. Questions have the potential to create new and varied approaches, so in teaching-to-vary questioning behavior is valued and fostered behavior. Developing agility, involves disarming both our psychological and our biological tendencies towards relying on experience and creating instead a sense of comfort or normalcy with the dissonance that accompanies change and difference. It requires an understanding that to teach-to-vary is to embrace, rather than avoid, difference (Hill, 2010; Hill, 2013).

To illustrate implementation of teaching-to-vary in developing more agile management and marketing thinkers, we offer the following, using what Dyer, Gregersen and Christensen (2009) in “The Innovator’s DNA” call the five important “discovery” skills of innovators: associating, questioning, observing, experimenting, and networking. Clearly these skills demonstrate the type of agile thinking that practitioners seek, but don’t find, in too many of today’s business school graduates.

To Practice the Associating Skill
The associating skill involves seeking out new associations by pairing things that aren’t typically seen as being related. Here the educator can demonstrate this skill in class as means to relate what is being taught with students’ personal experiences – “creative ability to make novel connections with the seemingly irrelevant on the part of educator evokes the learner’s sensitivities and encourages the latter’s capacity for the imaginative integration of what is learned with personal experiences” (Chia & Holt 2008: 472). In a teaching-to-vary approach, students could also be asked to come up with unique pairings and to provide new product/service categories based upon the pairings. Similarly, students could be asked to consider how concepts (regardless of where they are developed) could be adapted to other fields. For example, how could off-peak pricing policies used in restaurants and theaters be adapted to alleviate rush hour traffic congestion or how could “virtual reality” (the technology used to impose yard markers and other images on the field during a televised football game) be adapted to retail dressing rooms?

To Practice the Questioning Skill
The questioning skill is directed towards challenging (questioning) the status quo (i.e., the familiar, the accepted) to unfreeze it and open possibilities to move in different directions. In a teaching-to-vary approach, for example, marketing students could be asked to take any marketing concept (e.g. the marketing mix via its 4 P’s), question its application in varying situations, and then offer alternatives. This could be done with any management or business concept as well. This exercise also serves to illustrate the need to recognize and overcome obstacles — another aspect of teaching-to-vary.

To Practice Observing and Network Skills
Observing and networking skills involve exposing oneself to different environments and sources of information for the purposes addressing cognitive entrenchment and to become more flexible in one’s
thinking. Egri (2012) suggests that business students could benefit from participating with other schools or colleges on campus such as with the Fine Arts to aid in nurturing their creativity. Students could be taken to different business settings to observe differences in operations and cultures. They could also be encouraged to join and participate in different online blogs and/or offline associations (e.g., the American Marketing Association and a creative fiction writers’ group). It also might be useful after such an experience to invite students to discuss unexpected differences and/or similarities observed among apparently very different types of groups.

To Practice the Experimenting Skill

The experimenting skill is the willingness to take risks. An important point of the development of this skill is development of an understanding that failures are a normal part of the innovation process, rather than something to be avoided at all cost. In a letter to investors, Jeff Bezos, CEO of Amazon wrote (McGregor, 2016):

"One area where I think we are especially distinctive is failure… I believe we are the best place in the world to fail (we have plenty of practice!), and failure and invention are inseparable twins. To invent you have to experiment, and if you know in advance that it's going to work, it's not an experiment. Most large organizations embrace the idea of invention, but are not willing to suffer the string of failed experiments necessary to get there."

Here, students could be asked to identify several different business ideas developed for one type of situation, and then test them in an entirely different type of situation to see whether they might work beyond the original application. Discussing what has happened at the end of this exercise might provide students with additional insights and perspectives.

CONCLUSION

While these exercises are offered as examples of teaching-to-vary implementation, clearly much research is needed to provide a more complete understanding of the underpinnings of thinking agility as well as methods for facilitating its development in the classroom and beyond. We invite our colleagues to help us to expand and refine our understanding of this approach, and its applications. Perhaps our discussions will help us to apply more thinking agility to the current state of business and management education and might encourage it too to become more open and flexible. And perhaps this will help to improve the degree of practitioner satisfaction with the preparation of business graduates.

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This paper aims at shedding more light on performance-based funding. It offers a historical background and discusses a couple of important theories underpinning the adoption of this policy. It finds that there are diverse motives and reasons causing the implementation of performance-based funding, proportionally supported and enacted by a particular partisan group. Performance based-funding appears to have weak to modest statistical significance in regards to institutional outcomes, such as degree completion, graduation rate, and attainment of certain credit hours. This is attributed to many hindrances and obstacles encountered by such a policy. A number of implications for this policy to be effective and efficient are proposed.

INTRODUCTION

American higher education institutions have been encountering intensified scrutiny and criticisms. This is attributed to the observed fact that higher education costs have accelerated during the last decades; meanwhile, most of the costs of such educational services have been shifting from being the responsibility of the federal and state governments and higher education institutions to be mostly the responsibility of students and their families (Baum, 2001; Toutkoushian, 2001; Weeden, 2015). In his analysis of revenues and expenditures of higher education, Toutkoushian, (2001) concluded that “The cost of higher education services has outpaced the rate of inflation for the past twenty years … That rising educational prices have been due to both rising costs of education and falling subsidies from government and private sources “(p.32).

While the costs of higher education services have increased during the last decades, accountability in higher education has augmented as well. This is because of numerous legitimate concerns pertaining to higher education efficiency, effectiveness, productivity, and responsiveness to the public, state, and market’s demands, needs, and interests (Bruke, 2005; McLendon, Hearn, & Deaton, 2006; Weeden, 2015). Due to constituencies concerning the quality, effectiveness, and efficiency of higher education institutions, there have been various initiatives, policies, and programs stressing and scrutinizing specific aspects of higher education and holding institutions more accountable for their performance (Burke, 2005; McLendon et al., 2006; Lasher & Sullivan, 2005; Schmidt & Berdahl, 2011; Weeden, 2015; Weeden, 2015). Accountability in higher education has undergone many changes and transformations during the last decades. Burke (2005) found that “accountability programs for higher education have shifted over time from system efficiency, to educational quality, to organizational productivity, and to external
responsiveness to public priorities or market demands” (p.4). As such, higher education institutions have undertaken various initiatives in order to improve their performance and bring about desired outcomes.

One of the initiatives is the adoption of performance-accountability (McLendon et al., 2006; Weeden, 2015). Policymakers continue to be concerned with performance efficiency and effectiveness of higher education institutions. Thus, they mandate and enact several types of performance-accountability models in order to increase efficiency, effectiveness, and productivities of higher education institutions on a set of predetermined measures. Accordingly, higher education institutions will be held more accountable for their performance on the specified indicators (Barr, 2002; McLendon et al., 2006; Lasher & Sullivan, 2005; Weeden, 2015; Weeden, 2015). Performance-accountability has experienced resurgence and popularity in recent years. Since 1979, there have been three distinct forms and models of performance-accountability, performance-funding, performance-budgeting, and performance-reporting, and there have been a great number of studies investigating the emergence of such performance models (McLendon et al., 2006).

For the purpose of this paper, performance-funding will be investigated. This performance model involves the process of tying state funding directly and tightly to predetermined individual measures and metrics representing institutional outcomes, such as student retention rate, attainment of certain credit hours, student graduation rate, degree completions, and job placement (Barr, 2002; Dougherty & Reddy, 2013; Lasher & Sullivan, 2005; Weeden, 2015). There are overarching motives for investigating this type of performance model. The first pertains to the observation that this performance-based funding is widely spread across the states. It has been reported that this performance model has been established in approximately 40 states at one time or another, and there are almost 39 currently in operation (Dougherty & Natow, 2015; Dougherty & Reddy, 2013; National Conference of State Legislatures, 2015). The second motive relates to the observation that performance-based funding has undergone several transformations and modifications in order to increase its effectiveness and efficiency and has received considerable attention from diverse stakeholders, such as universities and colleges officials, governors, and legislators (Dougherty & Natow, 2015; Dougherty & Reddy, 2013).

This paper surveys a number of empirical studies, books, book chapters, and reports in an attempt to demonstrate the effects of performance-based funding on the performance of higher education institutions, such as how this model stimulates and influences institutional practices and contributes to the effectiveness, efficiency, and productivities of higher education institutions. This paper starts with a brief history of performance-based policy. It sheds light on the action of theory embedded in performance funding policy. Then it discusses the origins and motives of establishing performance funding policy. In addition, the paper shed light on institutional outcomes (ultimate, immediate, and intermediate) resulting from the adoption of performance-based funding. Finally, it identifies a number of obstacles impeding the effectiveness and efficiency of such policy and concluded with a couple of implications and recommendations.

**BRIEF HISTORICAL BACKGROUND**

As stated previously, performance-based funding is the process of connecting the performance of higher education institution on a particular set of indicators to state funding (Dougherty & Natow, 2015; Dougherty & Reddy, 2013; National Conference of State Legislatures, 2015; Weeden, 2015). It means that any given institution should perform at or above individual indicators. These indicators may represent intermediate and ultimate institutional outcomes. Some of these indicators might include student retention, credit completion rate, student graduation rate, and degree completion rate, to name a few (Dougherty & Natow, 2015; Dougherty & Reddy, 2013; National Conference of State Legislatures, 2015; Weeden, 2015).

Performance-based funding falls into two main models. The first one, which is widely employed by many states, is performance funding 1.0 (Dougherty & Natow, 2015; Dougherty & Reddy, 2013). This type of funding is considered as a bonus that the institution obtains in addition to the regular state funding. Typically, the bonus is allocated because of the accomplishment of certain ultimate and
intermediate outcomes: graduation rate, job placement, completion of introductory courses, succeeding in completing certain credit hours. The second type is performance-based funding 2.0. This model is considered to be newly employed form except for a couple of states, such as Tennessee and Ohio. This type of funding varies from performance-based funding 1.0 in that it is not a bonus over and above the regular state funding; instead rather, it is an integral part of the state funding formula (Dougherty & Natow, 2015; Dougherty & Reddy, 2013; Weeden, 2015). Thus, based on the institution’s performance on the pre-specified indicators, a portion of the state funding will be allocated to any given institution.

It is important to understand that the designated funds for these two models vary across the states employing these models. According to National Conference of State Legislatures (2015) the allocated funds based on performance based funding ranges from less than %1 to %100. For example, Illinois State, knowing for recently reestablished performance funding policy (2013), allots less than %1 of its appropriation for its four-and-two-year higher education institutions. Another example, knowing for its long standing performance funding policy (1979), Tennessee State allocates %100 of its appropriation for all of its higher education institutions (National Conference of State Legislatures, 2015).

THEORY OF ACTION UNDERPINNING PERFORMANCE-BASED FUNDING

Performance-based funding aims at improving and enhancing institutional performance on a set of predetermined indicators. These measures include a number of outcomes, such as student retention rate, completion of certain credit hours, student graduation rate, degree completion rate, job placement rate. However, in order to realize the aforementioned outcomes, performance-based funding is found to embody a number of theories of action, three of which were selected due to their prevalence. These include resource dependence theory, principle-agent theory, neo-institutionalism and information provision theory (Dougherty et al., 2014; Dougherty & Reddy, 2013; Nisar, 2015). It is better to shed light on these three theories in some details due to their importance in guiding the implementation and investigation of performance-based funding.

Resource dependence theory assumes that the success or failure of performance-based funding depends, to a great extent, on the amount of money allocated to a given higher education institution on the basis of its performance on the pre-specified metrics (Dougherty et al., 2014; Dougherty & Reddy, 2013; Nisar, 2015). As the state appropriation tied with this funding policy increases, institutional performance is supposed to spur. Whereas, the appropriation associated with this policy decreases, the institutional performance is subject to decline. This is because of the assumption that acquisition of resources is substantially influenced by resulting benefits. Presumably, higher education institutions will intentionally exert and devote the necessary effort, time, and resources to accomplish the predefined measures in order to be eligible to receive state funding (Dougherty et al., 2014; Dougherty & Reddy, 2013; Nisar, 2015).

Principle-agent theory considers any given state as the principle while the higher education institution represent the agent (Nisar, 2015). The principle (here is the state) is to command and lay out the regulations and policies with which the agent (higher education institution/s) should comply and carry out its operation, programs, and activities. In the case of performance based funding, the principle (state) wants the agent (higher education institution/s) to execute particular tasks in order to achieve the predefined institutional outcomes (Nisar, 2015).

Neo-institutionalism theory states that success of performance-based funding or the lack thereof depends on the interaction of funding-policy advocates with various institutional components, such as university mission, structure, faculty governance orientation, and student demography (Nisar, 2015). There should be positive, cohesive, and complementary interactions between performance-based-funding providers and institutional elements. One way to do this is through the provision of information to institutional officials, including top, middle, and lower-level managers as well as faculty members (Dougherty et al. 2014). This should be done by the performance-funding providers (states). When consistent and genuine communications between the respective constituencies occur, institutional awareness will be more likely to spur. As a result, the more consistent and positive interactions between
performance funding providers and the institutional components are, the more the likelihood that this policy will succeed and bring about the desired institutional outcomes (Nisar, 2015).

However, when investigating the theory of action guiding the establishment and operation of performance funding at three states, Indiana, Ohio, and Tennessee, Dougherty et al. (2014) found that the espoused theories of action were not clearly articulated and equally shared among state-level advocates and institutional officials. They, Dougherty and his colleagues, indicated that the state-level advocates had limited vision of the espoused theory of action due to focusing almost exclusively on some aspects, such as financial incentives, while paying less attention to other aspects, such as specification of policy instruments and possible obstacles that might impede the effectiveness and efficiency of performance-based funding.

MOTIVES AND ORIGINS OF ADOPTING PERFORMANCE-BASED FUNDING

Many studies have investigated the origins, forces, and motives driving the development and establishment of performance-based funding (Dougherty et al., 2014; Dougherty & Natow, 2015; Dougherty & Reddy, 2013; Dougherty, Natow, Bork, Jones, & Vega, 2013; McLendon et al., 2006; Rabovsky, 2014). Generally speaking, these studies have found that the adoption and development of performance funding policy is to increase higher education institutions’ efficiency, effectiveness, productivity, and responsiveness to societal and markets’ needs, demands, and interests. Interestingly, almost all he studies reported in this paper showed a great deal of consistency associated as regards to their findings and conclusions.

For instance, when examining the forces driving the adoption of performance-based funding in six performance states, Tennessee, Florida, Illinois, South Carolina, Missouri, and Washington, Dougherty et al. (2013) found that many officials representing various organizations have contributed, to varying degrees, to the development and establishment of performance-based funding. These include state legislators, governors, universities’ officials, business organizations, and professional organizations and foundations, such as Lumina Foundation and Complete College America. This finding has been corroborated by other studies (Dougherty et al., 2014; Dougherty & Natow, 2015; Doughert et al., 2013; Rabovsky, 2014). Evidently, one of the main reasons contributing to the establishment and evolvement of performance-based funding in many states is attributed to the concerted effort exerted by the various proponents to mandate such policy.

In the contrary, while there are a numerous number of proponents supporting the adoption and enactment of performance-based funding, there are many opponents against such policy. For example, the adoption of performance funding policy is found to be negatively associated with higher education governance and legislative party strength (Republicans) (Dougherty et al., 2013; McLendon et al., 2006; Rabovsky, 2014). Republican legislators appeared to tremendously advocate for performance funding policy compared to their counterpart, Democratic legislators. Hence, as the percentage of Republicans legislators increases in conjunction with the absence of consolidated governing board, the higher the probability that states will adopt performance funding policy. Further, Dougherty et al. (2013) found that in non-performance states, California and Nevada, there have been great oppositions against the adoption of performance funding policy. In California, the oppositions were pronounced by the system governing boards for University of California, California State University, and the community colleges while in Nevada State, performance-based fund lacked the support from the legislators (democrats) although the Board of Regents advocated for such policy. Thus, the likelihood of adopting and enacting performance funding policy is negatively associated with democratic governors and legislators as well as consolidated higher education governing board.

IMPACTS OF PERFORMANCE-BASED POLICY

A great number of studies have been conducted in order to investigate the impacts of performance-based funding on many institutional ultimate outcomes, such as student retention rate, student graduation...
rate, degree completion rate, and attainment of certain credit hours. Many studies have investigated the impacts of performance policy on two-year institutions (Hillman, Tandberg, & Fryar, 2015). Others have examined the effects of such policy on four-year higher education institutions (Rutherford & Rabovsky, 2014; Tandberg & Hillman, 2014). Still others have investigated the impacts of performance-based funding on both two and four-year higher education institutions (Hillman, Tandberg, & Gross, 2014; Tandberg & Hillman, 2013).

While performance-based funding have experienced resurgence and popularity in recent years, there has been weak to modest evidence demonstrating that this funding policy has significantly impacted institutional outcomes (Dougherty & Reddy, 2013; Hillman, Tandberg, & Fryar, 2015; Hillman, Tandberg, & Gross, 2014; Rutherford & Rabovsky, 2014; Rabovsky, 2011; Tandberg & Hillman, 2013). Statistically speaking, when scrutinizing the impacts of performance-based funding on three institutional ultimate outcomes, student retention rate, student graduation rate, and degrees completion rate, the findings reported by all these studies showed mixed results and demonstrated weak to modest significant effects on such outcomes.

For example, Hillman, Tandberg, & Gross (2014) investigated the impact of performance-based funding, which was established on 2000, on the Pennsylvania State System of Higher Education (PSSHE). They found that the performance funding policy has not systematically contributed to the increase of degrees production and completion rate. Even though they found modest impacts resulting from the implementation of such policy when compared to neighboring states, these effects vanished when compared to other similar universities and colleges situated in other non-performance states. Furthermore, when comparing performance state to non-performance states, Tandberg & Hillman (2014) found no statistically significant differences in the production and completion of baccalaureate degrees at public four-year higher education institutions. Interestingly, as the implementation of performance funding progressed through the years, it started to show some positive and significant impacts on the baccalaureate degrees produced. However, the magnitude of the effect size is small, as the coefficient range from 0.035 to 0.042 on the seventh and eightieth years, respectively. It is reported that after 11 years, the magnitude showed slight increase, demonstrating that the duration of operation of such programs correlated with the increase of bachelor’s degrees completion (Tandberg & Hillman, 2014). Hence, the longer the operation of performance funding policy is, the more likelihood the production of baccalaureate degrees will increase.

Additionally, Tandberg & Hillman (2013) found performance-based funding has not yielded significant impacts on degree completions and productivities. However, after seven years of the inception of such funding policy, positive effects were associated with baccalaureate degrees completions while after five years negative impacts were related to associate degrees productions. Another recent study has confirmed that there was no statistically significant association between performance funding and graduation rate, retention rate, and baccalaureate completion rate (Rabovsky, 2011; Rutherford & Rabovsky, 2014). However, not statistically significant, the study found negative relationships existed between performance funding (both 1.0 and 2.0) and student outcomes except for positive relationship with one indicator, graduation rate. Furthermore, when comparing Washington community and technical colleges implementing performance funding policy (31) with non-performance funding institutions (Western Interstate Commission for Higher Education Institutions (175), neighboring states’ community and technical colleges (18), and a sample of (64) community and technical colleges), there were limited impacts of performance funding on student retention and associate degrees completions (Hillman, Tandberg, & Fryar, 2015). However, short-term goals showed some statistical increases as the time progressed. Furthermore, Washington community and technical colleges, on average, produced an increase number of short-term certificates after implementing performance funding policy while producing lower number of long-term certificates and associate degrees (Hillman, Tandberg, & Fryar, 2015).

While many studies have investigated the impacts of performance-based funding on institutional ultimate outcomes, especially student retention rate, student graduation rate, and degrees completion rate, other immediate institutional outcomes have been reported (Dougherty et al., 2014; Dougherty & Reddy,
In regards to the immediate institutional outcomes, Dougherty & Reddy (2013) have done a great work in summarizing such outcomes. One outcome pertains to institutional finances that have experienced many changes. Performance-based funding 1.0 reported to have little impacts on institutional outcomes because it has accounted mostly for less than 1 to 6 percent of the state appropriation. However, it was anticipated that under the full implementation of the second type of performance funding 2.0, the institutional finances will be changed dramatically provoked well-planned measures to bring about the predetermined outcomes (Dougherty et al., 2014; Dougherty & Reddy, 2013; Rabovsky, 2014). Another impact is the share knowledge of state priorities and goals. Performance funding states along with its institutions were reported to have more communications and information sharing, leading to spur institutional responsiveness to states’ priorities, needs, and interests. Still another impact is the increase of the institution self-awareness. Performance-based funding is reported to force institutions to reflect on and find out about their performance in comparison to other institutions. This in fact leads to the fourth impact pertaining to the increase of status and competition between and among institutions. Final impact is building capacity for organizational learning. Supposedly, this impact leads the institutions to focus more on data collections and evaluation of their various activities and programs (Dougherty & Reddy, 2013).

In addition to the immediate impacts resulting from the implementation of performance-based policy, there are many intermediate effects (Dougherty & Reddy, 2013; Rabovsky, 2012; Rabovsky, 2011). These can be categorized into three areas. First category portrays changes on academic policies, programs, and practices, such as amount of money devoted for instruction was reported to be higher than amount of money allocated for research purposes, especially at four-year institutions (Rabovsky, 2012; Rabovsky, 2011). Another change is associated with the reorganization and restructuring of the structure of academic department and staffing like shouting down an inefficient and unproductive programs and consolidating administrative activities under small unit. Still another change pertains to the alteration and improvement in curricula. Second category depicts the alteration to development education and tutoring like supplemental instruction and intensive tutoring programs, physically and virtually. Third category pertains to changes on students’ service policies, programs, and practices such as alteration to registration and graduation policies and procedures like changing the registration system for enrolling courses (date and time). Another change is the improvement and simplification of financial aid policies and practices through the provision of sufficient information. Still another change is the slightly increased focus on low-income students, improving retention rate of first-year students, such as aligning students with the appropriate advisors, having alert system to notify students, faculty, and students affair personnel about the performance of such student, and increasing the effectiveness in student counseling and advising services (Dougherty & Reddy, 2013).

While there intended outcomes (immediate, intermediate, and ultimate), there are a number of unintended impacts resulting from the adoption of performance-based policy. One undesirable impact is the considerable amount of money that has been spent in order to comply with performance funding mandates and regulations (Dougherty & Natow, 2015; Dougherty & Reddy, 2013; Dougherty et al., 2014; Dougherty et al., 2013). For example, institutions are required to provide adequate data covering operations and processes contributing to the accomplishment of the predetermined and agreed-upon measures (Schmidtei & Berdahl, 2011). Accordingly, this complicated and intricate process might entail additional resources like recruiting well-qualified personnel who can deal with data gathering, analyzing, and reporting. Another unintended impact pertains to the narrowing and deemphasizing of institutional missions. Having a set of particular indicators measuring and gauging institutional performance may narrow intuitional officials’ perceptions and practices and may cause them to neglect other important aspects in their respective institutions. Another undesirable effect relates to the debilitating of academic standards. As such, there will be more propensities on the side of institutions to concentrate on lower-level goals because they seem to be easier to accomplish and are more likely to spur institutions’ potential of receiving the designated funds (Dougherty & Natow, 2015; Dougherty & Reddy, 2013; Dougherty et al., 2014; Dougherty et al., 2013).
Still another unintended outcome associates with limiting student admission, especially for those coming from disadvantaged backgrounds (Dougherty & Natow, 2015; Dougherty & Reddy, 2013; Dougherty et al., 2014; Dougherty et al., 2013). This is because of the notion that some institutions may game the system by either reducing the academic standard to help underprepared student complete their courses and graduate in the specified time or increasing the academic and admission standards that will ultimately lead to the exclusion of such students. Still another undesirable impact is the undercutting of faculty’s role in the academic governance. It has been documented that faculty members have not substantially contributed to the planning and creation of performance-based policy (Dougherty & Natow, 2015; Dougherty & Reddy, 2013; Dougherty et al., 2014; Dougherty et al., 2013). Consequently, the undercutting of faculty’s role in academic governance has, to varying degrees, contributed to a number of obstacles impeding the effectiveness and efficiency of performance-based funding.

OBSTACLES HINDERING PERFORMANCE FUNDING POLICY

There are a number of obstacles impeding the effectiveness and efficiency of performance-based policy. These obstacles obstruct performance funding policy from bringing about desirable effects on institutional outcomes (Ellis, 2015; Dougherty & Natow, 2015; Dougherty & Reddy, 2013; Dougherty et al., 2014; Dougherty et al., 2013; Rabovsky, 2014). These obstructions includes the inappropriate indicators and measures embedded in the funding policy: the instability of measures and indicators, the short living of many performance funding policies, the insufficiency and irregularity of state funding of performance funding, the lack of awareness within the institution boundaries, the inequality of institutional capacity, the resistance and gaming in the institutional systems in response to performance funding, the deceptive compliance with the requirements associated with performance funding, and the lack of genuine and effective participations of institutional officials, especially middle and lower-level managers as well as faculty members (Dougherty & Natow, 2015; Dougherty & Reddy, 2013; Dougherty et al., 2014; Dougherty et al., 2013; Ellis, 2015; Rabovsky, 2014). In fact, many of the aforementioned obstacles might be attributed to the way that state appropriation has been distributed and allocated.

Dougherty & Reddy, (2013) and Ellis (2015) have identified three distribution patterns of states appropriation based on the performance funding policy. The first pattern pertains to the finding that the allocated amount of fund for performance based funding is very little compared to the total state higher education appropriation. The fund might be little as low as %1 to as high as %15; except for two states, Tennessee and Ohio, that allocate %100 of their higher education appropriations to performance based funding. The second pattern refers to the distribution of the amount of fund between and among the performance-based funding standards and indicators. As such, some indicators might be allotted a great amount of money while others might not receive sufficient amount of fund. This means that some measures will obtain more money and get more attention than others. For example, the range of state allocated fund for all performance funding standards is accounted for less than %1 in Michigan; whereas %100 of state allocated fund is devoted to one single standard in North Dakota. Still another example is that Science, Technology, Engineering, and Mathematics (STEM) are found to be most common metric and were accorded a higher portion of the state designated fund. This means that competitiveness between and among the institution’s departments, programs, and activities will surge in an attempt to secure the prospective fund for such departments, programs, and activities (Dougherty & Reddy, 2013; Ellis, 2015).

Additionally, in each state there is various type of higher education institution espousing different missions, representing different governance structures, and serving various populations (Dougherty & Reddy, 2013; Ellis, 2015). Hence, these institutions, to great degrees, function differently and carry out their programs and activities differently. Therefore, to run their organizations they must secure adequate resources in order to accomplish their purposes and goals and materialize their missions. As such, competitiveness between and among these institutions will certainly heighten. Those, flagship universities, having already in place massive resources to achieve the state’s designated standards are more likely to secure the fund. Conversely, those, regional universities especially community colleges,
possessing modest resources might not be able to attain the state’s designated indicators and are more likely to lose the funds (Dougherty & Reddy, 2013; Ellis, 2015).

IMPLICATIONS

The findings of this paper pinpoint a couple of compelling implications for the adoption and development of performance-based funding. Firstly, many of the studies discussed the undercutting role of faculty members in planning and developing performance-based policy (Dougherty & Reddy, 2013). It is of paramount importance to increase faculty members’ engagement in the planning, developing, and implementing processes of performance-based funding. Faculty members are the most educated and knowledgeable ones about student learning and development. They have continues and intimate interactions with students, including graduates and undergraduates. Faculty members are in better positions to figure out students’ need and interests and how to cater to such demands. Most importantly, faculty members will be able to identify the essential resources to bring about desirable institutional outcomes related to student learning and development. This, in fact, leads to the second implication.

This implication pertains to the development of performance-based funding measures. There is a great deficiency in terms of creating and developing comprehensive indicators representing the various types of higher educations as well as the diverse programs offered at these institutions. Measures of performance-based funding should include a wide spectrum of institutional outcomes. These outcomes should represent the missions, purposes, objectives, and programs of the diverse types of higher education institutions. For example, it is evidently that the mission and purpose of research institution will be dramatically different from the mission and purpose of two-year institution. The first type of institution is research-orientated and mostly employs selective admission criteria while the latter is teaching and technical-oriented and mostly utilizes open access admission. As such, these two institutions serve mostly different populations and embody distinct purposes, programs, and activities. Therefore, it is essential to take into consideration the aforementioned differences when building and developing measures gauging the institutional performance.

When the indicators of institutional performance represent the diverse missions, purposes, objectives, and programs of higher education institutions, fairness and equality in the allocation and distribution of state appropriation will take place. Each institution, along with its various departments and programs, is more likely to secure the sufficient amount of money. This is not because they compete with others for the given fund; instead rather, it is due to the accomplishment of the pre-specified standards. Thus, counterproductive competition occurring between and among higher education institutions will be reduced and minimized.

At last but not least, while there is little evidence demonstrating the significant impacts of the adoption of performance funding policy, it should be kept in mind that performance-based funding has experienced discontinuity and instability in many states. As such, the discontinuity and instability might have hindered such policy from bring about intended outcomes. Further, it is essential to understand that most of the studies reviewed in this paper investigated performance-based funding 1.0. This is due to the inadequate number of studies examining the impact of performance-based funding 2.0. Therefore, it is important to allow such policy (performance-based funding 2.0) more time to stabilize and institutionalize. As such, positive and significant desired outcomes may flourish.

CONCLUSION

This paper reviews a reasonable amount of empirical studies, books, book chapters, and reports in order to demonstrate the effects of performance-based policy in higher education institutions. It discusses the origins and motives of adopting performance funding policy and a number of theories of action underpinning such policy. It also discusses the ultimate, immediate, and intermediate impacts resulting from the adoption of performance-based funding. The findings represent weak to modest significant impacts of such policy. In addition, the paper sheds light on a number of obstacles impeding the
effectiveness and efficiency of performance-based policy. It also draws some implications that might increase the effectiveness and efficiency of performance funding policy and reduce the difficulties and obstacles as well.

RESOURCES


A Conceptual Framework of Cognitive Game Theory to Motivate Student Learning

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This paper considers the application of game theory to motivate student learning. The advantage of game theory is that ultimate-payoffs are made explicit and constitute the basis for student motivation of an extrinsic and intrinsic nature. This paper reviews game theory and offers an experimental design to assess the direction, intensity and persistence of student learning in Principles of Marketing courses. Preliminary findings from a pilot study between Principles of Marketing control and experimental sections is that (a) interventions to encourage students to switch to the marketing major should take place in the freshman and sophomore years and (b) interventions addressing marketing career paths and income levels help improve the image of the marketing profession.

INTRODUCTION

Learning in its many guises has evolved from the passive didactic into highly participative methods (experiential, service, action) that help students become valuable problem solvers. The emphasis on learning to learn (lifelong learners) across the many and varied careers graduates will experience requires that learning shifts away from the delivery of knowledge and toward the development of knowledge and skills (Bridgestock, 2014). The competitive landscape facing students has also changed dramatically. The 1.13 million foreign students in the U.S. enrolled mostly in college-degree programs represent a 14% increase over 2014, nearly 50% more than in 2010 and 85% more than in 2005 (Jordan, 2015). In addition to increased global competition for jobs, another competitor may be technology, or more specifically, automation. As Levy and Murnane (2013) point out, “In order to prepare young people to do the jobs computers cannot do we must re-focus our education system around one objective: giving students the foundational skills in problem-solving and communication that computers don't have (p.3).”

In spite of possessing the world’s most prestigious universities, the most advanced learning software and decorated instructors, the U.S. has its share of educational challenges. The Organization for Economic Co-operation and Development (OECD) ranked the U.S. as 28th out of 76 countries on average mathematics and science scores for 15 year old students. The report claimed 24% of all students in the
U.S. had not acquired basic skills, making it the second-worst high-income country in the world on this measure, after Luxembourg (Coughlan, 2015).

It is therefore somewhat misleading to suggest that student learning is the key to individual, national and global success. In spite of powerful learning techniques and measures, there appears to be something missing. From an educator’s perspective, more effective techniques are needed to better motivate our students to pursue lifelong learning for its profound benefits. The principles of Game Theory suggest possible intervention approaches to inspire greater student engagement. The contribution of this paper is two-fold. First, to introduce the notion of applying cognitive game theory within the domain of student learning, and secondly, to present an experimental design to test whether a game theory application can improve student learning.

BACKGROUND

The notion that Game Theory could be instrumental for extrinsically and intrinsically motivating student learning is based on a recent and straightforward observation. A college bound high-school student was presented with an introductory textbook in Accounting (Warren, Reeve and Duchac, 2012) and after having completed the first chapter cheerfully announced “I will be a public accountant, specializing in financial accounting and when I earn my CPA, my starting salary will be $45,000!!” When was the last time you heard this as the result of a student reading the first chapter of any principles of marketing textbook? Yes, there are appendices with job titles, perhaps starting salaries, but these potential outcomes are not placed front and center to showcase to the student realistic and tangible benefits from studying marketing. This conceptual piece is designed to examine whether the application of Game Theory is useful to help students increase their motivation to learning.

Game Theory in Marketing

Game theory is the process of modeling strategic interactions between two or more players in a situation containing set rules and outcomes. This is used to anticipate and explain the actions of all players involved in competitive situations and to test and determine the relative optimality of different strategies. From a practical perspective, the most common criticisms of game theory center on its axiomatic approach (Dominici, 2011) and the assumption that the players are rational (Harsanyi, 1982). Chatterjee and Lilien (1986) incorporated irrationality into their design with “bluffs and threats” thereby extending game theory to include incomplete information about payoff functions.

Game theory effects on competitive behavior has generated some interest in terms of analyzing interdependences and competitors’ interactions (Branderburger and Nalebuff, 1996). Other research has examined game theory implications of advertising expenditures (Shubik and Leviatan, 1980), new products (Kaiser, 2001) pricing (Rao and Shakun, 1972), and buyer-seller relationships across the entire supply chain (Esmaeili et al., 2009).

The classic game theory modelling exercise is a game (a formal abstraction of the social interaction) with the following five conditions (Vega-Redondo, 2003; Simley and Hell, 2015).

1. Each decision maker (player) has two or more choices or sequences of choices.
2. All possible combinations of decisions result in a clear outcome: win or lose.
3. The scenarios (strategies) have well-defined outcomes with decision makers receiving a “payoff” (the value of the outcome to the participants) that they will gain or lose depending upon the outcome.
4. The decision makers know the rules of the game as well as the payoffs to the other decision makers.
5. The decision makers are rational: when faced with two alternatives, players will choose the option that provides the greatest payoff.
The payoff function for each player is effectively a preference ordering over the set of all possible outcomes. There is an implicit assumption that the “payoff function” drives the decision maker’s actions (otherwise there would not be much point in defining a payoff function).

The preceding would suggest that the use of classical game theory to model student behaviors and preferences could produce similarly inconclusive and unwieldy outcomes. Izquierdo’s (2008) review of the game theory literature offers various approaches for overcoming the extreme rationality, deductive thinking and precision of classic game theory exercises by using case-based reasoning or cognitive game theory applications (Flache and Macy, 2002; Macy and Flache, 2002) Suggested treatment conditions are outlined in Table 1.

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<th>Case-Based Reasoning</th>
<th>Cognitive Game Theory</th>
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<tr>
<td>Payoffs may be interpreted as preferences measured on an ordinal scale.</td>
<td>Players base their decisions on experience of past events versus logical deductions about the future, requiring fewer assumptions about other players and a more accurate model of human behavior.</td>
</tr>
<tr>
<td>Each player is assumed to know the range of possible actions available to her, and her own aspiration threshold. Players do not use any information regarding the other players.</td>
<td>Players have feedback on their actions to facilitate learning leading to non-optimal behavior since inferences about other players’ behavior cannot be guaranteed to be true.</td>
</tr>
<tr>
<td>For each possible state of the world they may perceive, players are assumed to store in memory the last payoff they received for each of the possible actions available to them. They need to be able to rank their preferences.</td>
<td>Players who learn from experience often satisfice rather than optimize (Simon, 1957) seeking a solution to a problem which is ‘good enough.’ In the simplest models (e.g. reinforcement learning) this link between acquired information and action is direct (e.g. in a stimulus-response fashion).</td>
</tr>
</tbody>
</table>

Adapted from Izquierdo (2008)

Given that the goal of cognitive game theory is to identify learning mechanisms that will lead to patterns of behavior observed in real-world interactions as compared with case-based reasoning that assumes high levels of player knowledge, we propose the use of cognitive game theory as the theoretical framework for this study.

**SUGGESTED METHODOLOGY**

To test the direction, intensity and persistence of student motivation to learn and develop new skills, we propose a simple quasi-experiment after-only with controls experimental design. The study will be fielded in two sections of Principles of Marketing. This course is ideally suited to test the impact of a student learning intervention since it is typically sequenced first in the marketing curriculum and as such offers a diverse student population with widely varying interest in mastering marketing knowledge and skills. This baseline variability adds power to the detection of significant treatment effects.

The first section constitutes the control group. Students will be invited to log their course related activities (quality and duration of time spent per type of activity, e.g. studying, reviewing, writing projects, etc.) in a personal diary. Diary information will be parsed into three dimensions of student motivation to learn: “direction” is the student’s self-reported effectiveness (e.g., was the time well spent?), “intensity” is an index of how many different types of course-related activities the student engaged (including whether they stay within or venture outside the scope of assigned materials), and
“persistence” is the cumulative time spent on all activities in a given week. These three dimensions of motivation are the three independent variables (IV1, IV2, IV3) that tap the underlying construct of student learning. The dependent variable (DV) for both control and experimental groups will be grades earned (excluding any extra credit) from the mid-point of the course to the end of the course to capture any treatment effect taking place. This latter point is essential in that it will allow the capture of quantity and quality of cumulative hours spend outside the class on marketing materials. A default mean value for both groups will allow for a more robust set of comparisons pre- and post-treatment implementation.

The second section constitutes the experimental group. Similar to the control group, students will be invited to log their course-related activities (quality and duration of time spent per type of activity, e.g. studying, reviewing, writing projects, etc.) in a personal diary. The treatment will start mid-way through the course as a short (<5 minutes) introduction in each class session highlighting various aspects of how a marketing career provides a fulfilling personal experience, substantial salary range, transferrable soft and hard skills, professional status and other valued benefits. Recommended careers to be discussed include: marketing research and analytics, global marketing, brand management, sales, small businesses and marketing, supply chains, and advertising.

The dependent variable (DV) for both control and experimental groups will be grades earned (excluding any extra credit) from the mid-point of the course to the end of the course to reflect the hypothesized treatment effect. Moderating variables may be assessed such as high versus low performing students, age and other factors to be determined. Additional DVs may include the proportion of students switching to the marketing major at the completion of the course. Figure 1 graphically presents the experimental design.

**FIGURE 1**

**STUDY’S QUASI-EXPERIMENTAL DESIGN**

<table>
<thead>
<tr>
<th>Control Group:</th>
<th>N O₈ O₈</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group:</td>
<td>N O₈ X₈ O₈</td>
</tr>
</tbody>
</table>

**Legend.**

N: Non-random assignment of students
O: Weekly reports of hours spent per week studying marketing materials (subscript indicates number of weeks)
X: Weekly in-class short presentations about various marketing careers, job descriptions, salaries, and related stories (subscript indicates number of weeks)

**The Model**

We start by defining a few terms commonly used in the study of game theory (McNulty, 2015) as applied to student learning assuming that players within the game are rational and will strive to maximize their payoffs in the game.

1. **Game:** Any set of circumstances that has a result dependent on the actions of two or more decision makers ("players"). In this case, the course (could also be applied to a program, college or university).

2. **Players:** A strategic decision maker within the context of the game. There are two distinct groups of players, one are the students, and the other are employers.

3. **Strategy:** A complete plan of action a player will take given the set of circumstances that might arise within the game. In this case, strategy is whether to invest more heavily in learning, enroll in a relevant internship, reassess a particular marketing major (if offered), or to continue ‘as is.’

4. **Payoff:** The payout a player receives from arriving at a particular outcome. The payout can be in any quantifiable form, from dollars to utility. In this case, a viable and productive career.
5. Information Set: The information available at a given point in the game. The term information set is most usually applied when the game has a sequential component. In this case, career information supplied by the instructor.

6. Equilibrium: The point in a game where both players have made their decisions and an outcome is reached. In this case, optimality would suggest waiting until the student’s mid-career point, though for our purposes, capturing a suitable dependent variable such as an observable change in student studying behavior.

We propose two options facing students, an outside and an inside option. The outside option is to increase learning as a strategic career benefit, whilst the inside option is to carry on as is. Cunyat (1988) suggests that an inside option payoff amounts to a status quo and their bargaining power is automatically increased. That is, if the offer (information about marketing careers) fails to inspire the student to learn more, then the inside option is the default selection. The challenge is to inform and persuade the student to consider and then accept the outside option that in this case bodes well for a professional career. Furthermore, even though the initial form of information is asymmetric (students do not know all the benefits of being a professional marketer), information symmetry evolves as students gain additional and tangible evidence of professional marketing benefits from their instructor. The payoffs may be presented as follows (See Table 2).

<table>
<thead>
<tr>
<th></th>
<th>Employers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Interested in highly motivated students</td>
</tr>
<tr>
<td>Students</td>
<td></td>
</tr>
<tr>
<td><strong>Outside Option</strong></td>
<td>(Career, Career)</td>
</tr>
<tr>
<td>Motivated to increase</td>
<td></td>
</tr>
<tr>
<td>learning</td>
<td></td>
</tr>
<tr>
<td><strong>Inside Option</strong></td>
<td>(Job, Less future)</td>
</tr>
<tr>
<td>Unmotivated to increase learning</td>
<td></td>
</tr>
</tbody>
</table>

The Nash Equilibrium (Nash, 1950) is an outcome that once achieved means no player can increase payoff by changing decisions unilaterally. It can also be thought of as "no regrets," in the sense that once a decision is made, the player will have no regrets concerning decisions considering the consequences. In this case we discover the intersection of (Motivated to increase learning, Interested in highly skilled students) where both payoffs of ‘career, career’ is our Nash Equilibrium and the optimal payout.

The takeaways are to seek a strategic fit between highly motivated student learners and employers that value this skill (career, career), otherwise the best the student can hope for is a job with an uncertain future at best.

**Hypotheses and Statistical Design**

The first hypothesis pertains to the treatment effect of enhanced direction, intensity and persistence when studying course materials.
Hypothesis 1a: Students in the experimental group will be more “directed” (higher self-reported effectiveness on average) interacting with course-related marketing materials as compared to students in the control group.

Hypothesis 1b: Students in the experimental group will demonstrate greater “intensity” (interacting with a more diverse array of course-related materials and more diverse activities overall including activities that go beyond the scope of assigned materials) as compared to students in the control group.

Hypothesis 1c: Students in the experimental group will be more “persistent” (more cumulative hours per week interacting with course-related marketing materials as compared to students in the control group.

The second hypothesis is to test whether the additional time spent outside of class working on marketing materials results in improved grades over the course of the treatment.

Hypothesis 2: Students in the experimental group will earn higher grades over the course of the treatment period compared to students in the control group.

A recent study by Elbeck and DeLong (2015) discovered that for extra credit opportunities, higher performing students were more likely to take the opportunity, and therefore our third hypothesis.

Hypothesis 3: In the experimental group only, high performing students will exhibit significantly higher average scores on all three motivational measures as compared to low performing students.

Finally, as a test of this study’s overall game theory contribution, the fourth hypothesis will capture the number of students changing their major to marketing.

Hypothesis 4: A larger proportion of students in the experimental group will change their major to marketing as compared to the students in the control group.

The recommended statistical design will likely include a regression analysis to establish the relationship between the DVs and IVs. See the appendix for the questionnaire that can be used to capture student motivation to learn.

INTERIM PILOT STUDY FINDINGS

A pilot study was implemented to test pre and post differences and whether students responded to the outside option to pursue a marketing major.

Students in two sequential sections of a Principles of Marketing course participated in the pilot study. Fifteen students were enrolled in the control group (N=15; 54% female, 2.9 average GPA, 75% upper classmen, 87% business majors), and 21 students in the experimental group (N=21; 81% female, 3.38 average GPA, 80% upper classmen, 90% business majors) participated. In spite of the small samples, every measure of motivation drops from pre to post treatment, for both the control and experimental groups. Relative to each groups’ mean score before treatment, the post treatment activity is decreased, sometimes significantly so. This remarkable finding may be explained in terms of resource allocation. All but three students were marketing majors, and given the majority were upperclassmen entrenched in their major of choosing, the significant drop in motivation and time devoted to the course may be due more to competing demands from their major courses than disinterest in the principles of marketing course. Suggesting perhaps a trade off that as a result of the intervention students focused more on their major
courses and therefore chosen career path which is actually quite a positive outcome that is student career focus. The takeaway may be that interventions to encourage major switching should taken place when students are freshmen or sophomores.

To test whether the treatment to present the various marketing career paths and income levels had any effect, students responded to an anonymous survey asking for their before the course interest in switching to a marketing major and their interest at the end of the course. There was a significant improvement in the scores before the course (M=.35, SD=.33) and after the course (M=.66, SD.26); t(19)= -6.29, p=.00. This suggests that the treatment to present the various marketing career paths did influence the likelihood of a student switching their major to a marketing major. The takeaway is not so much students suddenly switching to the marketing major, but taking time to think about their careers and indicate a more favorable attitude toward the marketing profession.

CONCLUSION

Exploring how cognitive game theory might contribute to student learning is intriguing, and as a first study in this topic, we offer this conceptual piece as the precursor for a complete quasi-experimental study to establish whether some feature of game theory will facilitate student motivation to engage with course materials and, by extension, enhance learning outcomes within the marketing curriculum. The noteworthy findings from our pilot study is that (a) interventions to encourage students to switch to the marketing major should take place in the freshman and sophomore years (after that, there is far too much vested in a particular major to make switching an attractive option) and (b) interventions addressing marketing career paths and income levels help improve the image of the marketing profession.

REFERENCES


**APPENDIX**

*Questionnaire to Capture Student Motivations to Learn*

**Principles of Marketing: Student Weekly Time, Activities and Productivity Sheet**

**Your name.**

In the table below, for each day, please include:

• How many hours (or fraction of an hour) per day you spent learning about marketing outside the class.

• The types of marketing-related activities you did (reading the book, reading about marketing topics, preparing for a quiz, exam or assignment, explaining marketing to a friend or family member, attending a presentation, etc.)

• Rate your productivity on these marketing-related activities from 1 to 10. Were you focused and engaged, was your time well spent? If not at all (e.g., daydreaming, multitasking, going through the motions), then enter one (1). Otherwise, enter an amount up to a maximum of 10 to rate how productive and effective you feel you were on these activities.

Please keep this sheet with your marketing textbook and bring to each class. Next week I will give you another sheet. Thank you, Dr. M. Elbeck

<table>
<thead>
<tr>
<th>Time Spent learning about Marketing (hours)</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
<th>Monday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketing-related Activities (list all types)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Productivity (focus and effectiveness)</td>
<td></td>
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On the Correlation Between Knowledge and Satisfaction in Pre-Professional Pharmacy Advising

Kelly Haugen  
North Dakota State University

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North Dakota State University

This manuscript assesses the relationship between perceptions of advising effectiveness and actual knowledge related to gaining admission into North Dakota State University’s Doctor of Pharmacy program. The survey developed by Shields (1995) and revised by Davis, Haugen and Friesner (2015) was used to measure satisfaction with advising. This survey was supplemented with a series of items that characterize knowledge of the NDSU Doctor of Pharmacy admissions process. Using descriptive and inferential statistics, we find that overall advising satisfaction was statistically associated with specific knowledge questions. However, no statistically significant association exists between advising satisfaction and knowledge of the admissions process.

The “quality” of academic advising is characterized by two primary constructs: student satisfaction and student responsibility (Metzer, 1989; Light, 2001). An accessible and friendly advisor who builds a rapport with students will be able to provide general information, encouragement and frank assessments of student readiness for admission to professional programs, in a manner that students perceive as useful and welcome. Advisors can assist students in learning more about the various health care professions by encouraging their membership in pre-health professions clubs, directing them to relevant literature on the profession, introducing them to individual practitioners, or organizing activities or course experiences in the health care setting (Gordon, 1996). Hunter and White (2004) added that academic advising can help students to shape meaningful learning experiences, thus encouraging achievement of educational, career, and life goals. As a result, students are more likely to be satisfied with their advising experience. The second construct, student responsibility, characterizes the degree to which students implement the guidance provided by their academic advisor(s), and by extension place themselves on a trajectory that leads to academic success.

Many students enter college with the dream of becoming a healthcare provider. Careers in healthcare offer a variety of options to students. Whether they are interested in becoming a pharmacist, physician, or physical therapist; healthcare offers a plethora of options based on how involved in direct patient care one wants to be, and in what setting they choose to practice. The healthcare industry is projected to add more jobs—over 4 million—than any other industry between 2012 and 2022, according to the U.S. Bureau of Labor Statistics (Bureau of Labor Statistics, 2014). Health professions however are unique among entry-level college degree programs in that many of these programs not only have pre-professional admission requirements but also (to ensure adequate clinical training sites can be provided) competitive admissions
processes (Haugen, Davis, & Friesner, 2015). Within pre-professional health programs, an intermediate measure of academic success is successful admission to the professional program of the student’s choosing. Hence, academic advising for these students focuses directly (and indirectly) on preparing students for the admission process. This paper defines readiness for admission as its primary measure of successful, “systematic academic progress” (Kramer and Gardner, 1977). Hence, any assessments of the quality of pre-professional health care academic advising, inclusive of student satisfaction and student responsibility indicators, must be framed within this general goal. In a recent paper, Davis, Haugen, and Friesner (2015) adapted Shield’s (1995) SERVQUAL methodology to measure the quality of academic advising within the context of a pre-professional Doctor of Pharmacy curriculum. The authors created a 13 question, 28 item survey which captures the most salient features of service quality, inclusive of both student satisfaction and (self-reported) student readiness to take responsibility for their academic development. They identified two underlying drivers of quality advising: short term advising needs and long term academic planning.

According to Kelley (2008), the assessment of academic advising is not as advanced as that of classroom learning. Historically, measurement of advising outcomes focused on student satisfaction with the advisor or advising system rather than on student success. Although student satisfaction is important (Propp and Rhodes, 2006), evaluating the effectiveness of advising efforts requires significantly more than gauging student satisfaction. Hemwall and Trachte (2003) suggested that viewing advising as a learning process allows assessment of specific outcomes that can be linked to student achievement. Thus, investigating the relationship between advising and student achievement can reveal how advising helps students develop the skills and knowledge necessary for success (Young-Jones, Burt, Dixon, and Hawthorne, 2013). Noticeably absent from their analysis is a measure of actual student knowledge about the admissions process. Such knowledge is important, both as a final measure of actual (rather than perceived) readiness for admission, but also as a means to better understand perceptions of advising quality, whether characterized as student satisfaction and student responsibility or as short term advising needs and long term academic planning. More pragmatically, an understanding of student knowledge about the admissions process provides crucial feedback to professional advisors on adjusting the content and delivery of advising services to improve advising outcomes. While many colleges of pharmacy interview students as part of their admission’s requirement, most schools require each student to achieve a minimum pre-pharmacy GPA and PCAT score to be considered for an interview (Chisholm, 1999), placing high importance on quality academic advising. Since admission requirements, both across health professions and within a single health profession, vary across programs, a pragmatic approach also requires (as an initial pilot study) that such an analysis be conducted within the context of a single institution. This facilitates future work to generalize the results of the pilot study to other academic settings.

This manuscript assesses both perceptions and actual knowledge related to gaining admission into North Dakota State University’s (NDSU’s) Doctor of Pharmacy program. Entry requirements are similar (but not identical) to the vast majority of courses required for admission at other Doctor of Pharmacy programs in the U.S., as well as other post-graduate health professions programs (medicine, physician assistant, dentistry, etc.). The survey developed by Shields (1995) and revised by Davis, Haugen, and Friesner (2015) is used to measure satisfaction with advising. This survey was supplemented with a series of items that characterize the respondent’s knowledge of the NDSU Doctor of Pharmacy admissions process. Descriptive and inferential statistics were used to assess the relationship between advising satisfaction and knowledge of the admissions process.

The remainder of this paper proceeds as follows. The next section describes the empirical methodology, inclusive of survey design, sampling, and data analysis, used to assess the advising satisfaction-knowledge relationship. The third section contains the empirical results, while the fourth section discusses those results. The final section concludes the paper by summarizing its key findings, identifying major study limitations, and providing some directions for future research.
METHODOLOGY

The Setting

The Doctor of Pharmacy program at North Dakota State University (NDSU) consists of two components. The first component, known as “pre-professional” studies, consists of approximately 76-77 academic credits, and takes students either two or three years to complete (see https://www.ndsu.edu/pharmacy/pharmd/prepharm_curriculum/ for the actual list of “core” pre-pharmacy courses). These credits cover the biological (i.e., anatomy and physiology, cell biology), physical (i.e., chemistry, mathematics, physics, etc.), and social (i.e., communications, economics, etc.) sciences that form a foundation for the science and practice of pharmacy.

Students who complete this coursework (and satisfy other, related requirements), may apply for admission to the “professional” component of the Doctor of Pharmacy program, which lasts another four years. During the professional component, students build upon their pre-professional studies, with specific foci on the knowledge, skills and abilities necessary to practice pharmacy. The latter includes both advanced applications in the science of drug development and delivery (pharmacology, medicinal chemistry, physical pharmacy, kinetics, etc.) as well as the science of therapy (i.e., various applications of therapeutics, pharmacy administration, evidence-based practice, drug literature evaluation, etc.). Practical (vocational) and experiential skill development is strategically placed throughout the first three years of the professional curriculum (i.e., Introductory Pharmacy Practice Experiences, or IPPEs), while the final year is entirely experiential in nature (i.e., Advanced Pharmacy Practice Experiences, or APPEs). At the end of these 6-7 years, the student graduates from NDSU with a Bachelor of Science in Pharmaceutical Sciences degree and a Doctor of Pharmacy degree. The latter qualifies students to sit for national and state licensure requirements, and ultimately to practice as a registered pharmacist.

The crux of this paper focuses on the pre-professional component of the curriculum. In recent years, students at NDSU who have been admitted to the professional component of the Doctor of Pharmacy program typically have on average, a grade point average between 3.60 and 3.70 in their primary pre-professional pharmacy coursework, a cumulative score on the Pharmacy College Admissions Test (PCAT) that ranks in the 66 percentile or higher, apply as a sophomore if they are on the two year track or as a junior if on the three year track, and have a backup plan in place if they are not accepted into the professional program that year. These characteristics are examples of a pre-professional pharmacy student who demonstrates “readiness” for pharmacy school. These students have obtained the crucial knowledge about the admissions process needed to gain admission into the professional program.

The primary goal of pre-professional academic advising in this context is to prepare pre-professional pharmacy students for this process. Advising begins when a student registers for courses as a first-year student and continues in Pharmacy Practice 189: Skills for Academic Success. All first-year students at NDSU (who have earned 24 or fewer college credits), and who have declared an interest in the professional pharmacy program, are required to complete this 1 credit, 8-week course. The course is taught by faculty and staff affiliated with the Doctor of Pharmacy program and covers basic study and time management skills that are necessary to become a professional pharmacy student. Perhaps more importantly, approximately 30 percent of the course content is devoted to preparing students for the admissions process. Instructors cover the pre-professional curricula, admissions criteria, informal curricular requirements, and preparing a backup plan if not admitted. At the end of the course, students have a complete understanding of the admission requirements. They have a plan (approved by the instructor and their academic advisors) that maps out all required pre-professional pharmacy courses and the semester in which they are to be completed. Students also have a “backup plan” which covers a contingency course of action should a student fail to be admitted into the professional component of the NDSU Doctor of Pharmacy program. Cumulatively, students in the pre-professional program should have a comprehensive understanding of the admission requirements by the end of their first eight weeks at NDSU. This understanding is subsequently reinforced through regular meetings with the student’s advisor, through participation in the pre-professional pharmacy student study group, and through
participation in various pharmacy-related student organizations sponsored by the NDSU School of Pharmacy.

Hypothesis Development

The central premise of this manuscript is to assess the relationship between what pre-professional pharmacy students actually know about the pharmacy admissions process and their overall satisfaction with advising. The previous discussion indicates that all students should have a detailed understanding of the requirements of admissions process after their first eight weeks at NDSU. They also have met with their academic advisors on multiple occasions, and should be able to conceptualize their satisfaction with advising services offered to them. Various studies conducted within the pharmacy literature suggest only a tenuous link between student competencies and perceptions (for example, see Naughton and Friesner, 2012). Moreover, if a directional relationship exists, it may be possible for the relationship to be positive or negative since students may develop false expectations, exhibit over or under-confidence, or misinterpret information about the admissions process. Advisors may also provide students meaningful feedback that students do (if positive) or do not (if negative) want to hear. Hence, we assume a null of ignorance and postulate the following:

\[ H_0: \text{No relationship (or correlation) exists between student advising satisfaction and actual knowledge of the admissions process.} \]
\[ H_A: \neg H_0. \]

Instrument Design

Actual admissions knowledge and advising satisfaction are measured via survey techniques. The survey used in this study is provided in the paper’s appendix, and it consists of three sections. The first section collects basic student demographic information, including a student’s grades, the frequency with which students sought out advising, and the questions asked during advising appointments. We define “academic” readiness as having a “core” grade point average in excess of 3.50. We define “professional” readiness as the appropriate use of advising, perceived readiness for pharmacy school, the development of a backup plan if not accepted into pharmacy school, and commitment to pharmacy as an academic major.

The second section utilizes Davis, Haugen, and Friesner’s (2015) items to assess perceptions of advising quality. The perceived support and basic needs questionnaires incorporated a Likert scale from 1 to 5 (where 1 = Strongly Disagree and 5 = Strongly Agree). The constructs identified by Davis, Haugen and Friesner (2015) are used as baseline scales characterizing overall perceived advising quality. To ensure that these constructs remain valid in the current research setting, Davis, Haugen, and Friesner’s (exploratory factor analysis) methodology is also re-applied to the current data. If that methodology indicates that the components of advising satisfaction are different in the current data, the original scale formulations and the new, alternative scales will be correlated with actual knowledge to ensure generalizability. That is, we repeat all empirical analyses twice using both methods of scale development.

In the final section, students are asked to analyze seventeen statements about the NDSU Doctor of Pharmacy admissions process and respond whether those statements are accurate (or true), might be accurate (more information is required to provide a definitive response), or are inaccurate (or false). The survey has a relatively even mix of accurate (items 2, 5, 8, 9, 12, 15 and 17) and inaccurate (items 1, 4, 6, 7, 10, 11, and 16) responses, with slightly fewer statements that may or may not be accurate (items 3, 13, and 14). Actual knowledge was assessed using both the proportion of correct responses over the entire set of items, as well as binary indicators of whether or not students correctly responded to specific items. Participants were also given the opportunity for additional comments.

Data Analysis Methodology

Davis, Haugen, and Friesner (2015) used exploratory factor analysis methods to identify the underlying constructs that characterize advising satisfaction. More specifically, their analysis used principal components extraction with Varimax rotation to identify latent themes within the data (Hair, et
al., 2006). Their analysis identified one dominant factor and one secondary factor (whose eigenvalue was slightly less than the traditional cutoff of one for a “significant” latent factor). The second measured long run advising needs (the mean of the survey items “My advisor has assisted me in developing a long-term education plan,” “After meeting with my advisor, I feel like I am better prepared to gain admission into the professional program,” “My advisor helps me make important decisions,” and “Next semester, I plan to meet with my advisor to discuss any career planning course scheduling or other advising issues”). All other items were captured by the first, primary construct measuring immediate advising needs (Davis, Haugen, and Friesner, 2015). As noted above, the current analysis constructs advising satisfaction scales in two ways. The first is to simply take the means of the questions that Davis, Haugen and Friesner (2015) identified as loading onto a specific latent factor/construct. This implicitly assumes that their data is comparable to those used in the current study. Second, we apply their methodology to the new data and use whatever scales are identified by that methodology.

After described the methodology to characterize overall advising satisfaction and presented our measures of knowledge about the admissions process, testing of the null hypothesis can be implemented in a straightforward fashion. The relationship between the total knowledge metric and the overall advising satisfaction constructs can be characterized using Pearson and Spearman correlations. Analysis of Variance and Kruskal-Wallis tests can be used to assess mean differences in each of the advising satisfaction metrics (whether the overall scales or specific satisfaction questions) across students who did, and did not, answer specific knowledge-oriented questions correctly. Analysis of variance and Kruskal-Wallis tests can also be used to assess mean differences in advising satisfaction based on students who fit into specific demographic categories. In all cases, a 5 percent significance level is employed. All data analysis were conducted using the IBM SPSS Statistics Version 23 software package.

Sampling Design and Procedures

This survey was administered late in the fall of 2015 to the entire universe of pre-professional pharmacy students currently enrolled at North Dakota State University (387 students). The survey was timed to be delivered to the pre-pharmacy students after they had met with their advisor for advising on spring registration. Participants who completed the survey consisted of pre-pharmacy college students ranging from freshmen to juniors, including traditional students and non-traditional students, and transfer students (N=100; 26 percent response rate). Participants were able to utilize a web link, sent to them via email, to complete the survey. This email was initially sent out on November 18, 2015. It was subsequently sent out again on December 17, 2015, along with a reminder and link being placed on the pre-pharmacy Facebook page on December 16, 2015, and December 23, 2015. After giving their informed consent, they received a questionnaire that could be completed in approximately 10 minutes (no time limit was imposed). The NDSU Institutional Research Board approved the methods used in this study.

RESULTS

Advising Satisfaction Scales

Appendix 2 contains the results from the replication of the Davis, Haugen, and Friesner (2015) factor analysis. The reader is referred to the aforementioned manuscript for the details of their methodology. Both the KMO measure of sampling adequacy and the Bartlett test of sphericity indicate that the data are amenable to factor analysis. Principal component extraction yields one “significant” eigenvalue (whose value is 6.407) that explains approximately 58 percent of the variation in the data. The next largest eigenvalue is 0.874. Thus, while the data is generally consistent with the Davis, Haugen, and Friesner (2015) study (who extracted two eigenvalues with magnitudes 6.642 and 0.936, respectively, explaining 60.378 and 8.505 percent of variation in the data, respectively), the data in the current study more strongly supports the extraction of a single latent factor of advising effectiveness, rather than two latent factors. Within the current data, factor loadings for each satisfaction item load onto the latent factor with loading weights in excess of 0.500, indicating that all survey items contribute meaningfully to the latent
factor. Hence, we construct a single advising effectiveness scale using the mean of all satisfaction items. This variable is identified as “Scale” in the forthcoming results. Given the general similarity in eigenvalue extraction, it is also reasonable to create the two alternative scales measuring immediate advising needs (denoted as “SRScale”) and long run planning needs (denoted as “LRScale”), as constructed in the Davis, Haugen, and Friesner (2015) study. As noted in the final table of Appendix 2, regardless of scale development, the inter-item correlation matrices and Cronbach’s alpha values indicate high degrees of internal reliability.

**Descriptive Statistics**

Table 1 contains the names, descriptions and descriptive statistics (means and standard deviations for quantitative variables, sample proportions for binary variables) for each of the variables used in the analysis. Each of the advising scales exhibit mean values of between 4.670 and 4.710 (on a five-point scale), with standard deviations of between 0.427 and 0.477, suggesting high overall levels of advising satisfaction.

Over the 17 knowledge items, students correctly addressed, on average, 9.630 of the 17 items. The questions most frequently answered incorrectly include items 10 (an ethics exam is administered on interview day; sample proportion: 0.100) and 3 (the PCAT exam is as important as grades earned in core courses; sample proportion: 0.140). Items most frequently answered correctly include 8 (interviews evaluate communication skills; sample proportion: 0.950) and 16 (personal and religious values impact the odds of acceptance; sample proportion: 0.900).

Of the 100 students returning a completed survey, 47 percent reported a grade point average between 3.50 and 4.00; a statistic that is generally consistent with the underlying student population, as well as previously discussed admission statistics. Students report, on average, 1.480 conversations with her/his advisor via email, 1.080 office visits, and 0.080 telephone conversations. The mean number of issues discussed in a given meeting is 2.860. The most commonly reported topics of discussion include academic planning (sample proportion: 0.980) and course scheduling (sample proportion: 0.790). The most infrequently reported topics of discussion include other non-academic issues (sample proportion: 0.030), stress management (sample proportion: 0.050) and general non-academic issues (sample proportion: 0.060).

Students also report a number of elements in their backup plans, which are consistent with the elements emphasized by advisors. The most frequently reported elements include reapplying the NDSU’s program the following year (sample proportion: 0.870), apply to other pharmacy schools (sample proportion: 0.670) and change one’s major (sample proportion: 0.540). Only 3 percent or fewer of students report no need, no intent nor no existence of a backup plan.

**Correlation Analysis**

Table 2 contains Pearson (Panel A) and Spearman (Panel B) correlations between the advising satisfaction scales and the overall student knowledge scores. The signs, magnitudes and statistical significance of the parametric (Pearson) and non-parametric (Spearman) correlations are similar; hence, we focus primarily on the Pearson correlations. The student knowledge score is not correlated with any satisfaction scale at any reasonable significance level. In fact, the largest correlation (in absolute value) is 0.030, between the knowledge score and the immediate advising needs satisfaction scale. As expected, the three advising satisfaction scales are all highly correlated, positive and statistically different from zero, with Pearson correlations of 0.830 or higher. Thus, we fail to reject our study’s null hypothesis.

**Analysis of Mean Differences**

Table 3 supplements Table 2 by assessing mean differences in the single, cumulative advising satisfaction scale based on whether a student answered a particular content question correctly or incorrectly. Analysis of variance and Kruskal-Wallis (non-parametric analysis of variance) tests indicate that, with the exception of question 6 (letters of reference are required in the pharmacy admissions process), no mean differences exist in overall advising satisfaction and knowledge of the admissions
process. With regard to question 6, students who answered the question incorrectly reported slightly higher mean satisfaction levels (4.790) compared to those students who answered the questions correctly (4.590).

Tables 4 and 5 replicate the analysis of Table 3, disaggregating the single advising satisfaction scale with short run (Table 4) and long run (Table 5) advising satisfaction scales. The results are highly consistent with the overall scale. In Table 4, with the exception of knowledge item number 6, no statistically significant differences exist in SRScale based on knowledge of the admissions process. Within question 6, students who incorrectly answered the reference letter question exhibited higher mean satisfaction scores (4.800) compared to those who correctly answered the question (4.610).

Table 5 examines the long run advising satisfaction scale, and again finds that students who answered question 6 incorrectly had higher mean satisfaction scores (4.770) compared to those who correctly answered the question (4.550). One interesting difference between Table 5 and Tables 3 and 4 lies in an analysis of students who correctly or incorrectly answered question 12 (job shadowing experience is unnecessary for admission). While parametric analysis of variance only suggests significance at the 10 percent level (prob. 0.052), the Kruskal-Wallis test indicates that at the 5 percent level (prob. 0.029) that students answering this question incorrectly had higher mean long run planning satisfaction scores (4.800) compared to those who answered the question incorrectly (4.610).

Table 6 characterizes mean differences in a student’s knowledge of the admissions process by student demographics, advisor use, and backup plans. At the 5 percent significance level, both parametric and non-parametric analysis of variance test identify no mean differences in student knowledge across any student-specific characteristic. Thus, what a student knows, or does not know, about the admissions process is consistent across student sub-types. At the 10 percent level, parametric analysis of variance suggests that students who discuss possible involvement in pharmacy organizations (means: 10.570 versus 9.480), as well as those who discuss the admissions process with their advisor (means: 10.000 versus 9.330) answer approximately one more question correctly than their counterparts.

DISCUSSIONS AND CONCLUSIONS

Discussion

The primary purpose of this paper is to present a pilot study examining whether a significant relationship exists between student satisfaction with advising services and actual knowledge about the admissions process – a crucial outcome-oriented measure of effective advising in a health professions setting. Our conclusions are fourfold. First, pre-professional pharmacy students are largely satisfied with the quality of advising services they receive from NDSU’s pre-professional pharmacy advisors.

Second, students are generally knowledgeable about NDSU’s pharmacy admissions process, as they are able to answer nearly 10 of 17 possible questions about the process correctly. Third, there are several content-oriented questions that students answered incorrectly, and which may require greater emphasis by professional advisors. Students commonly misinterpret the importance given to the PCAT exam relative to grades earned in required pre-professional pharmacy courses. This is not surprising, given that the PCAT exam is a much higher stakes assessment, over which students feel that they have less control. Grades earned in courses are earned a longer time frame (not a single day) and over multiple assessments. Hence, students may misinterpret (and over-emphasize) the relative importance of the PCAT exam because of these considerations. Students also falsely believe that the pharmacy program required a test of one’s ethics as a part of the admissions process. This is an artifact of the program’s history. Until approximately 2011, the pharmacy program used the Defining Issues Test (DIT: http://ethicaldevelopment.ua.edu/dit-and-dit-2/); a test of reasoning in ethical decision-making as a part of its admissions process. In 2012, the program replaced the DIT with the Health Sciences Reasoning Test (HSRT: http://www.insightassessment.com/Products/Products-Summary/Critical-Thinking-Skills-Tests/Health-Sciences-Reasoning-Test-HSRT); a test that measures critical thinking in health-related contexts. Despite the fact that the change was made nearly five years ago (and has been emphasized by the program repeatedly in open forums), the perception of the HSRT as an ethics test remains.
Lastly, we find virtually no empirical evidence to suggest a link between student advising satisfaction and their preparation for the admissions process. Thus, satisfaction and knowledge, the two core elements of effective advising, appear to be a distinct phenomenon in the NDSU pre-professional pharmacy program. Moreover, what few statistically significant ties between advising satisfaction and actual knowledge exist are negative in nature. Students who have less knowledge exhibit higher advising satisfaction scores. The implication for practice improvement is that advisors should work to alleviate gaps in student knowledge without the concern that student satisfaction with their advising (even in situations where advisors must give students “bad news”) will decline.

Limitations

The primary limitation of this study is that it was a pilot study conducted during a single semester, at a single academic institution, in a single health professions program. The usual limitations of such studies, especially those related to external generalizability, apply here. Replications of this study in other health professions programs, at different points in time, and at different universities, may find disparate results. While our study is unique in its focus and hypotheses, it is, therefore, vital that our results be viewed as exploratory, until future studies establish the generalizability (or lack of generalizability) of the current results.

A second limitation of the current study is that the formation of advisor satisfaction was slightly different than what was found previously in the literature. Future studies that examine advising satisfaction in more generalizable contexts would provide valuable insights into the most empirically valid and reliable means with which to characterize student satisfaction with advising.

Third, the data used in this analysis was derived from low-stakes, self-reported survey data. The self-reported nature of the data, combined with a marginally useful response rate (just under 30 percent), suggests that response bias may be a concern. Future research that used different data collection methods, and in a higher-stakes environment, may find more meaningful results.

Conclusion

In this paper, we assessed the relationship between student knowledge provided by academic advisors and their satisfaction with advising. We find no evidence to suggest that there is any meaningful relationship between these two outcomes of successful advising.

REFERENCES


### TABLE 1
**DESCRIPTIVE STATISTICS**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student Satisfaction Scales</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SRScale</td>
<td>Scale Measuring Short Run Advising Needs</td>
<td>4.710</td>
<td>0.428</td>
</tr>
<tr>
<td>LRScale</td>
<td>Scale Measuring Long Run Academic Planning Needs</td>
<td>4.670</td>
<td>0.477</td>
</tr>
<tr>
<td>Scale</td>
<td>Combined Advising Satisfaction Scale</td>
<td>4.700</td>
<td>0.427</td>
</tr>
<tr>
<td><strong>Student Knowledge of the Admissions Process</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Score</td>
<td>Student's cumulative knowledge of the NDSU pharmacy admissions process</td>
<td>9.630</td>
<td>2.003</td>
</tr>
<tr>
<td><strong>Binary Indicators of Correctly Answering a Specific Question</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q1c</td>
<td>Core classes are the only classes that matter to be accepted into NDSU's professional program.</td>
<td>0.550</td>
<td>0.500</td>
</tr>
<tr>
<td>Q2c</td>
<td>The admission committee considers grades earned in non-core classes when making admission decisions.</td>
<td>0.430</td>
<td>0.498</td>
</tr>
<tr>
<td>Q3c</td>
<td>The PCAT score is just as important as grades earned in core classes.</td>
<td>0.140</td>
<td>0.349</td>
</tr>
<tr>
<td>Q4c</td>
<td>NDSU's pharmacy admissions process will allow you to take the PCAT as many times as you would like.</td>
<td>0.560</td>
<td>0.499</td>
</tr>
<tr>
<td>Q5c</td>
<td>Core classes must be completed by the time you apply to NDSU's professional program.</td>
<td>0.650</td>
<td>0.479</td>
</tr>
<tr>
<td>Q6c</td>
<td>You need reference letters along with the application.</td>
<td>0.450</td>
<td>0.500</td>
</tr>
<tr>
<td>Q7c</td>
<td>The pharmacy admission committee uses the highest subsection scores from all of your PCAT exams to compile your composite score.</td>
<td>0.380</td>
<td>0.488</td>
</tr>
<tr>
<td>Q8c</td>
<td>NDSU Pharmacy admissions interviews are used to evaluate my communication skills.</td>
<td>0.950</td>
<td>0.219</td>
</tr>
<tr>
<td>Q9c</td>
<td>NDSU Pharmacy admissions interviews are used to evaluate my teamwork skills.</td>
<td>0.830</td>
<td>0.378</td>
</tr>
</tbody>
</table>
NDSU's pharmacy program requires applicants to take an ethics exam on interview day.

If you receive an invitation to pharmacy interview day, you will be accepted into the professional pharmacy program.

NDSU's pharmacy program accepts applicants who do not have pharmacy job shadow or work experience.

If you have violated the College's conduct policy, you will not be admitted into NDSU's pharmacy program.

NDSU Pharmacy admissions interviews are used to evaluate my ability to express empathy.

NDSU Pharmacy admissions interviews are used to evaluate my self awareness.

My personal values and religious beliefs will impact my chances of gaining admission to NDSU's pharmacy program.

The admissions committee gives preference to North Dakota residents and North Dakota University System students.

**Student Demographics**

| GPA4 | Binary variable indicating that a student's grade point average is between 3.5 and 4.0 |
| AdNPhone | Number of times a student has telephoned her/his advisor |
| AdNEmail | Number of times a student has emailed her/his advisor |
| AdNMeet | Number of times a student has met in person with her/his advisor |
| NoIssues | Number of issues a student discussed with an advisor |

**Binary Indicators of Topics Discussed with an Advisor**

| Curric | Curricular planning and course scheduling |
| AcPlan | Academic planning |
| Intern | Internship opportunities |
| Study | Study Tips |
| Orgs | Student organizations |
| Admission | Admissions process |
| Stress | Stress management tips |
| NonAcad | Non-academic issues |
| Other | Other issues |

**Binary Indicators of Student Backup Plans**

| BUOSchl | Apply to other pharmacy programs |
| BURReAp | Reapply to NDSU's pharmacy program |
| BUCHgM | Change major |
| BUDIntend | No backup plan exists, but the student intends to create one |
| BUDNeed | No backup plan exists, and the student doesn't feel the need to create one |
| BUDHave | No backup plan exists |

**Number of Observations**

100
### TABLE 2

**BASIC CORRELATIONS**

**Panel A: Pearson Correlations**

<table>
<thead>
<tr>
<th></th>
<th>Score</th>
<th>SRScale</th>
<th>LRScale</th>
<th>Scale</th>
</tr>
</thead>
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<tr>
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<td>0.030</td>
<td>-0.005</td>
<td>0.017</td>
</tr>
<tr>
<td>SRScale</td>
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<td>-</td>
<td>0.830</td>
<td>0.974</td>
</tr>
<tr>
<td>LRScale</td>
<td>-0.005</td>
<td>0.830</td>
<td>-</td>
<td>0.935</td>
</tr>
<tr>
<td>Scale</td>
<td>0.017</td>
<td>0.974</td>
<td>0.935</td>
<td>-</td>
</tr>
</tbody>
</table>

**Panel B: Spearman Correlations**

<table>
<thead>
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<th>Score</th>
<th>SRScale</th>
<th>LRScale</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>-</td>
<td>-0.014</td>
<td>-0.057</td>
<td>-0.028</td>
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<tr>
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<td>-</td>
<td>0.792</td>
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</tr>
<tr>
<td>LRScale</td>
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<td>0.923</td>
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<td>Scale</td>
<td>-0.028</td>
<td>0.941</td>
<td>0.923</td>
<td>-</td>
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</tbody>
</table>

Italicized font indicates two-sided statistical significance at the 5% level or better.

### TABLE 3

**ANALYSIS OF ADVISING SATISFACTION BY KNOWLEDGE ITEM**

**Descriptive Statistics for Scale Based on Students who:**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Answered Question Incorrectly</th>
<th>Answered Question Correctly</th>
<th>ANOVA</th>
<th>Kruskal-Wallis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1c</td>
<td>45</td>
<td>4.630</td>
<td>0.489</td>
<td>55</td>
</tr>
<tr>
<td>Q2c</td>
<td>57</td>
<td>4.630</td>
<td>0.475</td>
<td>43</td>
</tr>
<tr>
<td>Q3c</td>
<td>86</td>
<td>4.690</td>
<td>0.434</td>
<td>14</td>
</tr>
<tr>
<td>Q4c</td>
<td>44</td>
<td>4.670</td>
<td>0.379</td>
<td>56</td>
</tr>
<tr>
<td>Q5c</td>
<td>35</td>
<td>4.670</td>
<td>0.426</td>
<td>65</td>
</tr>
<tr>
<td>Q6c</td>
<td>55</td>
<td>4.790</td>
<td>0.346</td>
<td>45</td>
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<tr>
<td>Q7c</td>
<td>62</td>
<td>4.730</td>
<td>0.381</td>
<td>38</td>
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<tr>
<td>Q8c</td>
<td>5</td>
<td>4.550</td>
<td>0.630</td>
<td>95</td>
</tr>
<tr>
<td>Q9c</td>
<td>17</td>
<td>4.610</td>
<td>0.488</td>
<td>83</td>
</tr>
<tr>
<td>Q10c</td>
<td>90</td>
<td>4.720</td>
<td>0.417</td>
<td>10</td>
</tr>
<tr>
<td>Q11c</td>
<td>43</td>
<td>4.690</td>
<td>0.467</td>
<td>57</td>
</tr>
<tr>
<td>Q12c</td>
<td>32</td>
<td>4.800</td>
<td>0.366</td>
<td>68</td>
</tr>
<tr>
<td>Q13c</td>
<td>51</td>
<td>4.640</td>
<td>0.446</td>
<td>49</td>
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<tr>
<td>Q14c</td>
<td>69</td>
<td>4.720</td>
<td>0.413</td>
<td>31</td>
</tr>
<tr>
<td>Q15c</td>
<td>19</td>
<td>4.650</td>
<td>0.470</td>
<td>81</td>
</tr>
<tr>
<td>Q16c</td>
<td>10</td>
<td>4.730</td>
<td>0.400</td>
<td>90</td>
</tr>
<tr>
<td>Q17c</td>
<td>17</td>
<td>4.730</td>
<td>0.349</td>
<td>83</td>
</tr>
</tbody>
</table>
### TABLE 4
ANALYSIS OF ADVISING SATISFACTION BY KNOWLEDGE ITEM

Descriptive Statistics for Scale Based on Students who:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Answered Question Incorrectly</th>
<th>Answered Question Correctly</th>
<th>ANOVA</th>
<th>Kruskal-Wallis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1c</td>
<td>45</td>
<td>4.630</td>
<td>0.489</td>
<td>55</td>
</tr>
<tr>
<td>Q2c</td>
<td>57</td>
<td>4.630</td>
<td>0.475</td>
<td>43</td>
</tr>
<tr>
<td>Q3c</td>
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<td>0.434</td>
<td>14</td>
</tr>
<tr>
<td>Q4c</td>
<td>44</td>
<td>4.670</td>
<td>0.379</td>
<td>56</td>
</tr>
<tr>
<td>Q5c</td>
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<td>4.670</td>
<td>0.426</td>
<td>65</td>
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<tr>
<td>Q6c</td>
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<td>4.790</td>
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<tr>
<td>Q8c</td>
<td>5</td>
<td>4.550</td>
<td>0.630</td>
<td>95</td>
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<tr>
<td>Q9c</td>
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<td>4.610</td>
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<tr>
<td>Q10c</td>
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<td>4.690</td>
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<td>Q12c</td>
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<tr>
<td>Q14c</td>
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<td>4.720</td>
<td>0.413</td>
<td>31</td>
</tr>
<tr>
<td>Q15c</td>
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</tr>
<tr>
<td>Q16c</td>
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<td>4.730</td>
<td>0.400</td>
<td>90</td>
</tr>
<tr>
<td>Q17c</td>
<td>17</td>
<td>4.730</td>
<td>0.349</td>
<td>83</td>
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</table>
# TABLE 5
## ANALYSIS OF ADVISING SATISFACTION BY KNOWLEDGE ITEM

Descriptive Statistics for SRScale Based on Students who:

<table>
<thead>
<tr>
<th>Classification Variable</th>
<th>Answered Question Incorrectly</th>
<th>Answered Question Correctly</th>
<th>ANOVA</th>
<th>Kruskal-Wallis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1c</td>
<td>45</td>
<td>4.630</td>
<td>0.494</td>
<td>55</td>
</tr>
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<td>Q2c</td>
<td>57</td>
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<td>0.474</td>
<td>43</td>
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</tr>
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<td>81</td>
</tr>
<tr>
<td>Q16c</td>
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<td>4.710</td>
<td>0.404</td>
<td>90</td>
</tr>
<tr>
<td>Q17c</td>
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<td>4.760</td>
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</table>
### TABLE 6
ANALYSIS OF TOTAL SCORE

<table>
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<tr>
<th>Classification Variable</th>
<th>Value</th>
<th>Sub-Sample N</th>
<th>Score Statistics by Group Mean</th>
<th>Std. Dev.</th>
<th>ANOVA Prob.</th>
<th>Kruskal-Wallis Prob.</th>
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</thead>
<tbody>
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<td>GPA4</td>
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<td></td>
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APPENDIX 1
2015 PRE-PHARMACY ADVISING ASSESSMENT

Q1 I consent and agree to participate in the survey.
   1. Agree and Continue (1)
   2. Decline to Participate in the Study (2)

Q3 Which of the following responses most closely approximates your cumulative grade point average (GPA)?
   3. 4.0 (1)
   4. 3.5 (2)
   5. 3.0 (3)
   6. 2.5 (4)
   7. 2 (5)
   8. 1.5 (6)

Q6 What is your backup plan? (check all that apply)
   1. apply to other pharmacy schools (1)
   2. reapply to NDSU's pharmacy school a 2nd time (2)
   3. change majors (3)
   4. I don't have a backup plan (6)
   5. I don't have backup plan but intend to create one (4)
   6. I don't need a backup plan (5)

Q7 Approximately how many times this semester were you in contact with your adviser? (check all that apply)

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<tr>
<th></th>
<th>Never (1)</th>
<th>1-3 (2)</th>
<th>4-6 (3)</th>
<th>7+ (4)</th>
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<td>By phone (1)</td>
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<td>8.</td>
<td>9.</td>
<td>10.</td>
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<tr>
<td>By face to face appointments (3)</td>
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<td>16.</td>
<td>17.</td>
<td>18.</td>
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</table>

Q8 Please identify all the reason(s) you sought assistance from your academic adviser this semester. (check all that apply)
   19. curriculum guidance (1)
   20. academic planning (2)
   21. internship options (3)
   22. study tips (4)
   23. more information about student organizations (5)
   24. more information about the admission process (6)
   25. stress management (7)
   26. non-academic issues (8)
   27. other (9) ____________________
Q16 Evaluate each of the following statements for accuracy as they relate to the pharmacy admission process.

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<tr>
<th>Statement</th>
<th>no (1)</th>
<th>maybe (2)</th>
<th>yes (3)</th>
</tr>
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<td>Core classes are the only classes that matter to be accepted into NDSU’s professional program.</td>
<td>28.</td>
<td>29.</td>
<td>30.</td>
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<tr>
<td>The admission committee gives preference to North Dakota residents and NDUS students.</td>
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<td>32.</td>
<td>33.</td>
</tr>
<tr>
<td>The admission committee considers grades earned in non-core classes when making admission decisions.</td>
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<td>35.</td>
<td>36.</td>
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<tr>
<td>The PCAT score is just as important as grades earned in core classes.</td>
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<td>38.</td>
<td>39.</td>
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<tr>
<td>NDSU’s pharmacy admissions process will allow you to take the PCAT as many times as you would like.</td>
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<td>41.</td>
<td>42.</td>
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<tr>
<td>Core classes must be completed by the time you apply to NDSU’s professional program.</td>
<td>43.</td>
<td>44.</td>
<td>45.</td>
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<tr>
<td>You need reference letters along with the application.</td>
<td>46.</td>
<td>47.</td>
<td>48.</td>
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<tr>
<td>The pharmacy admission committee uses the highest subsection scores from all of your PCAT exams to compile your composite score.</td>
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<td>50.</td>
<td>51.</td>
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<td>NDSU Pharmacy admissions interviews are used to evaluate my communication skills.</td>
<td>52.</td>
<td>53.</td>
<td>54.</td>
</tr>
<tr>
<td>NDSU Pharmacy admissions interviews are used to evaluate my teamwork skills.</td>
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<td>56.</td>
<td>57.</td>
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<td>NDSU’s pharmacy program requires applicants to take an ethics exam on interview day.</td>
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<td>59.</td>
<td>60.</td>
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<td>If you receive an invitation to pharmacy interview day, you will be accepted into the professional pharmacy program.</td>
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<td>62.</td>
<td>63.</td>
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<tr>
<td>NDSU’s pharmacy program accepts applicants who do not have pharmacy job shadow or work experience.</td>
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<td>65.</td>
<td>66.</td>
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<tr>
<td>If you have violated the College’s conduct policy, you will not be admitted into NDSU’s pharmacy program.</td>
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<td>68.</td>
<td>69.</td>
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<td>NDSU Pharmacy admissions interviews are used to evaluate my ability to express empathy.</td>
<td>70.</td>
<td>71.</td>
<td>72.</td>
</tr>
<tr>
<td>NDSU Pharmacy admissions interviews are used to evaluate my self awareness.</td>
<td>73.</td>
<td>74.</td>
<td>75.</td>
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<tr>
<td>My personal values and religious beliefs will impact my chances of gaining admission to NDSU’s pharmacy program.</td>
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<td>77.</td>
<td>78.</td>
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Q9 Please rate your advising experience.
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<th>Q13 Additional Comments:</th>
<th>Strongly Disagree (1)</th>
<th>Disagree (2)</th>
<th>Neither Agree nor Disagree (3)</th>
<th>Agree (4)</th>
<th>Strongly Agree (5)</th>
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<td>My adviser is accessible to me. (1)</td>
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<td>80.</td>
<td>81.</td>
<td>82.</td>
<td>83.</td>
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<td>My adviser provides me with up-to-date information that I can use. (2)</td>
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<td>85.</td>
<td>86.</td>
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<td>My adviser is knowledgeable about resources and services on campus. (3)</td>
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<td>90.</td>
<td>91.</td>
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<td>My adviser takes an expressed interest in my questions and concerns. (4)</td>
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<td>95.</td>
<td>96.</td>
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<td>98.</td>
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<td>My adviser encourages me to come by for help. (5)</td>
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<td>My adviser gives me accurate information about course requirements. (6)</td>
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<td>106.</td>
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<td>My adviser has assisted me in developing a long-term education plan. (7)</td>
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<td>After meeting with my adviser, I feel like I am better prepared to gain admission to the professional program. (8)</td>
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<td>115.</td>
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<td>My adviser helps me make important educational decisions (selecting elective courses, exploring academic majors/minors, etc) (9)</td>
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<td>I felt comfortable asking my adviser questions during the meeting. (10)</td>
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APPENDIX

TABLE 1
DESCRIPTIVE STATISTICS

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<td>Return</td>
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Number of Observations 100
TABLE 2
PRINCIPAL COMPONENTS FACTOR ANALYSIS WITH VARIMAX ROTATION

Panel A: Eigenvalue Extraction using Principal Components

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Rotated Loadings

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Panel B: Factor Matrices

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### TABLE 3
SCALE AND ITEM CORRELATIONS

#### Panel A: Scale 1 Inter-Item Correlation Matrix

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#### Panel A, Continued: Scale 1 Inter-Item Correlation Matrix

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Scale Mean 4.700
Scale Std. Deviation 0.427

Cronbach's Alpha 0.917
F-Test [99,990] 11.976
Probability Value < 0.001
Panel B: Scale 2 Inter-Item Correlation Matrix

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Scale Mean 4.670  
Scale Std. Deviation 0.477  
Cronbach's Alpha 0.884  
F-Test [99,594] 8.635  
Probability Value < 0.001

Panel C: Scale 2 Inter-Item Correlation Matrix

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Scale Mean 4.710  
Scale Std. Deviation 0.428  
Cronbach's Alpha 0.779  
F-Test [99,297] 4.521  
Probability Value < 0.001
Mentoring and Socialization of Future Senior Student Affairs Officers

Michael C. Mason
Berklee College of Music

Little research has been conducted on the academic preparation of Senior Student Affairs Officers (SSAOs). This study investigates the perceptions of mentoring relationships between faculty mentors and their doctoral student protégés who were in training to become SSAOs. Kram’s (1985) theory, identifying psychosocial and career aspects of mentoring in organizational development, examines these relationships. Given the findings, a stronger emphasis upon the SSAO applied theory component of the doctoral program is recommended in multiple ways.

INTRODUCTION

Many students enter doctoral programs with the specific intent of joining the ranks of higher education faculty through a clear set of experiences that include coursework, teaching assistantships, dissertation research and the final defense. The body of research on doctoral education and the professional formation of doctoral students primarily focuses on preparing students for the professoriate in Arts and Sciences (Overview of the Carnegie Initiative on the Doctorate, 2002; Golde & Dore, 2001; Kuh, 1997; Nyquist & Woodford, 2000). Yet, according to these studies, a number of concerns have surfaced regarding the lack of quality within doctoral education, mainly that doctoral students were not adequately trained for faculty careers (Golde and Dore, 2001, p. 5).

One area identified in the literature to improve doctoral student preparation is the relationship between the faculty mentor and the student protégé. Researchers studying faculty-mentoring programs for doctoral students have reported many benefits for protégés, including advantages in job placement, research skills, research productivity and self-efficacy, and collaborative publications (Kram, 1985; Paglis, Green, & Bauer, 2006; Terrell & Wright, 1988 as cited in Noonan, Ballinger & Black, 2007).

Yet, does what we know about mentoring doctoral students and the outcomes apply to all doctoral students, such as those who enter doctoral programs in applied professional fields? For example, certain doctoral students enter Higher Education Administration with the goal of remaining in applied administrative and practitioner roles in student affairs and progressing to the most senior level of this profession. Does this faculty/student relationship help prepare doctoral students for what they will do professionally?

Research on mentoring in an academic environment shows three primary purposes: (a) to transmit formal disciplinary knowledge and technical skills (Reskin, 1979); (b) to initiate students into the rules, values and ethics of their discipline; and (c) to bolster their protégé’s confidence in themselves through encouragement and praise. (Lyons & Scroggins, 1990). This is important to students’ socialization, as it helps to provide a sense of identity regarding the role itself and the knowledge and skills to perform in the role effectively.
FOCUS OF THE STUDY

This study focused on the mentoring relationship between faculty mentors and current Senior Student Affairs Officers (SSAOs) who were their former doctoral students. They were studied in order to learn the perceptions of whether the mentoring relationship helped to socialize and prepare students for the role of SSAO. Weidman, Twale and Stein (2001) describe socialization in this way:

It becomes a continuum of experiences, with some experiences being commonly and uniformly felt by students and others perceived differently by students with different characteristics. Each step along the journey has particular significance, becomes a rite of passage, or adds important people and information to the mix.
(p. 5)

Weidman, Twale and Stein (2001) also believe that “socialization in graduate programs is a nonlinear process during which identity and role commitment are developed through experiences with formal and informal university culture as well as personal and professional reference groups outside academe” (p. 36).

This study sought to examine two research questions:

• How do faculty mentors perceive how their mentoring relationship with their former doctoral student protégés helped to socialize them into becoming current senior leaders in Student Affairs?
• How do former doctoral student protégés perceive how their mentoring relationship with their faculty mentor socialized them into becoming current senior leaders in Student Affairs?

METHODOLOGY

The theoretical framework used for this study was based on the mentoring research of Kram (1983, 1985). Kram’s research stated that mentoring is composed of two distinct elements: career functions and psychosocial functions. Career functions include sponsorship, coaching, protection, and providing exposure, visibility, and challenging assignments. Psychosocial functions include role modeling, acceptance and confirmation, counseling and friendship (Chandler & Kram, 2007). Kram’s research further highlighted how relationships and their content vary according to the protégé’s life stage. (Chandler & Kram, 2007, p. 6).

A qualitative approach was used, as qualitative methods best captured the subjects’ experiences of mentoring and being mentored. Rossman and Rallis (1998) state that qualitative research has two unique features. First, the researcher serves as the conduit through which the research occurs and is conducted. Second, the outcome of the research should be learning something new about the social world. This second feature was the primary purpose of this study: to gain insight into perceptions about the career and psychosocial aspects of mentoring higher education administration doctoral students.

Specifically, an empirical phenomenological model was used to carry out this research. “Often through a series of in-depth, exploratory, intensive interviews…the researcher seeks to understand the deep meaning of an individual’s experiences and how he or she articulates those experiences” (Rossman & Rallis, 1998, p. 72). According to Moustakas (1994), this involves a return to experience in order to obtain comprehensive descriptions that provide the basis for a reflective structural analysis that portrays the essences of the experience. This study is also an example of “research that elicits tacit knowledge and subjective understandings and interpretations” (Marshall & Rossman, 2006, p. 53).

The subjects interviewed were comprised of five faculty mentors (identified as such by their former doctoral students) and seven of their former doctoral students, who achieved senior leadership positions as SSAO’s (In Table 1, in the table the faculty members’ names are in grey and followed by their former students’ names). These interviews reflected the SSAOs’ and mentors’ perceptions of how psychosocial and career development occurred through mentorship during their doctoral studies and, if at all, how it
prepared them for their current roles. The faculty mentor interviews were conducted in two parts. Part One gathered demographic information and data on the professor’s own experience as a teacher and protégé. Part Two addressed the experiences and interactions that led to the protégés’ psychosocial and career development, especially the role that mentoring played in preparing the students for senior leadership positions within Student Affairs.

**TABLE 1**

**PARTICIPANTS’ DEMOGRAPHIC INFORMATION**

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Length of Role</th>
<th>Race</th>
<th>Gender</th>
<th>Institution</th>
<th>Type</th>
<th>Location</th>
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<td>Dr. John Christian</td>
<td>Professor/Faculty Mentor</td>
<td>33 years</td>
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<td>Male</td>
<td>Red Valley University</td>
<td>Private</td>
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<td>Dr. Grant MacAtee</td>
<td>SSAO/Former Doctoral Student</td>
<td>9 years</td>
<td>White</td>
<td>Male</td>
<td>State College University</td>
<td>State</td>
<td>Northeast</td>
</tr>
<tr>
<td>Dr. Sarah Brown</td>
<td>Associate Professor/Program Director/Faculty Mentor</td>
<td>14 years</td>
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<td>Female</td>
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<td>Dr. Sal Colavita</td>
<td>SSAO/Former Doctoral Student</td>
<td>6 years</td>
<td>White</td>
<td>Male</td>
<td>Salvation College</td>
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<td>New England</td>
</tr>
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<td>Dr. Susan James</td>
<td>SSAO/Former Doctoral Student</td>
<td>6 weeks</td>
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<td>Female</td>
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<td>Private Religiously Affiliated</td>
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</tr>
<tr>
<td>Dr. Ellen Foster</td>
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<tr>
<td>Dr. Mark Southern</td>
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<td>Dr. Evelyn Freeman</td>
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In the SSAO interviews, Part One consisted of gathering demographic information and data on the protégé’s own experience as a doctoral student. In Part Two, participants discussed the experiences and interactions that led to their psychosocial and career development that led to understanding the role that mentoring played in preparing them for senior leadership positions within Student Affairs. The data from the mentors and protégés were then analyzed for their content similarities and differences both within and across groups.

The SSAOs interviewed were those serving in four-year colleges and universities and varying in age, race and gender to provide as diverse a sample as possible. They held doctorates in either Student Affairs or Higher Education Administration with a focus on Student Affairs. An additional criterion of their participation was that they were able to identify faculty mentors from their respective doctoral programs and provide contact information for those mentors. When possible, interviews took place on the home campus of each participant; otherwise a phone interview was conducted.

SUMMARY OF FINDINGS

The data was transcribed and then coded using Hyper RESEARCH. This was done to identify themes or trends across the interviews and to reflect similarities and differences with both the faculty mentors and the former protégés. To analyze the transcribed data, a modified van Kaam method for analysis developed by Moustakas (1994) was used.

In looking at the first research question, the five faculty mentors generally viewed their mentoring relationships with doctoral students as ones that supported conducting research and completing the dissertation. Specific examples include mentors providing philosophical frameworks for the ways in which students approached their dissertations, guidance for students' writing and revision, and new frames of reference through which their students viewed an institution of higher education.

In addition, mentors saw themselves as sounding boards and colleagues. They helped students make meaning of prior professional experiences, discern initial career options just after the doctoral program or many years after, and consider issues of work/life balance. In these conversations, mentors helped students examine their priorities, both personally and professionally.

One interesting finding was that faculty mentors did not perceive themselves as providing specific preparation for the role of SSAO. In their conversations, mentors and protégés did not discuss the day-to-day functions of the position, how to oversee multiple Student Affairs offices, or how to manage resources, both human and fiscal. Mentors perceived that these discussions did not take place because either the students generally demonstrated prior knowledge of these skills or the mentors referred their students to other faculty members who had much more knowledge and experience with the SSAO position. However, mentors did discuss senior university leadership in general and the culture, mission and values of the institution at which students were considering an SSAO position.

The second research question focused on the perceptions of eight former doctoral students and their preparation for their current roles. The interviews revealed that some students were supported by their program directors (and their future mentors) during the application process to specific doctoral programs that met their needs and career goals. Some students were also helped by their faculty mentors during the program to network with national Student Affairs professional organizations, while others were challenged to think about their abilities and explore possible career options. The SSAOs also viewed their mentors as people in whom they could confide about both personal and professional challenges and from whom they gained personal, professional, and intellectual confidence.

In terms of their professional development, the SSAOs perceived that they were prepared for their current roles, specifically by their mentors and generally by their doctoral programs. This was an interesting finding, as it contradicted the perception that their mentors generally held. In analyzing the SSAO responses, it became clear that the career preparation may not have been in the specific area of what an SSAO does day to day, but the mentors planted seeds regarding the political environment of senior leadership that directly affected the day-to-day role. In addition, some students had the opportunity to serve in assistantships such as Graduate Assistant, Assistant to the Senior Vice President for Finance,
or Assistant to the President. Through these experiences, they gained valuable insight into the academic subcultures outside of Student Affairs. These students commented on how their experiences provided a larger picture of higher education as an enterprise.

RECOMMENDATIONS

The goal of this study was to investigate the perceptions that mentors and SSAOs have about mentoring and the professional development of SSAOs. The results revealed that this group of SSAO participants actually entered their doctoral programs with fairly clear ideas of what the role of SSAO encompassed. More importantly, the results also revealed that although Higher Education Administration is an applied field, the SSAO’s had little opportunity to apply their theory, knowledge, and experience in actual senior student affairs situations during the course of their doctoral programs.

Based on these results, four recommendations would improve the practical career preparation for students in doctoral programs in Higher Education Administration/Student Development.

Provide More Mentors from the Field

Because not all mentors in this study were familiar with the role of the SSAO, it may be generalizable that other faculty in other similar programs may not be familiar with the role either. Given this, doctoral programs may benefit from providing more than one faculty mentor for each doctoral student. This model builds upon the research of Parks (2000), which supports mentoring communities or multiple mentors allowing students to receive mentoring from different sources and perspectives. In addition to faculty mentors, doctoral students would also be paired up with a Mentor of Practice. This mentor would be an alumnus/a from their doctoral program who serves as an SSAO and with whom doctoral students can have direct conversations. Students could also speak with their Mentor of Practice about how theory does (or does not) coincide when working with students and managing staff.

Senior leaders other than SSAOs could also serve as mentors. They would help provide multiple lenses through which doctoral students could view institutional issues, understand the perspectives of other constituencies within the university, and address problems and issues from a multi-disciplinary approach. This would also allow for practical interactions with SSAOs and other senior leaders about day-to-day functions, about how the role affects family and personal lives, and discussions about future career options.

Increase Apprenticeship Experiences

A second implication of this research is the lack of practical experiences in learning about the day-to-day life of an SSAO, even though many students had positive experiences within the doctoral program. This situation could be addressed by creating a required apprenticeship experience for all Higher Education Administration/Student Affairs doctoral programs consisting of a semester apprenticeship with a practicing SSAO.

Walker et al. (2008) view mentoring between faculty members and doctoral students through the lens of an apprenticeship:

Apprenticeship should, in our view, be understood more broadly as a theory of learning and a set of practices that are widely relevant. Seen this way, apprenticeship can and should inform and strengthen all aspects of the doctoral program, whether during advanced classes, in the course of working in the lab, while teaching undergraduates, during seminars, while having conferences in an office, or in hallway conversations. Apprenticeship pedagogies demand purposeful participation by both students and faculty. (p. 91)

Given this perspective, Walker et al. also believe that students should have opportunities to connect with multiple mentors during their experience:
The traditional apprenticeship model is typically conceived as a pairing of two individuals, but the multifaceted, integrative learning expected of today’s PhDs requires growth on a number of dimensions...Today’s students are thus best served by having several intellectual mentors. (p. 94)

This type of experience is already a common practice in master’s programs in Higher Education Administration/Student Affairs and would add an important experiential learning component to doctoral students’ overall educational experience and career development. Like teaching assistantships for doctoral students preparing to enter the professoriate, this type of internship for doctoral students would introduce students to the practical work of an SSAO and allow them to apply theory to practice before their first official SSAO position. This experience should occur toward the end of the students’ coursework phase, as it will help students put their newly learned theory and former experiences into practice. This apprenticeship experience would also help inform the dissertation process, as the topic might be based on a relevant issue the student encountered during the apprenticeship.

Increase Faculty Awareness of Mentoring

The third issue this study raised is that faculty mentors were not fully aware of the impact they had upon their students regarding preparation for the SSAO role and leadership. In the interviews, faculty mentors said that they mainly received feedback from their students on their role as director in helping the student finish the dissertation process and not on things learned relating to the SSAO position. Perhaps one reason is that students are not aware of the mentor’s role in their career development until they have been in the role for some years and can reflect back on the mentoring experience and share those reflections anecdotally with the mentor.

It would be helpful for faculty to hear from their former students in a formal and systemic way so they understand how they affected the students’ career preparation process. One way to gather this feedback would be for the doctoral program to issue a survey to those alumni/alumnae who have been SSAOs for a certain number of years. This would create data on the role of faculty mentors in the area of career aspects of mentoring. The data would also provide more material for further research and allow institutions to document the effectiveness of their faculty and the impact of the doctoral program.

This finding indicates that doctoral program faculty should be better educated on the impact of their role as faculty mentors. As each cohort is selected and oriented into its own doctoral experience, faculty would be oriented prior to the cohort’s arrival about the importance and impact of faculty, in particular the psychosocial development that occurs over the course of the doctoral student mentoring experience. This would provide a more complete context regarding the role of the faculty mentor.

Increase Post-Graduate Communities of Practice

As noted earlier, many of the mentoring relationships were well developed in the psychosocial area and continued after the doctoral program experience. There were SSAOs who mentioned the importance of writing as an outcome of their programs. They also mentioned that they wished to continue their scholarly work with their mentor, yet due to job responsibilities, they found this to be nearly impossible. One last recommendation would be for professional organizations such as the National Association of Student Affairs Professionals (NASPA) and the American College Personnel Association (ACPA) to provide funding for mentors and their former protégés to continue their scholarly work that began in the doctoral program setting. This would increase the number of senior leaders who would contribute research to the field. It would also allow a senior practitioner’s voice to be heard from the field to provide additional, and perhaps contrasting, perspectives to research that is being conducted by faculty.

SIGNIFICANCE OF THE STUDY

This study focused solely on doctoral students in Higher Education Administration programs and how the faculty mentors in those programs prepared students for the role of senior leadership. This focus is
critical because it may provide insights into the level of significance that faculty mentoring holds in the
socialization process of students into the role of SSAO and whether or not faculty mentors view this as a
responsibility. Mentoring benefits for protégés include more rapid career advancement, higher rates of
compensation, greater career opportunity, and enhanced professional identity (Fagenson, 1989; Fagenson-
relationship can prove to be very valuable, as it provides guidance for faculty and helps them to
understand the impact of their relationships with doctoral students during this critical period in their
education.

In addition, this study examined the relevance of research and theory on doctoral students who enter
applied fields of study. This study investigated the perceptions of the effects of faculty mentoring on a
former doctoral student’s professional identity as an SSAO and their job performance. The intention is
that the results will contribute to that body of knowledge.

The results of this study will add to the growing knowledge about improving the quality of doctoral
education. Over the last twenty years, various policy discussions have addressed the quality of doctoral
education in the United States and how well these programs prepare students to enter the workforce. This
study adds more data to those discussions, specifically regarding the entry of doctoral students into roles
of senior leadership in Higher Education Administration.

Another merit of this study is that its findings may provide a practical and effective mentoring model.
This model may be used to inform institutional policy regarding the purpose and structure of future
mentoring programs for doctoral students, as “policy studies provide information that helps
governmental, institutional, or organizational authorities develop programs or make policy decisions”
(Rossman & Rallis, 1998, pp. 17-18). By providing a more practical model, students have a deeper
experience of connecting theory and practice in preparation for their future roles as SSAOs.

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Maximizing the Adaptive Learning Technology Experience

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This paper explores the impact of Adaptive Learning (AL) on students and teachers who use automated grading systems to improve overall learning and effectiveness. Enhanced learning effectiveness improvements are attainable for both students and teachers with the use of Automated Grading Learning Systems (AGLS). Students trained on the use of technology, become self-directed and motivated to evaluate their progress. AGLS lightens the workload for teachers with steadily increasing enrollment, allowing them to provide students with feedback that is accurate and immediate, while creating additional opportunities for positive interaction with students to reach them where they are.

ADAPTIVE TECHNOLOGY INVOLVING STUDENTS

Classroom instructors continuously seek ways to provide a more student-centered approach to meet student needs. Adaptive Learning promises to meet this need as it improves student retention, achieves better outcomes, and provides a more precise measure of student learning (Nakic, Granic, & Glavinic, 2015). Adaptive Learning has been a welcome addition to the learning environment at Colorado Technical University, a higher learning institution that provides career-oriented education by providing real world, industry-current programs in selected areas to serve the needs of students and industry for employment and career advancement. The pace of student learning varies dramatically, challenging instructors to deliver course objectives at a level each student can comprehend and retain effectively. Addressing variations in student learning is a primary goal of Adaptive Learning. Adaptive Learning enhances student learning by adjusting to students’ interactions with the course material to promote
mastery of the course material uniquely tailored to each student. This paper explores the impact of AL on students and teachers who use automated grading systems to improve overall learning and effectiveness.

**Historical Overview**

This paper explores the development and trends in adaptive learning occurring between 2001 and 2013. Nakic, Granic, & Glavinic (2015) addresses the most important characteristics of students that promote success in online learning environments. New classes of characteristics are emerging, such as learning styles, cognitive styles, and meta-cognitive abilities. Research suggests adaptive learning systems are highly effective when adapted to one or more student characteristics; learning styles, background knowledge, cognitive styles, preferences for specific learning material. Many variables influence learner differences, behavior, and learning performance; age, gender, cognitive abilities (perceptual speed, processing speed, working memory capacity, reasoning ability, verbal ability, spatial ability and other cognitive abilities), meta-cognitive abilities, psychomotor skills, personality, anxiety, emotions, learning styles, experience, background knowledge, motivation, expectations, preferences, and interaction styles (Nakic, Granic, & Glavinic, 2015).

Through Adaptive Learning Systems students work at their comfort level using technology platforms that provide different methods to enhance their learning potential. Some Adaptive Learning applications are rule-based taking students down a linear pathway while others rely on complex algorithms with multiply pathways through a collection of learning objects within the context of simulation. Adaptivity is different from personalization, its more data driven and is based on how the learner interacts with the system beyond binary responses. (Newton, Stokes, & Brian, 2015).

**STUDENT READINESS/PREPARATION**

Adaptive learning is an approach to instruction that utilizes technology to create a personalized learning experience for students. It is driven by a student’s behavior, interaction, aptitude, and performance. The content is adjusted based upon these factors, and the resources are attuned according to the learner’s differences. (Mahajan, 2012). Adaptive learning techniques should not be separated from traditional modes of instruction, but rather integrated with standard forms of teaching. (Baker, 2012). Adaptive learning has been explained as the application of learning using decision-making that receives ongoing feedback. (Baker, 2012). The content in adaptive learning models provides feedback and further training when the student provides an incorrect answer. The assessment of the student occurs in the sequencing of questions. This is a probability-based method whereby students with lower grades will have a higher probability of getting easier questions; as the students answer more questions correctly, the probability of the students receiving harder questions increases. Once the students near the highest score possible, they will then have the greatest possibility of being tasked with the most difficult questions. (Jonsdottir, 2015). The system also analyzes the student responses and adjusts the sequence and order of the content and skills being worked upon.

The question that follows is what fundamental skills or abilities must a student possess in order to enter an adaptive learning environment and be successful? It may seem antithetical to be concerned about whether a student is prepared for adaptive learning. After all, the purpose of adaptive learning technology is to adjust the content to the skill level of the student. Therefore, a student's competency coming into the classroom would seem to be irrelevant. However, adaptive learning technology presupposes that the student has (or has been taught) certain abilities. For example:

- That the student can read and write at the level the material will be presented in the course;
- That the student has the foundational education to understand the assessment materials;
- That the student has the requisite test taking skills to be able to be assessed;
- That the student has the ability to take responsibility for their own learning;
- That the student has the requisite computer and technological skills.
Assuming that students have the foundational educational requirements to be in a particular course, we will focus on the last two points: the students need to be self-directed and technological preparation.

**Preparing Students for Adaptive Learning**

Through its nature as a self-centered learning process, adaptive learning creates new demands on instructors and students. There are specific areas that institutions can focus upon to prepare students for adaptive learning. Institutions must prepare students technologically and mentally. It is through the use of technology that institutions can provide personalized learning, assessment, and feedback for students (Moeller, 2011). However, the technology itself can be an obstacle to the use of technology in the classroom. In order for adaptive learning to be beneficial, the students must know how to use the technology.

Students must also be taught to develop an expansive mindset because being mentally prepared for adaptive learning means being ready for growth. Adaptive learning has the potential to help struggling students’ progress more quickly and to allow gifted students to increase their knowledge base by tackling more difficult questions. When students correctly answer questions in adaptive learning environments, the questions will become more difficult. If questions are answered incorrectly, the student will be encouraged to do more practice. So students must be able to self-monitor and regulate themselves, and instructors must constantly assess and guide students through the learning process. Student motivation is a key factor in the success of adaptive learning (Baker, 2012). Students need to see results of their hard work. Struggling learners need to be motivated to work harder, and better students need the motivation to tackle more difficult problems.

An important step to ensure that students master knowledge is for the students to demonstrate their understanding of the course material. Written tests and papers provide students with the opportunity to demonstrate some of this knowledge, but certain areas of behavioral decision-making are difficult to assess using only these techniques (Baker, 2012). This is where adaptive learning methods can be effective. The data tracked by the adaptive learning technology allows instructors to know if students are putting in the effort to learn. It can also help instructors identify and motivate underachieving students.

**Training Students to Use the Technology**

Technology makes the adaptive learning experience possible (Moeller, 2011). Developing successful students begins with making sure the students are confident in the use of the technology. Students' experience with the use of technology varies substantially. A recent report found that among graduates preparing for the next step into higher education, 43% of students feel unprepared to use technology (Moeller, 2011.) The percentage of older students who lack technological experience is even greater. Therefore, one of the keys to successful implementation of adaptive learning is training students to use the technology.

The positive side, studies have repeatedly shown that students, regardless of age, are motivated and able to learn new technologically-based tasks (Bruder, 2014). Moreover, students can significantly increase their abilities to work with new technology with proper training (Bruder, 2014). Older students can optimize their results through extended practice (Bruder, 2014). Younger students will adapt more quickly to technological issues and learn to master the technology at an advanced rate (Bruder, 2014). Educators must also take into account the amount of time it will take users to learn to use the technology in addition to completing the course work. The more complex the technological process, the longer it will take the users to successfully master the skills. One effective assessment tool is to pre-testing students on the use of technology (Vandewaetere, 2012). The results of the pre-testing would provide insight regarding the student’s proficiencies with the technological interfaces (Vandewaetere, 2012).

One of the benefits of training students in the use of technology for research, writing, and analysis is that it increases the students' skills in areas with real world applications. (Moeller, 2011). Skills in digital media, computer technology, and information processing have been identified as essential for succeeding in the current work place (Moeller, 2011). The fact that students can take the skills and apply them in the
workplace could be a key motivator for many students to put in the extra work regarding learning to use the technology.

Teaching Students to be Self-Directed

In order to be successful in an adaptive learning system, students must be taught how to self-direct themselves. Studies have shown that students have more success in school when they learn self-regulatory processes (Zimmerman, 2002). Students must do more than simply react to a set of instructions. They need to be proactive in transforming their mental capabilities into action. "Self-regulation refers to self-generated thoughts, feelings, and behaviors that are oriented to attaining goals." (Zimmerman, 2002, p.65). Students self-regulate when they set clear goals and understand their own weaknesses and strengths. Self-direction requires the use of specific processes and skills, and these processes and skills can be taught. The process of self-regulation is as follows:

- Set specific goals;
- Create strategies to accomplish the goals;
- Manage the use of time effectively;
- Monitor and evaluate progress;
- Acknowledge the cause of the results;
- Develop future goals (Zimmerman, 2002, p.66).

Students need to be taught how to set goals, create a strategy to reach those goals, and learn to self-evaluate their progress. Goal setting and self-monitoring can help to compensate for differences in individual learning styles and abilities.

Enthusiasm and motivation are key components in self-direction. An increase in a student’s motivation can lead to a student putting in additional work to obtaining a goal. For example, when a student answers a problem incorrectly, tools with adaptive content respond with feedback. Part of the feedback process includes encouraging students to continue to perform voluntary exercises. Therefore, it is important to understand what may motivate students to work on additional problems versus stopping.

Motivating Students

In order to be effective, adaptive learning systems must assist students in developing self-motivation. Factors that increase student motivation include educating students on what they need to do to succeed in the course, having students be active participants in the classroom, and increasing the difficulty of material as the course progresses. Another area that is motivating to students is quick feedback on their work and rewarding success (Davis, 1999).

Adaptive learning technology provides students with continuous feedback, which can affect student motivation. While ongoing feedback generally acts as positive motivation (Baker, 2012), adaptive assessments pinpoint weaknesses and require students to perform additional practice before advancing. This method of learning personalization has been used by educators throughout history. If students struggle, teachers assign them extra work so they can get in more practice and master the skill. When adaptive learning technology encourages students who struggle to do more work, it can have a potential negative effect on student motivation because one of the issues for students who struggle is the longer amount of time they must put in to get the work completed. One way that adaptive learning technology combats this issue is that the technology adapts to the level and needs of the student by providing students with questions based upon their current knowledge and grade (Baker, 2012).

However, “few beginners in a new discipline immediately derive powerful self-motivational benefits, and they may easily lose interest if they are not . . . encouraged and guided” (Zimmerman, 2002, p. 66). Thus, an important factor in student motivation is the instructor. The instructor’s enthusiasm, organization, and active involvement with students plays a major role in motivating students to reach their full potential and work harder. Instructors should have high yet realistic expectations for their students, help students to set achievable goals, and provide means and methods for students to self-regulate.
Instructors should take into consideration the students existing desires and needs and provide incentives for learning. Instructors must make students active participants in the learning process.

**LEARNING STYLES**

On the subject of adaptive learning technologies in higher education, Liaw and Huang (2007) identified four components that should be considered in the development of such learning tools: environmental characteristics, environmental satisfaction, learning activities, and learners’ characteristics. There are several learners’ characteristics that have been shown, preliminarily, to moderate the efficacy of these technologies in student performance. Among the most important of these characteristics is learning style.

**Learning Styles in Adaptive Learning**

Recent years have seen a push for flexibility to accommodate the needs of learners in higher education through custom adaptation (Billington & Billington, 2010). Schools are under increasing pressure to reach students ‘where they are’. As adaptive learning technologies proliferate through the higher education industry, the importance of learning styles to the efficacy of these technologies has been the subject of much debate. Early on in the development of higher education research, several seminal authors (Cronbach, 1957; Bloom, 1971) posited that the key to improving individualized performance is to differentiate instruction and content delivery methods, so as to accommodate the different learning styles of each student. Learning styles have been defined as “a set of cognitive, emotional, characteristic and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment” (Keefe, 1979, p. 1). According to Murray (2015), learning styles “encompass preference for information type (concrete versus abstract), presentation style (visual, auditory, or kinesthetic) and learning action (active versus reflective)” (p. 113). Learning styles themselves are thought to be the product of various other factors of individual development, including generation (Roehling, Kooi, Dykema, Quisenberry, & Vandlen, 2011; Wood, 2006).

Different adaptive learning platforms are attempting to tackle the issue of individualized learning styles with the use of different theories. Systems such as Moodle and Blackboard are attempting to accommodate the learning styles set forth by taxonomies such as Myers-Briggs Type Indicator (1998), Multiple Intelligences (Gardner, 1993), and Kolb’s (1985) Learning Styles. Other systems such as iLearn are adding to this list the VARK learning style model, which is an acronym for visual, aural, read/write, and kinesthetic learning styles (Prithishkumar & Michael, 2014). According to Peter and Bacon (2010), iLearn chose to focus on VARK because the individual learning modes can be more easily mapped to course learning objectives.

**Research on the Efficacy of Learning Style-Based Adaptive Learning**

It stands to reason then that adaptive learning would be the ideal solution to address this issue, and yet, studies investigating the impacts of these technologies have returned mixed results. The Murray (2015) study evaluated undergraduate students in a computer literacy course. It compared approximately 100 students using adaptive learning technologies to roughly the same number using traditional modes of learning, and the results indicated that, in spite of engineering to accommodate learning style, adaptive learning platforms had very little effect on learning outcomes as compared to the alternative. Another study by Mainemelis, Boyatzis, and Kolb (2002) evaluated the performance of approximately 200 MBA students and found that there was a wide range of adaptive flexibility levels between the different learning styles present, suggesting that adaptive learning may be an effective tool for some students, but not others. A much earlier study by Stutsky and Laschinger (1995) looked at the same concept of adaptive flexibility (though obviously not in an online learning context) and found that there were inconsistencies between learning style classification and adaptive flexibility.
Criticisms of Learning Style-Based Adaptive Learning

Among researchers in the field of learning styles and adaptive learning, there is an alternative point of view, one of a much greater degree of skepticism concerning the propriety of expectations from these higher education tools. First, and most fundamentally, there is a good faith argument that the attempts to taxonomize learning styles in the first place have been little more than exercises in futility. This paper identified a handful of learning style theories *supra*, but Rohrer and Pashler (2012) conducted a meta-analysis of learning style research and identified a total of 71 different published theories. Yet, their review showed very little evidence for the empirical superiority of any one theory over the others. In this sense, they suggested that there appears to be a kind of ‘physics envy’ taking place in the world of pedagogical and andragogical study. Researchers are vying fiercely to reduce learning phenomena to labels that are just too complex, abstract, and unpredictable (as many in social sciences are) to be reduced in such a way. Rohrer and Pashler are not the only ones to argue this either (Hall, 2005; La Lopa, 2013).

Another attack on the integrity of learning style-based adaptive learning is that, even if learning styles are in fact legitimate classifications, the typical method of determining a student’s learning style is through student questionnaires, and these, subjective instruments as they are, may be highly unreliable. Gwo-Jen, Han-Yu, Chun-Ming, & Iwen (2013) conducted a study, the aim of which was to evaluate the degree of alignment (or lack thereof) between student learning game choice and student learning style (determined through other assessment *a priori*). The results showed that students were unlikely to choose learning games which aligned with their pre-determined learning style, and thus were unlikely to experience any benefit of match between learning-style and learning tool. This is perhaps one of the biggest obstacles in mapping learning styles to adaptive learning strategy and learning objectives; if the learning style presumption is wrong at the onset, then everything that follows is likely to be a poor fit for the student.

ADAPTIVE LEARNING EFFECTIVENESS

This section will take a closer look at an aspect of Adaptive Learning (AL) which affects both the teacher and the student, the Automated Grading Learning System (AGLS). This paper is primarily focused on the student and how the AL approach improves student learning and overall effectiveness of the learning process. One of the largest areas of focus in any approach is the effectiveness of the feedback process. This feedback aspect will be discussed here in detail involving an empirical study of an AGLS.

The Need for and the Benefit of Automated Grading

With an increasing number of exercises, problems and assignments necessary for student engagement, grading by instructors is at a premium. Detailed grading gives students greater understanding of their work and allows them to correct and better understand what the concept or application is all about along with its potential use in a real-world setting. Providing students with the level of feedback they need becomes increasingly difficult as the number of students per class increases. As a result of this overwhelming work load and no seemingly good way out, professors may opt to give tests that are easier to grade but do not give the students an adequate challenge or the feedback the need to be effective learners.

Feedback Time and Quantity of Feedback Comments

In data taken from course management software it was discovered that 130 of the 429 graded assignments (30.3%) had no comments from the Professor. The days between the due date of the assignment and the time the assignment was graded and returned was on average 28 days. In cases where Professors are fortunate enough to have graduate assistants helping with the grading there could also be errors and other inconsistencies introduced into the grading of the work students submit (Ahonjemi & Karavirta, 2009). Rubrics were found to lead to much faster grading, in fact, on average the grading was 200% faster than without (Anglin, Anglin, Schumman & Kalinski, 2008). Another discovery was made as well that due to the slow time for feedback and not allowing enough time to master topic areas led to
problems with students such as poor attitudes about education and a finding that overall motivation could suffer. This decrease in interest in the process could also lead to more incidents of plagiarism (Martin et al., 2007). In many adaptive learning systems, the feedback is instantaneous and the work can be repeated as many times as need for reinforcement and ultimate transfer of learning of the materials in question.

**Comparison of Recommended System Versus Current Offerings**

Automated Grading Learning Systems that are part of an Adaptive Learning platform could help alleviate many of the potential issues noted above. This AGLS system can be used for customized projects and be used for more than just multiple choice questions. There are applications that have been developed or are in stages of development that can accommodate the grading of case studies and other more challenging exercises without waiting on people to get the job done. This system should provide a challenging learning experience while relieving the time pressure from increased enrollment and time-intensive grading (Matthews, Janicki, He, & Patterson, 2012).

**ADAPTIVE LEARNING POTENTIAL OUTCOMES**

**Limitations and Possible Solutions**

One limitation of this study was that only one introductory computer course was involved in the testing that involved databases and the use of spreadsheets. The reason this course was chosen was to keep it simple as the only variable that was different in the research was the use of the AGLS system. This would indicate that further testing with different courses and assignments could be used to further strengthen or weaken the outcome. When using a web-designed platform such as would be used in an online course or program, the database of possible answers needs to be designed and built and as the data gathers the system would/could build on itself much like has occurred with Google. Over the years with invention, innovation and technology, Google has gotten smarter (so to speak) and it is trusted and used by almost any and every one with a smart phone or a web connection. It will take oversight to ensure that what is being shown as the correct answer is in fact correct. Quality mechanisms need to be built into the system to assure that it is to be trusted and remains effective. Obviously if the opposite occurs it would not take long before students and Professors alike would not believe in the system and lost that trust.

**Future Research - Impact on Student Learning**

A few of the positives for students are the opportunity to do the assignments again and over again until they achieve 100% competency/mastery. This challenges the student to use their memory to continue to refresh and further reinforce all of the lessons presented in the course. In most face to face classes it is random at best to find a Professor that properly reinforces the critical core aspects (objectives) of the lessons to the point of total recall. With the AGLS system at least there is more of a likelihood that this will occur and in the end, this is better for the student. In addition, the student is in control over when they engage in the system and how often they engage. There is no requirement to sit in a classroom and wait for the Professor to show up and hope that the Professor is of good quality and teaches to your learning style.

The future of adaptive learning models and automatic grading are being expanded to include case studies and other more subjective types of assignments. One of the challenges that are being faced currently as the study illustrated was the need to continue to improve the quality of the feedback comments. Research has indicated that the higher quality and enhancement of the feedback the higher the level of overall learning that occurs with the students. More research needs to be conducted to find better ways to enhance automated feedback.

**CONCLUSION**

In conclusion, achieving effective adaptive learning based on learning style relies on the flexibility and customizability of adaptive learning tools. They need to adapt enough to meet the needs of the myriad
different types of learners that exist. The famous psychologist Carl Jung created the taxonomy of extroverted and introverted personality traits. However, he also asserted confidently that “such a classification is not binary, but instead, a continuum and that there is no such thing as a pure introvert or extrovert, such a person would be in the lunatic asylum” (Brainy Quote, n.d.). Similarly, we can suppose that many, if not most, learners would fall along a continuum of learning styles, as opposed to being of only one single style. Therefore, if this holds true, then the complexity of possible needs that an adaptive learning system must address increases exponentially. Markovic and Jovanovic (2012) questioned whether separate distinguishable dimensions and mutual overlaps of learning styles can be associated with a sufficient degree of certainty to even make such a task feasible. Technology has consistently provided alternative solutions that offer more interactive learning material and quality instruction to enhance the learning process. Adaptive Learning recognizes the pace of student learning varies and provides instructors with the tools needed to relieve the time pressure of increased enrollment to reach students where they are in the learning process to enhance both student and teacher effectiveness.

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Diving into the Blended Learning Pool: One University’s Experience

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This is a study of the experiences of a private university in preparing their faculty for teaching blended and online courses. A three-day workshop was conducted in a blended format in January 2014 to train faculty to teach in these formats during the following summer semester. Participants completed a survey after the workshop and after teaching the courses. The purpose of the survey was to examine the effectiveness of the workshop components. The results are discussed in this paper, along with an examination of the university’s other efforts to incorporate blended and online learning successfully into their curriculum.

INTRODUCTION

For over twenty years, the academy has been transitioning in part from face-to-face to blended education. Blended learning has been defined in many different ways at many different higher education institutions. One of the most encompassing definitions was created by Sharpe, Benfield, Robert, & Francis (2006) who stated that blended learning includes both online and onsite delivery modes, different types of technology, both practice-based and lecture-based learning and different directions (both instructor-directed and autonomous). The wide range of choices within blended learning is one of the reasons that attracted universities to this model. The current generation of students wants flexible, convenient and accessible learning. Students have many different learning styles and blended courses can incorporate many different types of pedagogies to satisfy those styles. They can learn online at any time of day or night and in any location (Graham, 2006). Students want to use technology in their educational process (DeGeorge-Walker & Keefe, 2010) and would even like it to be personalized to their individual learning needs (Roberts, 2005).

There are other reasons that universities have been attracted to blended learning. Blended learning does not require a huge financial investment and a major change in the institution (Liu & Tourtellott, 2011). If the university has online delivery capabilities and a physical presence, it has the main requirements necessary to add the blended learning format to its course offerings. Smaller colleges have even more incentives to use blended learning. These institutions have constrained resources and have been struggling to compete with for-profit and large public universities who have used on-line course offerings to erode the smaller schools’ market share. The ability of smaller colleges to offer blended learning courses with on-site meetings and more flexibility for students can help to alleviate the loss (Liu & Tourtellott, 2011).

Most importantly, universities and colleges have adopted blended learning in order to improve the quality of the education they provide. Studies such as Glazer (2011), U.S. Department of Education (2009) and Zhao (2005) have shown that blended learning can significantly improve learning outcomes.
compared to traditional face-to-face learning. Technology such as interactive quizzes and online simulations can increase learning engagement (Dziuban, Moskal and Hartman, 2005). Student morale can improve, as well as their satisfaction with the course (Byers, 2001) and students may improve their ability to acquire information (Kendall, 2001). Blended learning allows time for critical reflection during the learning process and meets student preferences for both onsite and online learning. It has the ability to create a learning community among learners in which communication, connection, and collaboration can flourish (Garrison & Vaughan, 2008).

Faculty can also benefit from engagement in blended learning. Membership in the learning community created in blended courses can result in a higher quality of interaction and teaching compared to traditional courses (Ho, et al., 2006; Vaughan, 2007). Blended learning faculty members have experienced efficiency in classroom communication and appreciated the convenience for students and ability to reach students with different learning styles. Faculty has also noted that blended learning offers them additional exciting teaching opportunities (Benson, Anderson & Ooms, 2011).

Despite the benefits of blended learning for all stakeholders, the transition to the blended format is not without its challenges for everyone concerned. Per Garrison and Kanuka (2004): “blended learning is both simple and complex” (p. 96). To develop an effective blended learning course, one does not just add online tools to an existing onsite course (Benson, et al., 2011). For faculty, decisions must be made about how much and what kind of technology should be added to courses in order to enhance student learning. It is important to strike the right balance between online and onsite learning. Also, there is more planning and resources needed before the course starts, as well as additional expertise required on how to blend the online and onsite parts of the course together to form a cohesive whole (Ocak, 2011). Clear learning objectives are essential in blended learning environments (Klemse & Seong, 2013). Because there are more “moving parts” to a blended course, students need to know what is to be done online and onsite and when each assignment is due. They need more direction on how to use the technology to complete their assignments and faculty must provide motivation to complete the autonomous learning required by online components of the course (Ocak, 2011). Faculty may have to change roles from “teaching” to “coaching and guiding” (Ocak, 2011) due to the fact that active learning fits well in the pedagogy used in blended learning. Active learning is a student-centered approach to pedagogy and it is important for faculty that use a more teacher-centered approach to accept the underlying principles upon which the student-centered approach is based (Owens, 2012).

Faculty must overcome any “technophobia” issues in order to learn new technical tools and figure out how to integrate them into their courses. Consequently, course preparation takes more time and effort (Ocak, 2011). They must be able to help students with these technologies and may have to model them and help students with technical problems, while at the same time keeping the course up-to-date with the latest software changes (Klein, Spector, Grabowski & Teja, 2004). If faculty are not sure about the value of using technology in education, their technical abilities, and how they may be able to use it in their teaching, they will worry about the quality of blended courses. They may also be concerned about whether students will see blended learning as an obstacle rather than an aid to achieving their educational goals (Oh & Park, 2009).

Institutions also have challenges in adopting blended learning. Administrative assistance is needed in terms of curriculum development and technological support. Faculty members need training and time to develop courses (Benson, et al., 2011). Part of course development includes time for faculty to experiment with new tools and methods (Edmondson, 2008). Faculty also need time to collaborate with other blended instructors, instructional designers, technology experts, and time to ask for help and share their successes (Toth, Foulger & Amrein-Beardsley, 2008). At least six months is suggested for blended learning integration (Charles and Anthony, 2007). In order for faculty to have the time needed for training and course development, they also need release from their current teaching workload. Consequently, institutions must fund extra teaching staff in order to do so (Davis & Fill, 2007).

Members of faculty also need motivation to incorporate technology into their courses. This is the biggest challenge for implementation of blended learning into the curriculum (Oh and Park, 2009). The software used for blended learning must be user-friendly and reliable (Ginns & Ellis, 2007). The learning
management system used as the basic software for blended learning must have the necessary capabilities and students and faculty need to be trained on its use. Hardware needs include a centralized streaming server and recording equipment for each faculty member (Carbonell, Dailey-Hebert & Gijselaers, 2013).

Due to the reasons cited above to adopt the blended learning format, and, despite the challenges, a small Midwest University decided in late 2012 to “dive into the blended learning pool.” The Provost was charged by the President to promote and fund the initiative and the Center for Teaching and Learning was tasked with the implementation. At the time, the school had online program offerings, mostly in graduate education. The vast majority of undergraduate courses were onsite only. The faculty member who heads the Center for Teaching and Learning, the learning management system specialist, and one faculty member with online/blended learning development and teaching experience designed a week-long workshop held in January 2014 for faculty who were going to be developing and teaching blended and onsite courses in the summer of 2014. The workshop was created in a blended format: it contained online resources, discussions and quizzes and an onsite blended learning presentation and demonstration/practice of the learning management system (D2L) features to be used in the courses. A workshop D2L site was created for use by the participants.

Before the workshop began, the workshop faculty members were asked to review materials on the website authored by Tom Angelo, who spoke about blended learning at a Lilly Conference on College and University Teaching and Learning in late 2013. They were also asked to discuss their interest in blended/online learning. They also answered questions aimed at increasing their social interaction with workshop participants. The purpose of this was to model effective online discussion and get participants comfortable with the online mode of learning. Faculty was asked to complete a general online quiz before the workshop began, to become familiar with the online quiz capabilities of the learning management system (D2L).

In-class learning activities included a PowerPoint presentation conducted by one of the workshop instructors. It included the advantages and disadvantages of blended learning, the theories behind this learning format, examples of online learning tools, and practice/discussion of features of D2L software which would be used in blended/online learning. An example of an online discussion rubric for grading student participation was also presented and discussed in class. Participants were given a series of homework questions to be completed outside of the workshop to help them design their summer blended/online courses based on a backwards-learning design. One of the instructors gave faculty an example of completed homework questions and a syllabus for a blended course that the instructor had developed. The examples were to be used as participants completed the design and syllabus for their own blended/online course. At the end of the workshop, faculty were directed to the workshop website which contained resource material authored by Wohlfarth (from the Lilly Conference) regarding netiquette, an online honor code for students, Frequently Asked Questions (FAQs) about blended learning and a list of materials for further reference.

This study examines the effectiveness of the workshop in the eyes of its participants, both before and after the faculty taught the first round of blended/online courses at the university in the summer of 2014. It also is a case study of one university’s efforts to implement blended learning in light of recommendations by experts in this area.

**RESEARCH DESIGN/QUESTIONS**

In June 2014, before the newly-developed blended and online courses were offered in the summer 2014 semester, workshop participants completed an online survey asking them to rate the effectiveness of various elements of the January blended learning workshop. They rated effectiveness based on a five-point scale: 1 being not effective at all, 2 being not very effective, 3, being neutral, 4 being somewhat effective and 5 being very effective. They were also asked to rate the overall effectiveness of the workshop on the same scale. Demographic information included the nature of the blended/online course taught (mathematical/scientific, verbal/creative and other) and faculty previous experience in teaching in these formats. The number of previous courses taught (1-5, 6-10, over 10) were also gathered from
participants. There was an open-ended question at the end of the survey which asked for comments on the effectiveness of the workshop.

Seventeen faculty members participated in the workshop (including the three instructors). All participants were either faculty or staff at the university. Most of the faculty participating had been teaching for the university for several years and were familiar with Desire2Learn (D2L) which is the university’s learning management system. Participation was voluntary and faculty was given a $1,000 stipend to attend the workshop and $1,000 stipend to develop the course. When the survey was administered in June 2014, there were ten respondents. In August, after the blended/online courses were taught in the summer term, there were nine respondents. Six of the ten respondents taught mathematical/scientific courses, and four taught verbal/creative courses. Five had prior experience teaching online/blended courses and five did not. Of the five who had previously taught in these formats, four had taught between one and five courses and one person did not answer this question.

Because of the small number of respondents, the only quantitative analyses performed on the results were frequencies and t-tests comparing the results between the June and August surveys. Qualitative analysis was performed on the responses to the open-ended question. The survey comments were classified by their commonality. The frequency of comments in each classification was counted in June and in August, in an effort to identify the level of importance to the respondents.

LITERATURE REVIEW

The literature regarding implementation of blended learning in higher education advocates the creation of a strategy or systematic approach (Liu & Tourtellot, 2011). Higher education institutions should view the incorporation of blended learning into the curriculum from a top-level instead of a case-by-case basis (VanDerLinden, 2014). Blended courses should be added using a cohesive approach, making sure that this format makes sense for that part of the curriculum (Kezar, 2013). The goal of implementation should be to embed blended learning into the systems, structures, and practices of the institution (Crossan, Lane & White, 1999). It is also important for a university to decide on a specific, focused definition of blended learning to be used at their university (VanderLinden, 2014). As of 2004, Woods, Baker and Hopper found that a strategic approach to blended implementation was missing in terms of pedagogy. There was little consistency in how faculty used online technology to support onsite instruction, and a lack of guidelines as to size of course, year in school, and learning style which might be best for blended learning (Parker, 2000).

Best practices for implementation may have to be adjusted for smaller schools due to their lack of resources. It is also important for small colleges to make sure their technology and technology support is adequate before blended learning is adopted and that there is clear formal and informal communication channels (Liu & Tourtellot, 2011). Communication about best practices is especially important between those that are experienced in the effective use of blended learning and other faculty (Charles and Anthony, 2007).

It is critical that administration leads and supports this initiative in a sustainable and cost-effective manner. For example, a small college could adopt the “one course, many sections” model in which a standardized course is developed and populated into many course sections (Liu & Tourtellot, 2011). Unfortunately, not many higher education institutions provide full support for blended delivery. In a 2009 study by Park and Oh of 133 faculty members from 33 universities, 97% of respondents had a help desk for students, 88% provided help to deliver online courses and only 32% had incentive systems to encourage faculty to participate and only 24% required faculty to attend training sessions or workshops prior to teaching the course. One of the downsides to lack of support is the negative impact on faculty’s motivation to implement new technologies (Ocak, 2011).

The process of implementing blended learning at a university is a process of change. According to change management research, top-down change is not successful in blended learning implementation because faculty have not been involved in the decision-making process (Kotter and Schlesinger, 2008) and because the process has not been effectively managed (Fishman, 2005). Another reason that the
bottom-up approach is more effective is that faculty must conduct several iterations of blended courses in order to find the best blend of onsite and online tools for learning (Carbonell, Dailey-Hebert & Gijselaers, 2013). In order to be successful at a bottoms-up implementation, faculty needs to identify with blended learning as their “new way of working”. This implies a change in the culture of the institution (Edmonson, 2008). The change to blended learning should be an important part of the curriculum in order for blended learning to be established effectively (Davis & Fill, 2007). The goal of converting to blended learning should align with the university’s philosophy is order to be successful (Carbonell, et al., 2013).

Studies have indicated that faculty has positive attitudes towards teaching in the blended learning format because they believe it will improve learning outcomes (Oh & Park, 2009). However, the adoption of blended learning is a change for the institution. Therefore, one of the first steps in a faculty-centered approach to implementation of blended learning is to make sure that the faculty involved has no resistance to the change. There is evidence that faculty can be reluctant to adopt the new technology which is part of blended course delivery. Some faculty can be skeptical of blended learning and not know what blended learning really is due to multiple definitions of this term (Ooms, et al., 2008). Studies indicated faculty concerns about the quality and effectiveness of blended education (Neuhauser, 2002; Russell, 1999). Other concerns among faculty are their perceptions that blended course development and teaching requires considerable time and effort (Tshabalala, Ndeya-Nderay & van der Merwe, 2014). Factors that influence faculty perceptions of blended learning include the features of the learning management system to be used for blended courses, the characteristics of the users of the system and specific situational constraints (Vishwanath & Goldhaber, 2003). The perceptions held by faculty toward blended learning lead to their attitudes about it which lead to their actual use in the classroom (Davis, 1993).

To overcome any faculty negative perceptions towards blended learning, a successful implementation project may begin by incorporating a phased-in approach. A pilot program consisting of a small group of faculty who develop and teach blended courses first can be a logical place to begin implementation. Before the pilot program begins, a vision of what the group would like to accomplish is essential, in order to set the direction of the work and keep the faculty team together (Edmonson, 2012). As the pilot faculty group becomes more experienced with the format, they become more appreciative of the quality of the online tools that they are using (Inside Higher Education, 2013). These faculty members can become leaders who create awareness, share their stories of success, and encourage other faculty to try this format (VanderLinden, 2014).

If pilot faculty members have a “safe” space in which to experiment with the blended format (Edmonson, 2008), can collaborate with other members of the team productively, and come from diverse areas of the university, the pilot team’s work can be crucial to overall implementation. Collaboration with other members of the team should occur on a regular basis, every 6-8 weeks. When members meet, they can share their experiences and problems and come up with appropriate solutions (Carbonell, et al., 2013). During their work in the pilot program, the team can find bottlenecks in the process and overcome them before blended learning is rolled out to the entire university (Edmonson, 2008; Edmonson & Nembhard, 2009). A very important part of the pilot program is sharing the tangible outcomes of the implementation to the university community in order to keep the process moving forward (Carbonell, et al., 2013).

When considering the change involved in adapting blended and online learning, it is important to carefully select the members of the pilot team. Rogers, Sinhai and Quinlan (1999), adherents to the innovation diffusion theory, categorize adopters of innovation in the following categories: innovators (25%) who like to take risks and try new things; early adopters (13.5%) who are respected group leaders who encourage others to adopt the innovations; the early majority (34%) who are careful and do not like to take risks; late majority (34%) who are resistant to change and difficult to influence; and laggards (16%) who are adamantly opposed to change. The pilot project team is apt to be composed of innovators and early adopters, whose charge is to convince the early/late majority and laggards to take part in the adoption process.

According to Benson, et al. (2011), the adopters of blended learning can be placed in three categories: technology is all (faculty that use every new technology tool and are driven by technology rather than the
impact on student learning); bolts-on (technology is used to manage student groups or to add to their teaching repertoire but pedagogy is more important; purely pedagogic (pedagogy is developed first and in-class/online materials are chosen based on pedagogy and student learning). Most faculty members belong in the bolts-on category. The purely pedagogic category contains the smallest number (Benson, et al., 2011). Adherents of effective blended learning technology who view technology as a tool for learning and use tools after they have proven to improve learning outcomes are apt to be part of the purely pedagogic category.

The literature regarding blended learning implementation urges institutions to take a “whole curriculum” approach in which courses are evaluated together to determine where e-learning belongs and how much e-learning is appropriate. Other considerations are the availability of staff, schedule and facilities constraints (Davis and Fill, 2007). If an institution focuses on individual courses instead, they may have created a disjointed, unfocused and poor quality curriculum (Husmann & Miller, 2001). Consistency is also important in terms of procedures for blended learning courses, netiquette, the use of email and course announcements, technology snow days (Hitch, 2002), technology assistance, the frequency and deadlines for discussion posts and how students submit their work online. Consistent procedures are recommended because students’ confusion can be reduced if they are enrolled in multiple blended learning courses (Toth, Foulger & Amrein-Beardsley, 2008). Despite this recommendations, one study of 133 faculty members and 33 institutions found that faculty and departments made individual choices of format for their courses (blended, online, onsite) and there were no program or institution-wide requirements for instructional delivery (Oh & Park, 2009).

An important part of blended learning implementation is the assessment of this learning format in terms of actual student learning outcomes. Instructors of each blended learning course must engage in self-reflection after teaching the course in order to make any changes needed to improve learning outcomes. A qualitative study of the work of five blended learning professors in a large Midwestern university indicated that the revision process of blended courses is much more extensive partially due to the necessity to check web links and to keep up with changing technology (King & Arnold, 2012). The revision process may be affected by the attitude of professors towards blended learning. Some may be conservative when they redesign a course because they know that learning outcomes from blended learning courses are evaluated on the same basis as onsite courses (VanDerLinden, 2014).

Blended courses should be evaluated based on multiple methods and should include standards created by the institution to measure the impact of blended learning on administrators and faculty, as well as on students (Merisotis & Phipps, 2000). As of 2003 (Rovai), there was a lack of procedures to evaluate blended learning. Oh and Park’s study in 2009 showed that the course evaluation procedures for 33 universities were not developed in an effective manner and results were not available for faculty and students use.

With regard to the specific content used by faculty in blended courses, the Oh and Park study in 2009 found that 64% of the institutions used mostly onsite instruction and placed supplementary instructional materials online. A study of 862 faculty members from 38 colleges and universities (Woods, Baker & Hopper, 2004) indicated that learning management systems were mainly used to post syllabi, send email and post grades. There was little use of interactive technology such as virtual office hours, collecting and returning assignments. Faculty liked the learning management system for organizing their content and to communicate course procedures and materials. However, they were neutral or undecided about the pedagogical and psycho-social benefits of learning management system. Possible reasons for these results may be that faculty were content with onsite instruction and viewed online as a way to support this method of instruction. Faculty did not see any reason to create an online community which may be because they believed it was easier to do so onsite.

However, there are reasons to believe that the use of online technology has been and will be increasing in blended instruction. It is likely that faculty’s attitudes towards online assessment and instruction will change as institutions add more support for faculty development in blended learning (Woods, Baker & Hopper, 2004). Klemson & Seong (2013) found that after faculty had taught in the blended learning format for a time, they became less anxious about blended instruction and began to
appreciate the time savings created by online homework, grading, communication, and the ability to easily provide resources to students.

RESULTS AND DISCUSSION

Upon considering the recommendations in the literature for implementation of blended learning at colleges and universities, the process of initiating blended learning at the Midwestern University in this study could be judged as being somewhat effective. Although the implementation process did not follow a formal systematic approach and did not consider the curriculum as a whole, it did follow a certain logical sequence of events. There was a workshop for interested faculty to explain blended learning and its advantages and to give faculty a chance to practice on the features of the learning management system. This workshop was conducted a few months before the rollout of the courses. A month after the blended courses were taught for the first time, a few of the instructors presented an evaluation of their courses in terms of learning outcomes to the rest of the faculty at the institution. A curriculum designer was hired shortly after the presentations. The curriculum designer gives regular instruction of blended/online course design to any faculty who are interested. Also, workshops are offered on a periodic basis to help faculty use the learning management system. A meeting for blended learning faculty to share their experiences and online tools with other faculty and was held during the spring term (about nine months after the first rollout of courses).

However, the university did not decide on one definition of blended learning to follow when developing their courses and there are no guidelines about the courses and types of students who would benefit from blended learning. The Center for Teaching and Learning established formal communication channels to blended learning faculty members, but informal communication between faculty members did not occur on a regular basis during the first rollout of the courses. Success stories from teaching blended courses were not formally shared with other faculty after they were presented one month after the summer session. However, the Center for Teaching and Learning trained a new group of faculty after the pilot group. It is possible that stories of success were shared at that time.

There has been some standardization of blended learning courses because the initial course shell created by the pilot faculty has been copied for use by other faculty members. This follows the “one course, many sections” recommendation from the literature. However, faculty members at the university are free to create their own blended course shell, even if it has already been created by the pilot group.

In terms of support, the institution created many types of help for blended faculty and students. There is a help desk, periodic training sessions and workshops for backwards course design and blended learning instruction, as well as instruction in the features of the learning management system. Faculties were paid monetary incentives to develop blended course and to attend workshops.

The university has traditionally supported curriculum innovation in all of its colleges. This tradition is part of the culture which is necessary for a successful blended learning implementation. The institution followed the recommendations by experts to use a bottoms-up approach to successfully embed blended/online learning into its systems and structures. There was support for the initiative by the President and the Provost. However, the Center for Teaching and Learning was responsible for the implementation of blended and online learning on campus. A team of faculty and staff conducted the January 2014 workshop for a pilot group of faculty. There was no overall vision for the implementation, which may have been helpful for sustaining the initiative. However, the faculty is still in its early stages of incorporating blended learning at the school, so it is too soon to tell if the initiative will be sustained.

A pilot program of interested faculty was recruited for the first blended course offerings. This followed the recommendation from the literature. A pilot group can encourage the rest of the faculty to try the new format and can gradually make blended learning part of the institution’s pedagogy. The faculty on the pilot team can be classified as innovators and early adopters per Rogers, Sinhai and Quinlan (1999), adherents to the innovation diffusion theory. They are not afraid to try new technologies and are willing to share their experiences with others. The January 2014 workshop was presented from the purely
pedagogic point of view espoused by Benson, et al., 2011). Technology is viewed as a tool for learning and tools should be used only after they have proven to improve learning outcomes.

The pilot group did not collaborate every 6-8 weeks after they received training and taught their blended courses as per the recommendations from the literature. A few of the group members made a presentation regarding the effectiveness of their blended courses in meeting course learning outcomes a month after the courses were taught. The pilot group met the following spring to share experiences and recommendations for improvement. There is no consistent policy regarding how faculty is to use online technology to support onsite instruction as recommended by Woods, et al. (2004). Additionally, there are no policies as to the course enrollment, student’s year in school and learning style which might be the best fit for blended learning (recommend by Parker, 2000).

The university in this study is beginning to develop an assessment process and structure, so there has not been any assessment of the blended format in general. This paper is an attempt to begin the assessment process by using practice-based research to review the institution’s efforts in establishing blended learning.

One place to investigate the effectiveness of blended learning implementation efforts is to examine the effectiveness of the workshop that began the initiative. The results of the survey of workshop participants regarding the overall effectiveness of the workshop and its components before blended/online courses were taught (June 2014) and after they taught the courses (August 2014) were compared (see Table 1). A paired samples t-test resulted in only two significant differences at the p=.05 level: pre-sample online quiz (p=.002, df=6, t=-2.121) and D2L competencies (p=.033, df=7, t=2.049). The mean for pre-sample online quiz increased from 3.7780 in June to 4.1429 in August. The mean for D2L competencies decreased from 4.6250 to 4.2500. There was one significant difference at the p=.10 level: D2L online groups (p=.059, df=5, t=1.581). The mean decreased from 4.500 in June to 4.1667 in August.

During the workshop, participants displayed interest in the online quiz capabilities of the learning management system. The sample online quiz completed before the workshop began gave respondents practice in different types of online quiz questions (multiple choice, matching, fill in the blank, etc.). It is possible the workshop participants used the same types of quizzes in their summer courses and realized the usefulness of this experience, which explains the increase in the mean. Only a few of the faculty had experience with tying assessment results with competencies in the learning management (D2L) system before the workshop began but the capability was illustrated and faculty mentioned that they would like to use this function during the workshop. However, the university had not started a formal assessment system at the time of the workshop and faculty was not required to use this capability. Also, it is a time-consuming process. It is probable that most faculty members did not use the D2L competencies in their summer courses, which may explain the decrease in the means from June to August. The mean for the D2L online group function also decreased from before to after the blended/online courses were taught. Faculty seemed interested in using online groups in their courses during the workshop, but possibly did not use them or if they did, the function might not have been easy to use or did not accomplish their objectives for group work.
TABLE 1
ANALYSIS OF MEANS-WORKSHOP EVALUATION
JUNE (BEFORE BLENDED COURSES TAUGHT) VS.
AUGUST (AFTER BLENDED COURSES TAUGHT)

1=Not at all effective, 2=Not effective, 3=Neutral, 4=Somewhat effective, 5=Very effective

<table>
<thead>
<tr>
<th>Workshop Component</th>
<th>Classification</th>
<th>June Means (n=10)</th>
<th>August Means (n=9)</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Tom Angelo materials</td>
<td>Pre-workshop</td>
<td>3.555</td>
<td>4.166</td>
<td>-.522</td>
</tr>
<tr>
<td>Pre sample online quiz</td>
<td>Pre-workshop</td>
<td>3.778</td>
<td>4.000</td>
<td>-2.121a</td>
</tr>
<tr>
<td>Pre online discussions</td>
<td>Pre-workshop</td>
<td>4.100</td>
<td>4.000</td>
<td>-.261</td>
</tr>
<tr>
<td>D2L Online Discussions</td>
<td>D2L (In class)</td>
<td>4.600</td>
<td>4.285</td>
<td>.891</td>
</tr>
<tr>
<td>D2L Competencies</td>
<td>D2L (In class)</td>
<td>4.600</td>
<td>4.250</td>
<td>2.049b</td>
</tr>
<tr>
<td>D2L Rubrics</td>
<td>D2L (In class)</td>
<td>4.500</td>
<td>4.250</td>
<td>1.158</td>
</tr>
<tr>
<td>D2L Dropbox</td>
<td>D2L (In class)</td>
<td>4.600</td>
<td>4.285</td>
<td>.679</td>
</tr>
<tr>
<td>D2L Online Groups</td>
<td>D2L (In class)</td>
<td>4.600</td>
<td>4.166</td>
<td>1.581c</td>
</tr>
<tr>
<td>D2L Chat</td>
<td>D2L (In class)</td>
<td>4.500</td>
<td>4.250</td>
<td>.357</td>
</tr>
<tr>
<td>D2L Online Quizzes</td>
<td>D2L (In class)</td>
<td>4.500</td>
<td>3.714</td>
<td>1.508</td>
</tr>
<tr>
<td>D2L Widgets</td>
<td>D2L (In class)</td>
<td>4.444</td>
<td>4.285</td>
<td>1.000</td>
</tr>
<tr>
<td>Online Discussion Rubrics</td>
<td>In class activity</td>
<td>4.100</td>
<td>3.875</td>
<td>.228</td>
</tr>
<tr>
<td>PowerPoint Presentation</td>
<td>In class activity</td>
<td>4.500</td>
<td>4.375</td>
<td>-.314</td>
</tr>
<tr>
<td>Homework</td>
<td>Application</td>
<td>4.100</td>
<td>4.375</td>
<td>-1.080</td>
</tr>
<tr>
<td>Example Instructor Hmwk</td>
<td>Application</td>
<td>3.600</td>
<td>3.428</td>
<td>.000</td>
</tr>
<tr>
<td>Example Instructor Syllabus</td>
<td>Application</td>
<td>3.500</td>
<td>3.750</td>
<td>.664</td>
</tr>
<tr>
<td>Wohlfarth Netiquette</td>
<td>Resource</td>
<td>3.750</td>
<td>3.800</td>
<td>.000</td>
</tr>
<tr>
<td>Wohlfarth Honor Code</td>
<td>Resource</td>
<td>3.625</td>
<td>3.800</td>
<td>.000</td>
</tr>
<tr>
<td>Wohlfarth FAQs</td>
<td>Resource</td>
<td>3.750</td>
<td>3.800</td>
<td>.000</td>
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<tr>
<td>Wohlfarth References</td>
<td>Resource</td>
<td>3.750</td>
<td>3.800</td>
<td>.000</td>
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<tr>
<td>Workshop Effectiveness</td>
<td></td>
<td>4.222</td>
<td>4.428</td>
<td>-.548</td>
</tr>
</tbody>
</table>

* Significant variance exists (p<.05) between Financial Literacy Students and Former Students for this behavior, p=.002. ^ Significant variance exists (p<.05) between Former Students and Control Group for this behavior, p=.033. ** Significant variance exists (p<.10) between Former Students and Control Group for this behavior, p=.059.

Table 2 displays the percentage change in the effectiveness means for workshop components and also the ranking of the means before and after the summer courses were taught. Besides the significant changes in the means discussed above, there were relatively large changes in the terms of percentages from June to August for the following workshop components: pre Tom Angelo materials (17.19% increase), the instructor example syllabus (7.14% increase) and faculty homework (6.71% increase). Faculty may have used the Tom Angelo backwards design material to help them design their summer courses, which might explain the large percentage increase in the mean. They may have realized the value of the homework questions in kick-starting the course design for their summer course and used the example instructor syllabus while designing their own syllabus. This may explain the percentage increases in the means.

In terms of ranking of the means, the highest means in June were for D2L items. However, the highest means for August was for workshop effectiveness and the faculty homework assignment. The example items (instructor homework and syllabus) had the lowest means in both June and August. It is entirely possible that the faculty homework assignment was the most important part of the workshop since it was the highest ranked after the summer courses were taught. This homework was part of the
work necessary for each faculty member to design their own summer course. Even though the example instructor syllabus showed one of the larger percentage increases from June to August, it (and the example instructor homework) was ranked last possibly because of the differences between the instructor’s course and the courses that the faculty developed and taught.

The mean rating for workshop effectiveness increased 5% (4.222 to 4.4286) and its ranking changed from 4 to 1 from June (before the courses were taught) to August (afterwards). This may be an indication of the success of the workshop overall and also of the effectiveness of the blended design of the workshop itself. It is difficult to know how effective instruction is until it is used in practice.

**TABLE 2**
PERCENTAGE CHANGE AND RANKINGS OF MEANS-WORKSHOP EVALUATION JUNE (BEFORE BLENDED COURSES TAUGHT) VS. AUGUST (AFTER BLENDED COURSES TAUGHT)

<table>
<thead>
<tr>
<th>Workshop Component</th>
<th>Percentage Change</th>
<th>June Ranking</th>
<th>August Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2L Online Quizzes</td>
<td>-17.46%</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Pre Tom Angelo materials</td>
<td>17.19%</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>D2L Online Groups</td>
<td>-9.42%</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>D2L Competencies</td>
<td>-7.61%</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Example Instructor Syllabus</td>
<td>7.14%</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>D2L Online Discussions</td>
<td>-6.83%</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>D2L Dropbox</td>
<td>-6.83%</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Homework</td>
<td>6.71%</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Pre Sample Online Quiz</td>
<td>5.88%</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>D2L Rubrics</td>
<td>-5.56%</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>D2L Chat</td>
<td>-5.56%</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Online Discussion Rubric</td>
<td>-5.49%</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Workshop Effectiveness</td>
<td>4.89%</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Wohlfarth Honor Code</td>
<td>4.83%</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Example Instructor Homework</td>
<td>-4.76%</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>PPT Presentation</td>
<td>4.17%</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>D2L Widgets</td>
<td>-3.56%</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Pre Online Discussions</td>
<td>-2.44%</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Wohlfarth Netiquette</td>
<td>1.33%</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Wohlfarth FAQs</td>
<td>1.33%</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Wohlfarth References</td>
<td>1.33%</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

Because there were many components of the workshop and because it was designed in a blended format (some online and some onsite instruction), the components were grouped into five categories and their individual means were average for each category (see Tables 3 and 4). The classifications categories were: pre-workshop, in class activity, in class activity D2L, application and resources. In June, the category that had the highest average mean was in-class activity-D2L. The average mean of both the in-class activity D2L and in class activity was 4.464, which placed in-class activities as the highest rated category. In August, the category that had the highest average means was in-class activity. The average mean of both in-class activity D2L and in-class activity was 4.174, which again placed the in-class activities category as the highest rated. The in-class activities included both presentation and practice and faculty had a chance to ask questions and receive immediate answers. Faculty was also more comfortable
with this format of instruction, considering that many of them had not taught in the blended/online format. It is possible that the D2L in-class activity was not as highly ranked after the summer courses were taught because the faculty had more experience with the learning management system and did not think the training was as important after the fact.

There were no other changes in the order of the category ratings between June and August. However, all categories had higher means in August compared to June except for the in-class activities (mean decreased from 4.464 to 4.174). Perhaps the application and online resource categories became more important to the participants of their experience in working with them in their blended/online courses.

**TABLE 3**

CLASSIFICATION OF WORKSHOP COMPONENTS-EVALUATION MEANS-JUNE 2014

<table>
<thead>
<tr>
<th>Workshop Component</th>
<th>Pre-workshop Activity</th>
<th>In-class Activity</th>
<th>D2L Application</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2L Dropbox</td>
<td></td>
<td>4.600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2L Competencies</td>
<td></td>
<td>4.600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2L Online Discussions</td>
<td></td>
<td>4.600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2L Online Groups</td>
<td></td>
<td>4.600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2L Chat</td>
<td></td>
<td>4.500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2L Widgets</td>
<td></td>
<td>4.444</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2L Online Quizzes</td>
<td></td>
<td>4.500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2L Rubrics</td>
<td></td>
<td>4.500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wohlfarth Netiquette</td>
<td></td>
<td></td>
<td>3.750</td>
<td></td>
</tr>
<tr>
<td>Wohlfarth FAQs</td>
<td></td>
<td></td>
<td>3.750</td>
<td></td>
</tr>
<tr>
<td>Wohlfarth References</td>
<td></td>
<td></td>
<td>3.750</td>
<td></td>
</tr>
<tr>
<td>Wohlfarth Honor Code</td>
<td></td>
<td></td>
<td>3.625</td>
<td></td>
</tr>
<tr>
<td>PPT Presentation</td>
<td></td>
<td>4.200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre Online Discussions</td>
<td></td>
<td>4.100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online Discussion Rubric</td>
<td></td>
<td>4.100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homework</td>
<td></td>
<td></td>
<td>4.100</td>
<td></td>
</tr>
<tr>
<td>Pre Sample Online Quiz</td>
<td></td>
<td>3.778</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre Tom Angelo Materials</td>
<td></td>
<td>3.556</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example Instructor Homework</td>
<td></td>
<td></td>
<td>3.600</td>
<td></td>
</tr>
<tr>
<td>Example Instructor Syllabus</td>
<td></td>
<td></td>
<td>3.500</td>
<td></td>
</tr>
<tr>
<td>Mean of all in-Class activities</td>
<td></td>
<td></td>
<td></td>
<td>4.464</td>
</tr>
</tbody>
</table>
TABLE 4
CLASSIFICATION OF WORKSHOP COMPONENTS-EVALUATION MEANS-AUGUST 2014

1=Not at all effective, 2=Not effective, 3=Neutral, 4=Somewhat effective, 5=Very effective

<table>
<thead>
<tr>
<th>Workshop Component</th>
<th>Pre-workshop Activity</th>
<th>In-class Activity D2L</th>
<th>Application</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2L Dropbox</td>
<td></td>
<td>4.286</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2L Competencies</td>
<td></td>
<td>4.250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2L Online Discussions</td>
<td></td>
<td>4.286</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2L Online Groups</td>
<td></td>
<td>4.167</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2L Chat</td>
<td></td>
<td>4.250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2L Widgets</td>
<td></td>
<td>4.286</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2L Online Quizzes</td>
<td></td>
<td>3.714</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2L Rubrics</td>
<td></td>
<td>4.250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wohlfarth Netiquette</td>
<td></td>
<td></td>
<td>3.800</td>
<td></td>
</tr>
<tr>
<td>Wohlfarth FAQs</td>
<td></td>
<td></td>
<td>3.800</td>
<td></td>
</tr>
<tr>
<td>Wohlfarth References</td>
<td></td>
<td></td>
<td>3.800</td>
<td></td>
</tr>
<tr>
<td>Wohlfarth Honor Code</td>
<td></td>
<td></td>
<td>3.800</td>
<td></td>
</tr>
<tr>
<td>PPT Presentation</td>
<td></td>
<td>4.375</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre Online Discussions</td>
<td>4.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online Discussion Rubric</td>
<td></td>
<td>3.875</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homework</td>
<td></td>
<td></td>
<td>4.375</td>
<td></td>
</tr>
<tr>
<td>Pre Sample Online Quiz</td>
<td>4.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre Tom Angelo Materials</td>
<td>4.167</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example Instructor Homework</td>
<td></td>
<td>3.429</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example Instructor Syllabus</td>
<td></td>
<td>3.750</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classification Means</td>
<td>4.056</td>
<td>4.125</td>
<td>4.186</td>
<td>3.851</td>
</tr>
<tr>
<td>Mean of all in class activities</td>
<td></td>
<td></td>
<td>4.174</td>
<td></td>
</tr>
</tbody>
</table>

A qualitative analysis was performed of the responses to the open-ended question on the June and August surveys. The question related to the overall effectiveness of the workshop, its strengths and how it could be improved. The comments were analyzed for recurring themes and the number of comments per theme was counted to indicate the importance of the theme to the respondents. The themes include a) the need for hands on practice, b) the need for onsite discussion, c) the learning management system (D2) and technology, d) the need for individualized instruction and e) other comments.

The theme with the most comments in both June and August was D2L and technology. This reflects the faculty concern with technology in blended instruction expressed in the literature. Some faculty wanted to improve their knowledge and expertise in this area and others felt that too much time was spent on D2L because they were already familiar with the software. Faculty believed their efficiency in designing their courses were improved because of the training and support on D2L that they received in the workshop. They also wanted more training time on certain areas of D2L including the online quizzes.

The second most popular theme in both June and August was hands-on practice. Faculty expressed that they needed more time to practice on certain topics related to their courses, and wanted more practice with sample assignments and setup. They were concerned because they wanted to make sure that the quality of their blended/online course was equivalent to that of an on-site course. This was also expressed by the faculty who was quoted in the blended learning literature.

In August, the theme of individualized instruction had as many comments as D2L and technology. Faculty, after having taught a blended/online course during the summer, realized that they had need for...
instruction and practice on specific topics which may or not have been emphasized enough in the one-
size-fits-all instruction of the January 2014 workshop. The third most popular (June) and fourth most
popular (August) theme was the need for more onsite discussion during the workshop. Faculty wanted an
open discussion of best practices and wanted to hear ideas, concerns and planning strategies from all
members of the workshop.

CONCLUSIONS AND RECOMMENDATIONS

The initiative to incorporate blended and online learning into the curriculum at the small Midwestern
University in this study was established in order to compete with larger universities and improve student
learning outcomes, as well as to satisfy faculty interest in developing new and improved ways of
instruction. The initiative was fully supported by the President and Provost and a bottoms-up, faculty-led
approach was used to establish this change (as recommended by the experts). The culture of the university
supported innovation and there was a group of faculty members who were interested and involved with
making changes to improve student learning outcomes and not afraid of using technology to do so. There
was administrative support for these efforts including technical support, faculty incentives to learn and to
develop blended/onsite courses, and a user-friendly learning management system.

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develop blended/onsite courses, and a user-friendly learning management system.

The first educational effort of the initiative was for the faculty and staff from the Center for Teaching
and Learning to conduct a blended/online workshop in January 2014. A pilot group of faculty who were
interested in teaching blended and online courses during the first semester of the rollout (Summer 2014)
enrolled in the workshop. These faculty were familiar with the learning management system and could be
classified and innovators and early adopters per Rogers, Sinhai and Quinlan (1999). The workshop was
prepared in a blended format and conducted using a purely pedagogic approach as developed by Benson,
et al., 2011. Technology was seen by the workshop participants as a tool for teaching. Online components
of the courses would be selected for use if they were proven to improve learning outcomes. Faculty were
trained in all parts of the learning management system during the workshop, because many were
interested in using the system to do more than posting resources and grades and sending students email.

Overall, the workshop was evaluated by the participants as between somewhat helpful/helpful both
before and after the faculty taught the summer blended/online courses. This rating may have been due to
the blended format of the workshop, but none of the faculty made this comment in the online surveys.
There was no significant difference in the overall ratings before and after the courses were taught. There
were significant differences in three of the workshop components in June and August. They were for the
pre-sample online quiz (an increase in effectiveness) and the learning management system’s competencies
and online group functions (a decrease in effectiveness). Perhaps more of the faculty used online quizzes
in their summer courses than they used D2L competencies and online groups.

When workshop components were placed in categories and the results examined, there was a
difference in the effectiveness means per category from June to August. Faculty valued the applied and
online resource categories more in August and the in-class activity categories less. This could signal less
reliance by the faculty on instruction regarding how to use D2L online tools and more use of resources
related to the content of blended learning courses-possible an increase in comfort with technology.

There are several areas for improvement going forward with the blended/online initiative at this
University. An overall strategy and a cohesive approach to implementation of blended/online learning
were not used in this initiative. The institution did not develop a blended/online learning vision statement
that could unify the faculty using these modes of delivery and no specific definition of blended learning
was identified to be used in practice. The decision as to which courses would be taught in blended and
online learning modes was made by individual faculty and there is no consistency between the courses
themselves in terms of online/onsite procedures, which could be very helpful for students taking more
than one faculty’s blended course during a semester. A more strategic approach to choosing which
courses should be blended and online (such as types of courses, levels of students, and types of student
learning styles) might lead to more beneficial learning outcomes.
Some of the pilot faculty endorsed a more individualized approach to learning about technology after the workshop, and future instruction in blended/online and the learning management system has followed that suggestion. Throughout each semester there are separate workshops for faculty covering different features of D2L and separate workshops covering different aspects of backwards curriculum course design (the approach used by the first workshop to design blended and online courses). A second set of faculty members have been trained and are developing and teaching blended and online courses. There was one meeting with the pilot faculty group members and one presentation to share successes and problems. However, there is an absence of regular communication between and among faculty who have taught (and/or are currently teaching) blended and online courses and those who have not yet taught them. As suggested by the experts, regular sharing of experiences and success stories in important to embedding these formats into university’s practices and to sustain them going forward.

Future research as to the effectiveness of the effort to incorporate blended and online learning into the University’s curriculum will be done as part of the school’s assessment program, which is currently in process. The goal of the assessment process is to improve student learning outcomes and the use of blended and online learning has been established per the research as a way to achieve this goal.

REFERENCES


Faculty Promotion in Business Schools: What Counts and What Should Count?

Carolyn Wiley
Roosevelt University

Valerie Wallingford
Bemidji State University

Mireia Monllor-Tormos

Gyongyi Konyu-Fogel
Walsh College of Accountancy and Business Administration

The ultimate goal for college faculty is to achieve the rank of full professor. Accomplishing this is a matter of what counts. Factors related to teaching, research, and service are used as promotion criteria. Higher education administrators may exalt teaching and service; yet give more credence to research when determining pay, promotion, and tenure. This current research is born out of these ongoing discrepancies in what is purported and what is rewarded. Business faculty’s opinions on promotion criteria, that is, what counts and should count were analyzed. The results indicate differences now and compared to the past.

INTRODUCTION

The hallmark of success in academe is faculty promotion. The rank of “full” professor is the highest status for faculty and it is gained through the promotion process. Achieving this rank is a matter of understanding what counts. A recent study found that while most faculty could pinpoint the expectations for tenure, fewer could identify the expectations for promotion to full professor. This lack of clarity (Gardner & Blackstone, 2013; Pyle, 2014) opens the door for promotion based on vague criteria rather than straightforward expectations (Fox & Colatrella, 2006). In the professorial track, assistant professors must meet particular criteria to be promoted to associate professor and associates to be promoted to full professor. Administrative staff such as provosts, college deans and department chairs along with college and external faculty, and unions play the most important roles in the process of setting promotion criteria, reviewing portfolios, and making promotion recommendations and decisions.

In most cases promotion criteria require faculty to demonstrate teaching effectiveness, research productivity, and service to the institution and professional, business, and local communities. Faculty who are up for promotion constantly seek to find clues on which of the three aspects of their role are valued the most by their colleagues and institution. They may find several misleading signals regarding what is
purported and what is actually rewarded. They realized that the criteria of teaching, research and service are not equally weighted, and that they differ among administrators and faculty, and across disciplines, colleges, and institutions. Not only is their concern regarding what counts; but there are concerns about the rising bar for promotion. Concerning the former, little relief is expected and miscommunication may persist. Concerning the latter, it is expected that the bar will continue to rise due to increasing financial accountability issues (Dennis, Valacich, Fuller, & Schneider, 2006), which lead to pressures on faculty to do more (Hendricson et al., 2007; Huber, 2002); shrinking budgets, which lead institutions to expand class sizes; and increases in online education, which erases geographic boundaries in the competition for students and requires faculty to teach within multiple timeframes, using innovative technologies and delivery modes (Shinn, 2014).

The purpose of this paper is to investigate what the current faculty promotion criteria are, i.e., what counts, and what faculty believe the criteria should be, i.e., what should count. Predictive models are then explored to determine whether teaching effectiveness, research and service can be explained by a set of criteria. It is important to investigate these predictive models in order to determine whether the variables that are used as promotion criteria and those that should be used actually contributed to understanding and identifying positive performance in each area of the professorial role. Finally, the results of this current research are compared with an earlier study to determine the extent to which promotion criteria have changed over time.

LITERATURE REVIEW

Studies on the professoriate in business schools are sparse. Where research exists, only a few studies focus squarely on the three elements of a professor’s role: teaching, service and research to explore what counts and should count for each. This study is intended to narrow that gap and to compare these recent results to an earlier study. Moreover, while few studies have been published in this area, the most prominent, relevant, and recent research studies are cited in this paper.

Teaching

Teaching is an expectation of all faculty, but superior teaching alone will not ensure promotion (Park, 1996). A very small percentage of university deans (6.2 percent) said that teaching was the most important part of a professor’s job (Crawford, Burns, & McNamara, 2012). This might be based on the fact that even though most of a faculty’s time is dedicated to it, when compared to evaluating research and service, teaching is the most subjective and difficult to measure (Berube & Young, 2002). The student course evaluations, which continue to be the primary source for documenting the quality of teaching (Honeycutt, Thelen, & Ford, 2010; Simpson, Hafler, Brown, & Wilkerson, 2004), are not without critics. They argue that these evaluations are unscientific feedback, students as customers are not always right, and incentives for faculty to please students could lead to grade inflation (Medina, 2011). Also, these evaluations, when used for promotion and tenure decisions, should be replaced with qualitative measures such as in-class observations and teaching portfolios (Stark & Freishtat, 2014). Nevertheless, with the increased accountability in higher education there may be a need to not only obtain student feedback more often; but also to link this feedback to student learning outcomes. This may promote a culture of self-reflection and continuous improvement (Davis, 2009).

In the past, teaching was assumed to be part of content expertise (Wilkerson & Irby, 1998). If a faculty member acquired the knowledge of the discipline, he could teach in that discipline. Teaching is increasingly recognized as a skill associated with, but separate from content expertise. When course content is prepared by subject matter experts and instructional designers and then teachers are hired to deliver this content, this is an indication that the institution sees teaching as a skill which the faculty perform. Likewise, when an administrator bars a teacher from teaching a class due to whether the students are “happy”, this is another strong indication that the institution views teaching as a skill. In such environments, it is unlikely that teaching and research would be strongly correlated, because the focus is on skill, not content expertise.
Good teaching requires faculty to be able to communicate their knowledge through active learning to a diverse population of students. Teaching evaluations should be conducted from multiple perspectives through multiple instances of observed teaching utilizing student learning outcomes as well as various assessment indicators (Drew & Klopper, 2014). Peer reviews, student assessment, and tracking student progress provide accurate assessments of faculty performance (Fairweather, 2002; Paulsen, 2002). The challenge for faculty is to balance the increased emphasis in scholarly work while maintaining exemplary teaching in the midst of dealing with heavier teaching loads (Malachowski, 2010) and integrating new teaching technologies and approaches.

Research

Research is one of the most central functions of universities throughout the world and faculty play the most crucial role in producing knowledge through research (Tien, 2008). Publishing pressures begin for assistant professors before their first position (Runyan, Finnegan, Gonzalez-Padron, & Line, 2013), and publishing opportunities are sought by a growing number of faculty in a restricted number of top journals (McAlister, 2005). Faculty publications, particularly in peer-reviewed journals, are vital to promotion (Aguinis, Suárez-González, Lannelongue, & Joo, 2012; Crawford et al., 2012; Dennis et al., 2006; Fairweather, 2002; O'Meara & Braskamp, 2005; Park, 1996). Because of the lack of importance placed on teaching, Boyer (1990) believes that there needs to be a paradigm shift regarding teaching so that it is deemed a form of scholarship and that faculty should be rewarded for teaching scholarship that is supportive of an institution’s mission. While some may argue that there are strong connections between publishing and teaching excellence (Friedrich & Michalak Jr, 1983; Park, 1996), teaching may be measured as an event in which the teacher’s performance has “happy students” as an outcome, rather than “content richness”, resulting in student competency-related outcomes.

Although there has been a push to expand faculty scholarship to consider activities other than research, and different types of research such as textbooks, research itself (i.e., journal articles and citation counts) has continued to be a primary factor in faculty evaluations even at institutions that have initiated reforms in this area (Leathwood & Read, 2013). This suggests that faculty should understand the role of research and spend time in areas that are valued in the promotion process. In evaluating the quality of research, faculty promotion often centers on the number of published journal articles while book publications, grants, and service may not be considered as critical.

Empirical research studies prove that there is a strong correlation between research productivity and faculty rewards (Fairweather, 2005). Colleges, even teaching institutions, use faculty research to build their reputations for student enrollment and funding purposes. However, measuring research can be as problematic as measuring teaching (Association to Advance Collegiate Schools of Business, 2013). While the importance of published scholarship has increased, faculty are not in agreement with the degree to which published scholarship shapes the basis of faculty rewards and promotions (Gebhardt & Gebhardt, 2013). In most institutions, resources for research are limited. In this context, the needed resources for faculty to successfully pursue a scholarly track (Borders et al., 2011), may not be forthcoming.

Service

A mission of higher education is to serve the communities that support it as well as those that do not. Ward (2003) found that institutions of higher education are falling short of supporting this mission and one way to respond to this challenge is for faculty to be more engaged in communities. When faculty are actively engaged with the community, the campus builds a positive relationship of engagement with numerous stakeholders, including alumni, businesses, and potential donors (Ward, 2003).

Faculty service includes campus-based administrative activities, outreach for student enrollment campaigns, and off-campus activities in professional, business, and local communities. The typical examples include committee work, leadership in academic and professional organizations, advising student organizations, and pro bono consulting. There are immeasurable opportunities for service work, ranging from the traditional opportunities to service learning and civic engagements (Holland, 2016). The latter involves contributing to the quality of life in communities and among societal stakeholders,
bridging communities and community involvement, advocacy, and establishing initiatives to promote awareness of social issues and injustices. Research also suggests that faculty should partner with their communities and that faculty service work in communities should be considered community-engaged scholarship for purposes of promotion decisions (Boyer, 1990; Calleson, Jordan, & Seifer, 2005). Some, such as editorial boards, department committees, and those directly related to the institution’s mission, are valued more highly than others.

Generally, service to the community and university is considered the least influential; however, it is still required in the promotion process (Pyle, 2014). In some instances, service levels are increased as a punitive measure when research productivity or teaching evaluations are relatively low. While service is an expectation of faculty (Park, 1996), few are deprived of promotion due to a lack of service. Therefore, serving on many institutional committees and spending a great deal of time providing community service may not lead directly to promotion (Adams, 2003). However, service can be rewarding and, more importantly, it provides numerous opportunities for faculty to effectively shape teaching and learning.

METHODOLOGY

Four questions frame this exploratory study: (1) What counts in the promotion process for business faculty; (2) What should count in this process; (3) What predicts what counts and what should count in their promotion decisions; and (4) How does ‘what counts’ and ‘should count’ today, compare with earlier research.

Instrument

To explore answers to these four questions, a survey, “Survey of Departmental Practices in Evaluating Faculty Performance”, developed by Wallingford, Konyu-Fogel, and DuBois (2014)--hereafter referred to as the 2014 survey--was used. This instrument is based on earlier research by Centra (1977), hereafter referred to as the 1977 survey. The three sections of the 2014 survey, constituting the general criteria, that were applied to this research include: 1) teaching effectiveness, 2) scholarly achievement and research, and 3) service to the community and university. The statements listed under each section are considered ‘elements of evaluation’ or the criteria that count and should count in faculty promotion (Centra, 1977; Wallingford et al., 2014). The survey is included in Wallingford et al. (2014). Only these sections of the 2014 survey, e.g., teaching, research and service are explored, analyzed, and discussed in this current research.

Sample and Data Collection

This survey instrument was made available to faculty from public and private universities and colleges, and faculty attending the 2014 North American Management Society’s (NAMS) conference, which is held annually in conjunction with the MBAA International Conference in Chicago, IL. Fifty-one (N=51) faculty completed the entire paper survey. These faculty represent various disciplines and academic departments from state and private universities and colleges primarily in the Midwest region of the USA. The survey responses were reviewed and coded for this exploratory research.

Data Analysis

The results of this study were used to identify faculty opinions about what criteria and its elements of evaluation count and should count in promotion decisions and to compare these results with the 1977 survey. All survey responses were analyzed using the Statistical Package for the Social Sciences® (SPSS) software. Each criterion or element of evaluation in the survey was responded to using a five-point scale: not available or applicable, not a factor, minor factor, major factor, and extremely critical factor. The descriptive statistics were derived, and regression analyses and historical comparisons regarding what counts and should count were run to respectively build predictive models and to compare and investigate the responses over time.
All the results, tables and figures of the data analysis are presented in the Results section. In that section we show the line graphs, revealing the average weight given to each general criterion (e.g., Demonstrated ability to teach effectively) followed by the average weight given to the different elements of evaluation that compose the general criterion. We also present the percentages (frequencies) indicating the factors that count and should count in Business School faculty promotion. These show the percentage of respondents assigning a weight factor (e.g., not a factor, minor factor, major factor and extremely critical factor) to each general promotion criterion and its evaluation elements.

We use OLS (Ordinary Least Squares) regressions for our statistical analysis. This type of regression has proven to be suitable to study ordinal variables if the data is approximately normally distributed and is divided into five or more categories. Under those circumstances, ordinal data can be treated as continuous, and this treatment is not likely to bias the results (Babakus, Ferguson Jr, & Jöreskog, 1987; Hutchinson & Olmos, 1998; Johnson & Creech, 1983). Our study has five categories i.e., (1) not available or applicable, 2) not a factor, 3) minor factor, 4) major factor, and 5) extremely critical factor) and the data behaves approximately normal. Thus, we used OLS (Ordinary Least Squares) regression to build the predictive models for each of the three general promotion criteria (i.e., teaching, research, and service). These models test the significance of the evaluation elements for predicting each promotion criterion and allow us to determine which elements count and should count in measuring faculty performance and deciding on promotion. In these models, scenario A refers to the importance each evaluation element has (what counts) while scenario B refers to the importance each evaluation element should have (what should count). These results are revealed in Models 1A and 1B for teaching, 2A and 2B for research, and 3A and 3B for service. Each model uses a Dependent Variable, i.e., the general criterion for the model, and Independent Variables, i.e., the evaluation elements that compose the general criterion. The models were tested for multicollinearity through the Variance Inflation Factors (VIFs) to ensure the proper inferences. All the VIFs were below the conventional threshold of 10 and thus multicollinearity does not seem to be a problem in our regression analysis.

The Results section for the regression analysis shows the regression formula for each model tested and the summary output of the regression statistics. This summary presents the R-Squared, Adjusted R-Squared, F-Statistic and p-values for each model, and all the statistically significant independent variables that comprise the model with its unstandardized coefficients, t-values, p-values and confidence levels. Our significant level for all regressions was set at \( p \leq 0.1 \). Finally, the results displayed in Table 5 show the comparison of what counts and should count as extremely critical factors in evaluating faculty performance for promotion purposes based on the 1977 and 2014 studies.

RESULTS

Three areas of faculty promotion were explored in this paper: teaching, research and service. These results are presented separately for each of these areas. The results reveal the importance of each area, what are the most prominent elements of evaluation for each area in the promotion process, and how what currently counts and should count compares with an earlier study on measuring faculty performance.

Teaching

Figure 1 shows that all teaching criteria except student assessment of teaching effectiveness should count more than they currently do. The current use of the student assessment of teaching effectiveness seems to meet the needs of the faculty to assess effective teaching. Thus, student evaluation of teaching effectiveness is ‘what counts’. The highest peaks of the curve for the ‘should count’ responses were developing and updating curriculum and course content (3.45) and student assessment of teaching effectiveness (3.38). Therefore, for their Teaching role, faculty consider that these two elements should have the maximum importance in promotion evaluations. Demonstrating the nature and quality of assignments seems to be the criterion with the largest distance between the means (means dif=0.69), suggesting that it counts for less (2.58) than it should (3.27).
From the overall frequencies in Table 1, it is evident that faculty consider that the criterion variable, demonstrating the ability to teach effectively, should be considered the most critical factor (71.1 percent) in promotion evaluations. Also, the majority of these respondents, 53.1 percent, think that developing and updating curriculum and course content should be considered a critical factor to assess their ability to teach effectively. The vast majority (87.3 percent) of them on average, consider that all the survey elements for teaching effectively, should be classified as primary or critical factors versus minor factors or not a factor.

**TABLE 1**
PERCENTAGES INDICATING THE FACTORS THAT COUNT AND SHOULD COUNT IN BUSINESS SCHOOL FACULTY PROMOTION (N=51)

<table>
<thead>
<tr>
<th>Criteria and Elements of Evaluation</th>
<th>A-What Counts</th>
<th>B-What Should Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrate the ability to teach effectively (Teaching criterion)</td>
<td>2.2% 10.9% 23.9% 63.0%</td>
<td>0.0% 2.2% 26.7% 71.1%</td>
</tr>
<tr>
<td>Criteria and Elements of Evaluation</td>
<td>A-What Counts</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>---------------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td>Not a Factor</td>
<td>Minor Factor</td>
</tr>
<tr>
<td>Student assessments of teaching effectiveness</td>
<td>0.0%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Peer evaluations and reviews</td>
<td>12.2%</td>
<td>18.4%</td>
</tr>
<tr>
<td>Demonstrating the nature and quality of assignments</td>
<td>8.0%</td>
<td>44.0%</td>
</tr>
<tr>
<td>Developing and updating curriculum and course content</td>
<td>6.0%</td>
<td>28.0%</td>
</tr>
<tr>
<td>Incorporating pedagogical approaches</td>
<td>10.2%</td>
<td>30.6%</td>
</tr>
<tr>
<td>Providing timely feedback to students</td>
<td>8.2%</td>
<td>38.8%</td>
</tr>
</tbody>
</table>

Scholarly or creative achievement or research (Research criterion)

<p>| | | | | | | | | |
|                                    |                |          |          |          |                  |          |          |          |
|                                    | Not a Factor  | Minor Factor | Major Factor | Extremely Critical Factor | Not a Factor  | Minor Factor | Major Factor | Extremely Critical Factor |
| Publications in professional journals | 0.0% | 14.6% | 31.7% | 53.7% | 0.0% | 23.1% | 33.3% | 43.6% |
| Works in progress                  | 4.0% | 18.0% | 38.0% | 40.0% | 2.1% | 18.8% | 37.5% | 41.7% |
| Applying for writing, receiving and reporting on grants | 22.0% | 34.0% | 36.0% | 8.0% | 8.5% | 29.8% | 55.3% | 6.4% |
| Presenting at professional meetings | 34.0% | 30.0% | 24.0% | 12.0% | 12.8% | 34.0% | 42.6% | 10.6% |
| Research projects                  | 8.2% | 4.1% | 49.0% | 38.8% | 0.0% | 14.9% | 46.8% | 38.3% |
| Books or books contributions       | 10.2% | 24.5% | 40.8% | 24.5% | 6.4% | 17.0% | 53.2% | 23.4% |
|                                   | 14.3% | 28.6% | 34.7% | 22.4% | 8.5% | 23.4% | 40.4% | 27.7% |</p>
<table>
<thead>
<tr>
<th>Criteria and Elements of Evaluation</th>
<th>A-What Counts</th>
<th></th>
<th>B-What Should Count</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not a Factor</td>
<td>Minor Factor</td>
<td>Major Factor</td>
<td>Extremely Critical Factor</td>
</tr>
<tr>
<td>Editorial or advisory roles for professional publications</td>
<td>18.4%</td>
<td>24.5%</td>
<td>49.0%</td>
<td>8.2%</td>
</tr>
<tr>
<td>Service to the community and university (Service Criterion)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Service on committees</td>
<td>7.1%</td>
<td>26.2%</td>
<td>45.2%</td>
<td>21.4%</td>
</tr>
<tr>
<td>• Mentoring colleagues</td>
<td>10.0%</td>
<td>22.0%</td>
<td>42.0%</td>
<td>26.0%</td>
</tr>
<tr>
<td>• Performing leadership roles</td>
<td>34.0%</td>
<td>36.2%</td>
<td>17.0%</td>
<td>12.8%</td>
</tr>
<tr>
<td>• Participating in accreditation, program review, and assessment</td>
<td>18.0%</td>
<td>22.0%</td>
<td>40.0%</td>
<td>20.0%</td>
</tr>
<tr>
<td>• Fostering alumni relations and promoting university advancement</td>
<td>12.0%</td>
<td>26.0%</td>
<td>36.0%</td>
<td>26.0%</td>
</tr>
<tr>
<td>• Recruiting and retaining advancements</td>
<td>30.6%</td>
<td>26.5%</td>
<td>28.6%</td>
<td>14.3%</td>
</tr>
<tr>
<td>• Serving on external professional bodies</td>
<td>26.0%</td>
<td>38.0%</td>
<td>26.0%</td>
<td>10.0%</td>
</tr>
<tr>
<td>• Consultation with government or business organizations</td>
<td>20.4%</td>
<td>36.7%</td>
<td>28.6%</td>
<td>14.3%</td>
</tr>
<tr>
<td>• Developing and supporting community, national or international partnerships</td>
<td>17.0%</td>
<td>38.3%</td>
<td>29.8%</td>
<td>14.9%</td>
</tr>
</tbody>
</table>

|                                     |  |  |  |  |
|• Editorial or advisory roles for professional publications | 12.8% | 29.8% | 46.8% | 10.6% |
| Service to the community and university (Service Criterion) |  |  |  |  |
| • Service on committees | 2.4% | 9.5% | 47.6% | 40.5% |
| • Mentoring colleagues | 10.0% | 22.0% | 42.0% | 26.0% |
| • Performing leadership roles | 34.0% | 36.2% | 17.0% | 12.8% |
| • Participating in accreditation, program review, and assessment | 18.0% | 22.0% | 40.0% | 20.0% |
| • Fostering alumni relations and promoting university advancement | 12.0% | 26.0% | 36.0% | 26.0% |
| • Recruiting and retaining advancements | 30.6% | 26.5% | 28.6% | 14.3% |
| • Serving on external professional bodies | 26.0% | 38.0% | 26.0% | 10.0% |
| • Consultation with government or business organizations | 20.4% | 36.7% | 28.6% | 14.3% |
| • Developing and supporting community, national or international partnerships | 17.0% | 38.3% | 29.8% | 14.9% |
In the regression analysis, the following equation was used for the criterion: “Demonstrate the ability to teach effectively”.

\[ y = \beta_0 + \beta_1 \text{Student assessments of teaching effectiveness} + \beta_2 \text{Peer evaluations and reviews} + \beta_3 \text{Demonstrating the nature and quality of assignments} + \beta_4 \text{Developing and updating curriculum and course content} + \beta_5 \text{Incorporating pedagogical approaches} + \beta_6 \text{Providing timely feedback to students} + \epsilon \]  

(1)

Where \( \beta_0 \) is the intercept, \( \beta_{1-6} \) are the unstandardized regression estimates, and \( \epsilon \) is the error term.

The results substantiate that Model 1A, on what counts in Teaching, significantly explains 26.2 percent of the variation in the dependent variable or general criterion, i.e., teaching effectively. See the Adjusted R-square of 0.262. Also, Model 1A in Table 2 shows that one independent variable, student assessment of teaching effectiveness is positively and significantly correlated—at the 99 percent confidence level (\( p<0.01 \)) —with the ability of faculty to demonstrate effective teaching. This underlines the fact that faculty identifying student assessments as an important element for the evaluation of their teaching are more prone to considering the teaching dimension as more important for their promotion evaluation. However, regarding what should count in Model 1B, none of the variables is significant.

### TABLE 2
SUMMARY OF REGRESSION RESULTS FOR MODEL 1A AND 1B (TEACHING)

**Model 1A: Demonstrate the ability to teach effectively (A-What Counts)**

<table>
<thead>
<tr>
<th></th>
<th>( \beta )</th>
<th>( t )-value</th>
<th>( p )-value</th>
<th>Confidence Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Assessments of teaching effectiveness</td>
<td>0.538</td>
<td>3.210</td>
<td>0.003</td>
<td>99%</td>
</tr>
</tbody>
</table>

**Model 1B: Demonstrate the ability to teach effectively (B-What Should Count)**

<table>
<thead>
<tr>
<th></th>
<th>( \beta )</th>
<th>( t )-value</th>
<th>( p )-value</th>
<th>Confidence Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

**Research**

Figure 2 shows that this general criterion variable, scholarly or creative achievement or research, should count less in their evaluation and promotion than it currently does. Moreover, faculty consider that all elements of this criterion should count more than they currently do. The highest peaks of the curve for 'what should count' were: presenting at professional meetings (3.23) and publications in professional journals (3.19). Therefore, for the Research role, faculty consider that these two elements should have the maximum importance in their evaluations for promotion. Moreover, these two elements exhibit the
shortest distance between what counts and should count, suggesting that there is significant congruence for their value in assessing research for promotion purposes. Applying for, writing, receiving and reporting on grants seems to be the element with the largest distance between the means (means diff=0.37) suggesting that the respondents believe that this variable weighs (2.14) less than it should (2.51).

**FIGURE 2**

AVERAGE WEIGHT GIVEN TO DIFFERENT ELEMENTS FOR EVALUATING SCHOLARLY OR CREATIVE ACHIEVEMENT OR RESEARCH BY WHAT COUNTS AND WHAT SHOULD COUNT

From Table 1, it is apparent that scholarly or creative achievement or research should be an extremely critical factor (43.6 percent) in faculty promotion decisions. However, faculty considered research productivity as a less critical general criterion for their evaluation when compared with the general criterion for teaching effectiveness (71.1 percent). Nevertheless, on average, at least 68 percent of the faculty respondents considered that most of the elements of research should be at least major factors. The exceptions are works in progress, applying, writing, receiving and reporting on grants, and editorial roles for professional publications. Furthermore, among the major factors in the research criterion, the largest percentage of faculty respondents (41.7 percent) considered that publications in professional journals should be an extremely critical factor in their evaluation and promotion.

In the regression analysis, the following equation was used for the criterion: “Scholarly or creative achievement or research”.

From Table 1, it is apparent that scholarly or creative achievement or research should be an extremely critical factor (43.6 percent) in faculty promotion decisions. However, faculty considered research productivity as a less critical general criterion for their evaluation when compared with the general criterion for teaching effectiveness (71.1 percent). Nevertheless, on average, at least 68 percent of the faculty respondents considered that most of the elements of research should be at least major factors. The exceptions are works in progress, applying, writing, receiving and reporting on grants, and editorial roles for professional publications. Furthermore, among the major factors in the research criterion, the largest percentage of faculty respondents (41.7 percent) considered that publications in professional journals should be an extremely critical factor in their evaluation and promotion.

In the regression analysis, the following equation was used for the criterion: “Scholarly or creative achievement or research”.
\[ \text{Model 2A: Scholarly or creative achievement or research (A-What Counts)} \]

<table>
<thead>
<tr>
<th>Significant Variables</th>
<th>( \beta )</th>
<th>( t )-value</th>
<th>( p )-value</th>
<th>Confidence Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publications in professional journals</td>
<td>0.693</td>
<td>6.656</td>
<td>0.000</td>
<td>99%</td>
</tr>
</tbody>
</table>

\[ \text{Model 2B: Scholarly or creative achievement or research (B-What Should Count)} \]

<table>
<thead>
<tr>
<th>Significant Variables</th>
<th>( \beta )</th>
<th>( t )-value</th>
<th>( p )-value</th>
<th>Confidence Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publications in professional journals</td>
<td>0.747</td>
<td>5.570</td>
<td>0.000</td>
<td>99%</td>
</tr>
<tr>
<td>Applying for, writing, receiving and reporting grants</td>
<td>0.222</td>
<td>1.835</td>
<td>0.078</td>
<td>90%</td>
</tr>
<tr>
<td>Research projects</td>
<td>0.235</td>
<td>1.800</td>
<td>0.083</td>
<td>90%</td>
</tr>
</tbody>
</table>

Where \( \beta_0 \) is the intercept, \( \beta_1, \ldots, \beta_7 \) are the unstandardized regression estimates, and \( \varepsilon \) is the error term.

The results in Table 3 show that Model 2A, on what counts for Research, and Model 2B, on what should count, are statistically significant at the Adjusted R-squares of 0.561 and 0.744 respectively. This indicates that Model 2A and 2B explain 56.1 percent and 74.4 percent respectively of the variation in the ‘what counts’ and ‘what should count’ regarding the dependent variable, i.e. the criterion, scholarly or creative achievement or research. Moreover, Model 2A shows that the evaluation element, publications in professional journals is positively and significantly correlated at the 99 percent confidence level (\( p<0.01 \)) with scholarly or creative achievement or research. Model 2B reveals that the same factor, publications in professional journals (\( p<0.01 \)) is also positively and significantly correlated with scholarly or creative achievement or research. Accordingly, there is strong evidence (\( p<0.01 \)) that publications in professional journals has a positive impact on both what counts and what should count in evaluating faculty during promotion decisions. The other factors that are significant in Model 2B at the 90 percent confidence level are applying for, writing, receiving and reporting grants (\( p<0.1 \)), and research projects (\( p<0.1 \)). These results suggest that the faculty respondents who considered grant writing and reporting and research projects should be more important in evaluating their research productivity, are more likely to also rate the research criterion to be more important for their promotion.
Service

Figure 3 shows that the faculty respondents systematically consider that the service criterion and the elements of evaluation should count slightly more than they currently do. The “what should count” curve is rather flat, without very pronounced highs or lows, indicating that all service criteria should be relatively equal in importance regarding faculty promotion. The greatest distance between the two curves is mentoring colleagues (means diff=0.83). This suggests that mentoring colleagues is currently undervalued and should be valued closer to the faculty’s perception. Fostering alumni relations and promoting university advancement as well as recruiting and retaining students are the second two elements with the greatest distance between the weighted means (i.e., going from 2.27 what counts to 2.88 what should count [means diff=0.61] and from 2.20 to 2.96 [means diff=0.76] respectively.

FIGURE 3
AVERAGE WEIGHT GIVEN TO DIFFERENT ELEMENTS FOR EVALUATING SERVICE TO COMMUNITY AND UNIVERSITY BY WHAT COUNTS AND WHAT SHOULD COUNT

As depicted in the frequencies in Table 1, faculty respondents think that the general criterion, service to the community and university, should be considered either a major factor (47.6 percent) or an extremely critical factor (40.5 percent) for their evaluation and promotion. Of all the service elements of evaluation, performing leadership roles is considered the element that should hold the highest criticality (40.4 percent). The rest of the service elements are generally considered major factors. In particular, the majority of the respondents (59.2 percent) indicate that service on committees should be the most common factor.

In the regression analysis, the following equation was used for the criterion: “Service to the community and university”. 

\[
\text{Service to the community & university} = a + b_1 \times \text{service} + b_2 \times \text{mentoring colleagues} + b_3 \times \text{performing leadership roles} + b_4 \times \text{participating in accreditation, program review & assessment} + b_5 \times \text{fostering alumni relations & promoting university advancement} + b_6 \times \text{recruiting & retaining students} + b_7 \times \text{consultation with government or business organizations} + b_8 \times \text{developing & supporting community, national or international partnerships} 
\]
\[ y = \beta_0 + \beta_1 \text{Service on committees} + \beta_2 \text{Mentoring colleagues} + \beta_3 \text{Performing leadership roles} + \beta_4 \text{Participating in accreditation, program review, and assessment} + \beta_5 \text{Fostering alumni relations and promoting university advancement} + \beta_6 \text{Recruiting and retaining advancements} + \beta_7 \text{Serving on external professional bodies} + \beta_8 \text{Consultation with government or business organizations} + \beta_9 \text{Developing and supporting community, national or international partnerships} + \epsilon \]

Where \( \beta_0 \) is the intercept, \( \beta_{1,9} \) are the unstandardized regression estimates and \( \epsilon \) is the error term.

The results in Table 4 reveal that Model 3A, on what counts, and Model 3B, on what should count, are statistically significant and their Adjusted R-squares of 0.672 and 0.389 respectively. This indicates that these models explain 67.2 percent and 38.9 percent of the variation in the dependent variable i.e., service to the community and university in “what counts” and “should count” respectively. In particular, in Model 3A service on committees is positive and significant at the 99 percent confidence level (\( p<0.01 \)); and participating in accreditation, program review and assessment is positive and significant at the 90 percent confidence level (\( p<0.1 \)). Model 3B, however, exhibits just one positive and significant relationship between participating in accreditation, program review and assessment at the 90 percent confidence level (\( p<0.1 \)) and service to the community and university. This suggests that participating in accreditation, program review, and assessment is influential regarding the service dimension for both situations i.e., what counts and should count. Thus, faculty indicating that this factor is or should be more critical for measuring their service contribution to the community and university, often attribute higher importance to service activities in making promotion decisions.

### TABLE 4

**SUMMARY OF REGRESSION RESULTS FOR MODEL 3A AND 3B (SERVICE)**

**Model 3A: Service to the community and university (A-What Counts)**

<table>
<thead>
<tr>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>F-Statistic</th>
<th>Sig. Model</th>
<th>Significant Variables</th>
<th>( \beta )</th>
<th>( t )-value</th>
<th>( p )-value</th>
<th>Confidence Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.754</td>
<td>0.672</td>
<td>9.192</td>
<td>.000</td>
<td>Service on committees</td>
<td>0.545</td>
<td>4.247</td>
<td>0.000</td>
<td>99%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Participating in accreditation, program review, and assessment</td>
<td>0.240</td>
<td>2.035</td>
<td>0.052</td>
<td>90%</td>
</tr>
</tbody>
</table>

**Model 3B: Service to the community and university (B-What Should Count)**

<table>
<thead>
<tr>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>F-Statistic</th>
<th>Sig. Model</th>
<th>Significant Variables</th>
<th>( \beta )</th>
<th>( t )-value</th>
<th>( p )-value</th>
<th>Confidence Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.538</td>
<td>0.389</td>
<td>3.620</td>
<td>.004</td>
<td>Participating in accreditation, program review, and assessment</td>
<td>0.302</td>
<td>1.724</td>
<td>0.096</td>
<td>90%</td>
</tr>
</tbody>
</table>
Comparisons with Historical Data

Table 5 shows that certain elements of teaching, research and service have persisted over time. They are the most critical factors across the 1977 Professional Fields (e.g., law, engineering, and business) and across the business faculty in the 2014 survey. This is based on a comparison of the results of this 2014 survey with the results of an earlier 1977 report (Centra, 1977) which also included business faculty in the Professional Fields category. The data in 1977 were reported using two factors: ‘Not a Factor’ and an ‘Extremely Critical Factor’. To compare the results from 2014 with the results from 1977, the 2014 survey criteria and elements of evaluation were matched with criteria from 1977 and then presented in

**TABLE 5**

COMPARISON OF WHAT COUNTS AND SHOULD COUNT AS EXTREMELY CRITICAL FACTORS IN EVALUATING FACULTY PERFORMANCE (1977) AND FACULTY PROMOTION (2014)

<table>
<thead>
<tr>
<th>Areas</th>
<th>Performance and Promotion Criteria</th>
<th>A-Is extremely critical</th>
<th>B-Should be extremely critical</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEACHING</td>
<td>Teaching effectively</td>
<td>63.0%</td>
<td>38.0%</td>
</tr>
<tr>
<td></td>
<td>• Student assessments</td>
<td>46.0%</td>
<td>15.0%</td>
</tr>
<tr>
<td></td>
<td>• Peer evaluations &amp; reviews</td>
<td>32.7%</td>
<td>22.5%</td>
</tr>
<tr>
<td></td>
<td>• Demonstrating the nature &amp; quality of assignments</td>
<td>18.0%</td>
<td>4.0%</td>
</tr>
<tr>
<td></td>
<td>• Developing &amp; updating curriculum &amp; course content</td>
<td>30.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td></td>
<td>• Incorporating pedagogical approaches</td>
<td>28.6%</td>
<td>0.0%</td>
</tr>
<tr>
<td>RESEARCH</td>
<td>Scholarly or creative achievement or research</td>
<td>53.7%</td>
<td>12.0%</td>
</tr>
<tr>
<td></td>
<td>• Publications in professional journals</td>
<td>40.0%</td>
<td>21.0%</td>
</tr>
<tr>
<td></td>
<td>• Works in progress</td>
<td>8.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td></td>
<td>• Applying for writing, receiving and reporting on grants</td>
<td>12.0%</td>
<td>20.0%</td>
</tr>
<tr>
<td></td>
<td>• Presenting at professional meetings</td>
<td>38.8%</td>
<td>3.0%</td>
</tr>
<tr>
<td></td>
<td>• Books or book contributions</td>
<td>22.4%</td>
<td>15.0%</td>
</tr>
<tr>
<td></td>
<td>• Editorial or advisory roles for professional publications</td>
<td>8.2%</td>
<td>0.0%</td>
</tr>
<tr>
<td>SERVICE</td>
<td>Service to the community and university</td>
<td>21.4%</td>
<td>2.0%</td>
</tr>
<tr>
<td></td>
<td>• Service on committees</td>
<td>26.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td></td>
<td>• Serving on external professional bodies</td>
<td>14.3%</td>
<td>2.0%</td>
</tr>
<tr>
<td></td>
<td>• Consultation with government or business organizations</td>
<td>12.0%</td>
<td>1.0%</td>
</tr>
</tbody>
</table>
Table 5. All of the items in the ‘teaching’ section or criterion of the 2014 study were also measured in 1977. Seven of the eight items in the ‘research’ section were measured in 1977. Only four of the 10 items in the ‘service’ section of the 2014 study were measured in the 1977 study.

As shown in Table 5, business school faculty (BF) responding to the 2014 survey consistently rated all the teaching criteria as more critical than the Professional Fields faculty (PF) in the 1977 survey. There is only one element of research evaluation that shows less criticality in 2014 as compared with 1977: grant writing, receiving and reporting. The maximum difference between the two periods occurs for scholarly or creative achievement or research (diff=41.7%), suggesting that the research criterion has become a very significant factor for faculty promotion assessments compared with the relatively low importance it had 37 years ago. Other elements that have undergone a relatively high increase in their criticality—in the research and teaching sections—are: presenting at professional meetings (diff=35.8%), incorporating pedagogical approaches (diff=28.6%) and developing/updating curriculum & course content (diff=28%). Moreover, all of the service criteria show an increase in being extremely critical.

For both years 2014 (63.0%) and 1977 (38%), Table 5 shows that the most critical element—what counts most—is teaching effectively. This indicates that this general criterion has persisted in its relative importance over time. While assumptions are that professors assign a low value to teaching, this study, and other research consistently show the opposite (Cartter, 1967). Indeed faculty often give teaching the highest priority, consider it a great source of pleasure (Gaff & Wilson, 1971), care about student learning (Olson & Carter, 2014), and spend a significant amount of time planning lectures and assignments to create a positive learning environment.

The second two most critical elements of evaluation in the 2014 survey regarding what counts are: student assessments of teaching (46%) and publications in professional journals (40%). These results do not coincide with the ones for the Professional Fields faculty (PF) in 1977. In the 1977 survey, the elements of evaluation that counted the most across teaching, research and service were: peer evaluations & reviews (22.5%), journal publication (21%), and applying for, writing, receiving, and reporting on grants (20%). This suggests, along with the overall results in Table 5, that the importance of many evaluation elements have changed over time and even increased over time, making the faculty role more complex and demanding.

The ‘what counts’ and ‘what should count’ scenarios show higher means, i.e., higher levels of criticality, in the 2014 survey compared with the 1977 survey. The maximum difference between the two years (1977 and 2014) occurs for developing/updating curriculum and course content (diff=47.1%) and demonstrating the nature & quality of assignments (diff=38.8%), suggesting that these teaching elements ‘should count’ more today than they did 37 years ago. Other criteria and elements that closely follow this high increase over time are the service to the community and university (diff=37.5%) criterion and the presenting at professional meetings (diff=35.3%) element. Finally, for both what counts and should count the comparative results show that some elements of evaluation have changed in importance. However, all of them, except grant writing, receiving and reporting, have increased in criticality with regard to faculty promotion decisions over time.

CONCLUSIONS AND RECOMMENDATIONS

In this era of global competition in industry and higher education (Mamiseishvili & Rosser, 2010), enhanced online technologies for virtual learning environments, and shrinking budgets which compel more innovation and entrepreneurial savvy among institutions of higher education, there is a need to attract the best faculty talent from around the world to yield the best teaching, research productivity and service for accomplishing business schools goals. In this context faculty are concerned about their careers and the extent to which they will find congruence between what counts and what should count in their journey from assistant to full professor. This study shows that faculty believe that the weight given to teaching and service should go beyond lip service. It reveals that the teaching and service criteria are essential for faculty promotion and evaluation and therefore, they should count more than they do currently. A survey analyzing what faculty and chairs considered the most major factors in personnel
decisions found similar results with 99 percent of the responding chairs and 92 percent of the responding faculty indicating ‘classroom teaching’ (Cipriano & Riccardi, 2005) as the most important factor. Essentially, faculty believe that the elements for these two criteria--teaching and service in this study--should count more than they do. Faculty members consider that research is currently overrated, driven by publications in ‘A’ journals and citation counts, without the appropriate balance of various other research measures, including those that are embedded in teaching and service. Overall, the faculty responding to this survey believe that teaching and service should hold more weight in faculty assessments for promotion. Evaluators’ mindsets should change to reflect an increased importance for teaching and service activities, and continue to balance the overall importance given to researching activities.

From the frequencies in Table 1, it is evident that the teaching criterion is regarded as the most critical factor among the three; followed by research and then service. Therefore, it is the criterion that faculty feel should be the most important in their evaluation and promotion. The caveat is that placing too much weight on teaching might put faculty in the most vulnerable spot vis-a-vis the rising use of technology in the delivery of management education and the all too often challenges that occur when the students feel that a course or program is too rigorous. A Financial Times article indicates that the entrance of massive open online courses threaten the existing and traditional business school model, as 60 to 70 percent of such business schools would be unprepared or superfluous (Hooijberg, Narasimhan, & Lane, 2013) in a highly virtually integrated learning environment. Among the current survey respondents, the importance of research and service is similarly divided between major and critical factors. Although faculty in this study held such views, other studies show that scholarship is more salient in the majority of institutions and that teaching and service have become less weighty over time (Green, 2008).

From the regression models we can conclude that the student assessment of teaching effectiveness variable is positively and significantly correlated with the ability of faculty to demonstrate effective teaching for the ‘what counts’ scenario. This suggests that a greater emphasis on student’s assessments of teaching effectiveness will increase the faculty’s attention to their ability to teach effectively. Also, both on the ‘what counts’ and ‘what should count’ scenarios, publications in professional journals is positively and significantly correlated with research. That is, publications in professional journals predict research productivity. Moreover, faculty indicate that applying for, writing, receiving and reporting grants and carrying out research projects also have a positive impact on scholarly achievements with regards to “what should count”. According to a Harvard Business Review article, the caveat of leaning too heavily on scientific research, as the chief criterion for faculty promotion, is that faculty will become obsessed with the volume of articles they publish versus measuring themselves based on the competence of their graduates (Bennis & O’Toole, 2005). Finally, participating in accreditation, program review and assessment positively influences service to the community and university concerning ‘what counts’ and ‘what should count’. This suggests that participating in accreditation, program review and assessment should positively impact the faculty service dimension and it can be a significant factor on what counts and should count in faculty’s promotion. The last significant factor that should be considered to affect the service to the community and university criterion is service on committees, which only is significant in the model for ‘what counts’ rather than ‘what should count’.

From the comparative analysis, comparing business faculty’s thoughts on the critical elements for promotion in 2014 with Professional Fields faculty [department chairs] in 1977, we can observe that certain elements of teaching, research and service have persisted in importance over time. The most critical element for faculty promotion is teaching effectively and this has persisted over time with regards to what counts and should count. This is also consistent with Carnegie Reports over the years, although there was a significant dip from 86 percent of faculty in four-year institutions agreeing that teaching effectiveness should be the primary criterion for promotion in 1969 to 59 percent in 1997 (Carnegie Foundation, 1975, 1984, 1989, 1991-93, 1997). Grant writing, receiving and reporting seems to be the only element of the survey that has decreased its importance over the period of 37 years, both for what counts and should count in faculty promotion decisions.

While this study of 51 faculty survey respondents is limited by sample size, it represents the views of business faculty who are actively engaged in the profession, i.e., faculty from state and private
universities and colleges in the upper Midwest and those participating in an international academic conference. Moreover, it is a larger sample than a number of the published studies in this area. One study used a sample size of 10 professors at one university to understand the experiences of individuals who had sought promotion to full professor (Gardner & Blackstone, 2013). A study by Gunter and Stambach (2003) used a sample of 22 female and 22 male faculty to detail how each experienced the promotion process (Gunter & Stambach, 2003). Price and Cotten (2006) studied 22 assistant professors across seven disciplines at two universities to determine their expectations regarding teaching, research and service. Still another study, published in the *Academy of Management Journal* used a sample size of 37 faculty across six geographic areas and spread across the six Carnegie Classifications to study the career aspects of their professional relationships (Gersick, Dutton, & Bartunek, 2000).

This current study has given us an opportunity to revisit faculty promotion criteria in order to explore what counts and what should count in promotion decisions. It also compares the same with an earlier study from which the 2014 survey was developed. In so doing, we gain a current and historical perspective on promotion criteria over a 37-year period. As we can see from this research, the professoriate has become more complex and demanding. Building upon what is gained from this research will be beneficial to clarifying what is currently most valued in academic roles and launching a renewed dialogue on the compelling arguments for an expanded view of scholarship (Boyer, 1990, 1996) in light of the new and evolving international standards for business schools (Association to Advance Collegiate Schools of Business, 2013). Moreover, it may lead to establishing more synchronized and universal standards for evaluating what counts for promotion so that institutions and faculty members are more prepared to understand, explain, value, and reward faculty contributions in keeping with global pressures on institutions of higher education and global demands on business schools.

**REFERENCES**


