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JUSTIN C. MATUS
Managing Editor
THE APPLICATION OF SOCIAL EXCHANGE THEORY BY ENTREPRENEURS LEADING SMALL BUSINESSES IN APPALACHIA

Billy Stone

ABSTRACT

Entrepreneurs are the backbone of the U.S. economy and their small businesses represent the primary job source for American workers. Research exists on small business at a national and an international scale but a limited amount of region specific information exists in the literature. The purpose of the research is to explore the relationship between social capital and the failure or success of entrepreneurs who own businesses in Beckley, West Virginia, a small Appalachian town. The theoretical framework for this study is social exchange theory. This qualitative study used interpretive phenomenological analysis as the chosen research design because of the capability to query their lived experiences. The purpositive sampling method was used. The twelve participants were divided into two groups consisting of failed businesses and successful businesses. The successful business has existed for more than five years. The failed business opened within the past five years but has closed. The answers provided by the participants addressed the problem of the high fail rate of small businesses in Appalachia. The findings of the study are important because the application of social exchanges by entrepreneurs was shown to increase the longevity of small businesses.

KEYWORDS: Entrepreneur, Appalachia, Social capital, Social exchange, Small Business

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Introduction

Small businesses are the backbone of the U.S. economy and represent the primary job source for American workers (Small Business, 2012, p.1). In 2012, over 2.1 million new jobs were created by small businesses, with the largest increase in the smallest firm size category of businesses with 1-4 employees (U.S. Small Business Association, 2015, p.1). In 2010, small businesses in the U.S. generated over 95% of the nation’s export value (U.S. Small Business Association, 2015, p.1).

While the small business sector is of vital importance to the U.S. economy, there is ample room for improvement in the areas of firm survival. However, in the first quarter of 2014, the number of small businesses that closed almost equaled the number of new businesses that opened, with 382,000 firms opening and 364,000 firms closing (U.S. Small Business Administration, 2015, p. 4).
Although numerous fiscal and social policies have been instituted to promote and support small business in the United States, these have yet to reduce the failure rate of small businesses. Additionally, while a great deal of research exists on small business at a national and an international scale, a limited amount of region-specific information exists in the literature. Included in the research that does exist, both the questions posed and the conclusions reached are often of little relevance to the actual practice of managing a business (Perry & Zuber-Skerritt, 1992; Hurst, Pugsley, Anger & Looney, 2011).

**Statement of the Problem**

Entrepreneurial ventures have a high fail rate, with less than half surviving more than five years and these survival rates have persisted in a relatively stable fashion for at least a decade, with various policies appearing unable to increase the longevity of new businesses (Lamie, 2011). Additionally, most research to date has relied on overall survival rates to measure the rate of business failure, neglecting to distinguish between successful closures and failed business attempts. The general problem is that the failure rate of small businesses in the southeastern United States is not well documented (Ransom, Jensen, Bailey, & Rural, 2014).

The development of effective policies for supporting small business longevity is stymied by the lack of a comprehensive understanding about the specific factors that contribute to the success of owner-operated small businesses (Ransom, et al., 2014). Additionally, most research produced by institutions has been conducted in a top-down fashion on questions that interest researchers, but often fail to address the problems that entrepreneurs find important (Hurst et al., 2011).

**Purpose of the Study**

The purpose of the research was to explore the relationship between social capital and the failure or success of twelve owner-operated businesses in Beckley, West Virginia. The results of this research project include personal stories collected through semi-structured interviews with twelve entrepreneurs in Beckley, West Virginia. The interviews consisted of open-ended questions through which the participants shared unfiltered stories of their experiences and perceptions as entrepreneurs. Living management theory was used to address practical problems faced by entrepreneurs by integrating professional readings, reflections, and critical conversations with the data collected and engaging in an ongoing process of self-reflection. Twelve small businesses in Beckley, West Virginia were interviewed. The study was conducted by a lifelong resident of Beckley who personally observed his family’s struggles as entrepreneurs. A myriad
of small businesses has opened and closed in Beckley over the past five years. Why some were successful while others failed is the nexus of the research. Six businesses opened between 2006 and 2016 and were in operation for more than two years. Six additional small businesses had closed within their first two years of business between 2006 and 2016.

In this purposive sampling, the entrepreneurs were expected to share common experiences. The alignment, or lack, of social capital for each business were compared. A pattern emerged which reveals a common roadmap to longevity (in operation for more than two years) or failure (closure before reaching two years in business). The data collected in the study focused on the development of an understanding of the ways in which social capital contributes to the longevity of businesses in Beckley, WV.

Research Questions

The purpose was to understand the relationship between social capital and success of small business in Beckley, WV by increasing understanding of the effects of social exchange theory on business longevity. The following question directly addressed the stated problem and purpose of this research.

Question: How does social capital affect the longevity of owner-operated small businesses in Beckley, WV?

a.) How does the research improve the organizational practice of small businesses?
b.) How can the knowledge from this research reach and influence small business operators in Beckley, WV?
c.) How can the research improve the economic prospects of small business operating in Beckley, WV by extending the longevity of owner-operated small businesses?

Theoretical Framework

The theoretical framework for this study is social exchange theory. Historically, social exchange theory has provided a theoretical foundation to entrepreneurs’ need to adapt to changing practices. “Social exchange theory is a broad theory that provides a common explanatory account for a variety of outcomes that can emerge from interactions between, individuals or organizations. These social exchange outcomes include the emergence of trust in interpersonal and interorganizational exchanges” (Lioukas & Reuer, 2015, p. 1832). The theory focuses on trust established by the societal norms of reciprocity and equity which are based on emotional bonds of friendship or kinship.

According to Rusbult’s (1983) investment model of social exchange theory applies to this study. Relationships between the entrepreneur and its customer are stabilized when that investment is made in the relationship. The same investment concept is beneficial for rural entrepreneurs to apply to their marketing activity. The diversity of customer needs and alignment with targeted marketing is improved by investing in a database that informs marketing
decisions. The owner can customize their marketing to individual customer preferences. The investment model application is one in which the entrepreneur views the customer as an investment. When customers have invested their patronage in the small business, it creates a perceived social cost to abandon the relationship. The exchange of value is a central component of the framework of relational exchanges between rural businesses and their clientele. Entrepreneurs evaluate success based on what they feel they deserve in exchange for their investment in the customer. Investment model of social exchange theory demonstrates that the first business transaction between the customer and the business actuates the potential for future transactions or if the relations will end after the intimal sale (Hadden, 2015).

The investment model of commitment provides a theoretical framework for understanding the underlying aspects of commitment in rural small business relationships (Rusbult, 1983). The investment model defines commitment as the intention to maintain psychological attachment the extent to which one needs a given relationship or to which one’s desired outcomes are contingent on a given relationship (Hansen, et al., 1982).

The investment model states that commitment is achieved by three factors that are thought to function by increased dependence. First, feelings of satisfaction in one’s relationship increase commitment. Research has found that satisfaction results from perceiving that the rewards received from the relationship are worth more the costs (Lin, 1995). Second, commitment comes from considering lower quality alternatives to the relationship. That is, considering one’s options as resulting in less desirable outcomes when compared to the current relationship results in higher commitment. Third, one’s degree of investment in the relationship—the financial and emotional capital inserted into a relationship that was sacrificed if the relationship ended—increased one’s commitment. Investments can be tangible (e.g., money) or intangible (e.g., emotional) and may include the past and future plans (Goodfriend & Agnew, 2008). In the investment model, commitment is promoted by investments that create dependence (Rusbult et al., 1998). Satisfaction is the strongest predictor of commitment with alternatives and investments explaining a smaller amount of differences (Le & Agnew, 2008).

In the study, the researcher used social exchange theory to evaluate whether investment in a small business is reciprocal. The clientele in the study area expects small business to support local interest, such as sponsoring local sports teams and purchasing business supplies from local vendors. When there is an exchange of financial and socioemotional sources, the customer feels committed to patronize the business and to advocate for its success. The more engaged the business is in its community, the amount of cognitive, emotional and physical capital is returned in kind by its clientele. Should the small business
not invest its financial or emotional capital in local interests, the clientele in rural communities are likely to withdraw from the patronage of the business. This could be due to the perception of the clientele that the owner is taking from the community and not rewarding the community in turn for their patronage. Missing from the study is the evaluation of social exchange theory and its influence on Appalachian entrepreneurs operating a small business. The research attempted to fill this gap.

Method

Interpretative Phenomenological Analysis (IPA) was used as the guiding research design. The research queried the consciousness of entrepreneurs and their perception of things and experiences. Its objective was the analyses of specific experiences of entrepreneurs within the context of failing or succeeding in the operation of their small businesses. This was accomplished by using small sample size, in person interviews with an inductive approach allowing the participants time for reflection.

The purposive sampling method was used. The twelve participants were divided into two groups consisting of failed businesses and successful businesses. The successful business was based on the criteria that the business existed for more than five years, and the owner is the manager of the business. The failed business was opened within the past five years but had closed. Lastly, the research adhered to the principles of confidentiality, voluntary participation and informed consent. The research studied human subjects in that it included interviews with successful and failed entrepreneurs. The willing participants were guaranteed confidentiality by letter of informed consent. The participants were potentially vulnerable research subjects. The data collection process promoted confidentiality by removing identifiable information such as names of businesses and individuals from notes and the manuscript. The names of the businesses and the entrepreneurs were concealed by using neutral identifiers. The F1 for failed business number one and S1 for successful business number one. Access to interview materials was restricted to the researcher. These efforts reduced the possibility of anyone from connecting the businesses or individuals to the data to questions. The audio of the interviews was recorded for the purpose of fully synthesizing the narrative data and collecting the data to binary questions. Transcribed data was coded in the software program ATLAS.ti. The software uses integrated strategies, which align with theoretical foundations of qualitative research. A manual review of the coded data and its analysis was conducted to interpret the phenomena.

Findings

The modified van Kamm method of phenomenological analysis was applied to collected data. The researcher transcribed the data into Microsoft Word files which were then exported into ATLAS.ti qualitative software project files. The lived experiences were
grouped by the ATLAS software into a document file which listed the invariant constituents.

**Trustworthiness of the Data**

A pilot test was completed prior to data collection. The purpose was so the researcher could evaluate the clarity of the interview questions, and the quality of the audio recorded on the iPhone voice recording application. The researcher discovered the best location to place the iPhone to capture clear audio for the interviews. Also, the time allotted for introductory comments was taken into consideration to schedule sufficient time for the entire interview session so each participant could reflect upon the questions and provide responses.

The list of failed small businesses in Beckley that have ceased operations within the past five years was established by the researcher by using the advanced search function on the West Virginia Secretary of State business organization online portal (West Virginia Secretary of State, 2017). The businesses, which do not appear as a licensed business in 2017, have ceased operation and coded as F for a failed business. The remaining businesses maintained continuous business operations since 2012 and were coded as an S for a successful business. The contact information for the businesses was obtained from the Beckley Chamber of Commerce annual member directory.

There was a total of 27 successful businesses and 38 failed businesses identified. The contact information, and applicable coding for each business was included on the list. As each entrepreneur was identified from the sample, the researcher telephoned the prospect to invite him or her to participate in the study. The researcher verified, via telephone introductions, that the person was the owner of the business and confirmed their eligibility to participate in the study as specified in the eligibility criteria found in the informed consent form.

Six businesses from each sample population were invited to take part in the interviews. From the successful businesses contacted: two did not answer at the contact phone number, and three did not want to participate in the interviews. Six individuals from the successful business population agreed to participate in the interviews. From the failed businesses contacted: four did not answer at the contact phone number, 12 phone numbers were disconnected, and one did not want to participate in the interviews. Six individuals from the failed business population agreed to participate in the interviews.

The participants were scheduled for interviews in person. Each successful business participant was interviewed in their office in their place of business. Each failed business participant was interviewed in the private meeting room located in the public library in Beckley, WV. The door was closed in each venue in effort to maximize privacy. There was no difference observed by the researcher in the responses of the participants between the venues.

The researcher interviewed the participants in
various locations in Beckley, WV. The locations included the meeting room in the public library and the office of each participant in their individual place of business. The average length of each interview was 45 minutes. All interview questions received a reply from all participants. The reply length varied in time and technical detail. The shortest interview was 39 minutes. The longest interview was 63 minutes. Seven participants expressed their hope that their replies were providing relevant information. The researcher reassured the individuals that there was no right or wrong reply and all information is beneficial to informing the study. The venue of the interviews had minimal disruptions, which included telephones ringing and the sound of traffic outside. Ambient noise included the sound of cooling systems operating in the venues. A clear digital audio recording of each interview was captured on the iPhone and stored securely in the iCloud of the researcher. There was very little background noise. There was no technical issue encountered.

Interview questions 1, 2, 3, and 4 asked of the participants provided demographic data for each of the businesses. The following table provides demographic data about each business type (Successful or Failed), number of employees, years in operation and the average annual sales at time of data collection.

The researcher analyzed the interview transcripts by using the modified van Kaam method.

### Demographic Data

<table>
<thead>
<tr>
<th>Business Type</th>
<th># of Employees</th>
<th>Years in Operation</th>
<th>Industry</th>
<th>Average Annual Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>12</td>
<td>5</td>
<td>Restaurant</td>
<td>$500,000</td>
</tr>
<tr>
<td>S2</td>
<td>44</td>
<td>5</td>
<td>Agriculture</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>S3</td>
<td>32</td>
<td>5</td>
<td>Engineering</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>S4</td>
<td>32</td>
<td>5</td>
<td>Restaurant</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>S5</td>
<td>8</td>
<td>5</td>
<td>Health Services</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>S6</td>
<td>12</td>
<td>5</td>
<td>Pets</td>
<td>$400,000</td>
</tr>
<tr>
<td>F1</td>
<td>5</td>
<td>2</td>
<td>Cleaning service</td>
<td>$100,000</td>
</tr>
<tr>
<td>F2</td>
<td>8</td>
<td>2</td>
<td>Restaurant</td>
<td>$80,000</td>
</tr>
<tr>
<td>F3</td>
<td>2</td>
<td>2</td>
<td>Financial services</td>
<td>$40,000</td>
</tr>
<tr>
<td>F4</td>
<td>5</td>
<td>2</td>
<td>Retail Clothing</td>
<td>$35,000</td>
</tr>
<tr>
<td>F5</td>
<td>7</td>
<td>1</td>
<td>Restaurant</td>
<td>$45,000</td>
</tr>
<tr>
<td>F6</td>
<td>2</td>
<td>2</td>
<td>Personal Services</td>
<td>$30,000</td>
</tr>
</tbody>
</table>
method of data analysis. Using the analysis steps, as described by Moustakas (1994), the researcher created a descriptive summary of the phenomenon, which represented the entire population of successful business participants in contrast to the failed business participants.

Results

The phenomenological analysis process provided a method to capture the individual textural-descriptions of each participant and to apply equal value to the relevant statements addressing the interview questions. The interview transcript documents were entered into ATLAS.ti project files and then coded by inVivo. The data was interrogated by codes across documents in the project files.

To facilitate triangulation, field notes were made by the researcher during each interview. The notes included the personal observations of the researcher of each participant as they answered each question. Triangulation resulted from comparison of field notes taken of these observations and the interview transcripts. Trustworthiness of the data was accomplished via triangulation of field notes and the interview transcripts. The field notes were compared with the interview transcripts to identify emerging themes that existed in the data collected from both methods.

The phenomenological reduction was achieved through Microsoft Excel and Atlast-ti software. A file was created for each participant with coded information. Coding allowed similar answers from the participants to be grouped for analysis. Throughout the interviews, biases were set aside to enable participants to feel comfortable sharing their lived experiences of the phenomenon during which Moustakas defined as the epoche (1994).

Clustering enabled the researcher to group the participants’ answers to interview questions into clusters of related themes. This reduced the lived experiences to essential invariant structures or the nuance of the experience of owning a small business in Beckley, WV. Elimination and reduction allowed the researcher to identify whether answers were relevant to the lived experience. The researcher assembled, for each participant, the textual descriptions of the experience to reveal nuance and meaning.

From the textural descriptions, the invariant constituents provided the emerging theme of community involvement, and participation. The interview questions were focused on the lived experiences of each participant and how they may have contributed to failure or success in small business. Below are the three research questions, which guided the study and supported the central research question: How does social capital affect the longevity of owner-operated small businesses in Beckley, West Virginia?

Research Questions

Question 1 asks How does the research improve the organizational practice of small business?
In this question, the objective was to bring the participant back to the lived experience of the opening and operating their business. The preparedness of owners to be successful in managing a small business was evaluated by asking interview questions related to education, perceived strengths, weakness, threats, and opportunities. The interview questions 5, 6, 9, 10, 11, and 12 tie back to research question 1 by collecting data pertaining to how each participant organized the practice of operating their small business. All successful businesses felt they possessed adequate education to operate their business. For the successful businesses, 100% of the owners felt they possessed sufficient experience to be successful in their business. Also, the majority of failed business participants (67%) felt they lacked the necessary education and experience to navigate the challenges of their business. No common pattern was identified between industries in relation to the perception of preparedness.

Question 2 asks How can the knowledge from this research reach and influence entrepreneurs in Beckley, WV? In this question, the objective was to determine how the influence of the lived experiences of the participants can be applied to other businesses in Beckley, WV. The participants were asked interview questions related to how they would have done things differently during the first year of operating their business; reasons why their business closed or has remained a success, and the feeling of why small businesses are either successful or not successful in Beckley. The interview questions 17, 19, and 20 tie back to research question 2 by collecting data related to the recommendations and reflections from each participant on achieving success in small business. The majority of both successful and failed businesses provided similar responses to interview question 17 which indicated they sought but did not find published information on operating a successful rural business prior to opening their business. The responses indicated that the knowledge gained from this research could have influenced entrepreneurs in Beckley, WV. Less than 50% of the failed businesses felt additional knowledge could be gained from this study. No common pattern was identified between industries in relation to the influence of this study.

Question 3 asks How can the research improve the economic prospects of small businesses operating in Beckley, WV by increasing the longevity of owner-operated small business? This question challenged the participants to reveal their knowledge of social exchange and the perceived contribution to small business success. The interview questions 7, 8, 13, 14, 15, 16, and 18 tie back to research question 3 by collecting data related to the participant’s understanding of and utilization of social capital to enhance their success. The majority of successful business participants indicated that social exchange is important to longevity. No majority resulted among the failed business participants (50%). No common pattern was identified between industries in relation to the influence of this study.
Evaluation of the Findings

The systematic techniques of qualitative research were applied, which were described by Lewins and Silver (2014). The manual review was compared by the researcher to the software output. The comparison enabled the researcher to address any jargon used by the participants which the software may have misinterpreted. Similar themes and words were grouped into clusters by the researcher by employing three processes: using the modified van Kamm method of analysis (Moustakas, 1994), output from ATLAS.ti software and a manual study of the transcripts. The resulting lived experience stories of the participants were clustered and provided the theme surrounding the phenomenon of social exchange theory. By review and comparison of recorded interviews and transcripts, the researcher confirmed consistency between the two. The textural-structural descriptions of the participants provide a “composite description of the meanings and essences of the experience, representing the group as a whole” (Moustakas, 1994, p. 121). Three emerging themes resulted from the qualitative analysis and provided the composite descriptions for this study. In chapter 5, an analysis and discussion of the three emergent themes are provided. The composite descriptions of the three themes are as follows:

1. Successful business participants used social capital and exchanged value with their customers: Small businesses in Beckley, WV that have operated continuously since 2012 indicated in their interviews that they engaged their communities by a variety of activities and they fostered an exchange of value between the customer, community and the business.

2. Dominance in local industry: In contrast to the failed business participants, successful business participants indicated they had little or no local competition.

3. Preparedness for small business: The failed business participants indicated that they lacked the experience to be successful in their business. The successful business participants indicated that they continued to seek out information to improve their businesses.

Implications, Recommendations, and Conclusions

The majority of successful business participants indicated that social exchange is important to longevity. The owners of successful businesses were leveraging social capital even though they had not assigned that label to their activity prior to the interview. Each business invested in their community by sponsoring the sports teams of local schools, donating goods or services to local charities, and participating in local initiatives such as United Way. All owners
shared that they received local media coverage of their investment in the community, which they felt important to maintaining existing social relationships with customers, and they also felt created new business. Their answers relate to the existing literature which contains a study published by Wei-Hin et al. (2014). The conclusion of that study was that not all small businesses fail to use strategic planning tools. For example, the successful owners of small businesses exhibited a form of strategic planning with environmental scanning.

There was no consensus among the failed business participants. Less than half of the owners of the failed businesses had participated in local events or charities. They did not mention receiving media coverage for their participation. The remaining owners provided answers which inferred they felt they could not spare time or money to sponsor local teams, or to donate goods or services to charities. Their answers contract with the existing literature which contains a study published by Warfield & Glover (2011) in which they conclude that the lack of planning leads to loss of customers and failure to match up to competition. Furthermore, the small businesses that lack organizational goals have the likelihood of existing for only two to three years (Valdiserri & Wilson, 2010).

The answers of all participants developed the emerging theme of - successful business participants used social capital and exchanged value with their customers. Small businesses in Beckley, WV that have operated continuously since 2012 indicated in their interviews that they engaged their communities by a variety of activities and they fostered an exchange of value between the customer, community and the business.

**Recommendations for Practice**

The study of management theory continues throughout the world. However, there exists a gap in existing literature on how best to position a small business for success in rural America. Much of the literature reviewed for this study was from rural communities in countries outside of the United States. This is due to the relative lack of existing literature on rural small business success in America.

The focus of this research, social exchange theory, may be applied to small businesses in rural settings. The successful businesses in this study were able to effectively leverage social capital to enhance their longevity. Urban businesses serve a mobile population aided by mass transit and larger numbers of alternative businesses. For example, the sponsorship of a little league team has a compelling impact on social exchanges in a rural setting when compared with the urban setting.

Entrepreneurs would benefit from the findings of this study on the topic of preparedness. It was discovered that successful small businesses sought published information on rural business success prior
to embarking on their new businesses. Most of the owners of successful businesses also received training on their particular industry prior to opening their businesses. The successful owners also conducted informal environmental scans to assess their strengths, weaknesses, opportunities and threats.

**Recommendations for Future Research**

This study focused on small businesses in Beckley, WV and how social exchange theory contributed to their longevity. Additional research on small, American rural businesses could better inform future entrepreneurs by providing them with documented success and failure stories which can be applied to their small business. Future researches may improve upon this study by engaging in a quantitative study of rural small business and applying it to other existing management theories.

**Conclusions**

The purpose of this qualitative study was to explore the relationship between social capital and the failure or success of twelve owner-operated businesses in Beckley, WV. Participants were sourced from the local business community. The answers provided by the participants addressed the problem of the high fail rate of small businesses. The findings of the study are important because the application of social exchanges is shown to increase the longevity of small businesses in Beckley, WV.

With respect to previous research, the results of this study add to the existing framework for social exchange which is defined as the theoretical approaches which place emphasis on resource exchanges between people. The social exchange framework is of importance to the understanding of the development of relationships, satisfaction derived from the relationship and its future stability (Yanamandrama & White, 2012).
REFERENCES


THINK ABOUT IT: USING CRITICAL REFLECTION AND SERVICE LEARNING TO DEVELOP ENTREPRENEURIAL LEADERS

Amanda Evert, Jonna Myers and Jace Zacharias

ABSTRACT

Today's marketplace demands leaders who are equipped with critical thinking abilities, tech savvy, creativity, and entrepreneurial prowess. However, studies show that college graduates, and more specifically business graduates, do not always enter the workforce fluent in these skills. Thus, this paper addressed a specific assignment in which business students of different classifications, emphases, and ability levels were tasked with a service learning project. Following the project, each was asked to critically reflect on how the learning experience shaped their understanding of leadership, service, and professional development. The emergent themes revealed important information about students’ perceptions of their own development as entrepreneurial leaders.

KEYWORDS: Service Learning, Critical Reflection, Perceptions of Leadership, Business Education

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Introduction

As the marketplace continues to demand entrepreneurial leaders, higher education faculty members and administrators are looking for unique ways to cultivate critical thinking, career preparedness, and field-specific expertise in their students (Niehm, Fiore, Hurst, Lee, & Sadachar, 2015). Educational scholars have linked post-graduate professional success to endeavors like service learning (Butin, 2003; Bringle & Hatcher, 1996), innovative engagement (Boyer, 1990), and experiential learning (Hawtrey, 2007) in the classroom. Still, questions remain about the best ways to engage students in meaningful work that yields entrepreneurial acumen.

This qualitative study revolves around a project involving undergraduate business students, a service learning activity, and critical reflections strategically crafted to help students communicate their perceptions of the learning experience. We sought to better understand how our students perceive the concept of leadership, and how those perceptions might be sharpened or challenged through a service learning project. Additionally, we were interested to see how
our students communicated how this learning experience might influence their future professional goals and how they apply these concepts in the workplace.

At the end of the project, several themes emerge regarding students’ perceptions of service learning and leadership. Additionally, we draw several important conclusions about critical reflection from the qualitative data that students submit. In summary, this article shares important insight into the aforementioned themes, as well as a roadmap for a service learning project and subsequent critical reflection that can be incorporated into business curriculum.

In the creation of this assignment, we were intentional about incorporating a service learning element, then having business students reflect critically on their perception of leadership as they perceived it during the service learning activity. Since each of these concepts play an important role in the methodology that was used for this study, as well as the interpretation of the qualitative data, it is important to first establish a common understanding of service learning and critical reflection.

**Service Learning**

Service learning is a type of experiential education that combines classroom instruction with organized service to the community (Ash & Clayton, 2004). Typically, service learning is marked by an emphasis on civic engagement, reflection, and application of learning (Bringle & Hatcher, 1996). In recent decades, service learning has gained significant notoriety in business education literature as an effective way to incorporate hands-on business training with real needs in the community (Li, Kung, Tsai, Liu, & Lu, 2018; Kwong, Thompson, & Cheung, 2012).

Service learning appeals to institutions of higher education because “virtually all universities are interested in committing their resources to develop effective citizenship among their students, to address complex needs in their communities through the application of knowledge, and to form creative partnerships between the university and the community” (Bringle & Hatcher, 1996, p. 236). Devnarain and Naidoo (2009) contends that higher education can only produce real social and academic development through the facilitation of “multidisciplinary-holistic planning, management and implementation of service learning programmes” (p. 950).

Additionally, the higher education classroom is an ideal place to facilitate opportunities that join service learning, community needs, and business skills applied to the field (Howard, 1998). The connection between service learning and academic instruction “provides a dynamic opportunity to strengthen student learning in a powerful context where students gain firsthand experience of contemporary economic, social, cultural and political issues, thus demonstrating ethical practice; critical thinking; cross-cultural sensitivity; personal and social development, and, effective communication” (Devnarain & Naidoo, 2009, p. 935-936).
Students and community members are not the only ones who benefit from the inclusion of service learning activities within the business higher education classroom. Faculty members can also reap immense benefits from strategically incorporating service learning. Henson and Sutliff (1998) assert that “integrating service learning into a regular class stimulates both teaching and learning” (p. 201). Devnarain and Naidoo (2009) show how faculty benefit from service learning in many ways including “new pedagogy which inspires innovative teaching methods; areas for research and publications related to current trends and issues are broadened; democratic citizenship and leadership is promoted through a consultative approach, and, awareness of current societal issues increases resulting in academic areas of interest and curriculum design being more context-related” (Devnarain & Naidoo, 2009, p. 938).

Critical Reflection

The role of reflection in the learning process is one that has been explored by educational scholars for nearly a century (Calkins & Harris, 2017; Brookfield, 1995). Dewey (1933) was one of the first to assert that how we think is critically important to understanding the learning process. Later, Freire (1972), Mezirow (1991), and Brookfield (1995) highlight the deeply personal nature of education by encouraging teachers and students to engage in critical reflection. When instructors reflect, it stimulates creativity and models for students for how to approach problems and apply course content to “real life” (Brookfield, 1995).

In his Transformative Learning Theory, Mezirow (1991) emphasizes the significance of critical reflection and what he calls “meaning making.” “To make meaning means to make sense of an experience; we make an interpretation of it” (Mezirow, 1990, p. 1). Later, he defines reflection as “the process of critically assessing the content, process and premise(s) of our efforts to interpret and give meaning to an experience” (Mezirow, 1991, p. 104). “Reflection is the central dynamic in intentional learning, problem solving, and validity testing through rational discourse” (Mezirow, 1991, p. 99). Building on the work of Mezirow, White (2012) adds that the term reflection pertains to both the cognitive process and the broad range of activities that are make up an individual’s experience. “While much of what we know about reflection is rooted in experiential learning, leadership education programs which frame leadership as an experience could benefit from a richer understanding of the role of reflection in students’ learning” (White, 2012, p. 140). Devnarain and Naidoo (2009) contend that reflection is also incredibly useful in helping students to make meaning of service experiences.

Finally, critical reflection is widely viewed as evidence of practitioner competence in professional development practice (Smith 2011). Malkki and Lindblom-Ylanne (2012) assert that reflection is most closely related to developmental change. Mackay
(2013) confirms this notion: “findings indicate that reflection has to have a perceived value to students so that they can enjoy, rather than simply endure, the learning challenge” (p. 651). In conclusion, critical reflection provides a meaningful way for students to process and communicate experiences such as service or learning (Bay, 2011). Thus, critical reflection became not only an exercise for our students to engage in, but also a way for us to collect their data in a way that allowed them time to process their experiences before crafting a summary of them.

**Method**

For this study, we developed an assignment in which business students engaged in a service learning project and then reflected upon the experience. The service learning project involved working with students from a local high school to develop corporate social responsibility (CSR) project ideas for local businesses.

Prior to the day of the event, we worked with counselors at local high schools to establish a date where high school students could be transported to the university. During the weeks leading up to the event, we emphasized CSR in two different classes—*Intro to Business* and *Business Communication*—as well as group facilitation, sales skills, and professionalism. All business students understood that the event, titled the Bulldog Networking Showcase, was intended to be an opportunity for them to apply what they have been learning and as a recruitment tool for the university and the school of business.

On the day of the Bulldog Networking Showcase, we sorted business students into pairs. These pairs each facilitated a focus group with a small collection (approximately 5-8) of high school students about the definition of CSR and their understanding of how CSR is occurring within their communities. Then, the business students guided high schoolers in the design and development of a CSR project that could benefit local businesses and communities. After the teams had substantial time to collaborate and create, one high school student from each team shared a “pitch” communicating to their classmates and collegiate “mentors” about the merits of their project proposals.

**Participants**

For this qualitative study, 75 undergraduate business students were invited to participate. Of those 75 who were invited, 47 agreed to participate. Thus, this purposive sampling strategy yielded a sample rate of approximately 63%. The composition of this group includes business majors (85%), engineering majors (11%) and computer science majors (4%), who are classified primarily as freshmen (28%) or sophomores (64%). Additionally, the predominant majority of the students in this group (98%) would technically be categorized as traditional college students based on the definition proposed by Pelletier (2010).

**Questionnaire**

Participants were given a list of 14 open-ended ques-
tions, adopted from the work of Rocco and Torrez (2015). The questions encourage students to reflect critically upon specific aspects of the learning experience including if and how their understanding of leadership changed as a result of the project, behaviors and traits of leaders, and how they will apply this experience to their future endeavors. White (2012) contends that “students perceive a deep connection between leadership learning and reflection” (p.147). Therefore, these critical reflection questions were strategically selected to elicit qualitative responses that revolve around the notion of leadership and how it is manifest in different scenarios, i.e. this service learning experience. Questions were proposed to gauge students’ perceptions of leadership throughout the activity and how they intend to apply what they experienced in future professional settings.

**Theme Analysis & Limitations**

After the Bulldog Networking Showcase was completed, the critical reflections were collected and analyzed for common themes using NVivo qualitative research software. Theme analysis is “a respected and well-established, widely-used method of qualitative analysis” (Boje, 2001, p. 122). Theme analysis is popular in large part because it affords researchers the opportunity to share the stories of participants in both inductive (emic) and deductive (etic) ways to construct a grand narrative (Mott-Stenerson, 2008; Zald, 1996).

It is important to also acknowledge limitations for theme analysis. Meier and Bolvin (2000) identify four limitations that could apply to this study:

1. It is difficult to guarantee that the data from which themes are drawn is an accurate representation of the feelings and perspectives of the participant, or rather a reflection of earlier discourse regurgitated.
2. Complete adherence to a consistent coding structure is nearly impossible.
3. Findings are not generalizable.
4. Theme analysis is taxing and labor-intensive.

Thus, these potential limitations should be taken into consideration when reviewing the findings of this study. While efforts were made to triangulate the data, using multiple researchers and a graduate student, as well as the use of software that consistently analyzes all of the data in its entirety, these limitations may have some influence over the outcomes purported here.

**Discussion of Themes**

The theme analysis yielded several theme. The two prevalent themes that emerge from the qualitative data include a clearer understanding of leadership in practice and specific behaviors demonstrated by leaders (namely delegation, power sharing, and positive verbal communication).
New Understanding of Leadership

One of the most prevalent themes that emerges from the qualitative data obtained in the critical reflections includes the perception of a clearer understanding of leadership following participation in the Bulldog Networking Showcase. Some of the data that highlights this theme include:

“Before this project I didn’t much about leadership, but it turns out that what I thought I knew was wrong.”

“I originally thought that I could just lead the team by answering their questions and helping put their thoughts into words as they presented their idea to the rest of the room. I learned that leading a group is much more than that.”

“This particular project led me to some soul searching as to what it really means to be a leader.”

“My view of leadership has changed in a positive way after the experience.”

“My view of leadership changed after this experience because we learned that appearing cool to others or being the loudest does not make you a leader.”

“I learned so much about what being a leader consists of and I’m grateful to this project for wiping away all of my past assumptions and fear of being a leader.”

This data aligns with much of the scholarship that has been published within the last decade regarding leadership education. For example, Bolden and Gosling (2008) contend that before students can begin to understand and apply their knowledge of leadership in social and contextual situations, they must first understand the personal. Similarly, Steffens, Mols, Haslam, and Okimoto (2016) assert the importance of individuals self-identifying their values and perceptions of leadership before they can truly champion collective interests. Thus, one important outcome of this study is the fact that many business students left with a greater awareness of their misconceptions and erroneous assumptions about the nature of leadership.

Behaviors of Leaders

A second theme that emerges frequently across the data is the recognition and “naming” of specific behaviors that students associate with leadership. Among the specific behaviors that are emphasized in the critical reflections, the three that are mentioned most regularly include: delegating tasks, sharing control, and verbally communicating positive feedback. Those sentiments are evident in the following comments from the business students’ reflections.

Behaviors of Leaders: Delegating Tasks.

“A second way that [leaders] can empower others is by making sure that everyone has something to do. This is another way to show that they are vital, a part of the team, and not someone who is just sitting there.”

“There are a few things that I will definitely do in my next group leadership experience. I will make sure that everyone has a job or role, and knows how to execute them correctly. Making sure that everyone has something to do is very important to me.”
Behaviors of Leaders: Sharing Control.

“I saw that a leader would make suggestions, but would also take suggestions and see how to make them fit into the plan. I saw that leadership isn’t about being “the boss” but being able to work with everybody and organize all the ideas.”

“Even though I was the group leader I sat back and gave the floor to them and gave advice rather than try to make all the plans and do all the talking… Overall from the event, I learned how to be more of a listener and a guide instead of being in control.”

“I will try to let the people I am leading know that they are the main voice.”

Behaviors of Leaders: Verbal Communication.

“One thing I could do to empower others is to make sure everyone feels they have a say in what is going on. Instead of telling the group how things would go, letting them come up with their own ideas can empower them greatly.”

“Whether it’s telling them ‘that’s an excellent idea’ or ‘you did a good job’ both can empower group members.”

“I saw how students gave more details when I showed interest in what they were saying. Therefore, just asking questions is not enough to be a leader. I believe that a leader should smile, make eye contact when asking questions and getting answers, be clear, and listen to the team equally.”

The behaviors highlighted by the business students offer a glimpse into their understanding of leadership, while affirming what countless scholars have affirmed over several decades: leadership is often demonstrated by behaviors (Gottfredson & Aguinis, 2017; Wang, Tsui, & Xin, 2011; Burke et al., 2006). Each sub-theme (delegation, power sharing, and positive verbal communication) represents a substantial body of literature.

In her recent study of 75 mid- to senior-level organizational leaders and 188 followers, Anthony (2017) finds that the behaviors of leaders can have a tremendous impact on the attitudes and behaviors of followers. She contends that leadership is positively associated with constructive leadership behaviors such as delegation and less close supervision, i.e. power sharing (Anthony, 2017). “Leaders who provide their followers with individualized consideration are more likely to engage in more delegation and less close supervision leadership behaviors” (Anthony, 2017, p. 936).

Li and Qi (2015) interviewed 311 subordinates employed in 16 branches of a large telecommunications firm about a range of topics including engagement, organizational culture, and their views of tradition. They find that “supervisors’ power sharing enhanced subordinates’ task performance via the mediator of work engagement” (Li & Qi, 2015, p. 767). These findings corroborate the work of Chen, Zhang, and Wang (2014) who find that power sharing has an influential effect on subordinates’ task performance. They assert that power sharing is a way of empowering subordinates (Chen, Zhang, & Wang, 2014). It should be noted that though the participants in this
study have not been exposed to this literature, several
of them used the language of “empowerment” in their
critical reflections.

Conclusion: Our Own Critical Reflection

As faculty members who interact with these
students on a daily basis, we were pleasantly surprised
by the candor with which students wrote about this
assignment, their prior misconceptions about leader-
ship, and their explicit plans to incorporate the things
they learned during this activity into their professional
aspirations. Initially, when the critical reflection com-
ponent was built into the assignment, we feared that
students might bypass their own thoughts, feelings,
and assumptions, and proceed immediately to writing
the “right” answer. However, we found the opposite
to be true: the quality of their responses indicates that
the students thoughtfully considered their role in the
experience and sought to apply their learning to future
versions of themselves. In summary, students seemed
to engage in meaningful ways when asked to do so via
critical reflection.

Additionally, on the day of the Bulldog Net-
working Showcase, students modeled the behaviors
as they had been trained and equipped to do in their
formal class settings. The service learning project
afforded us the opportunity to facilitate scenarios in
which participation was not optional. This real-world
application is something that students recognized im-
mediately at the day of the event, and have remarked
on since that time. As De la Rosa, Alegre, and Angulo
(2014) contend: application reinforces learning. We
found this to be true with the Bulldog Networking
Showcase as well.

Suggestions for Future Research

This study leaves a myriad of questions, which we hope
to explore in future studies. The data yielded in this
particular study demonstrates an interesting relation-
ship between service and one’s understanding of leader-
ship. It would be interesting to see if, and how, the re-
ponses would change if these elements were separated.
For example, how might students reflect on concepts
like power or ethics rather than leadership? Conversely,
would students’ perceptions of leadership remain the
same if they were answering the same questions after
a guest speaker’s presentation or attending a career
fair? How do these variables (service learning and lead-
ership) influence each other?

A second area which needs additional attention is the
role of critical reflection across the business curriculum
in higher education. How does reflecting upon the
concepts and theories explored in business education
influence the professional development of students?
Does critical reflection help them to apply what they are
learning in ways that are more meaningful that a test or
a paper? This avenue may yield important implications
for the field of business education.
REFERENCES


Developing nations lack the small and medium enterprises (SMEs) that drive job creation and innovation. To make matters worse, their business environments make it difficult for entrepreneurs to succeed. Entrepreneurship training is not enough to overcome the obstacles. What is needed are comprehensive programs that inspire, equip, and support aspiring entrepreneurs. This paper describes the design, implementation and results of such a program in Rwanda.

Entrepreneurship and Economic Development

Since David Birch (1987) published his work concluding that small businesses create the most jobs, many studies have addressed the issue with conflicting results. Using the National Establishment time series data, Neumark, Wall & Zhang (2008) concluded that, while the effect is not as large as Birch found, it is still unmistakable. Regardless of the relative number of jobs created by firms of different sizes, small businesses clearly create many jobs.

Not only do small businesses create jobs, they are also responsible for major innovations. Christensen (1997) found that large companies rarely introduced the latest technologies, because, in their infancy, these new technologies could not meet the needs of the large company’s customers. It fell on small com-
panies to develop the new technology (Nelson, 2004). These innovative small businesses are not uniformly distributed across the globe. According to Kushnir, Mirmulstein, & Ramalho (2010), the density of Micro, Small, and Medium Enterprises (MSMEs) is positively correlated to per capita GDP. It should come as no surprise then that Sub-Saharan Africa has the lowest density of MSMEs of any region in the world (Kushnir et al., 2010). Developing nations, such as those in Sub-Saharan Africa, need more MSMEs to increase jobs and income (Bee, 2004).

Given the importance of small business to create both jobs and innovation, the entrepreneurs who conceive and launch those small businesses take on great importance to an economy. Without a sufficient supply of such entrepreneurs, an economy cannot reach its potential (Wennekers & Thurik, 1999).

Ease of Doing Business is one of many factors that affect the supply of entrepreneurs and their effectiveness at starting and growing businesses (Aidis, 2005; Arinaitwe, 2006). The World Bank ranks countries by Ease of Doing Business, which correlates positively with income—that is, ease of doing business increases with increasing per capita GDP. Despite the obstacles to doing business in developing nations, the MSME gap represents an opportunity for both governments and entrepreneurs (Schlog, 2004).

This paper focuses on developing entrepreneurs in Rwanda, one of the poorest countries in the world. According to The World Fact Book (2017), Rwanda ranks #208 of 228 in GDP per capita. To attract and stimulate business, Rwanda is taking intentional steps to improve its business environment. It improved its World Bank Doing Business In ranking from #150 in 2008 to #29 in 2019 (World Bank, 2007, 2018).

Programs to Develop Entrepreneurs

There are many approaches to developing entrepreneurs. Programs differ by the way they combine training, mentoring, coaching, networking, incubation and accelerator spaces and services, and investment (Valerio, 2014). Some specialize by the type of entrepreneur they target—aspiring, novice, experienced. Others specialize by industry, growth potential, or stage of development. A program’s niche depends on its goals, expertise, and resources.

Regent University Center for Entrepreneurship (RCE) gears its approach to preparing and nurturing entrepreneurs to start and grow ethical businesses that have the potential to transform a nation. Consequently, we focus on developing small and medium enterprises (SMEs) rather than micro-enterprises, which provide for a family but rarely generate significant jobs per firm (Karnani, 2007). We target emerging leaders who have shown a desire to start and grow businesses that will benefit their families, communities and nation. We provide comprehensive training and support to help fledgling entrepreneurs succeed in a challenging environment.
BDC Rwanda: Background

The BDC concept that RCE prototyped in Rwanda in 2010 arose from a 2007 Symposium hosted at Regent University. Founders of twelve organizations that train entrepreneurs in more than forty developing nations gathered to discuss best practices of their training programs. The takeaway from the discussions was that training by itself would not produce many successful businesses in those environments. A more comprehensive program of ongoing mentoring and support was required to help aspiring entrepreneurs overcome start-up obstacles, which tend to be especially severe in developing nations.

A second takeaway was that existing organizations were too occupied with their current programs to attempt an entirely new model. RCE volunteered to develop and test a prototype.

Fortuitously, the International Christian Chamber of Commerce (ICCC) approached RCE in 2008 with a partnership proposal for such a prototype. ICCC had been invited by four African nations to help them develop their economies. RCE and ICCC evaluated the four nations and chose Rwanda as having the most potential for a successful prototype, because the government strongly supported entrepreneurship and was improving its business environment through business-friendly policies, laws, and institutions. ICCC signed an agreement with the government of Rwanda in 2008 to establish a Business Development Center in Kigali, the capital, with RCE as the operating partner.

After two years of planning, curriculum development, and recruiting, BDC Rwanda was launched in August 2010 with a cohort of 42 aspiring entrepreneurs.

As of July 2018, more than 350 entrepreneurs have graduated from BDC Rwanda’s 14-week training program. About half of the graduates have active businesses. Some are small, employing a few people to serve a local market, while others are multi-million-dollar businesses operating internationally.

Graduates are active across the spectrum of industries in Rwanda, because the BDC encourages all the entrepreneurs in the program to follow their passion, rather than seek our guidance as to the most promising industries. The program provides entrepreneurship basics that have been equally applicable to a wide range of businesses, including small farms, retail shops, software development firms, construction firms, and major energy generation projects.

Graduates say the BDC gave them the confidence, skills, and vision to pursue their passion—starting small but growing significant businesses. This was true of both inexperienced entrepreneurs and seasoned business owners.

Paniel Meats was started by a man in his early twenties who credits store operators from Chick-fil-A, in Rwanda on a BDC-sponsored visit, with believing in him and instilling the confidence he needed to launch his pork sausage business. He was soon producing and delivering 1,000 kg. of sausage weekly to local restaurants, hotels and supermarkets. Now, a few years later, he is developing the value chain for meat in Rwanda.
He provides young animals, feed, medicine and veterinarian services to small farmers, advises them on growing healthy animals, purchases the grown animals, and transports and sells them in urban markets. He shares the profits with the farmers, most of whom have never had a cash crop.

Africa Medical Supplies was founded by a successful pharmacy owner. His award-winning business concept was rapid diagnostic tests kits for 30 diseases. Upon graduation, he won the national contract for HIV/AIDs testing in Rwanda. But the BDC program prepared him to continually expand his vision. He now provides both test kits and medical equipment to hospitals and clinics throughout Africa.

The program that helped produce these results grew out of years of experience and research. The program’s co-authors have trained and observed entrepreneurs in dozens of developing nations over the past twenty years. They have researched entrepreneurship in those and other developing nations, including several in Africa (Kiggundu, 2002; Ladzani & van Vuuren, 2002). The program has also gone through a continuous improvement process since its launch in 2010. Below, we describe the program design and the lessons we learned from its implementation in Rwanda.

**BDC Program Design**

From spring 2008 through spring 2010, RCE researched entrepreneurship programs, brainstormed curriculum ideas, and discussed our evolving plan with ICC and several colleagues who had participated in the 2007 best practices symposium. We applied the best practices we learned over the years to our objective of preparing and equipping transformative entrepreneurs in Rwanda. We built the curriculum on several foundational principles, which are captured in our philosophy of developing ethical entrepreneurs (Morris et al., 2013).

**Philosophy of Developing Entrepreneurs**

**Train the Whole Person.** We are preparing the whole person—heart, head and hands—to Be, Know, and Do. The heart is the internal guidance system that decides what is worth pursuing and the right and wrong way to pursue it. The head is the intellectual store of knowledge about anything that is relevant to the business. The hands represent the skills that enable the entrepreneur to put his ideas into action. Each one of these must be fully developed if we are to achieve our goal of developing ethical entrepreneurs. A heart of integrity ensures that this highly proficient entrepreneur stays tuned to ethical goals and methods. A well-developed head ensures depth and adaptability in a changing environment. Well-developed hands ensure that the ethically-motivated, well-thought-out ideas are implemented efficiently and effectively.

Our goal is to equip ethical entrepreneurs to produce life-improving products and services in a way that benefits their communities. We believe that
businesses that prioritize their customers and employees will not only do the most good, but they will be the most financially successful. We want to prepare entrepreneurs who have a passion for business and who expect to flourish and prosper by treating people well.

The ideas that you can prosper in your passion, and that you can do well financially by doing good and being honest, are not often taught or experienced in developing nations. For one's beliefs, attitudes, or values to change, one must be challenged to examine oneself, offered an alternative perspective, and given the opportunity to “try it on”, to see how it fits in discussion and action. Discussion of an ethical issue among trusted colleagues who may differ in their views can stimulate reflection and examination.

The Word of the Day provides a forum for such discussions at the beginning of every class session. We discussed words that characterize successful, ethical entrepreneurs, such as, inquisitiveness, courage, humility, etc. In addition to these discussions, we designed activities that stress one's character—e.g., time pressure, temptations to bend the rules to win, etc. When the pressure elicited lapses in judgment or character, we treated it as a teachable moment. The BDC program plants seeds that we hope will grow as the entrepreneur grows.

Provide Self-directed, Action Learning. If we are going to achieve the goal of graduates starting and growing SMEs, we must produce highly competent entrepreneurs—people predisposed to action and equipped to succeed when they act (Morris et al., 2013). Entrepreneurs are inquisitive, action-oriented innovators. By nature, they want to be in control of their lives, including their learning. Our training program targets people who have demonstrated entrepreneurial potential. It facilitates the development of that potential through self-directed, action learning (Cope & Watts, 2000).

Historically, teachers conveyed truth about a subject and students “learned” it. Modern pedagogy recognizes the advantages of problem-based learning, in which learners are responsible for articulating the relevant questions about a problem and finding answers through self-directed, facilitator-guided research (Tan & Ng, 2006).

This method is especially effective for developing entrepreneurs, because it exercises some of the most important traits of an entrepreneur. Entrepreneurs visualize where they want to go and then figure out a way to get there. Following someone else's path of logic or memorizing existing facts both work against invention and innovation.

Self-directed learning is especially challenging for people who have been educated in developing countries where “teacher conveying knowledge” is the exclusive model. Students memorize what the teacher says and never question it. The BDC program is intentionally designed to reprogram this type of learner to realize that it is OK to question received knowledge and wisdom. Even the least experienced entrepreneur
has valuable ideas and insights that are worth sharing. For these reasons, we call the enrollees in the program entrepreneurs, or aspiring entrepreneurs, rather than students, regardless of their level of experience in starting or running businesses. This may sound like trivial semantics, but it sends a powerful message.

Entrepreneurs are doers. To develop true entrepreneurs, the BDC program must involve action—both in class and outside class (Cope & Watts, 2000). The program incorporates action-learning activities in class and schedules periods of fieldwork after every content module to provide opportunities for the entrepreneurs to practice what they are learning. For example, in the marketing module they learn customer acquisition techniques and practice them on their classmates. During fieldwork they try to acquire real customers for their product or service.

The culmination of the program is purposely oriented toward doing. Rather than present a “business plan” at the end, they “present their business”. We encourage them to start the business before graduation. Even if their business is still on paper, their mindset is presenting the business as if it is operating, not as something hypothetical.

Provide Business Basics to Support a Lifetime of Just-in-Time Learning. Our core training is designed to provide entrepreneurs the foundation on which they can build their careers and businesses. It focuses on the basics of business that apply to a business of any size. Our expectation is that most graduates will start small. They will have few employees, use simple technology, and start with a small amount of capital raised through informal networks. In the core training, we do not spend time on sophisticated technology or complex systems to manage large organizations.

Our core training provides a framework of business that fits businesses of any size and level of complexity. It presents foundational principles that apply to any industry or country. Its critical thinking approach prepares learners to ask the right questions and gather information to answer them. Graduates will then be ready to learn and adapt not only as their businesses grow and become more complex, but also as the business environment changes. The BDC provides advanced, just-in-time training which graduates of the core program can take when they recognize their need for it. We encourage our graduates to become lifelong learners.

Provide Mentoring, Coaching, and Consulting. No matter how well the training prepares the entrepreneur, everyone needs ongoing interaction, encouragement and advice. During the program, successful executives and entrepreneurs, mostly from other nations, visit the class. They serve as role models of business success with integrity, examples which are often lacking in the lives of our entrepreneurs. Visitors meet one-on-one with the aspiring entrepreneurs, listening to their goals, and providing feedback and encouragement.

After graduation, the need for mentoring,
coaching and consulting continues and may even increase. Many graduates start their businesses solo. During this lonely start-up time they need support and encouragement from people who understand them. Fellow alumni share their experience and expertise as peer mentors. We assign distance consultants who engage graduates by phone and internet to hold them accountable to their action plans, encourage them as they go through trials, and provide consulting advice.

**Program Content (7 Modules in 14 weeks)**

The program consists of seven 2-week modules alternating between the Classroom, where you learn concepts and skills, and Fieldwork, where you apply those concepts and skills. In the first module, you learn the significance of entrepreneurs in growing an economy, and see how your talents, experience and interests may be pointing you toward a significant life as an entrepreneur. In Module 2 (fieldwork), you investigate a business concept that fits your passion and immerse yourself in that industry.

In Module 3, you develop a unique selling proposition (USP), develop a strategy that accounts for the competitive landscape, learn how to acquire and retain customers, and how to price for profitability. Module 4’s fieldwork provides the opportunity to test your USP on potential customers and refine your strategy.

In Module 5, you forecast sales, develop pro forma financials, and design systems to make and deliver what you sell. Module 6 is the time for launch preparations—recruiting a team, lining up suppliers, distributors, customers, etc.—and for honing your business presentation.

By the end of Module 7, you either have launched your business or will launch it soon. Your final exam is an oral presentation and defense of your business.

**BDC Program Delivery**

While the content, organization, and materials of the program are important, the facilitators are the key to the program’s success. This may sound counter-intuitive after we said that entrepreneurs should take the initiative and responsibility for their learning. It is just this fact that presents the challenge to facilitators. Gifted facilitators can greatly enhance an entrepreneur’s learning, but the sign of excellent facilitation is that at graduation the entrepreneur feels he deserves all the credit for what he has learned. The facilitator is almost invisible, or at least seen as incidental. Tracy Kidder (1981) captured this phenomenon beautifully in his classic book *The Soul of a New Machine*.

**Facilitator Role and Characteristics**

In a nutshell, the facilitator’s job is to help aspiring entrepreneurs become successful entrepreneurs. They do this by guiding, pointing, drawing out,
and modeling, more than they do by proclaiming or lecturing (Balan & Metcalfe, 2012; Larso & Saphiranti, 2016).

A good facilitator likes people and cares deeply about helping them succeed; is comfortable leading a group without dominating it; is highly organized and prepared, but flexible to capture teaching moments; has contagious enthusiasm for business and high energy to motivate the class; and has broad business experience.

**Facilitator Training and Manual**

Because facilitation is so key to program success, RCE screened and trained all the facilitators in Rwanda. The facilitator training program and materials are now developed enough for experienced facilitators to use them to train new facilitators.

Facilitators have access to a 500-page manual containing detailed lesson plans for each class period. Every PowerPoint slide that facilitators show in class includes a notes section on how to facilitate that class activity, suggestions on how to handle common problems, comments explaining how that slide fits into the whole curriculum, and language for transitioning to the next slide.

**The Classroom and Class Size**

The ideal classroom can be reconfigured during the class period to accommodate discussions where everyone in the class can see each other, presentations by one person or a team to the whole class, teamwork at tables, and action projects where people are moving around. The ideal class size is 20 to 30. Slightly smaller or larger class sizes can work, but classes with fewer than 15 lack critical mass for teams and discussions, whereas class sizes larger than 35 make it difficult for everyone to get “air time” in discussions and “face time” for presentations.

**Training Schedule**

The program can work with a variety of schedules. The two key parameters are total class hours and total program duration. The 14-week design includes 100+ hours of evening class time—30 hours each for Modules 1, 3, and 5, and 10+ hours in Module 7. Class modules are separated by two weeks of fieldwork.

Weekend programs and daytime programs can work if they include comparable class hours spread sufficiently to allow the fieldwork the entrepreneurs need to absorb and apply the concepts to their businesses. The schedule should include at least three fieldwork periods.
Although the lesson plans do not call for facilitators to be content experts, sometimes they are uncomfortable with certain class material—often accounting and finance. They can invite content experts, such as CPAs or tax specialists for classes dealing with financial issues, to provide technical expertise and knowledge of local regulations and practices.

Visiting executives (VEs) can contribute at any stage of the training. In Module 1, their testimonies about how they developed their businesses can stimulate ideas in the class. In Module 3, VEs can help the entrepreneurs articulate and structure their business models. In Module 5, VEs can help the entrepreneurs solidify their financial projections. In Module 7, VEs can help entrepreneurs prepare their final presentations and act as judges for the competition. During fieldwork modules, VEs won’t be exposed to the whole class, but they can meet one-on-one with the entrepreneurs, helping them move to the next stage in developing their businesses.

Distance consultants and mentors are usually assigned upon graduation to help the graduates execute their action plan for either launching a new business or growing a current business. Some VE’s become ongoing mentors, staying in touch during the year and visiting annually.

Obtaining Facilities

Our government partner, the Rwanda Development Board (RDB), provided office and classroom space in a modern, centrally located building. The classroom had been used by the Senate of Rwanda before they moved to new quarters. We had to emphasize to the aspiring entrepreneurs that they should not spend money on such luxurious facilities when they launch their businesses. We also prohibited use of the microphones at their seats, because their tendency was to speak too softly. Entrepreneurs need to project to an audience.

Recruiting the First Cohort

Working with RDB, we obtained a list of 600 past attendees of government-sponsored short entrepreneurship training seminars. We also obtained lists of alumni from Universities in Kigali, Rwanda’s capital where the BDC is located. Because the government wanted the program delivered in English, we tended to attract applicants with extensive formal education, even though our admission criteria did not require any certificate or degree. Finally, we developed our own lists by holding information sessions in Kigali, advertised through churches, business associations, and by brochures placed in local businesses.
We announced the program in May 2010 and began receiving applications through our website www.bdcrwanda.com. We received more than 100 inquiries and 60 applications—large numbers for a new, unknown program. We attributed the high interest to the general enthusiasm for entrepreneurship in Rwanda—virtually everyone dreams of starting a business—and to our partnership with the Rwanda Development Board.

The first cohort of 42 aspiring entrepreneurs enrolled in August 2010. They ranged from 20-year-old university students to 45-year-old seasoned business owners. Those who weren’t students or business owners were employed in businesses, NGO’s, churches, and government.

One of the business owners, who built a trucking company over twenty years, had helped us arrange several information sessions. We asked him why he enrolled. He said that our information sessions presented many ideas that were new to him, and that he wanted to learn and apply them to his business. Few Rwandan small business owners are so enlightened. Most feel that their business survival is evidence that they know everything they need. They don’t see the value of investing their time and money in learning more about business. Although the training is presented in “start-up” terms, it was very beneficial for helping existing businesses expand.

All enrollees had stories of how the 1994 genocide affected them. One young woman said in her application that she had been the head of her household since age six, taking care of her brother and cousin, because everyone else in her family had been killed. Everyone saw the BDC program as their opportunity to achieve something significant for themselves, their families and their nation. That common bond led to tight, supportive relationships in the cohort, which helped everyone work through the trials of life and obstacles to starting a business.

Fees

We charged 150,000 RwF (about $300) for the training (increased to $500 a year later). We set the fee to attract emerging leaders who were willing to invest in their futures. To pay this fee, one needed at least an entry-level professional income and to sacrifice financially for a time. We gave 100% scholarships to five university students in the first cohort, which was a mistake. Their attendance and effort were significantly below average. After that, we limited scholarships to 50%.

Weekly Schedule

The class met for 3 hours per night, 5 nights a week in two-week blocks, separated by two-week fieldwork periods. That time commitment coupled with the significant fee weeded out those who weren’t serious. Those who persevered (37 of the
initial 42 enrollees graduated) demonstrated tremendous dedication and effort.

**Facilitation**

The two co-authors of the curriculum alternated modules, facilitating the whole program for the first two years (five cohorts)—i.e., each traveled to Rwanda for a two-week block every other month. Although the schedule was arduous, we wanted to see what happened when our curriculum met its first audience and to continuously refine the program to best meet the needs of the environment and our aspiring entrepreneurs. We made many small changes; however, we were somewhat surprised and very gratified by how well the program worked in an environment so different from our own. Our 88% graduation rate dwarfed the 10-20% rate of the only comparable program—run through a local university. Government leaders were amazed that 50% of BDC graduates were running businesses.

Over time, we trained others to facilitate the program. Eventually, we licensed the program to two graduates from the first cohort.

**Visiting Executives**

We created the role of visiting executive (VE) to ensure that the aspiring entrepreneurs would hear from ordinary people like them who had achieved extraordinary success in business by operating with diligence, excellence and integrity. We (RCE and ICCC) recruited accomplished entrepreneurs and executives from our networks in the U.S., Europe, Australia, and Africa who shared our vision and were willing to volunteer their time and travel at their own expense.

The results exceeded our expectations. The VEs bonded with the aspiring entrepreneurs. They spoke into their lives with knowledge, wisdom and encouragement. In addition to interacting with BDC entrepreneurs, VEs shared their expertise with the government and business community. Chick-fil-A operators delivered seminars on leadership and customer service to 110 executives from twenty of Rwanda's largest business and government organizations. A managing director from Goldman Sachs spoke about global capital markets to a gathering of 200 of Rwanda's top business and government leaders, including the presidents of the central bank and all the largest banks in the country.

Our BDC entrepreneurs had the opportunity to network with the business leaders of Rwanda, which fulfilled one of our goals—to create the business network our enrollees lacked, because their families did not have connections to business leaders or because they didn't have families (many were orphaned by the Rwandan genocide of 1994 that killed almost 1 million people in 100 days).
Alumni

We envisioned the BDC as a family—a lifelong connection—and presented it that way to enrollees. Through pre-existing relationships (many BDC entrepreneurs recruited their friends and family to enroll) and friendships built during the 14-week program, alumni stay in touch on both a social and professional level. Alumni help each other with advice and contacts. Some have joined together to start a business. Others are strategic partners, suppliers, or customers of fellow alumni.

While these informal relationships are strong, our attempts to create a formal alumni organization have not been successful. Alumni will convene for annual reunions, but they don’t seem to have the time or interest to develop a formal alumni organization and programs.

Investment

Based on our experience in other developing nations, we purposely omitted investment from our initial program design. If you ask aspiring entrepreneurs what they need, the overwhelming response will be money. Some have said, “If you give me the money now, I won’t take up your time with an entrepreneurial training class.”

We tell inexperienced entrepreneurs that money is the last thing they need. If we loaned them money, they would likely lose it. Both we and they would be unhappy they couldn’t repay. Instead, we tell them to start small, financing their businesses from personal savings, money from friends and family, and advances from suppliers based on contracts.

Once they demonstrate that they can operate a business profitably, even a small one, we are ready to help our BDC graduates obtain financing from a variety of sources. SMEs are notoriously starved for capital, because the traditional sources of investment and working capital are often closed to them (Beck et al., 2008; International Finance Corporation, 2009). Rwanda has established many programs to invest or guarantee investments in SMEs; however, most are targeted to businesses larger than our typical BDC start-up and consist of loans fully collateralized by hard assets, such as land, buildings, and equipment.

To help fill this gap in size and type of investment, BDC Rwanda began sponsoring Investment Expos. The BDC invites investors from the U.S. and other nations to meet and hear presentations from Rwandan entrepreneurs. Any entrepreneur can attend the Expo (500 attended the second Expo), where investors speak about how to prepare your company to attract investment. Those who want to pitch their businesses to investors are pre-screened by the BDC using criteria provided by the investors. The most promising ones are invited to meet the investors.

The first two annual Expos have resulted in several investments but have also revealed a mismatch
between the readiness of the entrepreneurs and the expectations of the investors. BDC graduates have “won” most of the investments, but many BDC graduates and most other entrepreneurs are not prepared to answer the probing questions of the investors and to provide the financial and operational details investors require. RCE is developing a short course to help entrepreneurs get their businesses operationally ready for investment and document that readiness.

Lessons Learned:
Expansion through Licensing

Our experience in Rwanda demonstrated that the BDC program can help talented, aspiring entrepreneurs start and grow successful businesses. We also learned that the program is too intense and demanding for two facilitators from the U.S. to run it as a sideline to their primary jobs.

Personal exhaustion and demand from other nations, once they heard of the success in Rwanda, led us to formalize what we did in Rwanda into a concrete package including an Operations Manual and a Facilitator's Manual and to License the program to individuals or organizations in other countries. We have licensed the BDC in seven countries—six in Africa and one in South Asia—and are talking with potential licensees in a dozen other countries.
REFERENCES


Organizational Spirituality

The topic of spirituality continues to gain traction in academic literature (Benefiel, et al., 2014, pp. 175-176), and it is viewed as benefiting business at the societal, organizational, and individual levels (Moore & Casper, 2006, p. 109). One reason is that people often seek meaning focused on basic and deep-rooted human values and a relationship with a universal source, power, or divinity (Pruzan, 2004, p. 4). A descriptive research survey of 275 individuals, for example, showed that meaningful work, purposeful work, sense of community, and interconnectedness had positive significant impact on employee wellbeing (Ajala, 2013, p. 3). At the same time, there are those who argue an
increase in “spiritual talk” is a controversial issue in organizations seeking legitimacy rather than a genuine commitment to authentic spirituality (Fernando, 2005, p. 2). An attempt is made in this study to report only scholarly research and not popular press or blog resources.

What is Spirituality

So what is “spirituality?” A number of studies indicate that professionals and executives support a relationship between spirituality and organizational commitment (Marschke, et al., 2009, pp. 33-47) and work attitudes (Milliman, et al., 2003, pp 426-447). We should note, however, that spirituality does not mean the same thing in religion as it does in business, nor does it mean the same thing in western and eastern cultures. Spirituality in Western Civilization is characteristically described as an inner experience when someone senses a Beyond (something or someone supernatural) and actively attempts to harmonize life with the Beyond (Clark, 1958, p. 22). It has been defined as an interconnectedness, shared by everyone involved at the work place, triggered by a sense of honesty, kindness and courage (Marques et al, 2005, p. 83).

There are at least three popular views of spirituality: the intrinsic-origin view—spirituality originates from the inside of a person, (b) the religious view—spiritual views about work are specific to individual religions, and (c) the existentialist view—the search for meaning is about what we are doing at work (Krishnakumar & Neck, 2002, pp. 154-156). Other views include the culture of trust, inclusion, and innovation (Daniel, 2010, p. 444), as well as meaningful work, sense of community, and alignment with organizational values (Gupta, et al., 2014, pp. 80-81).

Developments in management theory and practice recommend management can be better understood and integrated through a view of spirituality as the context for purposeful behavior (Pruzan, 2004, p. 1); it also includes compassion, right livelihood, selfless service, meditative work, and the problem of pluralism (McCormick, 1994, p. 6). Other value constructs are managerial affirmation, intrinsic affirmation, personal belonging, co-worker belonging, personal competence, and managerial competence (Fawcett, et al., 2008, p. 429). Longer values lists include ethics, truth, belief in God or a Higher Power, respect, understanding, openness, honesty, being self-motivated, encouraging creativity, giving to others, trust, kindness (e.g., bonding, conviviality, compassion), team orientation, few organizational barriers, a sense of peace and harmony, aesthetically pleasing workplace, interconnectedness, encouraging diversity, and acceptance (Marques, et al., 2005, p. 86). Spirituality also has been related to the values of benevolence, generativity, humanism, integrity, justice, mutuality, receptivity, respect, responsibility, and trust (Jurkiewicz & Giacalone, 2004, p. 131).
Organizational Spirituality and Corporate Culture

The question to be pursued is whether organizational spirituality is related to corporate culture. Corporate culture is the shared training of the mind to differentiate members of one group from another (Hofstede & Hofstede, 2005, p. 28). It is the collection of internal shared values and beliefs that an organization learns as management and employees work together to solve problems. Corporate culture may be thought of as “the taken-for-granted values,” the underlying assumptions, expectations, collective memories, and definitions present in the organization (Schein, 2004, pp. 24-37). It is often a framework of unwritten rules; however, the internal culture must fit the external environment.

Certain aspects of culture have been identified as antecedents to productive workplaces: affirmation, belonging, and competence (Fawcett, et al., 2008, p. 424). Corporate culture shapes individual consciousness and imposes routines that reflect socially approved and purposive action (Jackall, 2009, pp. 18-43). Corporate culture is based on involvement, consistency, adaptability, and mission (Denison & Neale, 1996, pp. 1-9). Likewise, it is based on the extent to which the external environment requires flexibility or stability and the extent to which a company’s strategic focus is internal or external; specifically, adaptability, achievement, involvement, and consistency (Daft, 2018, p. 92).

In studies of organizations with strong corporate culture vs those with weak cultures, correlations exist between the strength of a corporate culture and profitability—stronger spirited companies outperformed weaker spiritued companies by 400-500 percent in terms of net earnings, investment return, and shareholder value (Garcia-Zamor, 2003, p. 361). Research also suggests that spirituality is expressed in the broadest sense as organizational and personal aspirations, values and ethics; and observations about treatment of employees, the environment and community (Weston, 2002, p. 28). It involves a sense of completeness, connectedness at work, and deeper values (Gibbons, 2000). One of its central qualities involves the meaning of one’s work; it is a way of experiencing the divine presence in the world (Neck & Millman, 1994, pp. 9-16).

Thus there appears to be a horizontal spirituality that encompasses a desire to be of service to others, heighten employee commitment, and exhibit efficiency and effectiveness; it encompasses a sense of wholeness that goes beyond just a survival instinct (Ajala, 2013, p. 3). An individual spirituality seeks to nurture the creativity, imagination, and intuition besides improving the trust and honesty; an organizational spirituality has the potential to improve organizational performance (Aravamudhan & Krishnaveni, 2014, p. 63). Three dimensions of workplace spirituality have been uncovered: self-work immersion—the ability to bring one’s whole self to the workplace, interconnectedness—the feeling of being part of something bigger...
than the self, and self-actualization—the experience of spiritual and mental growth through work (Moore & Casper, 2006, pp.110-112).

A study of the effects of personal spiritual values, perceptions of organizational spiritual values, and their interaction on both attitudinal and attachment workplace outcomes indicates strong support for an interactive conceptualization of workplace spirituality; however, there is little evidence of an interaction between personal spiritual values and organizational spiritual values for worker consequences (Kolodinsky, et al., 2008, pp. 474-475). Regardless, a tension toward spiritual contentment exists in the workplace.

Spiritual values have shown escalation of organizational commitment, productivity, and efficiency (Dehaghi, et al., 2012, p. 160). The encouragement of spirituality in the workplace leads to benefits in the following areas: creativity, honesty and trust, personal fulfillment, and commitment; all lead to increased organizational performance (Krishnakumar & Neck, 2002, p. 156). Other perceived benefits are feeling at ease, self-confidence, a positive mood, being open-minded, and feeling valued (Fawcett, et al., 2008, p. 430). Finally, spirituality should not be confined to high performance or profitability but also should be tied to matters of increased physical and mental health, personal growth, a higher level of self-esteem, and overall life-satisfaction (Gotsis & Kortezi, 2008, p. 592).

You may have noticed that many of the connections to and outcomes of organizational spirituality are similar to Maslow’s Hierarchy of Needs (see Shock, 2015, pp. 1-3; Fernando, 2013, pp. 1-4). As one moves from lower needs to higher needs, corporate culture could be affected. On the other hand, a spiritual corporate culture could impact a person’s movement up or down the need hierarchy, impacting attitude, efficiency, performance and productivity.

Purpose of the Study

The purpose of this study was to determine how organizational spirituality influences corporate culture. The first step was to review research on the meaning of organizational spirituality and its relationship to corporate culture. The intent was to advance the academic conversation on spirituality in organizational life by offering a description of how spirituality interacts with and influences corporate culture. The second step was to construct a model of the characteristics of spirituality and corporate culture. The discussion of these characteristics provides a means to appreciate the relationship between spirituality and corporate culture.

A proposed model has been constructed and is illustrated in Exhibit 1.1. The model is based on the following elements: (a) the extent to which life purpose and involvement requires meaningful work, sense of community, and organizational values; and (b) the extent to which organizational spirituality is a component of corporate culture. Six categories associated with these two dimensions are wellbeing, interconnectedness, achievement, affirmation, shared values and
**Exhibit 1.1**

**Characteristics of Spirituality and Corporate Culture**

<table>
<thead>
<tr>
<th>Life Purpose</th>
<th>Meaningful Work</th>
<th>Wellbeing</th>
<th>Sense of Community</th>
<th>Interconnectedness</th>
<th>Organizational Values</th>
<th>Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spirituality</td>
<td></td>
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<tr>
<td>Involvement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Shared Values and Beliefs</td>
<td>Balance</td>
</tr>
</tbody>
</table>

**Corporate Culture**

- **Beliefs**, and **Balance**.

**Wellbeing** includes a personal sense of meaning, contentment, feeling at ease, a positive mood, a feeling of worthiness, self-confidence, self-motivation, aspirations and goals achievement, values fulfillment, completeness, feeling valued, sense of wholeness, life satisfaction, mental health, joy, affective attachment to an organization, and possibly a feeling of divine presence in the workplace. **Interconnectedness** embraces belonging to a group or organization, having good colleagues, positive emphasis on relationships, fun and enjoyment on the job, empowerment, openness, inclusiveness, and diversity. **Achievement** refers to performance, productivity, profitability, efficiency, quality work, creativity and innovation, imagination and intuition, mental growth, realization of full potential as a person, engaging in reflective practice, flexibility, and celebration of successes.

**Affirmation** is a feeling of self-esteem, self-confidence, encouragement to be all one can be, support and coaching of others, being competent, trust, honesty, responsive listening, ethics and integrity, and respect. **Shared values and beliefs** involve vision, mission, clarity, purposeful action, initiative, positive HRM practice, team orientation, underlying assumptions and expectations, consistency, adaptability, responsibility, encouraged employee expression, receptivity, steadiness, grounded change, working together to solve problems, justice, open-mindedness, under-
standing, and improvement of strategic direction.

*Balance* refers to harmony, being even-keeled, peace, compassion, kindness, selfless service, benevolence, loyalty, obligation, socially responsible to the community, serving humankind and future generations, caring for the environment, creating a better world, and sustainability.

Each of these six categories of organizational spirituality can be successful within corporate culture and influence it dramatically. These dimensions can help leaders be successful by instilling the organizational spiritual values in which management and employees wish to engage. Furthermore, it is possible to view each component of the exploratory model in terms of the spirituality axis from limited to inspirational and the corporate culture axis from weak to strong (spirited).

In Exhibit 1.2, for example, if we look at wellbeing on the corporate culture axis, it could be influenced as people move on the bottom from weak to strong. If we look at wellbeing on the spirituality axis, it could be influenced as people grow positively on the left from limited to inspirational. The same would be true of the other five categories. A question to consider: Are there tangible descriptors that could be used on the vertical and horizontal scales as one moves horizontally or vertically on an individual axis? Could a numbered grid be formed on each axis with descriptors for the meaning of (for example) 1-1, 1-5, 1-9, 5-1, 5-5, 5-9, 9-1, 9-5, or 9-9?

Alternatively, could the strength of corporate culture move toward the right by the movement of organizational spirituality towards inspiration or vice-versa? Several scholarly works indicate the positive movement of spirituality increases commitment and efficiency, impacts unit performance and productivity positively, and causes a rise in profits (Fry, et al., 2011, pp. 259-270; Garcia-Zamor, 2003, pp. 314-335; Markow & Klenke, 2005, pp. 8-27; Rego & Cunha, 2008, pp. 53-75). Would the reversal of that movement provide unexpected negative results? Perhaps this is an area for further research and study.
The third step in this study was to provide suggestions for continuing research on the relationship and the impact between entrepreneurial and organizational spirituality and corporate culture. Future research could focus on each of the six characteristics presented in Exhibit 1.1. These six components could be (a) building blocks toward a model of organizational spirituality or (b) a framework for engaging in broader discussions of organizational spirituality’s influence on corporate culture. And, as previously mentioned, it would be interesting to see more research concentrate on the effect of the left axis as people move upward from limiting to inspiration (or vice-versa) and on the effect of the bottom axis as people move to the right from weak to strong (or vice-versa).

The fact that spirituality can be a major influence on corporate culture seems undeniable, and more research would enlighten spirituality’s relationship to organizational leadership and followership. Perhaps this study provides an open door for unique research that contributes to the field of organizational spirituality.
REFERENCES


Determining Test Bank Reliability

A critical requirement for student testing within higher education is that the assessment instruments used are both valid and reliable. With online testing becoming increasingly popular in higher education, consideration needs to be made for how such testing will produce reliable results and how test bank reliability will be calculated, particularly if questions are served to students randomly from a test bank of questions. Reliability is the degree to which an assessment instrument produces stable and consistent results over time with different participants (Phelan & Wren, 2005). Assuming the instrumentation is valid and fit for purpose, forms of reliability seek to capture a person’s consistent score on the area of interest,
with the results of repeated measurements not subject to significant change (de Vet, Mokkink, Mosmuller, & Terwee, 2017). A common approach is test-retest reliability in which measures of reliability are obtained by administering the same test twice over a period of time to a group of individuals (Cozby, 2001). The scores from Time 1 and Time 2 can then be correlated to evaluate the test for stability over time. Other standardized measures of instrument reliability include split-half reliability (Arkin, Gabrenya, Appelman, & Cochran, 1979), parallel forms reliability (Gabrenya & Arkin, 1980; Sharma, Dunn, Wei, Montie, & Gilbert, 2015), inter-rater reliability using measurements by different persons on the same occasion (Aronson & Carlsmith, 1968; de Vet et al., 2017), and internal consistency reliability using different sets of items from the same questionnaire (Berm, 1974; de Vet et al., 2017).

We provide online assessment services used by tertiary education institutions for programmatic evaluation of the academic degree programs of business, accounting, early childhood education, criminal justice, healthcare administration, and public administration, as well as general education. The assessment is administered by providing students with 60-120 questions randomly selected from a test bank that includes 3,000 – 5,000 questions. Test banks are organized by topics (academic disciplines) and subjects (learning outcomes for the academic discipline). Each student receives 10 questions per topic. Given that the nature of the assessment process depends upon a test bank of questions randomly served to students rather than an exam with a fixed number of questions, traditional measures of exam reliability are not always practical. Instead, a three-measure approach was developed that includes Item Analysis, Item Discrimination, and Question Interchangeability to characterize test bank reliability and identify defective questions for replacement or modification. This three-measure approach takes into consideration the random selection of questions from the test bank so that each student receives a unique exam and customization of the exam through topic selection by adopting institutions.

Theoretical Foundation

Internal consistency reliability is a measure of reliability used to evaluate the degree to which different test items that probe the same construct, skill, knowledge base, etc. produce similar results. The most commonly used tests of internal consistency reliability are Split-half reliability (Wagner & Flamos, 1988) and Cronbach’s alpha (Cronbach, 1971; de Vet et al., 2017; Leppink & Pérez-Fuster, 2017). Kuder-Richardson 20 is also used, but it is essentially a restricted version of Cronbach’s alpha (Sengathir & Manoharan, 2013).

The process of obtaining split-half reliability is begun by splitting in half all items of a test that are intended to probe the same area of knowledge to form two sets of items (Wagner & Flamos, 1988). The entire
test is administered to a group of individuals, the total score for each set is computed, and finally the split-half reliability is obtained by determining the correlation between the two total set scores.

One problem with the split-half method is that the reliability estimate obtained using any random split of the items is likely to differ from that obtained using another (Wagner & Flamos, 1988). A solution to this problem is to compute the split-half reliability coefficient for every one of the possible split-halves and then find the mean of those coefficients. This is the motivation for Cronbach's alpha (de Vet et al., 2017).

In a test bank assessment, each student is assessed based on a fixed number of questions selected from the test bank at random. For example, if the test bank contains 100 questions and each student is assessed based on 10 of these questions selected at random, then there are over 17 trillion possible tests, and so it is unlikely that any two students will receive the exact same set of questions. Since the sets of items are different, the split-half and Cronbach's alpha measurements of reliability cannot be calculated (Leppink & Pérez-Fuster, 2017; Wagner & Flamos, 1988). This means that a different approach to measuring internal consistency reliability for test bank assessments is required.

For this purpose, the Question Interchangeability test was defined. Inherently by question interchangeability, it is meant the ability to substitute one question in the test bank for another without significantly affecting the total score that an individual would receive on the test. The objective is to weed out any questions that fail the question interchangeability test.

To arrive at a specific Question Interchangeability test measurement for any particular question Q in the test bank, a two-tailed t-test can be performed between the total score of all the students who had question Q in their test versus the total score of the students who did not have question Q in their test.

Given the large number of students being assessed (sample sizes range from 10,000 to more than 100,000), it was found that effect size was a better metric than test significance. Thus, the Question Interchangeability index is defined to be Cohen's effect size for this test and considers a Question Interchangeability index of .20 (a small effect size) or less to be acceptable and a larger value to be unacceptable.

**The Online Programmatic Assessment Service**

The online programmatic assessment services are used to assess retained knowledge of students at the academic program level. Adopting schools employ these services to evaluate the effectiveness of their academic programs, identify areas for improvement, and demonstrate program outcomes to external stakeholders such as accreditation agencies.

School officials map their programmatic learning outcomes to the test bank using topic selection,
typically 6-12 topics depending on the curriculum included within the academic program. The exam is administered to students toward the end of their academic program, usually just before graduation. Each student receives a unique exam administered through a secure online exam platform that has embedded exam integrity measures. Each exam topic includes 10 questions randomly selected from the test bank. Questions are administered in groups based on the topics. Topic order is presented randomly.

Assessment results are used primarily in aggregate format to understand the academic program’s strengths and opportunities for improvement based on the assessment criteria (targets) set by the adopting institution. The specific results from an adopting school can be compared to all other schools that have employed the same instrument for external benchmarking. Test bank reliability, as determined through regular psychometric analyses of the test bank, is essential so that school officials can perform appropriate comparisons between students and between student groups over time for longitudinal analysis and for external benchmarking.

**Calculating Test Bank Reliability**

Item Analysis is used to evaluate the effectiveness of items in a test. For the reliability analysis report, *items* are the test bank questions. Two measures are used for Item Analysis: Item Difficulty and Item Discrimination. In an exam situation, Item Difficulty (Question Difficulty) is the percentage of the sample (of students) answering a question correctly. This measure takes a value between 0 and 1 (or 0-100%). High values indicate the question is easy, while low values indicate the question is difficult. A target Item Difficulty of 60% was established with an acceptable range of 35 – 80%. Item Difficulty is examined periodically for all questions in the test bank and those whose item difficulty is outside this range are replaced or modified. While the Item Difficulty measures the difficulty of each question in a test bank, the Test Scores Difficulty measures the total exam score, or percentage correct for each student in order to understand the distribution of these measurements for each test bank topic.

Item Discrimination is a measure of how well an item (a question) distinguishes between those with more knowledge from those with less knowledge. Two measures are used for item discrimination: the Discrimination Index and the Point-Biserial Correlation. The Discrimination Index is the principal measure of item discrimination and is determined for each question. This is done by first selecting two groups of students based on their overall test scores: those with high knowledge and those with low knowledge levels. The high knowledge group consist of students whose exam score is in the top 27% and the low knowledge group consist of those in the bottom 27%.

The second step, performed for each question, is to calculate the percentage of students in the high
knowledge group who answer the question correctly minus the percentage of students in the low knowledge group who answer the question correctly. The Discrimination Index takes values between -1 and +1. The closer the value is to +1, the better the question discriminates between high and low performing students. Conversely, values near 0 indicate that the question does a poor job of discriminating between high and low performers. Negative values indicate that the question is often answered correctly by those who perform the worst on the overall test and incorrectly by those who perform the best on the overall test, which is clearly not desirable. The following guidelines are used when analyzing Discrimination Index results: Less than 0: Defective item; 0 – .199: Poor discrimination; .20 – .299: Acceptable discrimination; .30 – .399: Good discrimination; and .40 or more: Excellent discrimination.

The second measure of Item Discrimination is the Point-Biserial Correlation (also called the Item-Total Correlation) which is equal to the Pearson's Correlation Coefficient between the scores on the entire exam and the scores on the single item, i.e., a question (1 = correct answer; 0 = incorrect answer). The following guidelines are used when analyzing the Point-Biserial Correlation Coefficients: Less than 0: Defective item; 0 - .099: Poor discrimination; .10 – .199: Fair discrimination; .20 – .299: Good discrimination; and .30 or more: Excellent discrimination.

When reviewing the quality of questions, both the Discrimination Index and the Point-Biserial Correlation Coefficient are taken into account.

Because the questions for each student are chosen at random from the questions in the test bank, the usual measures of reliability (split-half, KR20, and Cronbach's alpha) cannot be used in the traditional sense (Leppink & Pérez-Fuster, 2017). Instead, Question Interchangeability is used as the principal measure of reliability. Question Interchangeability refers to the ability to substitute a question in the test bank for another without significantly affecting the total score that an individual would receive on the exam. The objective is to eliminate or modify questions that fail the question interchangeability test. Question Interchangeability is determined for each question based on Cohen's $d$ effect size measurement for a two-tailed $t$-test.

Cohen's Effect Size $d$ (Algina et al., 2006) is calculated based on a two-tailed $t$-test comparing the total score for all the students who had that particular question in their exam versus the total score of the students who did not have that question in their exam. Cohen's Effect Size $d$ measures the size of this difference, using the following criteria: small ($d \approx .20$), medium ($d \approx .50$), or large ($d \approx .80$). Test bank questions with a Question Interchangeability measurement of $d > .20$ are replaced or modified. Since the sample sizes for the questions are very large, the $t$-test result by itself is likely to show a significant difference even when the actual difference is very small. For this reason, the effect size measure-
ment is used as the criterion instead of the $p$-value from the $t$-test.

The minimum sample size used for statistically valid analyses (based on reducing Type II errors) is at least 30 uses of the question and at least 100 completed exams. If a test bank topic includes questions that fail to meet this minimum sample size, this is noted in the topic summary.

Performing Test Bank Reliability

Sixteen unique test banks are provided and maintained for programmatic analysis and standardized testing. The datasets of each test bank are aggregated into their applicable academic programs, academic degree levels, and demographic characteristics of the schools using the assessment service. Each dataset must have a minimum of 100 completed exams. Outliers, including incomplete exams, are excluded from the dataset. The aggregation of data occurs yearly, on a sliding scale, spanning four years.

Performing Item Difficulty

Item Difficulty and descriptive statistics are first calculated for each academic program and topic, an example of which is shown in Figure 1 where the topic is comprised of 119 questions and offered 11,770 times. Seven questions were below, and 10 questions were above the acceptable range, resulting in 86% of the questions within the acceptable range for Item Difficulty (35-80%). Mean Item Difficulty for this example was 57.12%.

![Item Difficulty](image)

**Figure 1.** Item Difficulty distribution for an exam topic.
Performing Item Discrimination

The next measure performed is the Discrimination Index for each question, as shown in Figure 2 based on the same data set used for Figure 1. The resulting distribution shows a range between 0.15 and 0.9. Overall, 89% of the questions offered showed good or excellent discrimination.

![Item Discrimination](image)

**Figure 2.** Item Discrimination distribution for an exam topic.

One issue in calculating the Discrimination Index is to determine the 27% cutoff in a very large dataset (n > 10,000) when there are ties, in which case the cutoff may exist in the middle of a value. To avoid this shortcoming, interpolation against the upper and lower bounds of each category is administered. Consider the situation shown in Figure 3 for seventy-seven students who had question 12 in their test, where the second row (Q12) represents the score for that question for each student 0 (incorrect) or 1 (correct) and the third row (Total) shows the corresponding total score on the exam for that student.

| Student | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| Q12    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| Total  | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Student | AA | AB | AC | AD | AE | AF | AG | AH | AI | AK | AL | AM | AN | AO | AP | AQ | AR | AS | AT | AU | AV | AW | AX | AY | AZ |
| Q12    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total  | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 |
| Student | BA | BB | BC | BD | BE | BF | BG | BH | BI | BJ | BK | BL | BM | BN | BO | BP | BQ | BR | BS | BT | BU | BV | BW | BX | BY |
| Q12    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total  | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |

**Figure 3.** Seventy-seven students that received Question 12 for the exam topic.
Calculating the Discrimination Index for the data in Figure 3 is as follows.

Let \( z = 0.27 \times 77 = 20.79 \)

Thus, 20.79 is the cutoff for both the low skilled and high skilled groups. 20.79 is rounded up to 21 to find the total score cutoffs. The score of 5 is the cutoff value for the low skilled group and 8 for the high skilled group.

Students A through R are clearly in the low skilled group; only 7 out of these 18 students answered Q12 correctly. 2.79 more students are needed to satisfy this group (for a total of 20.79), but 11 students (S through AB) have a score of 5. Since 7 of these students answered Q12 correctly, it is calculated \( 2.79 \times 7/11 = 1.775 \) as the Q12 contribution. Adding 7 (the contribution from students A through G), yields 8.775 correct answers in the low skilled group.

Students AY through BY are in the high skilled group; all 19 of these students answered Q12 correctly. 1.79 more students are needed for this group (for a total of 20.79), but 8 students (AY through BF) have a score of 8. Since all these students answered Q12 correctly, it is calculated \( 1.79 \times 8/8 = 1.79 \). Adding 19 (the contribution from Students BG through BY) yields 20.79 correct answers in the high skilled group.

Thus, the Discrimination Index for question 12 is:

\[
\frac{20.79 \times 8.775}{20.79 \times 20.79} = \frac{12.015}{20.79} = 0.5779
\]

The Point-Biserial Correlation is the next measure calculated, using:

\[
r = \frac{m_1 - m_0}{s} \sqrt{\frac{n_0 n_1}{n(n-1)}} = \frac{7.096 - 3.133}{2.44} \sqrt{\frac{62(15)}{77(76)}} = 0.6475
\]

where \( r = \) Point-Biserial Correlation coefficient, \( m_1 = \) mean of exam scores of students who answered question 12 correctly, \( m_0 = \) mean of exam scores of students who answered question 12 incorrectly, \( s = \) standard deviation of the exam scores for question 12, \( n_0 = \) count of incorrect answers, \( n_1 = \) count of correct answers, and \( n = \) count of answers (i.e., \( n_0 + n_1 \)).

The Discrimination Index (0.5779) and Point-Biserial Correlation (0.6475) yield excellent discrimination for this question. The same process is repeated for each question included within the test bank.

**Performing Question Intergangeability**

The effect size is the final measure calculated by taking the difference between the two means divided by the pooled standard deviation. The two means are comprised of the percent score of students who had the question offered, and the percent score of those who did not, as shown in Figure 4.
Due to the effect size being above the target of 0.2, this question would be flagged for review despite the first two measures showing excellent discrimination.

**Reporting Test bank Reliability**

Using the calculations performed during the annual aggregation of the data, a report was created to review test banks segregated by topic, subject, and academic degree level. The report reviews each question included within the test bank. Highlighted questions that require attention (modification or replacement) are based on four criteria: Item Difficulty, the Discrimination Index, Point-Biserial Correlation, and Question Interchangeability.

An example of the results is shown in Table 1. Highlighted questions allow test bank reviewers to quickly identify questions for remediation. The question can then be deactivated or modified as needed.

Four criteria are used for question highlighting: Item Difficulty (outside target range 35-80%), the Discrimination Index (below acceptable threshold of .20), Point-Biserial Correlation (below the acceptable threshold of .10), and Cohen’s $d$ (greater than the acceptable threshold of .20).

Table 1  *An Example Report of Test Bank Reliability.*

<table>
<thead>
<tr>
<th>Question ID</th>
<th>Subject</th>
<th>Profit, Loss, Cash Flow, and Margins</th>
<th>Item Difficulty</th>
<th>Number of Times Question Offered</th>
<th>Discrimination Index</th>
<th>Evaluation</th>
<th>Point-biserial Correlation</th>
<th>Evaluation</th>
<th>Question Interchangeability</th>
<th>Cohen’s $d$</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>15597</td>
<td></td>
<td></td>
<td>0.423</td>
<td>6,022</td>
<td>0.614</td>
<td>Excellent</td>
<td>0.502</td>
<td>Excellent</td>
<td>0.026</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>15622</td>
<td></td>
<td></td>
<td>0.619</td>
<td>6,160</td>
<td>0.526</td>
<td>Excellent</td>
<td>0.427</td>
<td>Excellent</td>
<td>0.100</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>15644</td>
<td></td>
<td></td>
<td>0.399</td>
<td>6,200</td>
<td>0.451</td>
<td>Excellent</td>
<td>0.388</td>
<td>Good</td>
<td>0.029</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>15648</td>
<td></td>
<td></td>
<td>0.275</td>
<td>5,882</td>
<td>0.379</td>
<td>Good</td>
<td>0.369</td>
<td>Good</td>
<td>0.100</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>15650</td>
<td></td>
<td></td>
<td>0.390</td>
<td>6,006</td>
<td>0.537</td>
<td>Excellent</td>
<td>0.456</td>
<td>Excellent</td>
<td>0.036</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>15686</td>
<td></td>
<td></td>
<td>0.382</td>
<td>5,855</td>
<td>0.412</td>
<td>Excellent</td>
<td>0.360</td>
<td>Good</td>
<td>0.032</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>15689</td>
<td></td>
<td></td>
<td>0.678</td>
<td>6,257</td>
<td>0.503</td>
<td>Excellent</td>
<td>0.422</td>
<td>Good</td>
<td>0.125</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>15732</td>
<td></td>
<td></td>
<td>0.269</td>
<td>6,067</td>
<td>0.444</td>
<td>Excellent</td>
<td>0.403</td>
<td>Excellent</td>
<td>0.108</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>15734</td>
<td></td>
<td></td>
<td>0.518</td>
<td>5,902</td>
<td>0.453</td>
<td>Good</td>
<td>0.369</td>
<td>Good</td>
<td>0.042</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>58169</td>
<td></td>
<td></td>
<td>0.293</td>
<td>4,837</td>
<td>0.546</td>
<td>Excellent</td>
<td>0.495</td>
<td>Excellent</td>
<td>0.058</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>87441</td>
<td></td>
<td></td>
<td>0.163</td>
<td>3,191</td>
<td>0.175</td>
<td>Poor</td>
<td>0.218</td>
<td>Good</td>
<td>0.120</td>
<td>Pass</td>
<td></td>
</tr>
</tbody>
</table>

Averages: 
Subject Difficulty Mean: 0.401, Number of Questions Offered: 5,671.727, Discrimination Index: 0.458, Evaluation: Excellent, Point-biserial Correlation: 0.404, Evaluation: Excellent, Cohen’s $d$: 0.070, Evaluation: Pass.
A summary report of the reliability analyses includes two tables that provide a summary of the data at the topic level for each test bank. The first table, as exemplified in Table 2, is a summation of data in the full report at the topic level. The second table, as exemplified in Table 3, shows statistics on the summary data at the topic level.

**Table 2** An Example of the Reliability Data Summary for the Topics Included within the Test Bank

<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of Times Questions Offered</th>
<th>Difficulty Mean</th>
<th>Discrimination Index</th>
<th>Item Discrimination Evaluation</th>
<th>Point-biserial Correlation Evaluation</th>
<th>Cohen’s d</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>591,615</td>
<td>0.511</td>
<td>0.428</td>
<td>Excellent</td>
<td>0.344</td>
<td>Good</td>
<td>0.059 Pass</td>
</tr>
<tr>
<td>Business Ethics</td>
<td>607,826</td>
<td>0.510</td>
<td>0.472</td>
<td>Excellent</td>
<td>0.405</td>
<td>Excellent</td>
<td>0.088 Pass</td>
</tr>
<tr>
<td>Business Finance</td>
<td>341,846</td>
<td>0.446</td>
<td>0.472</td>
<td>Excellent</td>
<td>0.404</td>
<td>Good</td>
<td>0.060 Pass</td>
</tr>
<tr>
<td>Business Integration and Strategic Management</td>
<td>531,309</td>
<td>0.555</td>
<td>0.488</td>
<td>Excellent</td>
<td>0.410</td>
<td>Excellent</td>
<td>0.051 Pass</td>
</tr>
<tr>
<td>Business Leadership</td>
<td>471,696</td>
<td>0.505</td>
<td>0.437</td>
<td>Excellent</td>
<td>0.368</td>
<td>Good</td>
<td>0.058 Pass</td>
</tr>
<tr>
<td>Economics: Macroeconomics</td>
<td>277,779</td>
<td>0.470</td>
<td>0.545</td>
<td>Excellent</td>
<td>0.470</td>
<td>Excellent</td>
<td>0.099 Pass</td>
</tr>
<tr>
<td>Economics: Microeconomics</td>
<td>264,101</td>
<td>0.492</td>
<td>0.520</td>
<td>Excellent</td>
<td>0.458</td>
<td>Excellent</td>
<td>0.122 Pass</td>
</tr>
<tr>
<td>Global Dimensions of Business</td>
<td>426,623</td>
<td>0.460</td>
<td>0.445</td>
<td>Excellent</td>
<td>0.379</td>
<td>Good</td>
<td>0.058 Pass</td>
</tr>
<tr>
<td>Information Management Systems</td>
<td>466,534</td>
<td>0.567</td>
<td>0.476</td>
<td>Excellent</td>
<td>0.414</td>
<td>Excellent</td>
<td>0.073 Pass</td>
</tr>
<tr>
<td>Legal Environment of Business</td>
<td>497,830</td>
<td>0.522</td>
<td>0.433</td>
<td>Excellent</td>
<td>0.371</td>
<td>Good</td>
<td>0.085 Pass</td>
</tr>
<tr>
<td>Management: Human Resource Management</td>
<td>141,233</td>
<td>0.569</td>
<td>0.588</td>
<td>Excellent</td>
<td>0.493</td>
<td>Excellent</td>
<td>0.162 Pass</td>
</tr>
<tr>
<td>Management: Operations Production Management</td>
<td>170,946</td>
<td>0.505</td>
<td>0.632</td>
<td>Excellent</td>
<td>0.537</td>
<td>Excellent</td>
<td>0.133 Pass</td>
</tr>
<tr>
<td>Management: Organizational Behavior</td>
<td>188,174</td>
<td>0.586</td>
<td>0.604</td>
<td>Excellent</td>
<td>0.473</td>
<td>Excellent</td>
<td>0.131 Pass</td>
</tr>
<tr>
<td>Marketing</td>
<td>621,912</td>
<td>0.453</td>
<td>0.464</td>
<td>Excellent</td>
<td>0.381</td>
<td>Good</td>
<td>0.057 Pass</td>
</tr>
<tr>
<td>Quantitative Research Techniques and Statistics</td>
<td>457,952</td>
<td>0.481</td>
<td>0.500</td>
<td>Excellent</td>
<td>0.426</td>
<td>Excellent</td>
<td>0.061 Pass</td>
</tr>
</tbody>
</table>

**Table 3** An Example of the Reliability Data Summary for the Questions Included in Each Topic within the Test Bank

<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of Questions*</th>
<th>Number of Times Questions Offered*</th>
<th>Difficulty Mean</th>
<th>Difficulty Index</th>
<th>Discrimination Index*</th>
<th>Point-biserial Correlation*</th>
<th>Question Interchangeability*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>113</td>
<td>591,615</td>
<td>0.511</td>
<td>92.92 %</td>
<td>100 %</td>
<td>100 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Business Ethics</td>
<td>122</td>
<td>607,826</td>
<td>0.510</td>
<td>83.25 %</td>
<td>98.36 %</td>
<td>90.18 %</td>
<td>93.44 %</td>
</tr>
<tr>
<td>Business Finance</td>
<td>100</td>
<td>341,846</td>
<td>0.446</td>
<td>75.00 %</td>
<td>98.00 %</td>
<td>100 %</td>
<td>99.00 %</td>
</tr>
<tr>
<td>Business Integration and Strategic Management</td>
<td>154</td>
<td>531,309</td>
<td>0.555</td>
<td>95.32 %</td>
<td>99.25 %</td>
<td>100 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Business Leadership</td>
<td>104</td>
<td>471,696</td>
<td>0.505</td>
<td>83.65 %</td>
<td>97.12 %</td>
<td>100 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Economics: Macroeconomics</td>
<td>143</td>
<td>277,779</td>
<td>0.470</td>
<td>78.32 %</td>
<td>100 %</td>
<td>100 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Economics: Microeconomics</td>
<td>117</td>
<td>264,101</td>
<td>0.492</td>
<td>73.50 %</td>
<td>100 %</td>
<td>100 %</td>
<td>83.76 %</td>
</tr>
<tr>
<td>Global Dimensions of Business</td>
<td>96</td>
<td>426,623</td>
<td>0.460</td>
<td>75.00 %</td>
<td>95.83 %</td>
<td>100 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Information Management Systems</td>
<td>107</td>
<td>466,534</td>
<td>0.567</td>
<td>83.98 %</td>
<td>99.07 %</td>
<td>100 %</td>
<td>95.33 %</td>
</tr>
<tr>
<td>Legal Environment of Business</td>
<td>184</td>
<td>497,830</td>
<td>0.522</td>
<td>81.52 %</td>
<td>95.65 %</td>
<td>100 %</td>
<td>96.74 %</td>
</tr>
<tr>
<td>Management: Human Resource Management</td>
<td>50</td>
<td>141,233</td>
<td>0.569</td>
<td>84.00 %</td>
<td>100 %</td>
<td>100 %</td>
<td>64.00 %</td>
</tr>
<tr>
<td>Management: Operations Production Management</td>
<td>42</td>
<td>170,946</td>
<td>0.503</td>
<td>80.93 %</td>
<td>97.62 %</td>
<td>100 %</td>
<td>80.93 %</td>
</tr>
<tr>
<td>Management: Organizational Behavior</td>
<td>72</td>
<td>188,174</td>
<td>0.586</td>
<td>84.72 %</td>
<td>100 %</td>
<td>100 %</td>
<td>73.61 %</td>
</tr>
<tr>
<td>Marketing</td>
<td>66</td>
<td>621,912</td>
<td>0.423</td>
<td>77.27 %</td>
<td>98.48 %</td>
<td>100 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Quantitative Research Techniques and Statistics</td>
<td>97</td>
<td>457,952</td>
<td>0.481</td>
<td>82.47 %</td>
<td>96.91 %</td>
<td>100 %</td>
<td>96.91 %</td>
</tr>
</tbody>
</table>

Averages: 417,195.87 0.509 82.41 % 98.42 % 90.88 % 91.69 %
Using Test Bank Reliability

The decision to replace or modify a test question is based on Item Discrimination, Question Interchangeability, and Item Difficulty. If an item falls below any of the desired thresholds, the item is either replaced or modified.

The decision to modify a specific test bank topic, which includes 100-400 questions, is based on the descriptive statistics for the topic and the summary of the item results for the questions included within the topic. If the topic-level results fall below desired thresholds, the entire topic is reviewed and modified with all questions included within the topic evaluated.

Conclusions

Typical measures of exam reliability, including test-retest reliability (Leppink & Pérez-Fuster, 2017), parallel forms reliability (Sharma et al., 2015), inter-rater reliability (de Vet et al., 2017), internal consistency reliability (Bonett & Wright, 2015; Mokkink et al., 2010), and split-half reliability (Arkin et al., 1979; Wagner & Flamos, 1988), are not feasible when the exam is administered by randomly selecting questions from a test bank that includes several thousand questions because the statistical assumptions for each of these methods cannot be met.

Therefore, a specific process was derived for determining test bank reliability based on a combination of Item Discrimination, Question Interchangeability and Item Difficulty. These measures of reliability provide an accurate representation of the overall test bank reliability. The process guides test bank maintenance activities that include modifying or replacing defective questions. The process described in this paper for determining test bank reliability when questions are served randomly to students can be used in a variety of academic situations including for both formative and summative assessment.
REFERENCES


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