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Evaluating Learner-Centeredness Course Pedagogy in Project Management Syllabi Using a Content Analysis Approach

Erastus Karanja
Donna M. Grant

Department of Computer Information Systems
North Carolina Central University
Durham, NC 27707, USA
ekaranja@ncsu.edu, grantd@ncsu.edu

ABSTRACT

Project Management (PM) capability continues to be a highly desired skill set in many for-profit and not-for-profit organizations across a range of industries. However, the PM field faces a talent gap, and one approach that may increase the interest in PM education is having a learner-centered pedagogy. A learner-centered pedagogy seeks to create a community of learners through the implementation of several initiatives namely, sharing power between the teachers and the students, providing multiple assessments and evaluation avenues, specifying clear feedback mechanisms, and articulating a rationale for the course by tying the course content to the learning outcomes. The goal of this research is to conduct a descriptive content analysis to examine the nature and content of the PM syllabi to gain a better understanding of how they reflect and communicate the attributes of a learner-centered pedagogy and thus help in improving the learning, teaching, and delivery of the PM curriculum. This study makes use of a sample of 76 PM syllabi gathered in 2018 from instructors affiliated with the Association to Advance Collegiate Schools of Business (AACSB) schools in the United States. The results have implications for the academy and the PM practice and call for improvements in the design and content of PM syllabi by including language and activities that foster the creation of a community of learners, mechanisms for offering periodic feedback, and consistent teacher-student interactions. Furthermore, it is suggested that the assessments and evaluations should be tied to the learning outcomes and incorporate “real world” experiential projects aligned with the Project Management Body of Knowledge (PMBOK) areas and process groups.

Keywords: Project management, Course syllabus, Learner-centered education, Evaluation Assessment, Knowledge areas

1. INTRODUCTION

A project refers to a temporary and unique endeavor undertaken to achieve a specific outcome while Project Management (PM) is the application of knowledge, skills, tools, and techniques to project activities (PMI, 2017). The general concept of PM entails the balance of the triple constraints, namely scope, cost, and schedule. PM is a concept that has been around for quite some time and there are historical artifacts that attest to the coordination and planning of activities akin to the balancing of the triple constraints. Examples of these artifacts include the Mayan civilization projects in South America, the Great Pyramids of Giza in Egypt, the Great Wall of China, and the massive infrastructure projects associated with the Roman Empire (Morris, 1994; Walker and Dart, 2011).

However, the history of modern PM, as a field, can be traced back to the 1950s (Snyder, 1987), a period associated with the emergence of network analysis and planning techniques such as the Program Evaluation and Review Technique (PERT) and the Critical Path Method (CPM) (Stretton, 1994; Engwall, 2003; Crawford, 2006). These

techniques were initially used by practitioners in engineering-oriented industries, namely mechanical, construction, defense, and aerospace. Historically, a significant number of practitioners and other aspiring project managers in the engineering and other related industries honed their PM knowledge and skills through experience and on-the-job training with minimal formal education. However, to facilitate professional development, knowledge sharing, and establish standards, these practitioners eventually formed professional PM organizations such as the Project Management Institute (PMI) and the International Project Management Association (IPMA). PMI, IPMA, and other similar organizations have contributed tremendously to the growth of the PM field by developing unique bodies of knowledge that articulate key knowledge areas, skill sets, tools, and techniques required of project managers, namely the Project Management Body of Knowledge (PMBOK) (Larson and Gray, 2015; PMI, 2017) in the United States (US) and PProjects IN Controlled Environments (PRINCE2) (Bentley, 2012; Turley, 2018) in Europe. These professional organizations have set standards and certification programs that can be inculcated through

formal academic settings to govern how projects are initiated, executed, monitored, controlled, and closed around the globe (Smith, 2003; Larson and Gray, 2015). PMBOK is the dominant model in the US and, as such, this study is focused on the PMBOK guidelines and defers PRINCE2 to future studies.

Undeniably, PM is one of the skill sets that employers are seeking across a broad range of industries. A report from the Anderson Economic Group reveals that 15.7 million new jobs will be added to the PM field by 2020, and the field faces a talent gap of roughly 1.5 million jobs every year (PMI, 2018). Moreover, it is projected that by 2027, organizations will need more than 87 million employees working in PM oriented roles (PMI, 2017b). As such, education in PM presents a real opportunity both for individuals and organizations. Of late, there has been a noticeable increase in the interest in academic coursework in PM due to the recognition of the values accrued from formal PM education. Consequently, there is a noticeable increase in formal PM education with curriculums mostly housed in schools of business and engineering. The PM field has continued to grow, and the PM field is now easily identifiable and distinguishable from other scientific fields based on its vocabulary, theories, journals, conferences, and curriculum guidelines (Shenhar and Dvir, 2007; Topi et al., 2010; Gauthier and Ika, 2012).

Formal PM training should instill transferable skills capable of helping the student competitively fulfill the project objectives. Transferable skills include communication, information technology, personal and social skills, as well as critical and creative problem-solving skills (National Curriculum Council, 1990; National Research Council, 2013). These are attributes and skills that employers have consistently sought in new hires (Joseph et al., 2010; Karanja et al., 2016). Thus, the knowledge, skills, and abilities of a project manager, and ultimately the failure or success of projects, are heavily weighted by the formal training that a project manager undertakes.

One method that may increase the enthusiasm in PM coursework is having a learner-centered pedagogy. A learner-centered pedagogy leans heavily towards learning and teaching and seeks to find a balance between the roles of the teacher (the term teacher and instructor are used interchangeably) and the students, course content, and the tools and techniques utilized in the assessments and evaluations of the course content (Cullen and Harris, 2009; McLoughlin and Lee, 2010). Thus, the goal of this research is to conduct a descriptive content analysis to examine the nature and content of PM syllabi in order to gain a better understanding of how they reflect and communicate the attributes of a learner-centered pedagogy. The study is based on the techniques used in Eberly, Newton, and Wiggins (2001) and the rubric developed by Cullen and Harris (2009) to assess learner-centeredness. The authors make use of a sample of 76 undergraduate PM syllabi gathered from instructors in the US who teach at schools that are accredited by the Association to Advance Collegiate Schools of Business (AACSB) (AACSB, 2018). The syllabi were gathered within three months in 2018 and covered courses that were taught during the 2016-2018 academic periods.

This research was developed to address the call for studies investigating the various elements of a learner-centered pedagogy in different academic fields (Law, 2007; Granger et al., 2012; Downing et al., 2018) and specifically the need to

have a better understanding of how PM syllabi reflect the learner-centered course pedagogy. The goal of this study is not to compare the sampled syllabi with an ideal template nor to critic the sampled syllabi. The major contribution of this research is that it is the first study to investigate the elements of learner-centered pedagogy in PM course syllabi. The study provides a systematic evaluation of the PM syllabi in order to identify if the syllabi reflect a learner-centered pedagogy and thus help in improving the learning, teaching, and delivery of PM curriculum. The results provide an overview of the areas in which instructors may improve when preparing their syllabi to reflect the learner-centered course pedagogy. The study also seeks to offer insights into areas, tools, and techniques aligned with the PMBOK that instructors are addressing during the learning and teaching of PM.

The rest of the study is organized as follows: The next section contains the rationale for the necessity of this research in the PM field. Following is the description of the data based on the content analysis of the PM syllabi. Next is the presentation of the research findings, discussion, and conclusion. Finally, the authors present the research implications, shortcomings, and avenues for future studies.

2. BACKGROUND

2.1 Project Management and the Information Systems (IS) Model Curriculum

In the recent past, we have witnessed a rise in criticism directed at Higher Education Institutions (HEI) due to the diminishing measurable and observable proofs of learning outcomes, mounting tuition costs, and increases in student debt burdens (Arum and Roksa, 2011; Rothman, Kelly-Woessner, and Woessner, 2011; Beattie, Laliberté, and Oreopoulos, 2018). Specifically, institutions of higher learning are constantly facing pressures to ensure that they inculcate the right knowledge and skills into graduates who will eventually address the myriad needs of the job market. To mitigate some of these criticisms, the US government has partnered with institutions of higher learning in improving the accreditation process through accountability and quality of education characterized by several initiatives such as the Reauthorized Higher Education Act of 2008 (Eaton, 2010).

At the college/department level, some associations have sought to bridge the gap between what is taught and how it is taught to improve the quality of education and accountability. Towards this end, the Information Systems (IS) 2010 model curriculum (Topi et al., 2010) provides a predefined curriculum that articulates the courses and the associated competencies that graduates should acquire. Specifically, the IS2010 model curriculum has designated PM as one of the core courses in the IS curriculum. The architecture of the IS model curriculum is designed so that PM is primarily focused on imparting knowledge and skills in initiating, planning, executing, controlling, and closing IS projects. According to the IS2010 model curriculum guidelines, potential graduates who enroll in the PM course should engage in team-based activities and familiarize themselves with PM techniques. The potential graduates should learn how to apply PM software tools as well as acquire negotiation and contract management knowledge and skills (Topi et al., 2010). The knowledge and skills mentioned above are articulated in the PMBOK guide as PM process

groups (Larson and Gray, 2015; PMI, 2017) and are all inherent and necessary for a successful PM career in a current organization (do Vale, Nunes, and de Carvalho, 2018).

The importance of formal training in PM is also demonstrated by the fact that the Information Technology (IT) 2017 model curriculum incorporates elements of PM (Sabin et al., 2017). The significance of PM in organizational strategy is epitomized by the fact that when IT professionals were asked to select skills that will be required for the mid-2020s, they overwhelmingly voted for PM skills over other skills with a 78% appeal (Sabin et al., 2017). Specifically, IT professionals pointed out that non-technical skills, with a 64% appeal, were the top skill set that they envisioned as most important for PM (Sabin et al., 2017). A non-technical skillset requires excellent interpersonal, team building, and communication skills. Furthermore, the 2016 Computer Engineering (CE) Model curriculum stipulates that one of the key knowledge units entails exposing students to PM and specifically team management, scheduling, project configuration, information management, and the design of project plans (Impagliazzo et al., 2016). Overall, there is a need for graduates to acquire project management knowledge and skills as exemplified by the emphasis placed on the PM training by the three model curriculums, namely IS2010, IT2017, and CE2016.

2.2 The History and Role of the Course Syllabus

In an HEI setting, the knowledge and skills that students need to acquire are usually articulated in a course syllabus, a document that has been in existence for more than a century. The word syllabus traces its roots to the Greek word *sittuba* which was used to describe labels for a parchment. It is estimated to have entered the English vocabulary around the 1650s and was originally used to describe a table or index in a book. Ultimately, the word syllabus found itself in the academic arena in the late 1880s where it was used to describe subjects of a series of lectures (Parkes and Harris, 2002). Since then, the term has progressed and, by the 20th century, the word attained its modern meaning that represents a program of study or course outline.

A course syllabus incorporates many elements that are meant to serve the teacher, the student, and the school at large. Lately, the syllabus has come to epitomize the contract between the students and the teacher (Matejka and Kurke, 1994; Littlefield, 1999; Parkes, Fix and Harris, 2003) by articulating the expectations, rules, and regulations governing the roles and responsibilities of the teacher and the student. Additionally, the syllabus functions as a mechanism for course design, planning, and communication (Altman and Cashin, 1992; Littlefield, 1999; Slattery and Carlson, 2005). As indicated in Table 1, a couple of researchers have outlined some specific roles of a course syllabus.

Author(s)	Role of a Syllabus
Sulik and Keys (2014)	Communicates course objectives and how to achieve them, establishes the student-teacher roles and norms that serve to guide students on how to succeed in college, sets the tone for classroom interactions, helps immerse the students into the specific discipline and its practice
Doolittle and Siudzinski (2010)	Provides instructors' information, outlines course information, specifies grading information, articulates class or course policy information
Slattery and Carlson (2005)	Facilitates learning/teaching by communicating the overall course pattern, clarifies the relationship between goals and assignments, communicates the nature, quality, and the teaching philosophy of the instructor, a tool in the accreditation process
Habaneck (2005)	Provides details on how students' learning will be assessed
Peer and Martin (2005)	Facilitate learning by communicating the goals of a course, a tool to encourage students to actively participate in their own learning
Parkes, Fix, and Harris (2003)	Contract between the teacher and learner, permanent record of course content and policies, learning tool establishing teacher and student roles and expectations
Littlefield (1999)	Sets the tone for the course, motivates students to set achievable goals, teacher planning tool, gives a structure/map for the course, helps teacher plan and set achievable goals, a contract between the student and teacher about each other's expectations, portfolio artifact for teacher's use in career advancement
Diamond and Grunert (1997)	Provide curricular goals, assessments and grading practices, course content, student activities.
Matejka and Kurke (1994)	Contract that establishes the expectations of the teacher and the student, communication device, plan of action for the course, cognitive map where the course is an educational adventure
Altman and Cashin (1992)	Communicate to the student what the course is about, why the course is taught, where is the course going, what is required of the students
Behnke and Miller (1989)	Learning and motivational tool
McKeachie (1986)	Inform the students about the course and its requirements, informs the students about the personality of the teacher

Table 1. A Summary of Some Studies that Articulate the Role of a Course Syllabus

2.3 What should be Included in a Course Syllabus?

Despite the ubiquitous nature of the syllabus, there is limited empirical research on its most important characteristics. This deficiency has led to a culture of reliance on assumptions in lieu

of solid scientific evidence when designing, deploying, and using the syllabus. Among the limited number of resources available from which academicians can draw in designing a course syllabus, a number of them recommend the inclusion of the instructor's office and contact information, course description or purpose, course policies, assignment schedule, and due dates (Parkes and Harris, 2002; O'Brien, Millis, and Cohen, 2009). Another key element that should be included in a course syllabus is the course's purpose that describes the course, information that is usually contained in the university course catalog. Specifically, a course purpose or goal is an explanation of the course contents as well as what the learner should expect to gain by taking the course (Altman and Cashin, 1992; Diamond and Grunert, 1997). Course goals are usually related to the program goals, are broad and general statements that describe a course's practical purpose or general learning outcomes, and are usually not measurable. In addition to providing direction for the course, course goals should be

related to the course core competencies and represent a solution to a well-defined training need (Johnson, 2006).

On the other hand, unlike course goals, course objectives represent specific, achievable, and measurable knowledge and skills that represent what students will acquire after taking the course (Diamond and Grunert, 1997). Course objectives should be written for the student using taxonomic action verbs, e.g., Bloom's (Bloom et al., 1956) or Fink's Taxonomies (Fink, 2013). The relationship between the course goals and the course objectives is that course objectives translate the course goals into specific and measurable outcomes that the student needs to master to not only pass the class but to acquire the intended competencies.

Several researchers have sought to explore the elements in the syllabus and how these elements impact student to student or student to teacher interactions, the attainment of learning outcomes, class performance, and students' overall perceptions of the course and the instructor. A few of these studies are outlined in Table 2.

Author(s)	Research Questions	Type of Data	Results
Eng, Nicholls, and Mailloux (2017)	Investigate the tone (warm or cold) and style of pharmacy course syllabi	141 pharmacy course syllabi from 30 public and 13 private universities	Pharmacy course syllabi are rarely warm in tone and do not fully employ the components of the syllabi as a potential learning tool
Savaria and Monteiro (2017)	Explore the extent to which course syllabi foster engagement and combat stereotype threats (language used in a syllabus facilitate or inhibits women from a Science, Technology, Engineering and Math (STEM) course	A qualitative analysis of syllabi from introductory engineering courses at a 4-year public university	Results revealed limited to no inclusion of: learning course outcomes, connections to topics outside of engineering, encouragement of teacher-student or peer relationships, personal growth and societal impacts, or acknowledgement of the underrepresentation of women in STEM
Parson (2016)	Investigate if and how the gendered nature of STEM education is reinforced by course syllabi	8 STEM syllabi	Discourses identified in the syllabi reveal a reinforcing of traditional STEM academic roles (gender and power) through themes of knowledge, learning, teaching and learning environment created by the language in the syllabus
Bejerano and Bartosh (2015)	Examine how the course syllabi portray the gendering (hidden gender curriculum) of the STEM disciplines	An analysis of course syllabi	The syllabi revealed 4 gendered themes namely women as incompetent, autonomy and separation, women as supporters, and masculine thinking; all normalizing masculinity
Bies-Hernandez (2012)	Explore the effects of framing (grades represented as losses or gains) on students' impressions, learning preferences, and performance	Syllabi analysis (76 students in experiment 1 and 181 students in experiment 2)	A loss-based grading scheme can negatively influence students' perceptions and performance
Harnish and Bridges (2011)	Explore the perceptions of students formed regarding the instructor and class-based off the syllabus	172 undergraduates students analyzed two syllabi (one with a friendly tone and one with unfriendly tone)	A syllabus written in a friendly, rather than unfriendly, tone evoked perceptions of the instructor being warmer, more approachable, and more motivated to teach the course
Saville et al. (2010)	Evaluate the perceptions of effective teaching by rating the teacher of the course on qualities associated with master teaching	97 students (read 2 versions of a detailed or brief course syllabus (n=50 & n=47 respectively)	Students in the detailed syllabus group rated the instructor as an effective teacher, were more likely to recommend the course to others or take another course with the instructor

Author(s)	Research Questions	Type of Data	Results
Ishiyama and Hartlaub (2002)	Explores the impact of the language (use of rewarding or punishing terms in describing course requirements) on students' perceptions of the instructor	Two groups (44 each) of students reviewed two different syllabi one with rewarding and the other with punishing terms	Students were more uncomfortable approaching the instructor after reading the punishing syllabus as opposed to the rewarding syllabus
Perrine, Lisle, and Tucker (1995)	Explore the effect of supportive statements on the syllabus on student's willingness to seek help from instructors	104 students read syllabi with and without supportive statements and the results of their seeking out of class help	Including supportive statements in the syllabus increased student's willingness to seek support from an instructor
Serafin (1990)	Examine the relationship between the changes introduced in a course syllabus and the final grades obtained by students	150 students were randomly selected (50 in each group of syllabi)	A more clear and explicit course syllabus (number of objectives, content, instructional resources, and grading components) leads to higher grades

Table 2. A Sample of Various Course Syllabi Elements and their Impact on Learning Outcomes

In summary, the above studies argue that teachers should include supporting statements and be cognizant of language that fosters stereotypes in the course syllabus. Teachers should include enough details to clearly articulate the course goals and objectives, and should give clear guidelines on the learning activities, available instructional resources, assessment criteria, and assessment rationale (Serafin, 1990; Perrine, Lisle, and Tucker, 1995; Saville et al., 2010; Bies-Hernandez, 2012; Eng, Nicholls, and Mailloux, 2017). Additionally, the teacher should pay attention to the content, intent, and the tone of the syllabus in order to enhance the learning experience. A syllabus that incorporates the concepts as mentioned earlier in Table 1 and Table 2 is referred to as learner-centered syllabus.

2.4 A Learner-Centered Course Syllabus

The concept of a learner-centered pedagogy entails the sharing of power between the learner and the teacher, with the learner getting directly involved in setting the course goals and how to achieve them (Jonassen, 2000; Saulnier et al., 2008). The learner-centered pedagogy is informed by the constructivist learning theory (Hannafin, Hill, and Land, 1997) which states that learning is an active process that requires learners to take an active role in creating their knowledge (Diamond and Grunert, 1997; Baeten et al., 2010). By taking shared ownership of the course goals, the learner can relate to the course workload. Research has demonstrated noticeable increases in student engagement and learning outcomes when teachers and students share course development and implementation practices (Weimer, 2002; Downing et al., 2018). Learner-centered pedagogy can be delivered through many techniques that include case studies, goal-based scenarios, design thinking, project-based learning, and problem-based learning (Hannafin, Land, and Oliver, 1999).

In contrast to the traditional instructional approach where the teacher is the guide and sets the objectives (Blumberg, 2009), the learner-centered pedagogy is characterized by mutual goal settings, shared roles, intrinsic motivational orientation, subjective assessments, and student-to-student and student-to-teacher collaborations and interactions (Hannafin, Land, and Oliver, 1999; Weimer, 2002; Pedersen and Liu, 2003). The student-to-student collaborations and student-to-teacher interactions should improve students' communication

skills, social skills, peer modeling, and, on a higher order, expose students to the role of collaboration in scientific inquiry (Law, 2007). Communication, social, peer modeling, and collaboration skills are usually referred to as soft skills, and it is important for students to acquire them. Project managers often receive greater recognition for their soft skills than for their technical skills because PM industry players believe that an adaptive individual can learn any required technical skills (PMI, 2018).

As universities continue to face challenges of diminishing measurable and observable proofs of learning outcomes, they should pay closer attention to the issues of curriculum assessment and reform which are usually reflected in a course syllabus. The syllabus is the most common and formal communication tool between the student and the teacher. For a syllabus to be considered learner-centered, it should include information that details a focus on the needs of the students and their learning processes (Chickering and Gamson, 1987; Udvari-Solner and Kluth, 2017). A learner-centered syllabus should include information that facilitates the academic success of the students in addition to fulfilling several goals, namely motivating the students, providing course structure, proving evidence of evaluation and assessment, and ensuring the attainment of desired course competencies (Blumberg, 2009; Harrington and Gabert-Quillen, 2015). The syllabus should not be a one-sided contract, but instructors should involve the students in designing the course syllabus and, more specifically, in setting course goals and how to achieve them (McKeachie, 1999). Students should be actively involved in their learning process, and, by creating products and artifacts, students can demonstrate proficiency of the course materials and attainment of learning outcomes (Rogoff, 1990; Stiggins, 2001). The role of students in the learning process determines the attainment of the learning outcomes (McKeachie, 1999).

The results of Table 1 and Table 2 provide insights into the roles of a course syllabus as well as what to include in a syllabus and the consequent benefits of including these elements. For instance, the results support the traits of a learner-centered course syllabus by indicating that the syllabus serves as the platform through which the instructor communicates to the students the course learning outcomes and the methods through which the learning outcomes will be assessed (Diamond and

Grunert, 1997). Based on the results from Table 2 and a review of the literature, there is a reasonable amount of research studies investigating the various elements in course syllabi in a number of academic fields.

The review of course syllabi has been done in other fields like sociology (Sulik and Keys, 2014) and for specific majors such as STEM (Bejerano and Bartosh, 2015; Parson, 2016). Well-designed course syllabi are highly effective in facilitating student learning (Diamond and Grunert, 1997; Pastorino, 1999). The role of a syllabus as a learning tool is highly supported by the combination of the cognitive, constructivist, and social learning theories. As such, a well-designed syllabus can act as a guide inside/outside the classroom making the student a more effective learner (Leeds, 1993). However, based on our review of the existing academic literature, there is a dearth of research studies that investigate syllabi related to PM. This research aims to narrow this gap by examining the nature and content of PM syllabi in order to gain a better understanding of how they reflect and communicate the attributes of a learner-centered pedagogy.

3. RESEARCH METHOD

3.1 Research Rationale and Sample Selection

The goal of this research is to analyze PM syllabi to discover if they reflect the attributes of a learner-centered course pedagogy. The study is based on an analysis of 76 PM syllabi gathered from instructors who teach at the undergraduate level in AACSB accredited schools in the US. A list of all the AACSB accredited business schools in the US was obtained from the AACSB website (AACSB, 2018). Overall, there are 820 business schools in 53 countries that are AACSB accredited (as of 12/12/2018), while in the US there are 529 business schools that are AACSB accredited, accounting for 65% of all AACSB accredited institutions worldwide.

3.2 Data Collection

A list of the names, email addresses, and telephone numbers of the deans, chairs, and instructors from the list of the 529 AACSB accredited business schools in the US was created based on the information available in the public domain. After that, a review of the websites of these schools and departments was undertaken in order to find out if they had any publicly available online course catalogs and specific information on project management course offerings. A few of these schools had information about the PM courses in their school's catalogs, but on further review, it was discovered that they were not offering the courses anymore. Eventually, the online review process yielded 398 schools. This group included those schools with syllabi that were posted on their websites. For the schools with no online syllabus, a syllabus solicitation email was sent to the deans or their executive assistant, chairs, and instructors requesting a copy of the PM syllabus or information about who to contact for the same. In total, the process yielded PM syllabi from 76 different universities, a 19% (76/398) response rate within 3 months that was deemed useful for analysis. To ensure the relevancy and currency of the data, the researchers sought syllabi used during the 2016-2018 academic years.

3.3 Content Analysis

After collecting all the syllabi, the researchers set out to code the data to answer the research questions by following two approaches, namely content and discourse analytic methods that are necessary in order to decipher manifest and latent meanings (Patton, 2001). Content analysis entails making inferences through objective and systematic identification of specific patterns or characteristics in a message (Holsti, 1969). Content analysis is a research technique that is used by behavioral and social scientists to study and comprehend the contents of a communication (Julien, Pecoskie, and Reed, 2011; Karanja and Zaveri, 2012). Content analysis can also be used to quantitatively summarize qualitative text or messages by relying on objective or intersubjective purviews that provide reliability and validity and thus offers researchers opportunities to generalize, replicate, or test hypotheses (Neuendorf, 2016). Thus, as a scientific research method, content analysis facilitates data collection, quantification, and testing of causal or correlation analysis. According to Krippendorff (2004a, 2011), a content analysis based research endeavor must strive to address a number of areas such as the definition of the data, how the data is analyzed, the population of interest, the research context under which the data is analyzed, the boundaries of the analysis, and the target of the resultant inferences.

3.4 Data Coding Process

In this study, the unit of analysis is the syllabi ($n=76$) from instructors at AACSB accredited schools of business in the US. The authors adopted the learner-centered model proposed by Cullen and Harris (2009) and modified it to include variables relevant to the PM content. There are other learner-centered frameworks and principles that include elements of a learner-centered model (Jones et al., 1995; American Psychological Association, 1997; Weimer, 2002) and have been applied in a number of academic fields, namely accounting and management (Clark and Latshaw, 2012), information systems (Law, 2007; Schiller, 2009), statistics (Lockwood, Ng, and Pinto, 2007), and online education (Duffy and Kirkley, 2004). The Cullen and Harris (2009) framework was modified and utilized because of its ease of access, application, and interpretation of the variables.

In content analysis, researchers (raters) make use of written instructions to categorize data and strive for consensus in the coded data through the use of statistical measures. Krippendorff's alpha coefficient is one of the statistical measures that is used in the content analysis to measure the degree of agreement among the researchers (raters). The degree of agreement is commonly referred to as inter-rater reliability. In this study, the researchers used Krippendorff's alpha (Krippendorff, 2004a, 2011) to assess the degree of agreement during the data coding process. The choice of Krippendorff's alpha was informed by the fact that the current study utilized content analysis, and Krippendorff's alpha is a reliability coefficient that is commonly used in content analysis studies. Furthermore, Krippendorff's alpha is considered more reliable in assessing the degree of inter-rater reliability because it incorporates both the degree of agreement and disagreement between the coders.

An in-depth comparative analysis of the most common inter-rater reliability tests can be found at Krippendorff (2004b), while a detailed explanation of how to compute

Krippendorff's alpha is available at Krippendorff (2011). Each syllabus was analyzed by two independent researchers and coded according to the modified rubric originally developed by Cullen and Harris (2009). A full review of each syllabus was carried out and the data entered into a spreadsheet that had column entries corresponding to the modified Cullen and Harris (2009) rubric. The researchers carried out a preliminary pilot test to harmonize the data collection, recording, and coding process before embarking on an independent coding of the full sample. Eventually, the researchers compared their findings, and where disagreement arose, they resolved them by reaching a consensus. The agreed-upon numerical data was used to compute the overall inter-rater reliability coefficients depicted in Table 3.

Community	Krippendorff's Alpha
Accessibility of teacher	88%
Learning rationale	79%
Collaboration	85%
Instructor Beliefs & Assumptions	90%
Power and Control	
Teacher's role	82%
Student's role	91%
Outside resources	88%
Syllabus focus	87%
Class Schedule	95%
Evaluation/ Assessment	
Grades	88%
Feedback mechanisms	79%
Evaluation	90%
Project Management Content	
Experiential Projects	92%
Project Management Tools	94%
PMBOK-Knowledge Areas or Processes	91%

Community = represented through group work, team projects, other opportunities to learn from one another, the relevance of course materials, accessibility of the professor

Power and Control = balanced responsibility of what is learned and how it is learned, co-equal partnership in the learning process

Evaluation/Assessment = learning outcomes clearly stated and tied directly to the evaluations and assessments with clear two-way formative feedback mechanisms

Project Management Content = real-world experiential project, PM software tools, and exposure to Project Management Body of Knowledge (PMBOK) process groups and knowledge areas

Table 3. Inter-Rater Reliability Coefficients (Krippendorff's Alpha)

As shown in Table 3, the values of inter-rater reliability scores range from a low value of 0.79 to a high value of 0.95 for the various classification categories. Values above 0.70 are considered to be indicative of acceptable agreement among the coders (Cohen, 1960; Neuendorf, 2016). The inter-rater reliability values in Table 3 are comparable to other studies that have adopted a similar methodology such as Ford, MacCallum, and Tait (1986) at 0.83 and Shook et al. (2003) at 0.81, respectively.

4. RESULTS

The goal of this research is to conduct a descriptive content analysis of PM syllabi in order to gain a better understanding of how they reflect and communicate the attributes of a learner-centered pedagogy. Towards this end, the current study adapts and modifies the original rubric by Cullen and Harris (2009) which has three categories, namely community, power and control, and evaluation/assessment. The authors added a fourth category to capture information specific to PM: project management content. Each category is further delineated with several subcategories which are weighted on a 1-4 scale with one (1) representing low scores for the factor under investigation and four (4) representing high scores for the factor.

For instance, under the first category of community, there is a subcategory of collaboration whereby a score of one (1) indicates that no information on collaboration is provided in the syllabus or collaboration is prohibited while a score of four (4) on collaboration indicates explicit statements articulating that collaboration is required, students are to use groups or teams for class work or projects, and students are explicitly encouraged to learn from one another. A detailed explanation of these four categories and their respective subcategories and weights is provided in the Appendix. The values in Table 4 represent the results obtained after reviewing the PM course syllabi.

Community	1	2	3	4
Accessibility of teacher	28%	50%	19%	3%
Learning rationale	8%	54%	31%	7%
Collaboration	3%	11%	70%	16%
Instructor beliefs & assumptions	34%	36%	27%	3%
Power and Control				
Teacher's role	13%	69%	19%	0%
Student's role	10%	46%	39%	5%
Outside resources	10%	31%	53%	6%
Syllabus focus	0%	19%	77%	4%
Class Schedule	6%	9%	41%	44%
Evaluation/ Assessment				
Grades	0%	47%	52%	1%
Feedback mechanisms	0%	45%	51%	4%
Evaluation	0%	13%	76%	11%
Project Management Content				
Experiential projects	10%	27%	56%	7%
Project management tools	32%	21%	17%	30%
Project Management Body of Knowledge (PMBOK)	53%	10%	14%	23%

1 = lower levels of emphasis, 4 = higher levels of emphasis

Community = represented through group work, team projects, other opportunities to learn from one another, relevance of course materials, accessibility of the professor

Power and Control = balanced responsibility of what is learned and how it is learned, co-equal partnership in the learning process

Evaluation/Assessment = learning outcomes clearly stated and tied directly to the evaluations and assessments with clear two way formative feedback mechanisms

Project Management Content = real world experiential project, PM software tools, and exposure to Project Management Body of Knowledge (PMBOK) process groups and knowledge areas

Table 4. The State of Learner-Centeredness in the Project Management Syllabi

4.1 Creating a Community of Learners

On the community factor, the results reveal that although the instructors are accessible and provide their contact information, the syllabi did not include information that fosters the creation of a community of learners which is embodied by explicit statements that encourage interactions with the students. For instance, most of the syllabi (78%) scored one (28%) and two (50%) for the accessibility of teacher factor, implying that most of the teachers stated that they were available for the prescribed office hours, provided phone and emails, but did not include language that encouraged students to interact with them. Additionally, 8% of the syllabi provided no rationale for assignments and activities. While 54% of the course syllabi did explain assignments and activities, no information tied the assignments directly to learning outcomes. On the other hand, 86% of the syllabi incorporated collaboration and use of groups for work and study, and of those 86%, 16% scored a (4) for not only requiring collaboration and use of groups for class work and team projects, but for explicitly encouraging students to

learn from one another. The instructor's teaching philosophy is a commonly requested document by many search and tenure or promotion committees, and many candidates often include it in their portfolio. However, the analyzed PM syllabi revealed that 34% of the syllabi had no information accounting for the instructor's teaching philosophy, beliefs, or assumptions about learning, and 36% had little accounting of the instructor's teaching philosophy, beliefs, or assumptions about learning.

4.2 Sharing Power between Teacher and Student

The Power and Control factor represents a balance in responsibility between the teacher and student on what is learned and how it is learned, as well as a shared partnership in the learning process. The results in Table 4 reveal that 13% of the syllabi scored a (1) on the teacher's role in this process. According to the classification criteria, the scores as mentioned earlier implied that the syllabi were authoritarian with rules written as directives, included numerous penalties, lacked flexibility in the interpretation of the rules, or had no room for accommodating differences, all traits indicative of the fact that power resides with the instructor. Regarding the role of the students, 10% of the syllabi revealed that teachers were in full control and directed students on what to learn, while 46% of the syllabi revealed that students are not only informed that they are responsible for learning but are encouraged to go beyond the minimum to gain rewards. Only 5% of the syllabi revealed that students take responsibility for bringing additional knowledge to the class via class discussion or presentations. Regarding the course schedule, 6% of the syllabi contained no information on what course topics would be covered each week, while 44% of the course syllabi fully articulated and logically sequenced the course schedule with chronological topics listed for each class along with required readings necessary for students.

4.3 Evaluations and Assessment Techniques

Evaluations and assessments are core to the learner-centered pedagogy and, in this study, they are conceptualized as grades, feedback mechanisms, and evaluation. The results revealed that in many syllabi (52%), instructors tied grades directly to learning outcomes, and students had some options for achieving points. However, 1% of syllabi contained information indicating that students had options for choosing which assignments were not graded. Furthermore, 51% of course syllabi indicated that instructors used grades and other feedback in the form of non-graded assignments, activities, and other opportunities to converse with students. However, only 4% of the teachers offered periodic feedback mechanisms of monitoring learning such as lecture response slips, non-graded quizzes, graded quizzes, tests, or papers for monitoring learning. Under the evaluation criteria, only 11% of the syllabi indicated that instructors used summative and formative evaluations including written and oral presentations, group work, self-evaluations, and peer evaluations.

4.4 Project Management Content

On the section regarding PM content, a combined 37% of the syllabi had little or no information about how or if the students would participate in projects, and only 7% of the syllabi articulated that students would be involved in a "real world" experiential project. Additionally, 53% of the syllabi had little or no information on whether students would use project

management tools in the course, while 30% of the syllabi clearly articulated that students will use PM software (e.g., Microsoft Project, Asana, Workfront, Wrike, etc.) in the class. On the other hand, a combined 63% of the course syllabi provided little or no information on whether students would become familiar with the PMBOK Guide and Standards, while 23% of the syllabi were very clear and indicated that students would become familiar with the PMBOK Guide and Standards.

5. DISCUSSION AND CONCLUSIONS

5.1 Key Findings

The focus of this study is not the critic of PM syllabi, but its goal is to use descriptive content analysis to identify the elements that may be present or missing in the syllabi to facilitate a learner-centered pedagogy. This study utilizes a representative sample of PM syllabi to analyze the extent to which the PM syllabi reflect the learner-centered pedagogy and identifies possible content and techniques to improve the PM courses. A major defining characteristic of a learner-centered syllabus is the shift from teaching to learning. Thus, a learner-centered course syllabus should include information that encourages and fosters the building of a community of learners, shares power and control over course content and delivery techniques, and has a direct link between evaluations, assessment, and learning outcomes (Weimer, 2002; Cullen and Harris, 2009). To facilitate the creation of a learner-centered environment, instructors should provide contact information, articulate the learning rationale and course information, specify grading information, as well as provide the course policies and their teaching philosophy (Doolittle and Siudzinski, 2010).

Except for collaboration, many of the PM syllabi did not explicitly contain information that encouraged interaction with the instructors, stated learning rationales, or provide detailed information about the instructors' beliefs, assumptions, and teaching philosophy. A learner-centered pedagogy entails constant interaction between the teacher and the students, and the teaching philosophy can be an indicator of that collaboration. The use of a friendly, rather than an unfriendly, tone in detailing the instructors' beliefs, assumptions, and teaching philosophy evoke the perception that the instructor is warm, approachable, and motivated to teach (Harnish and Bridges, 2011). Usually, documents detailing an instructor's teaching philosophy span a couple of pages but there are available resources on how to craft a teaching philosophy to fit in a course syllabus (Chism, 1998; Goodyear and Allchin, 1998).

The language that the instructor uses in the syllabus should exude enthusiasm for the course as well as articulate the knowledge and skills that the students will acquire in the course. On the other hand, the inclusion of clear evaluations, assessment tools, and course outcomes in the syllabus makes it function as a resource that can ultimately serve as an accreditation tool because many accrediting bodies look for an alignment between the curriculum and the program learning outcomes. Thus, a well written and structured syllabus serves as a tool capable of improving the students' learning experiences, facilitating instructor teaching, enabling the instructor and student communications throughout the course, as well as monitoring and controlling the quality of a course/program(s).

Moreover, when instructors provide the course learning rationale and the course goals, they facilitate learning by minimizing surprises, thus encouraging students to actively participate in their learning (Peer and Martin, 2005). With the purpose to inspire students, the course syllabus should include the learning goals or course objectives, details about the instructor, and how and where the students can get assistance to promote student success (Collins, 1997; Davis, 2009). A significant number of the reviewed PM syllabi (70%) reported the use of collaboration and the use of groups and teamwork. This is a good indicator of a learner-centered teaching focus which is suited to the PM field because, in the real PM environment, teamwork and group work play crucial roles in accomplishing tasks.

Regarding the category of power and control, many syllabi revealed no shared power and used what is considered authoritarian language, contained rules written as directives, and included numerous penalties with no flexibility in the interpretation of the rules. Perhaps, in the syllabus, teachers can explain which rules, policies, and procedures must be followed (university policies, security policies, safety concerns, etc.), while other course procedures may be negotiated. For example, teachers can share power and create a community of learners by presenting the students with multiple avenues for evaluation and assessment as well as many assignments from which students can pick a subset to accomplish (Weimer, 2002). The students' possible choice of assignments could also address the research that students differ in learning styles (Kolb and Kolb, 2005). In addition to sharing power, instructors should include supportive statements in the syllabus because students are more likely to seek out instructors with supportive statements. Students are less likely to approach an instructor whose syllabus contains minimal flexibility in the rules as well as no room for accommodating differences (Ishiyama and Hartlaub, 2002).

In terms of bringing outside resources to the classroom, only 6% of the syllabi indicated that students take responsibility for bringing additional knowledge to the class via class discussions or presentations. A learner-centered syllabus should provide opportunities for interactive or experiential learning because when students are actively involved in the learning process, they construct their own understanding and easily demonstrate proficiency and mastery of the course goals (Rogoff, 1990). Cognitive research has shown that actively involving students in the coursework incentivizes them to take more responsibility for their learning which, in turn, leads to higher learning because students are motivated, relate to the course materials, and construct their understanding of the phenomena under investigation (McKeachie, 1999). A learner-centered course syllabus leads to more interactions and rapport between students and teachers as well as among the students. The students who take a course that is structured using a learner-centered syllabus have also reported high levels of motivation, engagement, achievement, and empowerment (Saville et al., 2010; Harrington and Gabert-Quillen, 2015).

On the issue of class schedule, over 80% of the analyzed syllabi either included a class schedule and course topics broken down by class period or fully articulated and logically sequenced the course schedule with chronological topics listed for each class along with the required readings and preparation necessary for the students. Research shows that a well-detailed course schedule that lists all the assignments is at the core of the

learner-centered syllabus (McKeachie, 1999) and helps demystify the course materials. A detailed syllabus portrays the instructor as an effective teacher, and students have indicated that they are more likely to recommend the course associated with a detailed syllabus to others or will take another course with the instructor with a detailed course syllabus (Saville et al., 2010). The presence of these and other elements that are indicative of a learner-centered course syllabus is not an automatic validation for a learner-centered pedagogy, but their absence may be indicative of the lack of an awareness of what fosters a learner-centered environment.

Finally, regarding the PM content, only 7% of the syllabi articulated that students would be involved in a “real world” experiential project. The use of “real world” experiential projects should help inculcate soft skills to students, as well as offer them opportunities to experience how the course work relates to the “real world” work environment. Additionally, many syllabi did not include information on PM tools or the PMBOK guide. Students should be exposed to PM tools and the various knowledge areas and process groups articulated in the PMBOK guide. Exposure to the PM tools and the PMBOK guide offers the students opportunities to familiarize themselves with the latest developments in the field, master the vocabulary of the subject, as well as learn the PM concepts. Ultimately, these experiences should help the students become more marketable when they graduate and are tasked with the roles of identifying project requirements, setting objectives, balancing the triple constraints, ensuring alignments between the project objectives and the organizational strategy, as well as managing the uncertainty brought about by the various demands of the stakeholders (Ahsan, Ho, and Khan, 2013).

The PMBOK guide, a product of the PMI, provides the framework for the Project Management Professional (PMP) certification exam which is highly regarded in the US and other parts of the world. Thus, by exposing students to the PMBOK, they learn about teamwork, the vocabulary of the field, the primary concepts, and the related theories. According to the IS2010 model curriculum guidelines, potential graduates who enroll in a PM course should engage in team-based activities in addition to familiarizing themselves with the PM techniques.

5.2 Implications for Research and Practice

Given the various attributes associated with learner-centered pedagogy, it is possible that many teachers have not, as yet, been exposed to them or do not have a good understanding of their full potential or benefits. With this in mind, schools should develop professional development programs for teachers that serve to inculcate the positive attributes of learner-centered pedagogy. Schools should help teachers develop skills that help them carry out these attributes in their syllabi and coursework. Additionally, learner-centered course pedagogy is more time-consuming and may require more resources compared to the traditional lecture format. As such, those who seek to adopt this strategy should exercise caution and use a piecemeal approach instead of a complete overhaul of their teaching strategy to encourage buy-in and eventual success. In a learner-centered teaching environment, the teacher acts as a coach or a facilitator who must be present to actively help students with authentic practical assignments aimed at enhancing deep learning and an understanding of the course content. In light of this, teachers should seek to develop their soft skills because their

mannerisms and speaking and presentation styles may have an impact on the delivery of the course materials in a learner-centered pedagogy.

Prior research suggests that students in the natural sciences are less inclined to accept a learner-centered approach than those in the social sciences (Downing et al., 2018). Other scholars have reported that a learner-centered pedagogy is better suited to courses that involve projects, technology, and the use of multimedia resources (Norman and Spohrer, 1996; Schwienhorst, 2002). PM has various elements associated with entrepreneurship and management and is heavily weighted towards the use of projects and technology, making it a good candidate for learner-centered pedagogy. However, researchers should explore this assertion further by comparing the attainment of learning outcomes and students’ overall satisfaction in a learner-centered and a non-learner-centered PM course offering.

The fact that a majority of the syllabi contained little information on whether students used PM tools in the class or were exposed to the PMBOK concepts reiterates the adage of a known disconnect between industry needs and academic preparation for potential employees. As such, the academy should partner with PM industry players to make sure that students are exposed to real-world, experiential projects and have access to the PM tools and the concepts in the PMBOK. Furthermore, schools should try to align their programs both to the local and the national job markets by engaging PM practitioners as advisors. When engaged as advisors, PM practitioners provide balance and direction on curriculum design or redesign, emerging industry innovations, as well as avenues for internships and job opportunities.

5.3 Limitations and Future Research

Among the various elements explored in this study is the information contained in the syllabus that guides the teacher-student or student-student classroom communications and interactions. However, it is possible that there are other avenues that instructors use to communicate or interact with students, such as the learning management system. These forums are not documented, hence are not amenable to a review, making them out of the scope of this research. However, we would hope that instructors will still incorporate the elements of a learner-centered pedagogy in these avenues because one of the easiest and observable ways that an instructor can improve the teaching and learning process is by improving the communication effectiveness of the syllabus as well as clearly articulating the course content.

On the other hand, collecting course syllabi initially appeared to be a straightforward process, but it proved to be a daunting task with low response rates. We would encourage instructors to willingly share their syllabi to enrich our understanding of how syllabi are structured and thus improve the learning and teaching of the various courses. Future studies should seek to investigate other elements in the PM syllabi such as the alignment between the course objectives and assessments, as well as the knowledge areas and tools articulated in the course objectives.

Finally, researchers should explore this line of research further and seek to replicate the current study by gathering syllabi from other regions such as the European Union, Asia, Africa, Australia, etc., as well as conduct a comparative study

between these various regions in order to find if there are similarities or differences in how PM is taught. Project Management is a relatively new field that combines concepts from other traditional fields such as psychology, mathematics, economics, entrepreneurship, and management, and future studies should investigate how PM syllabi compare or differ from these founding fields.

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AUTHOR BIOGRAPHIES

Erastus Karanja is an assistant professor in the computer information systems (CIS) department in the School of Business at North Carolina Central University. He holds a Ph.D. in business administration and an M.S. in computer science. He is a certified Project Management Professional (PMP) and also holds A+ and Network+ certifications. His research explores IT strategy and security issues, innovation, IT project management, and pedagogy. His research has been published in a number of journals, such as the *International Journal of Information Management*, *International Journal of Accounting & Information Management*, *Journal of Systems and Information Technology*, *Journal of Business Information Systems*, *Journal of Information Systems Education*, *Journal of Risk Management*, and *Information and Computer Security*, among others. He has also presented his research at various local and international conferences.



Donna M. Grant is an associate professor and the chair of the computer information systems (CIS) department in the School of Business at North Carolina Central University. She is also the Program Coordinator for the computer science and business (CSB) interdisciplinary degree. She received her Ph.D. from DePaul University, where she also earned an M.S. in information systems with a concentration in project management and an M.B.A. in finance. Additionally, she earned a B.S. in mathematics at Northwestern University. She has been teaching at NCCU for 12 years. In 2018, she was presented with the University North Carolina Board of Governors Excellence in Teaching Award. With this award, she was recognized as one of the top faculty members in the 17-campus University of North Carolina System. In 2011, she earned the Award for Teaching Excellence from North Carolina Central University. She has published in numerous journals and she has presented her research at several conferences. She has published in the *Journal of Information Technology Education*, the *International Journal of Cloud Computing*, the *Encyclopedia of Gender and Information Technology*, the *Informing Science Journal*, and various information systems conferences. Prior to obtaining her doctorate degree, she spent 22 years in the IT industry where she worked as a Director of Information Technology at Ameritech.

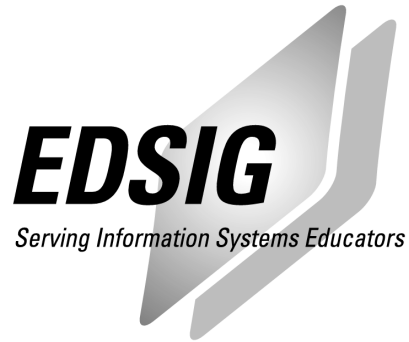


APPENDIX

Syllabus Evaluation Rubric (adapted and modified from Cullen and Harris, 2009)

Criterion	1	2	3	4
<u>Community</u>				
Accessibility of teacher	Available for prescribed number of office hours only; discourages interaction except in class or for emergency	Available for prescribed number of office hours; provides phone and email but discourages contact	Available for more than prescribed number of office hours; offers phone, email, fax, home phone; encourages interaction	Available for multiple office hours, multiple means of access including phone(s), email, fax; holds open hours in locations other than office (e.g. library or union); encourages interaction
Learning rationale	No rationale provided for assignments or activities	Explanation of assignments and activities but not tied directly to learning outcomes	Rationale provided for assignments and activities; tied to learning outcomes	Rationale provided for assignments, activities, methods, policies, and procedures; tied to learning outcomes
Collaboration	Collaboration prohibited	Collaboration discouraged	Collaboration incorporated; use of groups for work and study	Collaboration required; use of groups for class work, team projects; encourages students to learn from one another
Instructor Beliefs & Assumptions	No accounting of the instructor's teaching philosophy, beliefs, or assumptions about learning	Little accounting of the instructor's teaching philosophy, beliefs, or assumptions about learning	Section describing the instructor's beliefs or assumptions about teaching & learning that guide the course	Well-articulated & thought-out rationale that includes the values &/or experiences that guide the instructor's teaching practice
<u>Power and control</u>				
Teacher's role	No shared power. Authoritarian, rules are written as directives; numerous penalties; no flexibility in interpretation; not accommodating to differences	No shared power; while teacher is ultimate authority, some flexibility is included for policies and procedures; some accommodation for differences among students	Limited shared power; students may be offered some choice in types of assignments or weight of assignments or due dates	Shared power. Teacher encourages students to participate in developing policies and procedures for class, as well as input on grading, due dates, and assignments
Student's role	Student is told what he or she is responsible for learning	Student is told what he or she is responsible for learning but encouraged to go beyond minimum to gain reward	Student is given responsibility for presenting material to class. Some projects rely on student generated knowledge	Students take responsibility for bringing additional knowledge to class via class discussion or presentation
Outside resources	No outside resources other than required textbook. Teacher is primary source of knowledge	Reference to outside resources provided but not required	Outside resources included with explanation that students are responsible for learning outside of the classroom and independent investigation	Outside resources included with explanation that students are responsible for learning outside of the classroom and independent investigation. Students expected to provide outside resource information for class
Syllabus focus	Focus is on policies and procedures. No discussion of learning or outcomes	Weighted towards policy and procedures with some reference to content covered	Includes course objectives. Balance between policies and procedures and focus on learning	Syllabus weighted towards student learning outcomes and means of assessment; policies are minimal or left to class negotiation

Criterion	1	2	3	4
Class Schedule	No information on what course topics will be covered each week	Little information on what course topics will be covered each week	Course topics broken down by class period	Fully articulated & logically sequenced course schedule with chronological topics listed for each class, along with required readings & preparation necessary from students
<u>Evaluation/ assessment</u>				
Grades	Focus is on losing points; grades used to penalize	Emphasizes the accumulation of points disassociated from learning performance	Grades are tied directly to learning outcomes; students have some options for achieving points	Grades are tied to learning outcomes; option for achieving points; not all work is graded
Feedback mechanisms	Mid-term and final test grades only. Students not allowed to see or to retain copies of tests	Mid-term and final test grades with minimal other graded work. Tests not cumulative. Students may see but not retain copies of tests	Grades and other feedback in the form of non-graded assignments, activities, opportunities to conference with teacher	Periodic feedback mechanisms employed for the purpose of monitoring learning (lecture response slips, non-graded quizzes, graded quizzes, tests, papers, SGID, or other feedback on learning)
Evaluation	Tests (not comprehensive)	Tests, quizzes and other summative evaluation	Summative and formative evaluation, written work required	Summative and formative evaluations including written and oral presentations, group work, self-evaluation, and peer evaluation
<u>Project Management Content</u>				
Experiential Projects	No information about how/if the students will participate in projects	Little information about how/if the students will participate in projects	Students will work on project management cases highlighting how organizations are implementing project management practices	Students will be involved in “real world” experiential project
Project Management Tools	No information on whether students will use project management tools in the course	Little information on whether students will use project management tools in the course	Students use other tools for Project Management (e.g., Excel, etc.)	Students will use Project Management Software (e.g., Microsoft Project, Asana, Workfront, Wrike, etc.)
Project Management Body of Knowledge (PMBOK)	No information on whether students will become familiar with PMBOK Guide and Standards	Little information on whether students will become familiar with PMBOK Guide and Standards	Students will become familiar with some PMBOK Guide and Standards (5 Process Groups and 10 Knowledge Areas)	Students will become familiar with all PMBOK Guide and Standards (5 Process Groups and 10 Knowledge Areas)



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