



A Syllabus Review Check-List to Promote Problem-Centered Instruction

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Abstract

A first-class syllabus can help promote effective, efficient and engaging learning, but traditional syllabi too often fail to attain this purpose. This paper describes and illustrates a syllabus review check-list that was designed to assist faculty at a major university to adopt a problem-centered approach to their courses. The check-list enables the user to identify a typical syllabus; a more effective, efficient and engaging instructional syllabus; and an even more effective, efficient and engaging problem-centered syllabus. The review of the syllabi of 52 faculty members from a major university is reported.

Keywords First principles of instruction · Course syllabus · Syllabi · Course design

Introduction

Purpose

The American University of Nigeria is dedicated to a problem-solving approach to its curriculum. Many of the professors of this institution are international, coming from many countries around the world as well as from Nigeria. Most are international experts in many disciplines that are concerned with eliminating poverty, improving the environment, promoting microfinance, improving health care, and other exploring disciplines specifically concerned with solving problems and improving conditions in third world countries.

The author was invited to consult with the faculty to help them adapt their instruction to a more problem-centered approach as represented in the book *First Principles of Instruction* (Merrill 2013).

A problem-centered approach differs from problem-based learning or case-based learning. [It] is much more structured. It involves presenting a specific whole complex problem to the learners, demonstrating successful

completion of the problem, providing information plus demonstration plus application for each of the component skills required by the problem and then showing learners how these component skills apply to the problem (Merrill 2013, p. 26).

The author provided a workshop and an online course on problem-centered instruction. The faculty who participated in these events made significant improvements in their courses, but many of the faculty did not see the relevance of this material to their subject matter content. During the last year of this project, to encourage wider participation, the President of the university suggested that the author review the syllabi of the faculty to see how their courses compared to a problem-centered course with the goal of encouraging them to revise their courses to be more problem-centered. Initially, faculty volunteered to have their syllabi reviewed, but the new provost, who was assigned to oversee this effort, wanted wider participation and required all faculty to have the author review their syllabi. This review was conducted for over a year. Following the first review, a few faculty were able to revise their syllabus for a second review. Unfortunately, the project ended before the author was able to review a revised submission for most of the faculty.

The purpose of this report is to describe the syllabus review check-list that was developed to help faculty review their courses especially with the intent to make them more problem-centered.

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Background

The Course Syllabus: A Learning-Centered Approach (O'Brian et al. 2008) provides a very good guide for preparing a syllabus for a university course. The authors suggest a checklist and they provide several examples and suggestions for each of the items in this guide. They stress “focusing on the value of your syllabus as a learning tool in your course” (Syllabus Content section ¶2). They discuss several functions that a learning-centered syllabus provides including setting the tone for your course, describing your educational philosophy, encouraging active learning, and providing a conceptual framework for the course.

Parkes and Harris (2002) identify three major purposes for a syllabus: to serve as a contract, as a permanent record, and as a learning tool. They cite the first edition of *The Course Syllabus: A Learning-centered Approach* (Grunert 1997) and elaborate on the syllabus as a learning tool. As a learning tool, a syllabus provides information on how to plan, how to evaluate and monitor one's performance, and how to allocate time and resources in areas where learning is needed. It provides guidance about the learning to be done in the course. It helps students identify if they are prepared for the course and if not, what to do about it. It provides context for the course content about where it fits with other areas of the curriculum and how it might benefit the student. It might help teach broader lessons about professional behavior such as punctuality and avoiding plagiarism.

Cullen and Harris (2009) developed a rubric to be used to assess the degree of learner-centeredness through a systematic review of course syllabi. Their rubric considered a four-point rating for each of the following factors: community (i.e. accessibility of the teacher, learning rational, collaboration), power and control (i.e. teacher's role, student's role, outside resources, syllabus focus), evaluation/assessment (i.e. grades, feedback mechanisms, evaluation, learning outcomes, and revision/ redoing). The authors used this rubric to evaluate syllabi from two academic units involving 15 faculty in the first and 10 in the second in the same comprehensive university. Their results showed good accessibility to teachers but not a corresponding emphasis on learning rational. Both units were very teacher-centered in the power and control criterion. Unit A was only moderate on evaluation/assessment whereas unit B was much better on this criterion. The authors saw their study as a mechanism to help professors assess where they are on learner-centeredness with the goal to improve in the future.

Fornaciari et al. (2013) argued that an effective syllabus should be based on principles for adult learning

(Knowles 1977) including: “adults need to know the ‘why’ of learning; adults learn through trial-and-error experience; adults should own their own decisions about learning; adults prefer learning that which is immediately relevant to their lives; adults learn better from problem-based than content-based environments; and adults learn better with intrinsic versus extrinsic motivators” (p.702–703). They identify several different frames for a syllabus: as a contract (i.e. a formal agreement between the student and the institution), as a power instrument (i.e. putting the instructor in control of the course), as a communication or signaling device (i.e. sends expectations of the instructor and what the course is about), and as a collaboration (i.e. that the course is a cooperative venture among students and the instructor.) The authors advocate for the latter frames for a syllabus: communication and collaboration.

Many universities provide syllabus templates to be followed by their faculty in preparing syllabi for their courses. Almost all have the same basic information or categories of information to be provided to the students. Exhibit A is an example of one of the better examples of a syllabus template found on the Internet.

Based on their review of studies of syllabus use, Slattery and Carlson (2005) suggested some specific recommendations for why “a strong syllabus facilitates teaching and learning.”

It communicates ... an organized and meaningful journey [through the course] (p.159) ... the strongest syllabi and courses have assignments that are clearly related to process objectives and that clearly help students meet these goals (p.160) ... the strongest course goals use action verbs (evaluate, analyze, create) rather than more passive and vague verbs (learn, recognize, understand) (p.161) ... tell [students] why you give assignments and why they are important (p.162) ... [provide] the grading criteria and rubrics used to guide the determination of ... grades (p/ 161) ... are user-friendly and warm (p. 163).

Other guides for designing syllabi include Passman and Green (2009) who emphasize accessibility; Matejka and Kurke (1994) who emphasize building a syllabus around a contract, a communication device, a plan, and a cognitive map; Ludwig et al. (2011) who emphasize building a syllabus as an assessment for learning including: clearly defined and measurable learning objectives prior to instruction, providing usable feedback to the student to ensure prompt guidance and using feedback to improve teaching and learning; Jones (2018) emphasizes design features such as font size, bulleted lists, graphics, tables, etc. They write, “Scholars, researchers, and instructors understand that content in syllabi is important, but that content must be accessible and in a form that encourages

the use and makes use easy, rather than stymies students when they need Information” (Future Study and Conclusions section ¶ 1).

First Principles of Instruction

The university’s goal for this project was to assess the degree to which faculty used a problem-centered approach to instruction based on the book, *First Principles of Instruction* (Merrill 2006, 2007, 2013) and to encourage them to revise their course to be more problem-centered. The principles of instruction, on which the Syllabus Review Form is based, are briefly summarized in the following paragraphs:

Perhaps the most frequently used learning event is to present information or *tell*. This *tell* can take many forms including lectures, videos, textbooks, and PowerPoint presentations. Often this *tell* is followed by an *ask* learning event which requires learners to remember what they were told, what they read, or what they saw. “*Tell-and-ask* is one of the least effective instructional strategies” (Merrill 2013, p. 72).

Does the content include examples, demonstrations, or simulations of the ideas being taught? Providing examples of the content being taught is fundamental for effective instruction and engaging instruction. Adding demonstration (*show*) to a *tell-ask* instructional strategy will result in a significant increment in the effectiveness of the course. The show-me principle states that “Learning is promoted when learners observe a demonstration of the knowledge and skill to be learned” (Merrill 2013, p.23).

Does the course include the application of the information and skills demonstrated? There are two kinds of application that are most important but too often not included: the first is *DOid* or *DOidentify* that requires learners to recognize new divergent examples of an object or event when they encounter it. *DOid* is also the initial application required when learning the steps of a procedure or process. The learner must first recognize a correctly executed step when they see it and they must also recognize the consequence that resulted from the execution of the step.

The second kind of application is *DOex*. Once students can recognize appropriate steps and appropriate consequences for these steps then *DOex* or *DOexecute* is the next level of application. *DOex* requires learners to perform or execute the steps of a procedure. (Merrill 2013, See Section Instructional Strategy for a Problem-Solving Event, p. 123). Adding appropriate *DOid* and *DOex* application to a *tell-show* strategy provides another significant increment in the effectiveness, efficiency, and engagement of the instructional strategy. The let-me principle states that “Learning is promoted when learners engage in the application of their newly acquired knowledge or skill” (Merrill 2013, p. 21).

Even after appropriate demonstration and application learning events are added to an instructional strategy there is still a potential problem that keeps this instructional sequence from being as effective, efficient and engaging as possible. In a traditional sequence, topics are usually taught one-on-one. The demonstration (*show*) and application (*DO*) learning events added to a *tell* sequence are usually examples that apply to only a single component skill that is merely a small part of solving a whole problem. Too often learners fail to see the relevance of some of these individual skills learned out of context. We have all experienced the often used explanation, “You won’t understand this now, but later it will be very important to you.” If “later” in this situation is several days or weeks there is a good possibility that the learner will have forgotten the component skill before they get to actually use this skill in solving a whole problem or doing a whole task. Or if learners do not see the relevance of a particular skill they may fail to actually learn the skill or they are unable to identify a mental model into which they can incorporate this skill. Then when it is time to use this skill in the solution of whole problems learners are unable to retrieve the skill because it was merely memorized rather than understood. Furthermore, if solving a whole problem or doing a whole task is the final project for a module or course there may be no opportunity to get feedback and revise the project.

To maximize engagement in learning a new problem-solving skill, learners need to acquire these component skills in the context of the problem they are learning to solve or the task they are learning to complete. If learners are shown an example of the problem they will learn to solve and how to solve this problem, then they are more likely to see the relevance of each individual component skill when it is taught and they will have a framework into which they can incorporate this new skill, greatly increasing the probability of efficient retrieval and application when they are confronted with a new instance of the problem. The problem-centered principle states that “Learning is promoted when learners are engaged in a problem-centered strategy in which component skills are taught in a simple-to-complex progression of whole real-world problems” (Merrill 2013, p. 168).

Method

O’Brian et al. (2008) and Parkes and Harris (2002) emphasized a primary purpose of the syllabus is as a learning tool for the student. An assumption of this project is that the syllabus should be a guide for the student and not only

present the requirements of the course but should also provide an overview of the assignments that would be given, the nature of the learning experiences they would participate in, and the nature and content of tests or term papers. When a student finishes a review of the syllabus they should have a very good overview of not only the topics to be covered and the schedule of lectures and due dates for assignments but rather a detailed description of each assignment, how it relates to the topics of the course and the textbook. Consistent with the characteristic of adult learners (Fornaciari et al. 2013) a goal of this project is to promote problem-centered courses that put students in the context of solving real-world problems.

Cullen and Harris (2009) used a review of the syllabus to assess the learner-centeredness of the courses. In like manner the challenge in this project was to design a syllabus checklist that could be used to review the syllabi of the faculty to determine the degree to which the syllabus implemented effective instructional strategies as described in the book, *First Principles of Instruction*, and to provide a set of notes to accompany this checklist that would guide the faculty as they revised their courses to be more consistent with these principles, with the eventual goal of having problem-centered courses.

Many universities provide syllabus templates to be followed by their faculty in preparing syllabi for their courses. Almost all have the same basic information or categories of information to be provided to the students. All provide the mechanics of the course but almost all of them fail to indicate what is required to make the syllabus effective as a guide for student learning.

In Exhibit A bold text indicates those syllabus components that we need to carefully review because it is these components that affect student effectiveness, efficiency and engagement in obtaining the learning objectives of the course. Much of the other information identified is important for the university, for classroom management, for school policies, etc. but have little effect on student learning. This study concentrated on the four areas of the syllabus that relate to First Principles of Instruction and that can make a significant difference in student learning: objectives, schedule, assignments, and the final activity for the course.

The syllabus checklist identifies four levels for each of the instructional components which are the focus of this study. Faculty sometimes fail to include these important components of a syllabus, so a syllabus is inadequate to the extent that objectives, a schedule, assignments, or a final activity are not included. A typical syllabus often consists of remember or ambiguous objectives, a topic-centered schedule, *tell-ask* activities, and a final paper or test that is primarily remember

(*ask*). A typical syllabus that requires students to merely remember, paraphrase, or re-present information about the topics of the course, does not prepare students to solve problems in the real world. Assignments that merely require reading or studying or sharing information do not prepare students to solve problems. Consistent with recommendations of Slattery and Carlson (2005) and Merrill (2006) an *instructional syllabus* recognizes more effective versions of these syllabus components: *DOid* or *DOex* objectives, a task-centered syllabus, *DOid* or *DOex* assignments consistent with the objectives, and a final test or activity involving *DOid* or *DOex* tasks. Based on (Merrill 2013) a *problem-centered* syllabus consists of problem-centered objectives, a schedule that is built around a progression of problems or tasks, activities that involve solving successive parts of a whole real-world problem or solving a series of progressively more difficult whole real-world problems and a final activity that involves completing a new whole real-world task or problem.

Just because a syllabus identifies problems to be solved or tasks to be completed does not ensure that these tasks will be demonstrated as part of the instruction or that the assignments will require students to actually do these tasks. In the same way just because the objectives fail to identify tasks that will be demonstrated or assignments that will require execution of these required skills does not necessarily mean that the lectures or instructional materials of the course do not contain such demonstrations and applications. However, if the syllabus fails to identify task or problem-centered objectives and assignments, it is much more likely that the course materials and presentations will also fail to provide adequate demonstration or application of the skills to be acquired.

The Syllabus Review Checklist

During the first year of this project, the author consulted with the faculty to discuss and review their courses to determine if they were problem-centered. The president and provost of the university requested that the author review the syllabi of all the faculty to provide more consistent feedback. The checklist described in this paper evolved as the author reviewed more and more syllabi. His reviews started as detailed comments on a given syllabus with suggestions for improving the syllabus and the course. The checklist evolved to provide more complete and consistent comments in these reviews. The checklist as presented here was the final iteration of the checklist and was used for his reviews toward the end of the project.

This checklist has not been submitted to a reliability test. The author developed the checklist to facilitate his own review of faculty syllabi. A set of notes accompanied the completed checklist when a review of their syllabus was submitted to faculty with the intent of helping them interpret the review and revise their course. This set of notes should also help improve the reliability of the checklist when used by faculty to review their own syllabi. When this checklist is used by others it would be desirable to determine inter-rater reliability. The intent of this paper was to present this checklist with the hope that it might become valuable to faculty and others who wish to review their syllabi to determine to what extent they implement the principles advocated by *First Principles of Instruction*.

Exhibit B Is the Syllabus Review Checklist It was designed to help faculty review their own syllabus and course with the goal of revising their course to more adequately implement the principles described in *First Principles of Instruction* and ultimately to provide a problem-centered course. For the syllabus under review, the reviewer checks one box corresponding to the best description for each of the four categories. The following paragraphs are the notes that accompany the checklist and elaborate on each of the values in each category.

Objectives

Remember or Ambiguous Objectives The objectives most often seen in syllabi require students to merely remember the content. These objectives often use verbs like: define, describe, identify, label, list, recall, state. Merely remembering content does not transfer to using this content or the ability to solve problems. Remember-objectives may be important prerequisite information but only when used in conjunction with *DOid* or *DOex* objectives. Syllabi often include ambiguous verbs like appreciate, understand, comprehend. What does a student do when they understand, appreciate or comprehend? These words are too general for effective objectives. More specific action verbs should be used instead.

DOid and DOex Objectives There are two primary categories of skill needed in most content areas: the first is to identify a specific object, activity, or situation as an example of a given class. This involves identifying characteristics of the object, activity or situation. The verb “understanding” often implies this type of skill. This syllabus-review-form uses the abbreviation *DOid* (*DO*) for this type of skill.

The second skill needed in most content areas is to perform (execute) some activities to produce a given product or accomplish some goal. This syllabus review form uses the abbreviation *DOex* (*DOexecute*) for this type of skill. *DOid* and *DOex* objectives are much more specific and action-oriented. They indicate to the student what tasks they will be able to do rather than merely remember information.

Problem-Centered Objectives A problem-centered objective identifies a specific type of task the student will be able to perform or a specific type of problem that the student will be able to solve because of the instruction. The ultimate goal of almost all instruction is to enable learners to acquire skills that enable them to complete complex tasks or solve complex problems. Too often a given course teaches some of the skills required for problem-solving but fails to engage the student in actual task performance or problem-solving activities. Engaging student in real-world problem solving with authentic tasks or problems significantly increases engagement in a course.

Schedule

Topic-Schedule Many courses are organized by topics per week. Typically, the lecture, discussion plus the reading assignment is listed for each week. Sometimes the schedule identifies other learning activity assignments by the week they are due; if there is a term paper or other overall activity its due date is listed in the schedule; if there is a midterm and final exam they are shown in the schedule. A topic-centered schedule does little to provide an overview or guidance to the course.

Task-Centered Schedule When the course objectives identify *DOid* or *DOex* tasks, a more effective content-centered schedule is to organize the course around a series of modules each of which includes *tell*, *show*, and *do* learning events. A *tell* event provides information about a task and indicates the steps and conditions required to execute the task, a *show* event demonstrates the solution of one or more task examples, and a *do* event requires the student to apply the information, steps, and conditions to compete one or more new examples of the task.

Problem-Progression Schedule An effective problem-progression schedule consists of a series of modules that: (1) use *tell*, *show*, *do* learning events to teach each of the component skills required to solve the problem or

(2) use *tell*, *show*, *do* learning events to demonstrate and have learners complete a progression of problem instances.

Assignments

Tell-Ask Activities In many typical syllabi *tell-ask* learning events are indicated as assignments. The most obvious is to read chapters of the text or other materials; a popular *tell-ask* event is to assign chapters to different students and have them present the content to the class; another popular *tell-ask* event is to have students do a research project on the content of the course and present their report to the class. These study learning events may be helpful in providing *tell* and sometimes *show* learning events, but they often fail to provide an opportunity for students to apply the information or skills that are described in the materials studied.

DOid or DOex Task Assignments Instruction is much more effective, efficient and engaging when the objectives identify *DOid* or *DOex* tasks and when the schedule then includes the opportunity to actually do these tasks as part of the module for each task. The module should do more than merely list the *DO* assignment but should be very specific in indicating the instances of the task that will be demonstrated and the instances of the task that the student will be required to execute in each of the modules.

Whole Problem Task Instruction is most effective and engaging when the modules include: (1) the opportunity for students to see a demonstration for how to solve each part of an instance of the problem and then have the opportunity to solve the part of another instance of the problem or (2) in early modules to see a demonstration of the solution for an instance of the whole problem and then in subsequent modules have an opportunity to solve new instances of the whole problem.

Final Activity

Final Experience or Test In addition to a final test, a typical final experience is to have students write a term paper based on some aspect of the content of the course. While in some courses this final experience might be a problem-solving experience, in most typical courses it is merely a summary of some aspects of the content of the course. Other final experiences might be some other learning activity that could be problem solving but is most often merely another experience

remembering and telling the content of the course. These final experiences rarely enable learners to acquire problem-solving skills related to the content of the course. Many courses leave the acquisition of such skill to later experiences where the content of the course may be relevant.

Objective-Centered Tasks When the objectives of the course identify several *DOid* or *DOex* skills that are not necessarily connected as part of a larger problem-centered task, then an appropriate final experience or final exam is to have learners apply the skills they have acquired to additional instances of one or more of the tasks taught in the course. Unfortunately, when these skills are not organized around the solution of a more complex problem or task the learners may not recognize these skills when they occur in the context of a larger problem.

New Problem-Solving Task When the modules of the course have demonstrated and enabled learners to do component skills that are part of a more complex problem then the final experience in the course should be a new instance of the problem which requires learners to execute all the component skills for this whole new problem instance. When the modules of the course have demonstrated and enable learners to solve an increasingly complex progression of instances of the problem then the final experience should be yet another instance of the whole problem for them to solve. The final experience for problem-centered courses may be an assignment that requires significant time (more than a few hours) to complete.

Sample Syllabi

Exhibits C, D, and E are actual university syllabi. Exhibit C is a *typical* syllabus for a course in Ethics and Leadership; Exhibit D is an *instructional* syllabus for a course in Descriptive and Illustrative Drawing; Exhibit E is a *problem-centered* course in Fundamentals of Marketing. Except for course titles, these syllabi have been redacted to protect the identity of the faculty involved. The components of a syllabus that guide the student and promotes learning are the goals or objectives, the schedule of learning activities, the assignments, and the final activity that demonstrates what the student has learned. These syllabi include only information about objectives, schedule, assignments, and the final activity for the course. While course information, procedures, and university requirements such as rules for cheating, attendance, disabilities, etc. are

important, these components have been redacted from the attached syllabi. A completed Syllabus Review Checklist follows each syllabus.

Findings

The author reviewed 129 syllabi representing courses taught by 52 different faculty members. The syllabi represented most of the courses taught at the university including all levels of the curriculum: 56 lower division courses (100 and 200), 60 upper division courses (300 and 400) and 13 graduate courses (700–900). To provide more consistent data, the author used the final version of the checklist to do a second review of each of the 129 syllabi in preparation for this report. The data presented here are based on this second review of each syllabus.

Figure 1 plots the total score for each of the syllabi reviewed. A score 0–2 is an inadequate syllabus, $N = 7$; score 3–6 (light gray rectangle) is a traditional syllabus, $N = 82$; score 7–10 (medium gray rectangle) is an instructional syllabus, $N = 27$; score 11–12 (dark gray rectangle) is a problem-centered syllabus, $N = 13$.

The mean total score for the 56 lower division courses is 7.16 (SD 2.60), for the 60 upper division classes is 5.53 (SD 2.80), for the 13 graduate courses is 6.30 (SD 2.81). There is no significant statistical difference between these three groups.

Discussion

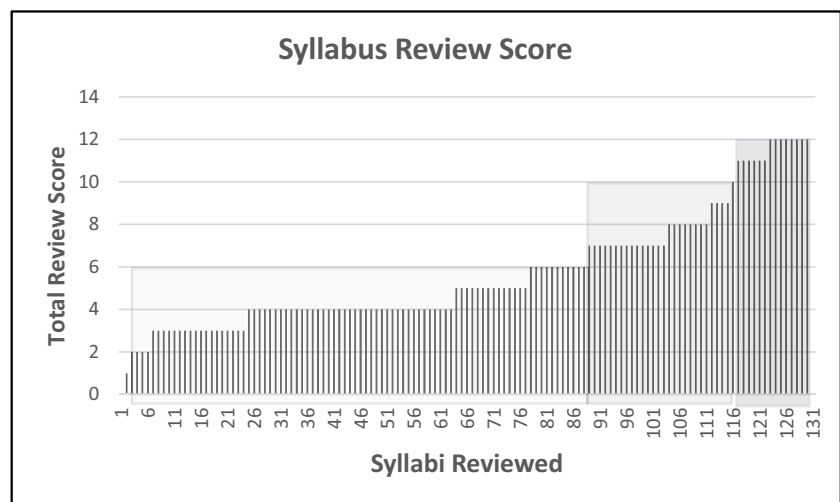
Even in an environment in which a problem-centered approach to the curriculum was being stressed, most faculty still prepared a very traditional syllabus. Some of those who prepared an instructional syllabus indicated that they were

attempting to implement *First Principles of Instruction*. All of those who prepared a problem-centered syllabus acknowledged that they were trying to implement *First Principles of Instruction*. One faculty member, who completed the author’s online course on First Principles of Instruction, was the leader of three faculty teams who prepared three of these problem-centered courses. His team members were each responsible for preparing four additional problem-centered syllabi. Together these 4 individuals account for 7 of the 13 problem-centered syllabi. Several faculty members prepared a syllabus in the winter semester and then had an opportunity to revise their syllabus for review in the fall semester. Their revised syllabus, which more adequately implemented the principles from *First Principles of Instruction*, were included in this analysis rather than their first submission.

An important question is whether the syllabus reflects what is actually done in the course? A course with a traditional syllabus may still provide a problem-centered experience that is just not described in the syllabus. The university required the professors to implement their courses using Canvas, a learning management system. The author reviewed some of these Canvas implementations to determine how well the syllabi were being implemented. In every Canvas implementation that the author reviewed there was a very close correspondence between the syllabus and the Canvas implementation. A traditional syllabus resulted in a very minimal implementation in Canvas, whereas the problem-centered syllabi resulted in very complete implementations of the course. None of the Canvas implementations reviewed exceeded what was specified in the syllabus. Unfortunately, this review of the Canvas implementations was not systematic or consistent enough to allow a correlation analysis of this correspondence.

The principles incorporated into the syllabus check-list have been studied and validated but never in the context of a syllabus (Merrill 2007, 2013). While the findings of this

Fig. 1 Syllabus review scores



activity are suggestive they do not answer the important question proposed by this paper: Can a syllabus be designed that does promote effective, efficient and engaging instruction? There was not an opportunity to collect performance data in the current study and to correlate it with the different levels of syllabi. More research is needed to determine the effect of instructional and problem-centered syllabi on student performance.

What is the value of the syllabus review check-list? If it can be demonstrated that an *instructional syllabus* promotes a course that results in more effective, efficient and engaging student learning, and if a *problem-centered syllabus* facilitates a course that results in students being better able to solve problems, then the syllabus review check-list may be an important tool that can be used by faculty to improve the effectiveness, efficiency and engagement of their courses. It is hoped that this report provides a starting place and the first attempt at a tool that leads to further study of the important role that a syllabus can play in providing better instruction and learning.

Summary

An effective syllabus should be a guide to the student and not only present the requirements of the course – text, topics, schedule – but should also provide an overview of the assignments that would be given, the nature of the learning experiences they would participate in, the nature and content of tests or term papers. When a student finishes a review of the syllabus they should have a very good overview of not only the topics to be covered and the schedule of lectures and due dates for assignments but rather a detailed description of each assignment, how it relates to the topics of the course and the textbook. However, a list of these items is insufficient.

For example, it is not sufficient to merely have objectives or outcomes for the course, but these objectives must reflect skills that demonstrate the ability to complete tasks or solve problems, merely remembering, paraphrasing, presenting information about the topics of the course do not prepare students to solve problems in the real world. Also, assignments that merely require reading or studying or sharing information do not prepare students to solve problems. The objectives should identify real-world tasks to be completed or real-world problems to be solved and the assignments should then correspond to these objectives. It is not sufficient to have a good problem-centered objective and then never have an assignment that requires the student to acquire and demonstrate the skill identified.

The prescriptions for effective, efficient and engaging instruction as described and illustrated in *First Principles of Instruction* (Merrill 2013) were applied to the development

of the checklist for the adequacy of a syllabus. This syllabus review checklist and its annotation are designed to help faculty members examine their own syllabi or the syllabi of others to determine the potential of the course in providing effective, efficient and engaging instruction based on *First Principles of Instruction*. The paper emphasizes four areas of the syllabus – objectives, schedule, assignments, and the final activity of the course and demonstrates the characteristics of these syllabus components that represent *typical* syllabi, more effective *instructional* syllabi, and most effective *problem-centered* syllabi.

A typical syllabus often includes remember or ambiguous objectives, a topic centered schedule, *tell-ask* learning assignments and a final experience or test. *Tell* learning assignments can take many forms including lectures, videos, textbooks, PowerPoint presentations. *Ask* learning assignments require learners to remember what they were told, what they read, or what they saw. The final experience or test often emphasizes remembering rather than problem solving.

An instructional syllabus includes *DO-identify* or *DO-execute* objectives, a task-centered schedule, *DOid* or *DOex* assignments, and a final activity that required completing *DOid* or *DOex* tasks. *DOid* assignments require learners to identify unencountered instances of some object or event. *DOex* assignments require learners to execute the steps in a procedure or observe the steps in a process.

A problem-centered syllabus includes problem-centered objectives, a problem-progression schedule, assignments involving solving whole problems or doing whole tasks, and a final activity requiring a doing new whole task or solving a new whole problem. A problem-progression schedule involves demonstrating and solving a sequence of increasingly complex problems or tasks or demonstrating and solving component parts of a more complex task or problem.

The author used this syllabus check-list to review syllabi for courses in an international American university. Most of the syllabi were traditional, there were some that were instructional and a handful that were problem-centered and were prepared by faculty that that applied *First Principles of Instruction*.

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Compliance with Ethical Standards

Conflict of Interest Author declares that he has no conflict of interest.

Research Involving Human Participants All procedures performed in the study involving human participants were in accordance with the ethical standards of the institution and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Appendix

Exhibit A

James Madison University Syllabus Template

Course Information

Unit, Course number, section number

Course Name

Semester and year

Days/time class meets

Location class meets

Instructor Information

Instructor's full name

Location of instructor's office

Instructor's office phone, email address

Instructors office hours or preferred contact times

Goals of Course

Course objectives or learning objectives

Goals expected to meet general education requirements

Nature of Course Content

Course Description

Catalog description, prerequisites

Schedule

Method of Instruction

Assignments and Due Dates

Date and time assignments are due

Date and time of final exam

Requirements and Policies

Required texts

Attendance policy

Class participation

Academic honesty – plagiarism

Adding and dropping classes

Contacting the instructor

Disability accommodations

Inclement weather policies

Religious observation accommodations

Methods of Evaluation

Tests, mid-terms and final exam

Quizzes

Papers

Grading method

Exhibit B

Syllabus Review Checklist

Inadequate	Typical	Instructional	Problem centered	Reviewer	Comments
				Date	
				Faculty	
				Course	
				Objectives	
<input type="checkbox"/>				None	
	<input type="checkbox"/>			Remember or Ambiguous	
		<input type="checkbox"/>		DOid or DOex	
			<input type="checkbox"/>	Problem-Centered	
				Schedule	
<input type="checkbox"/>				None	
	<input type="checkbox"/>			Topic-centered	
		<input type="checkbox"/>		Task-centered	
			<input type="checkbox"/>	Problem-progression	
				Assignments	
<input type="checkbox"/>				None	
	<input type="checkbox"/>			Tell/Ask activities	
		<input type="checkbox"/>		DOid or DOex tasks	
			<input type="checkbox"/>	Whole problem task	
				Final Activity	
<input type="checkbox"/>				None	
	<input type="checkbox"/>			Final Paper and/or test	
		<input type="checkbox"/>		DOid or DOex tasks	
			<input type="checkbox"/>	New problem-solving task	

Comments:

Exhibit C Ethics and Leadership

Course Description: This course examines the ethical issues involved in effective leadership.

Learning Outcomes:

- develop a high level of moral consciousness in leadership situations
- be familiar with different ethical theories
- be clear on the purpose of leadership, and the ethical dimension of leadership
- know the relationship between leaders and their followers.

Course outline:

- Introduction
- Different ethical theories
- Ethical decision-making and behavior
- Normative leadership theories
- Transformational leadership
- Servant leadership
- Taoism
- The Leader's Character
- Building an Ethical Small Group
- Creating an Ethical Organization
- Meeting the ethical challenges of diversity
- Ethical Crisis Leadership

Assessment: Oral presentation (15), Short Paper (10), Term Paper (30), Final Exam (30)

Textbook: Johnson, Craig E. (2015) *Meeting the Ethical Challenges of Leadership: Casting Light or Shadow*, Fifth Edition, Sage Publications.

Other relevant books: . . .

Attendance: . . .

Cell Phones: . . .

Plagiarism/cheating . . .

Personal problems: . . .

Inadequate	Typical	Instructional	Problem centered	Reviewer The Author	
				Date	
				Faculty	
				Course	Ethics and Leadership
					Comments
				Objectives	What is a “high level of moral consciousness” and how is it observed or tested? What does one do when they are “familiar with”? What does one do when they are “clear on the purposes”? How do you assess when one “knows the relationship”? Why are these ineffective objectives?
<input type="checkbox"/>				None	
	<input checked="" type="checkbox"/>			Remember or Ambiguous	
		<input type="checkbox"/>		DOid or DOex	
			<input type="checkbox"/>	Problem-Centered	
				Schedule	Why is a list of topics not a schedule? Perhaps the intent was a topic per week, but this is not indicated in the syllabus.
<input checked="" type="checkbox"/>				None	
	<input type="checkbox"/>			Topic-centered	
		<input type="checkbox"/>		Task-centered	
			<input type="checkbox"/>	Problem-progression	
				Assignments	No details are given for an oral presentation, a short paper, and a term paper. Why are these most likely tell/ask activities?
<input type="checkbox"/>				None	
	<input checked="" type="checkbox"/>			Tell/Ask activities	
		<input type="checkbox"/>		DOid or DOex tasks	
			<input type="checkbox"/>	Whole problem task	
				Final Activity	Half the grade depends on a final exam. Why is this likely to be an <i>ask</i> activity rather than a <i>DO</i> activity?
<input type="checkbox"/>				None	
	<input checked="" type="checkbox"/>			Final Paper and/or test	
		<input type="checkbox"/>		DOid or DOex tasks	
			<input type="checkbox"/>	New problem-solving task	
<p>Comments: This is an example of a typical syllabus that provides an outline of the class but there is not sufficient detail to enable the student to know what they are expected to do or what level of learning is likely to be included. It is possible that the oral exam and term paper require more than mere memory (ask) but in my experience this is unlikely. The final exam may also require more than ask but there is no indication of this from the syllabus. This syllabus provides very little guidance for student learning.</p>					

Exhibit D Descriptive and Illustrative Drawing

Course Description: This course introduces students to the fundamental principles of observational and analytical drawing. Various representational and analytical approaches are explored through assignments that encourage the development of skills needed to effectively represent and communicate visual information.

Learning Outcomes:

- Comprehend the significance of line as the fundamental element in multimedia and communication.
- Visualize and technically illustrate the characteristics and attributes of lines.
- Display more proficiency in free hand drawing.
- Approach and apply drawing as a universal visual language.
- Demonstrate an increased sense of art appreciation.

Course Schedule/Topics:

Week	Activities	Course Materials/Tools	
1 - 2	Drawing as a fundamental skill in Multimedia and Communication Unit 1: Basic reasons for drawing and the abilities developed from it. Unit 2: Defining the line and analyzing its anatomy. Unit 3: Visual rhetoric in line drawing.	Derwent Tinted charcoal Pencil (white)	2
		Lily Drawing pencil 101 (3B), (4B),(5B), (6B)	2 ea
3 - 4	The effects of Line Unit 1: The emotional and structural attributes of line, texture, and shape. Unit 2: The uses of Lines to express a variety of phenomena Unit 3: Line connotations. Unit 4: The study of Facial expressions with lines.	Charcoal Pencil: Camlin neutral	2
		White charcoal	2
		Gioconda charcoal pencil	2
		Surwin 6151 pencil (2B)	2
5 - 6	Ways of Seeing Unit 1: Laws of Composition Unit 2: Mark making with pencil	Staedtler Noris Club pencils (144) assorted color	1 pk
		Graphite pencils	2
7 - 8	Understanding Perspective Unit 1: The fundamental law of perspective Unit 2: The Study of Perspective as Visual illusion. Unit 3: The technique of perspective drawing.	White drawing cardboards	10 pc
		Black drawing cardboards	10 pc
		Black glossy cardboards	10 pc
		Drawing pads	10
9	The Characteristics of Drawing materials and tools	Erasers	10
10	Tonality and the Illusion of 3D Unit 1: Common variations in the tonal scale Unit 2: The techniques of tonking and pointillism		
11	<i>Composition in Drawing</i>		
12	<i>The technique of Still life drawing</i>		
3	<i>Studies in plant life</i>		
4	<i>Studies in Figure Drawing</i>		
5	<i>The study of Broad Structures.</i>		

Required Reading: Ruskin J. (2001). *The Elements of Drawing*. New York: Dovers Publishers.

Recommended Reading: . . .

Assessment Criteria: . . .

All drawings and illustrations will be evaluated on the following criteria:

- Technical skill and creativity
- Originality in the approach of visual representation
- Clear visual and aesthetic expression
- Strong portfolio of exhibition quality.

Inadequate	Typical	Instructional	Problem centered	Reviewer The Author	
				Date	
				Faculty	
				Course	Descriptive and Illustrative Drawing
					Comments
				Objectives	“Comprehend the significance of” is ambiguous; “Visualize and technically illustrate” is DOex; “Display proficiency is DOex; “Approach and Apply” is ambiguous but might mean DOex in apply. Why are these DOex objectives? Why are they more effective?
<input type="checkbox"/>			None		
	<input checked="" type="checkbox"/>		Remember or Ambiguous		
		<input checked="" type="checkbox"/>	DOid or DOex		
			<input type="checkbox"/>	Problem-Centered	
				Schedule	Appears to be organized around tasks to accomplish but because only topics are listed rather than assignments we don’t know. But the fact that drawing materials are required and that a rubric for evaluating drawings is given, leads one to suspect that each of these topic areas involved one or more drawing tasks. What would be a better schedule?
<input type="checkbox"/>			None		
	<input type="checkbox"/>		Topic-centered		
		<input checked="" type="checkbox"/>	Task-centered		
			<input type="checkbox"/>	Problem-progression	
				Assignments	No assignments are listed, this would be a great addition to the schedule. But the fact that materials are required and a rubric for evaluating drawings is given suggests that there are a number of specific tasks required for each of these topic areas. Why would the syllabus be significantly improved if these assignments were specified and described?
<input type="checkbox"/>			None		
	<input type="checkbox"/>		Tell/Ask activities		
		<input checked="" type="checkbox"/>	DOid or DOex tasks		
			<input type="checkbox"/>	Whole problem task	
				Final Activity	No indication is given about how grades will be determined but the rubric suggests that drawings will be evaluated and that they provide the basis for evaluation. Why? How could this syllabus be modified to provide very powerful instructional syllabus? Ans: If the specific drawing assignments were identified and described.
<input type="checkbox"/>			None		
	<input type="checkbox"/>		Final Paper and/or test		
		<input checked="" type="checkbox"/>	DOid or DOex tasks		
			<input type="checkbox"/>	New problem-solving task	
<p>Comments: Note that this is not problem-centered because it appears that the course consists of a set of individual drawing assignments that may or may not be related to a greater whole. I suspect not.</p>					

Exhibit E

Fundamentals of Marketing

Course Objectives and Rationale:

Grand Challenge: How do we get rid of Nigeria’s flights management problems?

If you have every taken a flight in Nigeria, the chances are that at least one-third of the times, you would have been delayed. Just why must this happen? In 2015 alone, over 250,000 flights were [either delayed or cancelled \(LINK\)](#) in Nigeria. A recent study of airport capacity utilization in Nigeria, over half of Abuja and Lagos respondents believed that reliability of flight schedules is a serious problem to them. Contemporary business thinkers are of the opinion that so long as there are customers for products or services, businesses must always find ways of satisfying customers. Using this problem as an example of a management problem, this course provides students with a rigorous understanding of general management and the skills in conducting managerial tasks and solving management problems.

Drawing insights from a series of modules that explore specific sets of managerial theories, students will solve a progression of smaller problems, students will practically appreciate the role of management in shaping global development. The course covers all the key areas of areas of general management, from the basic roles, skills and functions of managers, through personality traits and how managing changes within and outside an organization. Upon successful completion of this course, students should be able to:

- Conceptualize management problems and identify their root causes;
- Develop strategies for ethical and responsible management in a fast-changing world;
- Match the nature of managerial tasks and personalities of the managing individuals;
- Analyze an organization’s internal and external environments and craft appropriate leadership strategies;
- Acquire skills of using some of the recent tools and techniques of managing organizations efficiently and effectively.

Assessment: Final Exam (40), Writing Assignment I (15), Writing Assignment II (15), Showing Activities 7.5), Doing Activities (7.5).

Schedule of Topics:

	Content
Week 1 & 2	<p>Module I: Understanding the Flights Management Problem</p> <p>Objective: This module introduces the course and the basics of management. Students will get to understand the course, its rationale and begin to prepare for the Grand Challenge that they will be tackling throughout the semester.</p> <p>Background Readings/Topics: Course Introduction Chapter 1: Managers and Managing Chapter 2: Evolution of Management Thoughts</p> <p>Showing Activity I: Henry Ford Documentary. Students will watch the documentary of Henry Ford, available at https://www.youtube.com/watch?v=VGWeQ2kIPKY and have an on canvas conversation of the lessons of scientific management, therein and what can be learnt about the Grand Challenge. A specific discussion thread will be created.</p> <p>Doing Activity I: This will be an in-class presentation of the students’ definitions of the problem with flights management in Nigeria. Each students team will conceptualize their conclusions of the management problem, its root causes and identify which management theory may help understand the problem better.</p>
Week 3 & 4	<p>Module II: Meeting up with demands of a Changing World</p> <p>Objective: The reality of today is that very often, the person who is saying that <i>‘it is not possible’</i> is interrupted by the person who is actually <i>‘doing it’</i>. What can we learn from this reality in Nigeria’s quest for development? The aim of this module it to acquaint students with an understanding of the key current changes in the managerial environment alongside the actions that management thinkers are enacting in response.</p> <p>Background Topics/Readings: Chapter 4: Ethics and Social Responsibility</p>

	<p>Chapter 5: Managing Diverse Employees in a Multicultural Environment Chapter 6: Managing in the Global Environment</p> <p>Showing Activity II: Movie Analysis (John Q): Starred by the prominent Hollywood actor, Denzel Washington, John Q is a very good movie with learnable lessons on ethical leadership, after which many books have been written. The purpose of this activity is to challenge students to explore many of these lessons in light of the theories of Chapter 4 for debating and discussions on canvas. A specific discussion thread will be created.</p> <p>Doing Activity II: On the face of key changes in the global economy and aviation industry, students will analyze how Nigeria's aviation industry is meeting up with the emerging ethical and diversity management imperatives around the world. Are flight mismanagements in the country essentially an ethical challenge? In their respective teams, students will make a presentation in class of this activity.</p>
Week 5 & 6	<p>Module III: Personality and Culture of Professionalism</p> <p>Objective: Ever seen a flight attendant with the personality of a military commander? What if Michael Jackson's mother insisted he must be a boxing champion? Did you ever observe a poor team spirit among staff? This module will help students explore the link between managers' personal characteristics and their performance – both at individual and group level.</p> <p>Background Topics/Readings: Chapter 3: Manager as a Person Chapter 15: Effective Groups and Teams</p> <p>Showing Activity III: Ever wondered why FC Barcelona is such a successful business? Beyond having great players and coach, have you ever noticed anything special about how they play? Have a read of why FC Barcelona is such a great business here: https://hbr.org/2015/06/what-makes-FC-Barcelona-such-a-successful-business (Links to an external site.) and let's have a chat on canvas about what you have learnt from it about organizational culture. Make reference to any match of theirs that you watched, performances you have seen in the past and how you think their organizational culture has played part in. Specific discussion thread will be provided for this.</p> <p>Doing Activity III: What can Nigeria's aviation companies learn from FC Barcelona's Organizational Culture? Cite specific areas of their operations in which you feel organizational culture can be useful in shaping their efficiency and effectiveness. This will be an in-class presentation.</p> <p>Writing Assignment I: Beyond theoretical learning of how personality influences management practice, this provides the opportunity for students to understand their personalities within the prism of management, reflect on their past experiences and come up with personal plans of their managerial future.</p>
Week 7 & 8	<p>Module IV: Strategy and Leadership</p> <p>Objective: Ever seen people investing heavily in industries that have no future? As a manager, how do you see what is coming and chart a successful future for your organization? Are some of the managerial practices in Nigerian organizations really futuristic at all and can stand the test of time? This module helps students appreciate how managers can craft future strategies and lead their organizations to success.</p> <p>Background Topics/Readings: Chapter 14: Leadership Chapter 7: Decision Making, Learning, Creativity and Entrepreneurship Chapter 8: Manager as a Planner and Strategist</p> <p>Showing Activity IV: Steve Jobs Documentary. Students will watch the full documentary of Steve Jobs (https://www.youtube.com/watch?v=NGwu3mpXb3I) and share their individual insights of what they have learnt of creativity, strategy and leadership. A specific discussion thread will be provided on canvas for this.</p> <p>Doing Activity IV: What can Nigerian aviation companies learn from Steve Job's example? What are the implications learning achieved in this module to enhance the managerial performances of Nigerian aviation companies?</p>
Week 9, 10, 11 & 12	<p>Module V: Additional Management Tools and Techniques</p> <p>Objective: This module is designed to acquaint students with additional skills of exploring in detail additional tools of managerial problem solving relevant to their questions of interest in a way that promotes group and peer learning.</p> <p>Background Topics/Readings: Chapter 18: Using Advanced ICTs to Improve Performance Chapter 12: Human Resource Management Chapter 17: Managing Organizational Conflict, Politics, and Negotiation Chapter 9: Value Chain Management: Operating Strategies to Increase Quality, Efficiency, and Responsiveness to Customers</p>

	<p>Chapter 10: Managing Organizational Structure and Culture Chapter 11: Organizational Control and Change Chapter 16: Promoting Effective Communication</p> <p>Showing Activity V: Flipped Class Exercise – Rather than rely on instructor led teaching pedagogy, the flipped class exercise, innovated by MIT, puts students on the ‘Instructor seat’. On Instructor’s supervision, students will read the assigned book meant to acquire specific sets of management skills and make presentations of what they have learnt.</p> <p>Doing Activity V: This will be a final presentation of the Grand Challenge work completed by the student groups.</p> <p>Writing Assignment II: This will be the final report on the Grand Challenge and a demonstration of the students’ accomplishment of the learning outcomes of the course. It will be done in groups of four. A reporting template will be provided to students for this. <u>This is due at the end of Week 14.</u></p>
Week 13&14	<p>Module VI: Course Round Up</p> <p>Topic: Course Revisions & Reflections. Final Examination</p>

Required Text Book:

- Gareth R. Jones and Jennifer M. George, Contemporary Management, 6th edition (McGraw-Hill/Irwin, 2009). **NB:** Students are expected to study all chapters of the book.

Recommended Text:

- Heinz Wehrich and Harold Koontz, Management: A Global Perspective, 11th edition (Tata McGraw-Hill Publishing Company Limited, 2005). Other supplementary texts may be provided during the course.

Inadequate	Typical	Instructional	Problem centered	Reviewer The Author	Comments
				Date	
				Faculty	
				Course	Fundamentals of Marketing
				Objectives	The major objective stated as Grand Challenge. Main objectives identify component skills that are required to solve this major problem or problems like this major problem. Then there is a specific component skill objective for each objective for each module in the problem-progression schedule.
<input type="checkbox"/>				None	
	<input type="checkbox"/>			Remember or Ambiguous	
		<input type="checkbox"/>		DOid or DOex	
			<input checked="" type="checkbox"/>	Problem-Centered	
				Schedule	Organized around skill modules not just weeks. Each module introduces additional component skills and then has the student apply these skills to the grand challenge in a progression of steps toward solving this whole real-world problem.
<input type="checkbox"/>				None	
	<input type="checkbox"/>			Topic-centered	
		<input type="checkbox"/>		Task-centered	
			<input checked="" type="checkbox"/>	Problem-progression	
				Assignments	Each module has a reading assignment (<i>Tell</i>) activity, a <i>show</i> activity that illustrates the component skills being taught in the module, and a doing activity where the student applies these skills toward the solution of the grand challenge problem. These doing activities represent a progression toward a final solution for the grand challenge.
<input type="checkbox"/>				None	
	<input type="checkbox"/>			Tell/Ask activities	
		<input type="checkbox"/>		DOid or DOex tasks	
			<input checked="" type="checkbox"/>	Whole problem task	
				Final Activity	Completing the grand challenge represents the final activity of the course, solving a real-world problem.
<input type="checkbox"/>				None	
	<input type="checkbox"/>			Final Paper and/or test	
		<input type="checkbox"/>		DOid or DOex tasks	
			<input checked="" type="checkbox"/>	New problem-solving task	
Comment: This should be a very effective course that is problem-centered.					

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