Applying the Concept of Alignment in a Finance Class

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ABSTRACT

The assessment of learning goals and objectives in business courses is important for business schools. However, not all business educators are necessarily knowledgeable and trained in designing appropriate learning objectives and matching all aspects of a course around these learning objectives. This paper helps to fill this gap of knowledge by describing the concept of alignment or how to design appropriate learning objectives and matching course materials and student engagement as well as assessment methods and the course technology to these objectives. This paper also applies the concept of alignment to the specific learning module of capital budgeting analysis in an online MBA level corporate finance class. Important observations and pointers are given that help an instructor align a class with the course objectives, materials, activities and assessments. The paper shows how the specific learning objectives in a capital budgeting analysis can be achieved with the use of screen capture recordings, spreadsheet tutorials, case study assignments and specific grading rubrics.
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INTRODUCTION

Learning and teaching are very complex processes. Generally, teachers in the field of business in higher education are well educated in their respective field of expertise but may have a limited amount of formal training in how to teach effectively and how to promote student learning. After acquiring a Ph.D. in their respective field, teachers can acquire teaching knowledge from experimentation with courses and course materials over time, by networking with other teachers, by using publisher teaching resources or by taking teaching specific workshops. One important tool for effective teaching is the concept of alignment. Alignment involves the matching of course objectives with the rest of the course materials, learner activities and assessments. Research has found that revising a course around stated objectives resulted in better student outcomes [6]. Assessment of the business curriculum and its learning goals and objectives is an important concept for business schools as accreditation bodies require such assessment. The assessment of analytical skills, for example, in business courses is important for a business program. A study by Barboza and Pesek supports the hypothesis that high marks in course-embedded assessment on business-specific analytical skills positively affect performance on overall business disciplinary competence proxy by results in the Major Field Test in Business [2]. However, not all business educators have developed learning goals and/or are assessing them. For example, Christensen, Judd, and Nichols surveyed faculty at AACSB-accredited schools regarding the learning goals and measures for their accounting programs as well as course objectives for the introductory tax course in 2011. They found over 50% of respondents were still developing their learning goals and measures and only 18% of respondents had completed 2 or more rounds of assessment [3].

This paper serves two purposes, first it clarifies in section 1 the concept of alignment in teaching courses and second it shows in section 2 how the concept of alignment can be applied to the specific topic of capital budgeting analysis in an MBA online corporate finance class. This third and final section of the paper concludes with a summary and implications. The insights from this paper will be helpful for business educators who want to successfully design and align learning objectives in their courses with the course materials, student activities, assessments, and course technology.

1. WHAT DOES ALIGNMENT MEAN?

The concept of alignment is an important tool in an effective learning process. For example, alignment can be applied in the field of education to create a standards-based assessment and evaluation process within a country [4]. As Looney explains, a standards-based system rests upon the alignment of three key elements: 1. standards defining the knowledge and skills, 2. curricula, which cover the objectives identified in the standards, and 3. student assessments which measure the attainment of standards. However, the concept of alignment can also be applied to individual courses. In that context, alignment refers to the matching or linking of the learning objectives that are set by either the instructor and/or the learning institution with the
instructional materials, the learner engagement or activities, the course technology (in case the course is at least partly online based), and the assessments used to evaluate if the learning objectives are met. One can think of the learning objectives in a course as the destination or where one wants to go, the learning materials and activities as the elements that are needed to get to the destination, and the assessment strategies as the tools to find out how effectively and efficiently you arrived at your destination. The use of the concept of alignment creates a holistic view of course and commands a more integrated approach to teaching which consequently creates a more effective and efficient learning experience for the student.

Figure 1 is a visual demonstration of the concept of alignment. It shows that all the different aspects of a course, the course resources and materials, the student engagement, the performance assessment, and the course technology are directly linked with and match the course and unit objectives. The graph indicates that the relationship between the different aspects of a course and the course and unit objectives as well as the relationship between the different aspects of a course is a multi-dimensional one. Not only do the course and unit objectives have to match the course materials, the student engagement, the performance assessment, and the course technology, but the materials have to match the learner engagement, the assessments, and the technology. In addition, the learner engagement has to match the assessments and technology, and the assessments also have to match the technology.
Figure 1: Visualization of the Concept of Alignment of a Course

This figure demonstrates that in a well-aligned course, the different aspects of a course are directly linked to and match the course objectives and unit objectives. Also, the relationship between the different aspects of a course is a multi-dimensional one.

The following paragraphs explain in more detail what the different parts that are listed in figure 1 entail, and what steps are necessary for the alignment of each course aspect with the learning objectives.

1.1. Learning Objectives

Learning objectives are extremely important as they set the tone or direction of where the instructor wants the students to go. The objectives are the destination of a course. In order for an effective learning experience to occur, the instructor needs to list the learning objectives (or learning outcomes), which need to be clear and measurable so that later on they can be easily assessed. This applies to both the learning objectives at the overall course level as well as the specific unit learning objectives, where units in a course could be defined as individual weeks, chapters, or modules.

For example, course and unit objectives in a corporate finance class could be as follows:
a) Course level objective examples:
Upon successful completion of this course, students should be able to
- use quantitative applications and financial theory on issues pertinent to financial management.
- apply the analytical processes utilized in financial decision making and use the results to solve business finance problems.

b) Unit level objective examples:
Upon the completion of this unit’s activities, students will be able to:
- define the principle of “time value of money”
- solve calculation problems involving time value of money with the use of the financial calculator and Excel functions.

The instructor needs to realize that the student will be reading the objectives before learning the material. Difficult and complex language with a lot of specialized terminology specific to the field of study should therefore be avoided. All students should be able to grasp the meaning of the objectives.

In some learning institutions, the learning objectives, especially the course level objectives, are set by the institution. They are not created by the instructor and therefore the instructor may not have the flexibility of creating his or her own. However, the instructor may be able to add some additional objectives that follow the above guidelines or may be able to go through the necessary steps to have the institution-wide course objectives changed, if they are not well designed (for example, if they are not measurable or if they are not easy to understand).

1.2. Resources and Course Materials

While the objectives of the course give the student a destination or direction, the course materials help the students to get to the destination. They are like a vehicle of transportation. The course materials are essentially the core of a course. Resources and course materials can include anything from a chapter in a textbook, to an introductory chapter video recorded by the instructor, a narrated PowerPoint presentation, a screen capture video that demonstrates a tutorial, an instructional YouTube video, or a link to a webpage or news article.

The course materials and resources should enable students to achieve the stated learning objectives. Therefore, course materials need to be chosen that are effective in achieving the stated course and unit learning objectives. For example, if a student is supposed to learn how to use the time value of money function keys on the financial calculator then having the students read the chapter in the book on how to apply time value of money function formulas would be inappropriate. Instead, a tutorial that is recorded with a screen capturing software and a calculator emulator that shows how to use the financial functions to solve a time value of money problem would be more appropriate. The course materials should also have an explanation that helps the student understand how these materials help the student achieve the stated course or unit objectives. This type of statement points out to the student how the learning objectives are aligned with the course materials.
1.3. Learner Engagement

Learner engagement entails any activity that requires the student to actively do something, for example, write an essay or post to a forum or complete an assignment. Learner engagement also includes any kind of interaction of communication between students and the instructor (such as e-mail, the feedback for a paper or a virtual office hour), the student and content (for example the student engaging in a simulation game), and between students (for example a forum discussion).

Engaging students in a course and making students become active learners improves the learning process. Engaging students in the learning process and making courses student focused, as opposed to instructor focused is a particularly important part of an effective online course [5]. The instructor, however, needs to make sure that the learning activities align with or match the course and unit objectives. In other words, the learning activities should help students to learn the stated learning objectives. An example of a mismatch between a unit objective and learner engagement in a corporate finance course would be if the objective requires students to be able to complete a financial analysis, but the activities in the course do not include that skill and rather require the student to write an essay about their opinion on the actions of the Federal Reserve. In order to align the activities with the course objective, the course could require for example the student to complete an Excel template and calculate the net present value (NPV) of an investment analysis using the financial functions.

As the concept of alignment is multi-dimensional, the course materials and student engagement need to also match. An example of a mismatch would be to have the students watch a news video on the actions of the Federal Reserve as part of a unit and then ask the students to make calculations that convert real and nominal rates. While the Federal Reserve influences interest rates and inflation, a video on the actions of the Federal Reserve will not help a student to apply the Fisher Effect formula that converts these rates. Instead, a narrated PowerPoint video that presents the Fisher Effect formula and how to solve a sample problem with the formula would be a more appropriate match between the material and the learning engagement.

1.4. Assessment and Measurement

Assessment and measurement of student performance are the tools used to find out how effectively and efficiently a student has arrived at the destination and has accomplished the learning objectives. Assessments therefore measure the effectiveness of student learning and are important to the learning process. An instructor needs to create assessments that evaluate student progress throughout the semester which are aligned with the stated learning objectives but are also consistent with course materials and student activities, and are appropriate for the type or level of course.

Many different formats for assessment methods exist. Examples are multiple choice, computer adaptive multiple choice, and performance-based assessments, such as oral presentations, essays and collaborative problem solving. Each one has certain advantages but also certain challenges. Multiple choice assessments are machine scored and therefore create reliable data on student performance and are convenient to grade as they need less resources to be administered. Multiple choice questions are an excellent way to test lower-order knowledge and skills but can also be
used to assess higher-order knowledge, as long as the multiple choice questions are well-designed. Multiple choice questions, however, cannot measure certain higher-order skills such as the capacity to develop an argument. If multiple choice questions are poorly designed, they can also be prone to measurement error. For example, students might misinterpret questions or may make random guesses. Computer adaptive tests (CAT) are tests that adapt questions based on the feedback from and performance of the test-taker. Students who have answered questions correctly are directed to a more difficult set of questions, and those answering incorrectly are directed to an easier set of questions. Since the test is adapted according to each student's responses, no two students take the same test, and it is impossible to compare student performances. On the positive side, CATs are generally considered as providing more precise scores of student performance than typical standardized assessments. However, CATs have the disadvantage of demanding a very high number of test questions, which increases development costs, and of heavily relying on multiple choice formats. Performance-based assessments, such as oral presentations, essays and collaborative problem solving, are more effective at capturing more complex performance and processes and higher level learning skills. However, these assessments may not be as reliably as human subjectivity plays a role during the assignment of scores. Performance-based assessments are also more expensive to administer and complicated to score. A well thought-out grading rubric, which is a predetermined set of evaluation criteria and the associated possible points that can be obtained for a certain criteria, is a useful tool for the scoring process for this type of assessment.

Another solution could be computer-based performance assessments. “Computer-based performance assessments may potentially assess more complex performances through simulation, interactivity, collaboration and constructed response formats. Increasingly sophisticated ICT programs that score open-ended performances may address concerns regarding reliability of human-scored assessments and validity of multiple-choice assessments that do not effectively measure higher-order skills [4].

The type of assessment has to be appropriate for the type of course that is being taught. Multiple choice questions for example are more appropriate for an undergraduate principles of finance class while a combination of well-designed multiple choice questions, CATs, and performance based assessments is more appropriate for a master level financial management class.

In order to align the course in terms of its assessments, the type of assessment has to match the learning objective. For example, in a corporate finance course, the assessment of the learning objective to apply evaluation criteria in capital budgeting analysis with the use of an essay would be inappropriate. More appropriate would be the assessment of this type of mathematical skill with multiple choice questions.

The appropriate type of course material for this objective and multiple choice assessment could be a tutorial on how to use the financial functions in Excel. An appropriate type of learner engagement for this type of assessment would be a set of practice multiple choice calculation problems and explanations on how to get to the answer.

In an MBA level class, a learning objective may be to apply critical thinking skills and evaluate the effectiveness of the monetary policy by the government. An aligned course material might be
a news video about recent Federal Reserve actions and an appropriate type of learner engagement would be an essay about the student’s opinion of the Federal Reserve’s action. A very effective and appropriate way to assess this learner activity would be through the use a rubric that explains how the grades are derived. A rubric is an excellent way to grade or assess a performance based activity such as an essay. An example of a grading rubric will be presented in section 2 of this paper. A particularly important aspect of an assessment is the clear statement at the beginning of the course or the beginning of an assignment of how the student will be graded and what percentage of the total grade is made up of each activity.

1.5. Course Technology

Since the advent of the internet and particularly its Web 2.0 functionality that allows for the creation and exchange of user generated content, technology has become an important part of education. Many higher level education courses are now being offered in either online or hybrid format in the US.

The Babson Survey Research Group, for example, found in their 2011 report that in the fall 2010 term, 6.1 million college students were taking at least one online course in the US, which was about 500,000 students more than in the prior year. This represents a 9% increase. The report also shows that for the past eight years, online enrollments have been growing substantially faster than overall higher education enrollments in the US. Between 2009-2010, online enrollments grew 10%, whereas overall enrollments only grew less than 1% [1]. While the course technology is at the heart of an online course and is also important in many regular face to face classes as many instructors make use of today’s advanced technologies.

Course technology is meant to include any tools and media that are used in the course. Examples are the learning management system (such as Blackboard, Canvas or Moodle) which is the main software with which a course is delivered to the student online and any functionality within these, such as the grade center, discussion forums, video conferencing software, and any other tools outside the LMS, such a social media websites, video websites like Youtube, screen capturing software such as Camtasia, simulation games, voice narration in PowerPoint, or voice recording in Acrobat reader, that are used to present course materials and enable student engagement.

The technological tools have to be appropriate for the stated learning objectives. For example, a Facebook discussion would be an inappropriate use of technology when the student is supposed to learn how to solve time value of money problems. Instead, a better technology would be the use of automated self-check exercises requiring student responses with automated feedback and solutions. Examples of automated online assignment, quiz and self-test software are the “Connect” product by McGraw Hill and “Aplia” by Cengage Learning.

The technology used should enable the various course components to be easily accessed by the students and facilitate the student’s learning experience. Also, it is imperative that clear information and instructions are provided regarding how the tools and media support the learning objectives. This will communicate to the student how the course is aligned in terms of its use of technology.
The technology not only has to be aligned with the course objectives, but with the course materials, the learner engagement and the technology as well. For example, if the learning objective in an online course is to evaluate the effectiveness of the monetary policy by the government, the appropriate technology to use for the presentation of the learning material is for the instructor to post a Youtube video in the LMS. The appropriate technology to use for student engagement would be a forum discussion, and the appropriate technology for the assessment of the forum discussion would be the use of a rubric that explains how the student’s postings will be graded.

Besides the technologies mentioned here, many others exist that can be applied in a business course. For example, simulation and virtual world software can be useful for experiential learning and for having students apply knowledge in a more real-world like environment. The main challenge technology poses for instructors is that learning and mastering new technologies is very time consuming.

So far, the paper has introduced and explained the different integral parts of an aligned course. Next, the paper continues with an exploration of the concept of alignment through the application of this concept to the topic of capital budgeting analysis in an online corporate finance MBA level course.

2. ALIGNMENT OF CAPITAL BUDGETING ANALYSIS

A typical corporate finance class covers several main topics, including financial statement analysis, time value of money, asset valuation, capital budgeting analysis, risk and return, and capital structure. This part of the paper focuses on the topic of capital budgeting analysis or investment analysis, and specifically the risk assessment within capital budgeting analysis. In order to show how this topic can be structured to follow the principle of alignment in an online MBA Advanced Corporate Finance course, the different aspects of the course are introduced next together with an explanation on how to align these with the learning objectives. The demonstration here of the concept of alignment is specific to the topic of capital budgeting analysis, which also covers sensitivity, scenario and break-even analysis. These are analysis types that go beyond the basic investment analysis to account for risk.

2.1. Learning Objectives

The course has two types of learning objectives: the overall course objectives, which are stated in the syllabus, and the unit specific objectives, which are posted in the beginning of each chapter within a module.

Two of the course objectives, which are related to capital budgeting analysis, are as follows:
Upon the successful completion of this course, students will be able to:
a) apply quantitative applications to issues pertinent to financial management.
b) go through the analytical processes utilized in financial decision making and apply them to business finance problems in order to find a solution to the problem.
The unit specific objectives for the chapter are as follows:
Upon the successful completion of this chapter’s activities, students will be able to:
a) perform a financial investment analysis in Excel and determine if an investment is feasible.
b) create a financial model in Excel that is “dynamic” and describe the benefits of such a model.
c) differentiate between a sensitivity, scenario, and break-even analysis and calculate and interpret the results of such an analysis.
d) list some of the conclusions of a sensitivity analysis and analyze how the conclusions can help with solving a business problem.

Note first that the learning objectives describe outcomes that are measurable. In other words, it is possible to determine or assess if the student has achieved a particular objective and to which degree. For example, it is easy to find out if a student created an Excel financial model that is dynamic. If none of the formulas the student creates include values but only cell references and if an input variable is changed in the assumption section and the final result for the NPV changes accordingly, then the learning objective is obtained. Second, both the course and the unit objectives fit together. They are not completely different objectives but rather complementary. Specifically, the unit objectives are a subset of the course objectives. In other words, the course objectives take on a more macro view (apply quantitative applications), whereas the unit objectives take on a more specific micro view (perform an investment analysis in Excel). If the course and unit learning objectives are aligned properly, then a student who achieves the unit objectives will simultaneously also achieve at least one of the course objectives.

For example, the unit learning objective b) to create a financial model in Excel that is “dynamic” and describe the benefits of such a model, is a subset of the course objective a) to apply quantitative applications to issues pertinent to financial management. In other words if a student creates a dynamic financial model, he or she will also be applying quantitative applications that are important to financial management.

The next few paragraphs explain in detail how the course materials, the learner activities, the assessment tools and the technology can be designed to align with the above stated leaning objectives for capital budgeting analysis.

### 2.2. Resources and Course Materials

The two core materials for each chapter in the course can be the reading assignment in the textbook as well as a screen capture video by the instructor. The video is basically a narrated slide show which explains and clarifies the important aspects or the subject as well as introduces any information that is important but not covered in the text, such as a screen capture Excel tutorial and any real-world business experience of the instructor with regards to the subject. Therefore, students are asked to read through the chapter in the book on capital budgeting analysis and watch a narrated PowerPoint slide on the topic which has some additional pointers and examples. Again, it is important that the course materials are effective in achieving the stated course and unit learning objectives. Most finance textbooks are doing a very good job at matching the unit objectives with the materials that are covered in the book. In the case of the capital budgeting chapter, the text explains the differences between a sensitivity, scenario, and
break-even analysis and what the meaning of the results of such an analysis is. The screen capture presentation by the instructor then shows how to perform a dynamic financial analysis in Excel. The presentation is an Excel tutorial, which is closely aligned with unit objective b), which states that students will be able to create a financial model in Excel that is “dynamic”. The tutorial explains step-by-step each formula used in Excel and how the use of the particular formulas makes the spreadsheet dynamic. Note that the objective states also that students will understand the benefits of such a dynamic model. This learning objective will be aligned with the student activity described in the next paragraph.

2.3. Learner Engagement

The main learner engagement or activity for this capital budgeting chapter is the multi-part Excel case assignment, which is the creation of an Excel-based financial model. This learning activity helps the student to learn the stated unit learning objectives.

The first part of the assignment asks the student to read through the case study at the end of the chapter in the textbook. The instructor has two choices. The students could be asked to create the financial model from scratch based on the case study or the instructor could create an Excel template, which summarizes the model assumptions in an “assumption section”, lists all the names of the computational variables in the first column and asks the students to fill in the blanks (i.e. insert formulas). In the author’s experience it is preferable to use a template as some students who do not have an extensive knowledge of financial modeling and can be overwhelmed by the assignment. In addition, creating a template will make the assessment of the student much easier later on, as all the students’ work will have a very similar look and can be compared easily across students. The students are asked to calculate the net present value (NPV), payback period, discounted payback period, internal rate of return (IRR). The students then have to decide if the company in the case study should accept the project, i.e. if the project is feasible. For ease of grading, the students are asked to write all answers into the Excel spreadsheet.

This first part of the assignment aligns with unit learning objective a) to perform a financial investment analysis in Excel and determine if an investment is feasible, and partially b) to be able to create a “dynamic” financial model in Excel. At this point, from the author’s past experience, many students believe that their model is dynamic. They do not realize that it is not dynamic until they are asked to perform the second part of the assignment.

In the second part of the assignment, the students are asked to perform a sensitivity, scenario and break-even analysis of the base case. For each of these, the students copy the initial Excel sheet and then change some of the input variables in the assumption section. At this point, the student will most likely recognize if the model that he or she created is dynamic. If it is dynamic, the final output, for example the NPV will instantaneously change as well. This activity is clearly aligned with unit learning objective b) where the student is able to create a dynamic financial model in Excel and understand the benefits of such a model. If the student’s model is not dynamic, the NPV will not adjust correctly as the input variables are changed and the student will have to change the formulas within the model, which is a very time consuming task. The
student will experience the benefits of a dynamic model because making a model dynamic saves a lot of time when input variables change.

It is possible that a student does not realize that the model is not dynamic until the assignment is handed to the instructor and the instructor sends a corrected version back to the student. An excellent way to correct a spreadsheet is to insert “comments” into the spreadsheet which point out the mistakes and how to correct them. If a student more than a certain amount of errors or if the model is not dynamic, the instructor may require the student to re-submit the assignment after the corrections. Again, it is imperative that the student understands what a dynamic model is.

The second part of the assignment is also closely aligned with the unit objective c) to differentiate between a sensitivity, scenario, and break-even analysis and calculate and interpret the results of such an analysis. For the sensitivity analysis part of the question, the students are asked to create two separate sensitivity analysis. In each one, a different variable is changed. The instructions are very clear in terms of which variable is changed and by how much. The students are then asked to calculate how much the NPV changes as the input variable changes and the resulting sensitivity. Finally, they are asked what the results mean. The results show that the NPV is more sensitive to the sales volume of one product line versus the other. The interpretation of the findings are closely aligned with unit objective d) to list some of the conclusions of a sensitivity analysis and analyze how the conclusions can help with solving a business problem.

The students will be able to identify, for example, that the firm should put more marketing emphasis on the more “sensitive” product line, thereby helping to solve a business problem.

In the scenario analysis, specific instruction are given on how several variables change at the same time in three different equally weighted scenarios, which reflect a weak, normal and strong economic environment. The students are then asked to calculate the expected NPV (a weighted average NPV), interpret the results, and decide if the firm should still accept the project. Again, this part of the assignment is aligned with learning objective d) to list some of the conclusions of a sensitivity analysis and analyze how the conclusions can help with solving a business problem. This assignment points out to students that the assumptions are just estimates and that assumptions need to be carefully chosen when dealing in an uncertain business environment, which is one of the major business problems that firms face.

In the break-even analysis, the students are asked to use the “goal seek” function in Excel with the original assumptions to find out what the minimum unit price for one of the products has to be in order for the firm to “break even”. This activity aligns with learning unit objective c) to be able to calculate and interpret the results of such an analysis. Note how the course material, the Excel tutorial, is also closely aligned with the assignment as the tutorial shows in detail how a financial analysis is performed.

Another learner activity for this chapter could be the communication between the student and the instructor, where the instructor sets up a life virtual office hour. This way the students can ask any questions they have on how to set up the assignment. Also, a forum discussion can be set up
so that students can communicate with each other about the assignments and possibly help each other with solving the problem.

2.4. Assessment and Measurement

The assessments used for this chapter include a mixture of assessments. First, automatically graded multiple choice self-test questions which offer explanations once completed which test the students for understanding of the definitions and concepts as well as some of the basic calculations. Second, a grading rubric is used to measure the level of success the students have when completing the Excel model. For each of the assessments, it is clearly stated how many points the students achieve for what level of work. For example, for the self-test questions, the instructor may choose a grading scale of 0-100% or not grade the assignment at all, as it only serves the purpose for the students to find out if they have mastered the concepts and calculations. The multiple choice self-test questions are an excellent way to test the students if they understand when an investment is acceptable or feasible (which is aligned with unit objective a) to determine if an investment is feasible), if they understand the differences between sensitivity, scenario, and break-even analysis and do some basic calculations (this is aligned with learning objective c) to differentiate between a sensitivity, scenario, and break-even analysis and be able to calculate and interpret the results of such an analysis.) The course materials need to be aligned with the assessment. For example, the definitions for the sensitivity, scenario, and break-even analysis are given in both the reading assignment as well as the narrated power point presentation.

The critical thinking skills, such as the understanding of how to build a dynamic financial model and the conclusions that can be drawn from the results of a scenario analysis are better assessed with a rubric. The rubric should be provided or posted for the students before the start the assignment. This way the student has a clear idea of what is expected of him/her and which grade is given for what level of performance. Again, the rubric itself needs to be aligned with the learning objectives and the course materials. A rubric that could be used for the assignment in the capital budgeting chapter is displayed in figure 2. Note that it is helpful to the students if the learning objectives are included in the evaluation criteria in the first column.
This table shows a grading rubric that can be used in the assessment of a capital budgeting case study in an MBA level corporate finance class.

In this rubric, three grading criteria are used. Each of them has a total maximum point value of 25 points and each criterion has a grading weight. The total score will therefore be a weighted average score between 0 and 25. The first grading criterion is clearly aligned with unit objective a) to perform a financial investment analysis in Excel and determine if an investment is feasible. To get the full points the student needs to be able to perform all the necessary calculations in the basic capital budgeting analysis and correctly determines if the investment is feasible. The second grading criterion is aligned with unit objectives c) to differentiate between a sensitivity, scenario, and break-even analysis and be able to calculate and interpret the results of such an analysis and d) to list some of the conclusions of a sensitivity analysis and how the conclusions...
can help with solving a business problem. To get full points on the second criteria, “the student has to perform all the necessary calculations in the scenario, sensitivity, and break-even analysis and correctly determines the sensitivities, expected NPV and the break-even level. In addition, the student is also able to interpret all the results correctly and can identify how the results can be used to make important business decisions.” Grading criterion 3, “is the spreadsheet dynamic?” is aligned with unit objective b) to be able to make the financial model in Excel “dynamic” and understand the benefits of such a model. To get the full points for this criterion, all formulas need to be dynamic and point to the assumption section. It is possible for a student to have all calculations correct but not receive full points for the assignment if the spreadsheet is not dynamic.

This rubric is not only aligned with the course objective but also with the course materials. The definitions of different terms are given in the chapter reading assignment and the recorded lecture. For example, the NPV and the formulas are presented for the calculations of the different analysis. In addition, the Excel screen capture tutorial shows exactly with a step-by-step process how this type of analysis is performed. The student can always refer back to the tutorial or communicate with other students or the instructor if any questions occur.

After the assignment is graded, the instructor needs to provide the graded rubric back to the student, so the student can understand how she or he was graded. The instructor can insert “comments” into the spreadsheet to show the student exactly where the mistakes are and provide the student with the corrected spreadsheet for feedback. Finally, feedback can also be provided to the students with the help of a voice recording with an Audacity produced file or in an Acrobat Reader file with the instructor’s comments, although this type of feedback is more suitable for essay assignments.

Examples of different types of course materials, learner engagement activities and assessment tools for different types of learning objectives and desired skill sets are given in table 1. In this table, different suggested percentages of grading weights are indicated for undergraduate versus MBA level classes for the different skill sets.
Table 1: Grading Weights for Different Types of Learning Skills

<table>
<thead>
<tr>
<th>Desired Skills/Objective</th>
<th>Example % of Grade</th>
<th>Undergraduate Class</th>
<th>Graduate Class</th>
<th>Material</th>
<th>Learner Engagement</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Self-test multiple-choice questions</td>
<td></td>
</tr>
<tr>
<td>Definitions/Concept Understanding</td>
<td>45</td>
<td>20</td>
<td>Textbook chapter</td>
<td>Narrated PPs</td>
<td>Self-test multiple-choice questions</td>
<td></td>
</tr>
<tr>
<td>Basic Calculations</td>
<td>45</td>
<td>20</td>
<td>Textbook chapter</td>
<td>Narrated PPs</td>
<td>Tutorials</td>
<td>Self-test multiple-choice questions</td>
</tr>
<tr>
<td>Critical Thinking/Problem Solving/Development of an Argument</td>
<td>10</td>
<td>60</td>
<td>Website links</td>
<td>Journal or news article</td>
<td>News video</td>
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</tbody>
</table>

This table lists which types of class materials, learner engagement, and assessments can be used for different learning skills and demonstrates example weights that can be applied for undergraduate vs. graduate classes.

2.5. Course Technology

The course technology is at the heart of an online course and is also important in many regular face to face classes as many instructors make use of today’s advanced technologies. Today’s learning management systems (LMSs), like Blackboard, Canvas, and Moodle, offer many features that help in the learning process. The challenge that instructors face is to keep up with and be educated about the different technologies that are available within the LMS (such as grade center, discussion forums, video conferencing software) and outside the LMS, such a social media websites, video websites like YouTube, screen capturing software such as Camtasia, voice narration in PowerPoint, voice recording in Acrobat reader, etc.

As the advanced corporate finance class that was used as an example in this paper was taught 100% online, the use of technology is particularly important for this class. The chapter on capital budgeting makes use of the following technology.
Camtasia is used together with PowerPoint for the recording of narrated lectures. In these lectures, very clear narrated and visual instructions are given on how to calculate the cash flows necessary for a capital budgeting analysis. The lecture also incorporates the basics of sensitivity, scenario and break-even analysis. The technology is therefore aligned with the case study assignment as well as the unit objectives a) to perform a financial investment analysis in Excel and determine if an investment is feasible and c) to differentiate between a sensitivity, scenario, and break-even analysis and be able to calculate and interpret the results of such an analysis.

Camtasia is also used in conjunction with Excel to record a tutorial on how to perform the different types of analysis and create dynamic financial models. This tutorial is aligned with unit objective b) to be able to make the financial model in Excel “dynamic” and understand the benefits of such a model.

The unit learning objective d) to list some of the conclusions of a sensitivity analysis and analyze how the conclusions can help with solving a business problem, is supported by the Excel spreadsheet calculations and comments that students have to complete in the capital budgeting assignment. The alignment of the technology with the student engagement is also supported by the communication opportunities in the course. While on the path to achieve the learning objectives, students may have questions. There are different ways student questions are addressed in the course. Student - instructor communication is made possible via e-mail and life virtual office hours in Elluminate Life. Also, the author provides feedback to students within their Excel spreadsheet through inserted comments. In addition, students can participate in an online forum discussion with other students. The author also collects student questions in a “frequently asked questions” list which is posted for all students to see.

Finally, the course technology also supports the creation and transmission of the assessments. All grades are listed in LMS’s grade center and are easily accessible by the students. The grading rubric is an Excel template where the author enters the point values under scores for each criterion and Excel automatically calculates the weighted average score. This score is then entered into the grade center in the LMS and a copy of the completed rubric sent to each student for feedback, creating communication between the student and the instructor.

3. SUMMARY AND CONCLUSIONS

Business teachers can never be prepared enough to teach effectively and efficiently. One concept which contributes greatly to the learning process is the concept of alignment. This paper describes this concept and demonstrates that the relation between learning objectives, course materials, learner engagement, assessment and technology is a multi-dimensional one.

Not only do the different aspects of a course (materials, engagement, assessment, and technology) have to be directly aligned and match the learning objectives, but the aspects themselves have to be aligned and match each other. This paper also applies the basics of the concept of alignment to one learning unit for an online MBA corporate finance class and gives suggestions on how to align this topic. The purpose of the paper is to give instructors suggestions
and pointers on how to improve their courses through the use of alignment. For a course to be aligned, an instructor has to go through a well thought out process of creating objectives that are measurable and easily understandable and then designing the corresponding course materials (such as narrated PowerPoints and Youtube videos), the appropriate learner engagement activities (such as self-test multiple choice questions, or forum discussions, or an essay or oral presentation), and effective assessment tools (such as multiple-choice questions or a clear rubric). These aspects of a course have to be designed with the appropriate course technology. Aligning a course is a complex process that takes time; however, the effort is well worth it, as a well alignment course will create a positive learning experience for students.

As advancements in technology are continuous, many changes and innovations in the types of course material presentation, learner activities, and assessment tools will occur on the future. Some of these recent innovations include virtual worlds, social media and complex computer-based performance assessments. While new technologies open up teaching opportunities, they also preset the time consuming challenge for instructors to keep up with the new technologies and incorporate them into an interesting course that stimulates student learning.
REFERENCES


\[1\] The non-profit organization Quality Matters (QM) that rates the quality of online courses uses the concept of alignment as part of its certification process of effective online class creation. According to QM, a course meets its certification guidelines as long as it follows its 8 general standards. Out of the 8 standards, 5 standards relate to the concept of alignment