

Using LinkedIn Learning as a Component of Blended Learning in Two Separate Analytics Courses—Early Results

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Abstract

Blended learning, which is the “thoughtful fusion of face-to-face and online learning experiences” (Garrison & Vaughan, 2008), is a pedagogical paradigm used in courses across numerous disciplines. In this paper, the use of LinkedIn Learning modules as the primary technological component is described; the focus of this first-time use (Fall 2021 and Spring 2022) in two different analytics courses is on selection and assessment of the content used from LinkedIn Learning. Early feedback from students was also solicited and is presented as well. We conclude by discussing future course enrichment plans through blended learning and the selection and incorporation of additional LinkedIn Learning content.

Keywords: Blended Learning, Data Analytics, LinkedIn Learning, Assessment.

1. INTRODUCTION

Due to the COVID-19 pandemic, many instructors, who traditionally taught in a face-to-face environment, were “forced” into teaching online. This challenge for instructors created a **new opportunity to “blend” the best of the online experience with the traditional face-to-face teaching environment.**

While blended learning pre-dates the COVID-19 pandemic and the idea of combining face-to-face with online instruction in education is not new (Garrison and Kanuka, 2004, Graham, 2006, Osguthorpe and Graham, 2003). The reexamination of teaching pedagogies allows for the use of blended learning as a viable teaching paradigm. Blended learning has many different definitions. The simplest definition of blended learning is “thoughtful fusion of face-to-face and online learning experiences” (Garrison & Vaughan, 2008). In this paper the definition presented by Bluc, et al. (2007). “Blended learning describes learning activities that involve a systematic combination of co-present (face-to-

face) interactions and technologically mediated interactions between students, teachers, and **learning resources”** (p.234) is most applicable. One of the issues in developing a blended learning course is finding appropriate technology-based content to supplement and enhance the face-to-face course activities (Alford & Sweat, 2015). The focus of this paper is on the selection, use, and assessment of LinkedIn Learning (LIL) content as the primary technological component.

This paper is structured in the following manner. Section two describes the pros and cons of the three primary design approaches to blended learning courses. Section three examines the question of content selection as one of the major hinderances to the use of the blended learning approach. This section describes how LIL content is used as an effective and powerful technological component to enhance blended learning. Section four presents a brief description of the two separate analytics courses and the initial selection, use and assessment of the LIL modules. Section five highlights the student feedback from this initial pedagogical trial. The

final two sections describe the future directions of the use of blended learning and LIL and the conclusions of our work.

2. DESIGN APPROACHES TO BLENDED LEARNING

There are multiple approaches to designing a blended learning course. Blended learning can be implemented in an incremental fashion by simply adding one (or more) online components to an existing course. However, simply adding one (or more) component(s) does not mean that a successful blended learning experience has been developed (Jeffery, Milne, Suddaby, & Higgins, 2014). In all courses, the instructor, as designer and delivery agent, plays a pivotal role in the success of the learning experience; this is especially true in blended learning environments (Mayes & Morrison, 2008).

According to Alammary, et al. (2014), a blended learning course design approach can be viewed across a spectrum, ranging from low-impact to high-impact blend.

A low-impact blend approach entails adding extra online activities to an existing course, no other content is removed from the course; this is often referred to as the “course and half” approach. The medium-impact approach “redesigns the existing course to replace some face-to-face activities with online components” (n.p). In this way, the online components reflect a more effective means of reaching course objectives than previous face-to-face components. Finally, in the high-impact approach, the blended learning course is built from scratch; this represents a full redesign of the course in which each learning objective is examined to determine the best delivery option—face-to-face or online—to meet the objective. Alammary et al. (2014) describe the benefits of, challenges with, and a set of recommendations for each blended learning approach.

In a larger study of blended learning, Rasheed, Kamsim, and Abdullah (2020) highlight a series of challenges faced by both students and faculty in the blended learning environment. The technological infrastructure imposed by the learning management system (LMS) is also addressed.

Students face both personal (self-regulation and isolation) as well as technological (technological literacy, competency, sufficiency, and complexity) challenges. Faculty do not have the personal challenges but are faced with many of the same technological challenges. Faculty also

need to find sufficient online content which is another major challenge.

The student isolation challenges are not limited to the blended learning classroom but also exist in the traditional face-to-face classroom as well. This challenge can be met by providing the proper motivation and relevance for the content, provide a clear structure to guide the students through the challenging learning activities and monitor student engagement throughout the course by providing timely feedback and personal contact (Jeffery, Milne, Suddaby, & Higgins, 2014).

3. CONTENT SELECTION

As cited in Rasheed, et al. (2020), “the task of creating quality online video has been a top challenge for teachers”. Brown (Brown, 2016) and Long, et al. (2017) state that blended learning instructors spend too much time and effort creating online content. One solution is to employ a preexisting library of content such as LinkedIn Learning.

The benefits of embedding LinkedIn Learning in a University classroom are that students retained more information, and found that learning the material was both easier and more enjoyable (Petrone, 2020).

The author’s institution, Susquehanna University, adopted LIL in March 2020. Professional courses in both the Sigmund Weis School of Business (SWSB) and the Communications department incorporated LIL directly to the classroom and beyond (Petrone, 2021). SWSB Dean Matt Rousu said “LinkedIn Learning is a valuable platform at all stages of a career, so it is great that our students are active now using this resource” (Petrone, 2021).

3.1 LinkedIn Learning

LinkedIn Learning is an online learning platform with over 16,000 on-demand courses. The content on LIL can be used to enhance the learning experience of the students. LIL allows faculty to curate individual lessons and courses by tailoring the content to specific course learning goals and objectives. Faculty can create learning paths of multiple courses or videos to share with students or to embed within the course LMS to allow blended learning to be enabled.

Alford and Sweat (2015) surveyed 300 students about the desired qualities in videos used in a blended learning course; the LIL courses address many of these desired qualities.

Every LinkedIn Learning course has a consistent format. Each course is broken into smaller lessons that are generally no more than five minutes long allowing the students the ability to pause their learning activity and return to it later (Alford & Sweat, 2015). In addition, the modules can be viewed (from their laptop) numerous times or paused and restarted at the discretion of the student. The high-quality, professionally developed and delivered content in LIL is both easily accessible and digestible which overcomes two of the primary challenges for students (Rasheed, et al, 2020; Alford & Sweat, 2015).

One of the major issues discovered in the Alford and Sweat (2015) survey is that students reported needing the motivation of a graded incentive. For the courses described in the next section, the students are given a set of specific **learning items known as “takeaways”** (see Appendix for an example of the takeaways for Project Management LIL lessons). Takeaways are for the benefit of the student; they serve as highlights of the important concepts in the readings or LIL content; they are optional, not submitted, and not graded. Takeaways are used as questions on in-class quizzes which are generally given at the beginning of the next face-to-face class session; students may use their completed takeaways in taking the quiz. Spanjers, et al. (2015) found that quizzes had a positive impact of the effectiveness and attractiveness of blended learning. Finally, **“takeaway” items often reappear on exams within each course.**

One additional benefit to the use of LIL content is that students can easily build an online professional development presence by enabling the course completion certificates to be displayed on the LinkedIn professional profile (LinkedIn Learning, 2022). These completion certificates highlight, to future employers, the skills the student has acquired and their interest in building skills to aid their careers (Santa Maria, 2022).

4. COURSES

Blended learning, using LinkedIn Learning courses, was attempted in two different analytics related courses during the 2021-2022 academic year. In Fall 2021, a sophomore-level business foundation course, which serves as an introduction to business analytics, was taught using various LIL courses. In Spring 2022, senior level business foundation course in data analytics, which is focused on data visualization, was

redesigned using LIL courses. Both courses are discussed in this section.

4.1 Data Collection and Modeling

The Fall 2021 the sophomore level business foundation course, entitled Data Collection and Modeling, was the first attempt at incorporating individual modules from LIL courses and full LIL courses as the online component.

The course is described as (Susquehanna University, 2021-2022):

This is the first of three business analytics courses. This first course deals primarily with assignments and projects that collect and structure data as part of the preparation for data analysis and visualization. A major emphasis is on understanding data and issues in its collection, management, structuring, and use for the analysis and solving of business problems. Students will study project management, data collection/cleaning/structuring, data modeling, and Structured Query Language (SQL).

A low impact blended approach was used by simply adding the LIL content to the existing material in the course. Two significant modules (courses) from LIL were added to the course. The two courses correspond to the two primary learning modules (Project Management and SQL). Other smaller LIL courses were used as optional (**“highly recommended”**) modules to upgrade student Excel skills to work more effectively and efficiently on the term project.

4.1.1 Project Management

The Project Management section of the course provides a basic introduction into project management including the development and construction of a Gantt chart (with a baseline).

The students were required to view the first four modules of the LIL course, Project Management Foundations (Biafore, 2019). These four modules cover a basic introduction, as well as the initiation, planning and schedule development stages of project management lifecycle.

Through LIL modules and in-class activities students gain the skills needed to develop, build, and maintain a Gantt chart for a project. As part of the course team project, each student team is required to develop and maintain a Gantt chart. The teams must create the initial schedule, establish a baseline, and update their progress throughout the semester.

4.1.2 SQL

The SQL section of the course provides a basic introduction to developing SQL commands to retrieve data from a relational database. While the main support for this module has been and remains a textbook (Forta, 2013), this full LIL course (Thouin, 2021) serves as initial introduction and a skill development resource for learning SQL.

The final assessment on the SQL material covered in the course (both from the LIL course and face-to-face meetings) involves each student completing a set of in-class exercises to build SQL statements to retrieve data from a Microsoft Access database.

4.1.3 Excel

Since Excel is used extensively for data collection, formatting, cleaning, and analysis, basic Excel skills are expected. In addition, one of the objectives of SWSB business foundation curriculum is to enhance the Excel skills of all business students. Since this course serves as the **first “technical” course in the business foundation**, Excel skill development is key learning objective for the course.

While the Excel LIL course (Taylor, 2020) was not a required element, students were expected to have the necessary skills to perform Excel operations that are covered in this course. An additional, short LIL course on developing and using pivot tables (Ludwig, 2018) was also optional, but highly recommended for students to complete to assist in the analysis of their project data.

4.2 Data Insight and Visualization

A low-impact blended learning approach incorporating LIL modules and courses was also used in a Spring 2022 senior level business foundation course entitled Data Insight and Visualization.

The course is described as (Susquehanna University, 2021-2022):

This is the third of three business analytics courses. This four-semester-credit-hour is both writing-intensive and team-intensive and provides a framework for understanding the technologies associated with algorithmic analysis and data presentation for business decision-making. Students will study analysis techniques that enable insights and patterns to be drawn from descriptive, predictive, and prescriptive analytics. Tools that support these techniques will be researched and

presented by student teams, and they will also be investigated through individual research projects.

As the online component two LIL courses were utilized. The two courses correspond to two primary learning objectives of the course (Chart Development/Usage and Data Visualization). Other smaller LIL courses, like the ones used in the Fall 2021 course, were used as optional, but highly recommended, to upgrade student Excel skills to work more effectively and efficiently on the course project.

4.2.1 Chart Development/Usage

Since improving the student understanding and use of different chart types is a key learning objective, students are required to state their rationale for chart choices in telling their data story.

To begin to understand different chart types and how to choose between various options, the LIL course by Taylor (2019) is utilized. Taylor focuses on the QuickLayout option within Excel to give students insight to making the correct chart to display their data. Students are required to view the entire 55-minute course.

The primary visualization tool in the course is Tableau. Since Tableau only displays appropriate charts based on data types, the students still must select the chart that best tells the story of the data based on the business question.

A series of in-class exercises, using Excel data sets, are assigned in which the student must not only create a chart for the data (both in Excel and Tableau), given a listed objective, but they must justify their selection of the final chart type from the alternative charts they considered.

4.2.2 Data Visualization

Just prior to the beginning of the Spring 2022 semester, a new LIL course was discovered that covered multiple topics on data visualization (Shander, 2022). Shander is continuing to build this LIL course by adding additional lessons periodically on various data visualization topics—there are (as of February 2023) 39 lesson and listen sessions available—at the conclusion of the Spring semester course, there were only 29 lesson/listen sessions available.

Each lesson/listen section deals with Shander introducing a data visualization topic. Examples of the topics include: Data Literacy, The Data Visualization Process, Color in Data Visualization, Making Decisions with Data Viz, and Visualization

in the Real World. The second part of each lesson (the listen section) is an interview that Shander conducts with an “expert” on the topic.

The lesson on data literacy was used as part of the introduction to the course; it is listed as one of the learning objectives in each of the three analytics courses in the business foundation curriculum.

For the data literacy lesson/listen session the students were again given a set of takeaways, a quiz, and these takeaways were also used on exams later in the course.

In the Spring 2022 course, the students were asked to pick three additional topics—of their own choosing—and create a report that covered:

1. an introduction of the topic and a rationale for their chose of the topic,
2. a summary of both the lesson and listen sections, highlighting at least two noteworthy things they learned, and
3. two thoughtful lessons the learned from viewing the entire module.

The assessment of this LIL module was different because there was not sufficient time to examine each of the topics from the LIL course (Shander, 2022). Two advantages of this approach were that students were given the flexibility to examine topics of their choosing and the selection of the most interesting topics—as selected by the students—could be used as the focus of future versions of the course (see section six). This assignment is part of a number of individual assignments in the class that constitute 25% of the final grade. The assignment is shown in Appendix two.

4.2.3 Excel

While the primary visualization tool used in this course was Tableau, initially students used their familiarity with Excel to create visualizations with smaller data sets.

However, due the course sequencing, some students had weaker Excel skills. For those students who had not yet examined the Taylor Excel LIL course (Taylor, 2020) used in the Fall course, they were given the option of accessing this course. Finally, each student could also access the short LIL course on developing and using pivot tables (Ludwig, 2018).

For the Spring 2022 course, no LIL courses dealing with Tableau were utilized, however,

several different courses are under consideration at the present time for Fall 2022.

5. STUDENT FEEDBACK

Student feedback on the use of the LinkedIn Learning modules was only solicited during the Spring semester (a shortcoming due to the **instructor’s lack of preparedness**).

However, the feedback from the Spring 2022 course was generally very positive. The students enjoyed the LIL courses, especially the Shander course (2022).

There were 22 students enrolled in the Spring 2022 course. Of the 22, 15 provided feedback on the use of the LinkedIn Learning work. Specifically, the instructor asked the students to comment on the impact of the LinkedIn Learning assignments on their learning.

Of the 15 students, 14 were positive, only one **student said “While I was able to gain some knowledge from them, I would not say the insights from the LinkedIn Learning courses were worth the equivalent amount of time and effort put into them”**.

Many students commented on the usefulness and benefits of adding the LinkedIn Learning content to expand and enhance their understanding of data visualization topics. **One student said “The LinkedIn learning assignments were very beneficial because they explained difficult topics in a clear and concise manner, and included guest speakers who had real-world experience with the topics.”**

One student saw the benefit of using LinkedIn Learning to enhance their skills beyond the course **as well when they commented “Another way Dr. Pomykalski helps students in professionally is through LinkedIn Learning assignments which help to build certain critical hard and soft skills we will need to care on later in life.”**

Given the very positive feedback generated from this first-time use of LIL lessons and courses further expansion and assessment of LIL as blended learning content is under consideration.

6. FUTURE INCORPORATION

Given the positive feedback gained from the students, future iterations of both courses will increasingly incorporate LIL content. In particular, the courses—both currently beginning re-design for Fall 2022—will transition to the

medium-blend approach (Alammary, Sheard, & Carbone, 2014).

For both courses, the lesson/listen module on data literacy (Shander, 2022) will be used in the future. Since data literacy is a shared course objective, this LIL module, along with additional readings will be used to reinforce this topic. The readings from the original course structure were reconfigured to make them shorter and for the student to rely more on the LIL content for their learning.

Since the students' Excel skills are generally weak in the Data Collection and Modeling course, the Excel LIL course (Taylor, 2020) will move from being optional to a mandatory element and completed within the first two weeks; a short exam on the content will be used as an assessment. Also, a better approach to incorporating and leveraging both the project management and SQL from the LIL material will be examined. The project management LIL material (Biafore, 2019) will provide more of the focus for the student work and a shorter additional reading on project management fundamentals will be assigned.

In the Data Insight and Visualization course, a glaring oversight for the Spring 2022 courses was the lack of blended learning content on the use of Tableau. For Fall 2022, the Tableau Essential Training course (Frye, 2021) is being used as a basic introduction to Tableau for the students.

Also, in the Data Insight and Visualization course, the decision has already been made on a different **text to support the student's understanding of** different chart types and other important data visualization topics. The Excel charts course (Taylor, 2019) will be integrated closely to the specific topics (chart types) within the textbook. The feedback gained from the Spring assignment in examining the different selected modules from the Shander (Shander, 2022) LIL course is being incorporated as individual topics (e.g., The Data Visualization Process and Color in Data Visualization) in the Fall semester and supported by the text.

7. CONCLUSIONS

The piloting of LinkedIn Learning courses as the online component to a blended learning environment has been successful and encourages the author to continue to move to a medium blend course for both courses in the future. As stated in the previous section, one of the main objectives will be to incorporate the online materials (primarily from LinkedIn Learning) into the face-

to-face materials in a seamless manner. Students need to be given time to complete the LIL content and therefore some consideration of fewer face-to-face meetings needs to be considered in a medium blend course. (Alammary, Sheard, & Carbone, 2014).

LinkedIn Learning is a valuable environment that will not only add to the depth of the learning experience but will help the students both professionally, through adding career skills, adding certificates to their LinkedIn profile to aid them professionally (LinkedIn Learning, 2022) and to create in each student a sense of life-long learning (Santa Maria, 2022).

8. ACKNOWLEDGEMENTS

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APPENDIX ONE

Takeaways—LinkedIn Learning—Project Management Foundations

<https://www.linkedin.com/learning/project-management-foundations-4/deliver-successful-projects-3?u=86746674>

Get to Know Project Management

1. Define project.
2. Describe the three key elements in the definition of the project.
3. Describe a budget
4. Describe how a project differs from operations.
5. Describe/define project management
6. Describe the five questions of project management.
7. Describe the five skills need by a project manager. Which is most important and why?
8. Describe the five stages of the project management life cycle and what is accomplished in each stage.
9. Describe the agile project management approach and how it differs from the traditional (waterfall) approach.
10. Describe organizational culture. Describe how it impacts projects.

First Things First

1. Describe/define project initiation.
2. Describe what happens in the initiation phase.
3. Describe the project charter
4. Describe a stakeholder and the different types of stakeholders.
5. Describe what you need to know about each of the stakeholders and why that information is important.
6. Describe a project goal.
7. Why should you try to develop a problem statement? Describe the importance of asking why?
8. Describe the relationship between the problem statement and the project goal.
9. Describe what the acronym SMART means in terms of objectives.
10. Describe what project objectives provide.
11. Describe how to choose a strategy and the role brainstorming plays.
12. Describe requirements and the need for getting them complete and correct.
13. Describe the four techniques for gathering requirements.
14. Describe what project requirements provide.
15. Describe project deliverables and their role in the project.
16. Describe success criteria.
17. Describe the primary concern with assumptions and risks
18. Describe project scope, the problems of scope creep and a scope statement.
19. Describe the contents of a scope statement.
20. Describe the three possible outcomes of a project review.
21. Describe the project charter and its contents.

Develop a Project Plan

1. Describe the benefits of creating a Work Breakdown Schedule (WBS).
2. Describe the two types of tasks in a WBS.
3. Describe who is involved in building a WBS.
4. Describe the initial inputs to the WBS.
5. Describe a responsibility matrix. Define A,R,I, and C.
6. Describe the role of the responsibility matrix in communicating with stakeholders.
7. Describe the project organizational chart and its role.
8. Describe the skills matrix and its function.
9. Describe the steps in schedule development.

10. Describe a risk management plan.
11. Describe the purpose of a quality management plan.
12. Describe the purpose of change management plan.
13. Describe the three steps in the change management process.
14. Describe a change request log.

Build a Project Schedule

1. Describe a network diagram.
2. Describe a task dependency. Describe the four types of dependencies.
3. Describe a milestone. Describe what milestones indicate in terms of the project.
4. Describe/define the critical path. Why is the critical path important?
5. Describe the critical chain method for scheduling. Describe the focus of the critical chain method.
6. Describe baseline documents. Describe the purpose of the baseline documents.
7. Describe the relationship between the baseline documents and the change management process.

APPENDIX TWO

Topic Examination
Data Visualization

SOURCE:

Shander, B. (2019). *Data Visualization: A Lesson and Listen Series*. LinkedIn Learning. <https://www.linkedin.com/learning/data-visualization-a-lesson-and-listen-series/introduction?autoAdvance=true&autoSkip=false&autoplay=true&contextUrn=urn%3Aai%3AlearningCollection%3A6734172245767270400&resume=false&u=86746674>.

OBJECTIVE:

Data visualization is a multiple faceted subject area. There are many different aspects of data visualization that one can explore, and, through this multiple part assignment, you will do so.

ACTIONS:

You will review and produce a short report on at least three different lessons from this LinkedIn Learning course. You can choose any of the lessons for this assignment, except the data literacy lesson, which we already examined at the beginning of the semester.

DELIVERABLE:

Once you have viewed each section you will create a report which includes:

1. (5 Pts) A 50–100-word introduction of the topic and why you selected it.
2. (15 Pts) A 300–450-word summary of the lesson section. You should highlight the key aspects (at least two) of the lesson and note their importance related to the topic.
3. (20 Pts) A 450–600-word summary of the listen section. You should (1) give a brief bio of the speaker and (2) highlight the key aspects (at least two) of the discussion and note their importance related to the topic.
4. (10 Pts) A brief (150-300-word) **discussion on at least two “thoughtful” lessons that you learned** from the reviewing this lesson.
5. (10 Pts) Grammar, spelling, punctuation, sentence structure, and paragraph formation.

SUBMISSIONS:

As stated above you will develop three deliverables. The due dates for these deliverables are Friday, March 4, 2022, Friday, April 1, 2022, and Friday, April 29, 2022.

An extra credit deliverable, due 5/9/2022, will be available to any student who did not perform well on any of the three previous deliverables; received a grade less than 80% on at least of the previous deliverables. To qualify for this extra credit opportunity, the student must gain permission to attempt the extra credit. Extra credit will not be granted if the student missed any of the three previous deliverables or plagiarized any of the previous deliverables. If a student does the extra credit the three highest scores for this assignment will be used in the computation of the final grade. The requirements for the extra credit will be the same as the first three deliverables.

GRADING:

Each deliverable will count for 60 points.