

Inquiry-Guided Experiential Learning in FASB Codification Research: An Investment Portfolio Simulation Project

Richard Sathe
University of St. Thomas – Minnesota

Wen Yu
University of St. Thomas – Minnesota

We designed and implemented an inquiry-guided experiential learning project in which students researched and interpreted accounting standards from FASB Accounting Standards Codification to support their applications and assessment of the accounting treatment in a hands-on quasi-real-world simulation for investment activities. Specifically, in the project's first phase, students explored, researched, identified, and interpreted the related accounting standards from the Codification for a fictional client's investment activities. Students then ran an investment portfolio simulation in the second phase, in which they (1) created organic investment activities, (2) made authentic applications of accounting standards, (3) analyzed and evaluated the impact on self-prepared financial reports, and (4) modified subsequent investment decisions. Most students were well motivated to explore and self-study the accounting concepts and procedures. They considered the project relevant, interesting, and effective. Their performance in project knowledge tests improved student learning along factual, conceptual, procedural, and metacognition knowledge dimensions. They were willing to put time and effort into the project and would recommend it for future use.

Keywords: experiential learning, inquiry-guided learning, FASB Codification, investment portfolio simulation

INTRODUCTION

The FASB (Financial Accounting Standards Board) Accounting Standards Codification (i.e., the *Codification*) has been considered the authoritative source of U.S. GAAP since 2009 for non-governmental reporting entities in their preparation of financial statements. The current CPA exam expects that candidates can use and apply the *Codification* to complete exam questions. End-of-chapter problems and instructional cases have been developed to familiarize students with the structure and utilization of this authoritative source in many accounting textbooks and pedagogical research, for example, Brenner and Watkins (2011), Alford, et al. (2011), Gujarati (2012a, 2012b), and more recently, McNellis (2018a, 2018b), Barone et al. (2022), among others. Following recent updates in the *Codification*, we designed and implemented an inquiry-guided experiential learning project in which students research and implement accounting treatment from the *Codification* for companies' investment activities.

Prior literature on accounting for investments (Rambo and Lousteau, 2003; Carter and Jones, 2011, among others) primarily focuses on using existing accounting standards in recording and reporting companies' investment activities. We designed our project with an inquiry-guided learning approach in its first phase. We brought inquiry and exploration into our classroom. We began our project in a quasi-real-world scenario, in which students explored, researched, identified, and interpreted the related accounting standards from the *Codification* to answer a fictional client's questions on accounting for investment activities. Inquiry-guided learning started in science labs to engage students to explore and comprehend science concepts (Herron, 1971). Compared to the traditional instruction, inquiry-guided learning encourages students to explore and self-study the subject matter. If structured in a real-life context, inquiry-guided learning brings great relevance and enhances motivation and autonomy in student learning (Lee, et al., 2004; Pink, 2009; Gunhold, 2011).

We developed an investment portfolio experiential simulation in the second phase of our project, following trading simulations in financial education literature, for example, Alonzi, et al. (2005), Ascioğlu and Kugle (2005), Levkin (2005), and Moffit et al., (2010). Students applied and assessed the accounting standards in a hands-on quasi-real-world experiential simulation of equity investment activities. Prior literature on experiential learning (Kolb and Fry, 1975; Kolb, 1984; Kolb and Kolb, 2005, among others) suggests that learning is a dynamic process. The experiential learning approach enables students, cyclically, to (1) create and experience, (2) observe and reflect, (3) analyze and theorize, and (4) modify and test new experiences. This four-stage learning experience promotes critical thinking and deep learning through active application.

Recent accounting literature (for example, Lafond and Wentzel, 2015; Chmielewski-Raimondo et al., 2016; Huber et al., 2017; Butler et al., 2019; Gittings et al., 2020; Jordan and Samuels, 2020; Butler et al., 2021; Sathe and Yu, 2021, among others) indicates that the experiential learning approach promotes authentic use of accounting concepts and theory. It improves student satisfaction toward learning and encourages critical thinking, problem solving, and comprehension of accounting knowledge. In the second phase of our project, we designed and implemented a quasi-real-world experiential simulation, in which students, applying accounting knowledge obtained from the first phase, (1) initiated their investment activities, (2) collected market data, (3) prepared and analyzed financial records and reports, based on which (4) modified subsequent investment activities and assessed the impact of the updates in accounting standards on evaluations of company investment portfolio performance.

We use both student self-assessment questionnaires and student project knowledge tests to evaluate student learning along factual, conceptual, procedural, and metacognition knowledge dimensions (Bloom, 1956; Anderson and Krathwohl, 2001). Student performance suggests that students were well motivated in the project to self-study and navigate the *Codification* to search for answers to inquiries from the client company. Students could identify and interpret relevant accounting standards to develop a rudimentary understanding of the accounting concepts and procedures of the subject matter. Although their understanding of less intuitive accounting practice was limited by the *Codification* inquiry, our subsequent class discussions and experiential simulation in the project enriched student learning and enhanced student performance along factual, conceptual, procedural, and metacognition knowledge dimensions. Most students considered the project effective and interesting. They suggested that they were motivated to put time and effort into the project and would recommend it for future use.

THE PROJECT

This inquiry-guided experiential learning project includes two phases. In the first phase, students gained hands-on experience in searching for relevant information and accounting standards in the authoritative *FASB Accounting Standards Codification* for a fictional company's equity investment transactions. From their research in the *Codification*, students drafted a brief memo and answered ten multiple-choice questions based on their interpretations of the *Codification*. We then discussed student questions in the following class session. We also reviewed the use of the *Codification* for accounting practice in equity investments, which served as a guideline for student simulation experience in the project's next phase. Students, in the

second phase, simulated investing and trading activities with real-time market information and prepared accounting records and reports to capture and evaluate their equity investment decisions. Students also answered five questions in their final exam as an additional assessment for their learning of the subject matter.

Phase 1: FASB Accounting Standards Codification Research

Your accounting firm, Bedelia & Associates was just wrapping up its 20X8 annual audit of a publicly-traded client, Bean Counters Company that made intelligent robotic machinery. The client company, in the manufacturing sector, has also been active in managing its investment portfolio of equity securities over the years. With recent updates in the accounting standards for equity investments, Bean Counters Company asked for your expert opinion of its accounting practice on equity investments with holdings of less than 20 percent of investees.

Requirement 1

Prepare a brief memo to address the following client questions. Please identify relevant paragraph(s) in the *FASB Accounting Standards Codification*. Include citation(s) from the *Codification* as your references. Describe and justify your suggestions based on your interpretations of this authoritative literature.

- When Bean Counters Company acquires equity securities from the market, how and at what amount should the Company recognize its purchase(s) of these equity securities?
- When Bean Counters Company sells equity securities, how should the Company record its sales transaction(s)? How does the Company report and evaluate its investment performance in selling equity securities?
- For its holdings of equity securities, should Bean Counters Company recognize any impact of market price changes? If yes, how should the Company record and report such an impact? Please explain and provide your rationale.
- As Bean Counters Company transitions to adopt the FASB Accounting Standards Codification updates for its equity investment activities, can you identify any accounting issues for a relevant and fair representation of such business activities? Please specify and discuss. (Bonus question)

Requirement 2

Complete the following ten multiple-choice questions (see Table 2) on investments in equity securities. We will discuss student questions in next class before proceeding to Phase 2 of the project.

Phase 2: Investment Portfolio Simulation

To support your client, Bean Counters Company, to better understand the interpretations, applications, and impacts of the updates in accounting standards on equity investments, you designed a “live” investment portfolio simulation to simulate equity investment transactions using real-time market information. The staff members from Bean Counters Company will work with you in the simulation. They will compete for the best accounting practice and their portfolio management performance. Below are details of the simulation.

In this equity investment portfolio simulation, the bean counters working with you as a team, will invest and manage a fictional \$1,000,000 portfolio during the next three weeks with two fictional accounting periods. The first period is from April 19 to April 30; The second period starts on May 1 and ends by May 10. (Note that instructors can modify these dates to fit a specific course and syllabus.) Assume that all your team’s equity investments provide Bean Counters Company less than 20% of interest in any investee. Your team will invest and manage the fictional \$1,000,000 according to the following rules.

Portfolio Rules

- At least 80% of your fictional portfolio assets (originally at \$1,000,000 in fictional cash) must always be invested in equity securities (not debt securities nor derivatives). You may leave up to 20% of the portfolio assets in cash.

- You need to begin with at least three but no more than ten different equity securities in your investment portfolio. Start simple but don't put all your eggs in one basket.
- You are not required to research companies to develop your investment portfolio or to make trading decisions. You may simply choose companies that you know or companies whose logos you like. If you wish, you may randomly throw darts to select companies. Your portfolio performance results will be reviewed for simulation prizes but not for learning assessment purposes.
- You make market orders (not limit orders) during regular trading days in the simulation. You can find real-time share prices and closing prices of equity securities on the internet, for example, Yahoo Finance and/or Google Finance.
- You may make as many trades as you wish. Flat commission and other fees will be charged at a rate of fictional \$100 per simulated transaction. While you may have many trading activities, you will be assessed on a specified set of transactions as described below under *Assessment Rules*.

Accounting Rules

- You need to keep a complete description of all your investment activities, including (1) transaction date, (2) nature of the activity (i.e., purchase, sale, or hold), (3) ticker symbol or company name of equity securities, (4) the number of equity shares bought, sold, or held, and (5) share prices or closing prices.
- For accounting purposes, assume that your company uses accrual accounting and that all your investments provide your company holdings of equity securities of less than 20% ownership of the investees. If you have any cash in your investment portfolio, cash is cash and its value does not change.

Assessment Rules

The instructor(s) will assess your learning in the simulation based on your activity descriptions (as mentioned in above *Accounting Rules*) and the propriety of your accounting practice, according to the *FASB Accounting Standards Codification*. Since you may have many transactions in the simulation, label the ones that you wish to use for assessment as you record and report the following required investment transactions and portfolio valuations:

- Initial investments on April 19 in your general journal.
- Another purchase transaction in the general journal. Note that this purchase activity needs to occur after your initial investments but before May 10.
- Two sales transactions in the general journal. Your first sales transaction needs to occur before the market closes on April 30. The second sale needs to occur between May 1 and May 10. In addition, the second sale must be the sale of equity securities from your initial investments.
- Adjustments for investment portfolio valuations by the end of April 30 and May 10, respectively, in your general journal.
- Financial reports of your investment portfolios by April 30 and May 10, respectively, in a partial balance sheet and in a partial income statement, including (1) cash and equity investments, (2) gains/losses on sales of equity securities, and (3) unrealized gains/losses on holding equity securities.
- A self-assessment of portfolio performance of your investment portfolio management, based on your investment activities and financial records/reports in the simulation phase.
- Dividends and interest revenues are to be ignored in the simulation.

TEACHING NOTES

Project Overview and Learning Objectives

Accounting for equity investments is an interesting topic. Both accounting and finance majors in the intermediate accounting course have gained some exposure to investment activities and portfolio management from other coursework and/or real-life experience. This topic is also relevant in financial

accounting, especially with the recent updates in the *Codification* in 2020 for accounting treatment in investments. We designed our project using the inquiry-guided experiential learning approach. The project itself is not technically complex, however, it requires research, interpretation, and use of the *Codification* to support applications and assessment of the accounting standards in a hands-on, quasi-real-world simulation. We evaluate student learning with both student self-assessment questionnaires and student project knowledge tests, as described in the section of Case Efficacy. The specific student learning objectives include the following:

1. To research, identify, and interpret the authoritative *FASB Accounting Standards Codification* for equity investment transactions.
2. Applying the accounting standards to record and report the student's equity investment transactions in a quasi-real-world simulation.
3. To develop accounting research, critical-thinking, and problem-solving skills while using the authoritative *Codification* literature for simulation.
4. To develop information technology agility in data collection and data management to translate raw data into financial reports in the simulation.
5. To leverage accounting knowledge, technology agility, and communication skills to prepare accounting records and financial reports, to evaluate portfolio performance of equity investment transactions, and to assess the implications of the recent updates in accounting standards on investments.

Implementation Guidelines

The project has been used in three class sections of Intermediate Accounting I, an undergraduate financial accounting course that discusses accounting practice for equity investments. Our project focuses on accounting practice in equity investments with security holdings of less than 20% of investees. It can be modified to include other types of investments, for example, investments in debt securities and/or investments in equity securities with greater ownership of interest or influence, if the instructor wishes to develop a more comprehensive project in investments. It can be assigned to an individual student or student teams.

Phase 1 of the project promotes inquiry-guided learning. It creates a business context, in which students “act” as auditors to offer professional opinions on accounting practice of the subject matter for their client company. We suggest first going over the entire project though, including Phase 1 and Phase 2, as this offers students a quasi-real business background and encourages students to identify the client's questions and thus the authentic need for inquiry and research. In Phase 1, since students will research in the *Codification* to address the client's questions, it could be helpful if the instructor reviews the structure and navigation of the *Codification* and provides examples of the citation to this authoritative literature.

After class, students explore and research the *Codification* to provide justifications and support as they describe and explain current accounting practice in equity investments. Students also complete a ten-multiple-choice question knowledge test (see in the section of Case Efficacy), which they submit before the following class period. We designed this Phase 1 project knowledge test so that the instructor could assess student understanding from their *Codification* research and self-study and adapt the subsequent class period for student questions.

In the subsequent class period, before students proceed to Phase 2 of the project, we suggest that the instructor discuss student questions about the *Codification* research and interpretations. The instructor could also clarify student questions from the Phase 1 knowledge test and provide multi-period examples of investment activities. Prior literature shows that inquiry-guided learning by itself could be ineffective and inefficient (Klahr and Nigam, 2004; Mayer, 2004) if without appropriate support and guidance, especially for students with little prior domain knowledge (Tuovinen and Sweller, 1999; Lazonder, et al., 2008). The subsequent in-class discussions and reflections help complement and reinforce student knowledge acquired outside of the classroom from their *Codification* research. The in-class discussions also ensure that students have proper information to proceed to the next phase of the project, an investment portfolio simulation.

In addition, the instructor can identify a portfolio performance goal in class in the simulation, for example, to maximize the total value of the investment portfolio. We didn't use the portfolio performance for grading purposes, as we designed our project for students learning about accounting treatment instead of portfolio management. We used the portfolio performance for simulation prizes instead (as described in the section of The Project), to encourage students to analyze and evaluate their equity investment activities, using their self-prepared accounting records and reports, when they revise and make investment decisions toward the portfolio performance goal. Showing students how to find share trading and closing prices could also help record their simulated transactions.

Phase 2 of the project asks students to initiate and complete their authentic equity investment transactions in the quasi-real investment portfolio simulation after class. It also requires students to record and report their simulation activities in two designated accounting periods with real-time market information (as described in the section of The Project). We encouraged our students to design and use Excel worksheets to capture, record, report, analyze, and evaluate their investment decisions. The instructor can decide whether other deliverable formats (for example, a paper copy) are appropriate. During the simulation weeks, we also engaged students in brief class discussions about their experience and questions. The instructor can facilitate such discussions, providing students with another learning opportunity to review the interpretations and applications of the *Codification*. As students run their experiential simulation, they make investment decisions, gather market data, prepare, analyze, and evaluate accounting records and financial reports, based on which they modify subsequent investment activities and assess the implications of the updates in accounting standards.

The instructor can adjust the length of the two designated accounting periods to accommodate shorter or longer class periods. However, we feel that letting students run the simulation for at least two accounting periods is essential. This seemingly repetitive process allows students to progress through the four-stage experiential learning model as they continuously relate investment activities to accounting information and as they constantly use accounting information to make, evaluate, and revise investment decisions. The hands-on simulation also enables students to study and practice financial accounting for equity investments for multiple accounting periods, so that students can develop metacognition knowledge about a company's investment activities and the impact on the company's financial statements.

CASE EFFICACY

This inquiry-guided experiential simulation project was implemented in both fall 2022 and spring 2023 semesters. Three class sections of undergraduate students in Intermediate Accounting I course completed both the *Codification* research and investment portfolio simulation. We gathered student data per Institutional Review Board (IRB) protocols. We use both student project knowledge tests and student self-assessments to learn about their project experience and assess their learning in the factual, conceptual, procedural, and metacognition knowledge dimensions.

Table 1 reports student demographic information. Seventy-three students from different class sections participated in our study. Most of these students were either accounting or finance majors, or double majored in both disciplines. The majority (86%) were juniors and seniors. Nineteen students did not identify their preferred learning style. Of the remaining fifty-four students, a narrow majority of thirty-two students (59%) indicated that they preferred experiential learning (when compared to other learning styles, including visual, auditory, and writing/reading). More male students participated in the study. Thirty-six (49%) student participants had maintained an overall GPA of 3.7 or above. Seven participants (10%) held an overall GPA below 3.0.

TABLE 1
STUDENT DEMOGRAPHICS

Variable	# of Observations	% of Full Sample
Major		
Accounting	19	26%
Finance	50	68%
Accounting and finance	2	3%
Other	2	3%
Class Standing		
Sophomore	10	14%
Junior	30	41%
Senior	33	45%
Learning Style		
Experiential	32	44%
Other	22	30%
Not known	19	26%
Gender		
Male	53	73%
Female	20	27%
Overall GPA		
≥ 3.7	36	49%
3.0–3.7	30	41%
< 3.0	7	10%

This table reports demographic information of student participants, obtained before the start of the project. Learning Style is the participant's self-identification of his/her preferred learning style, including experiential learning and other learning styles, for example, visual, auditory, and reading/writing.

Student Project Knowledge Tests

Table 2 demonstrates student performance in project knowledge tests along the factual, conceptual, procedural, and metacognition knowledge dimensions. Specifically, upon completion of Phase 1 of the project, students with access to open resources were required to answer ten multiple-choice questions based on their understanding of accounting treatment from reference to the *Codification*. These multiple-choice questions were designed to examine student performance on a spectrum ranging from student ability to research and recall knowledge of the subject matter to the ability to interpret and apply the proper accounting standards and to assess the implications of recent updates in these standards for financial reporting.

TABLE 2
STUDENT PROJECT KNOWLEDGE TESTS

Panel A: Phase 1 – FASB Codification Research	Mean	Median
Factual, conceptual, and procedural knowledge dimensions		
1. Which of the following account is not recorded at its historical cost in a balance sheet?	94%*** (34.74)	100%*** (34.00)
2. When a company has acquired a “passive interest” in another corporation, the acquiring company should use which of the following methods for equity investments?	90%*** (25.68)	100%*** (32.50)
3. When the market value of a company’s portfolio of equity investments becomes lower than its cost, the difference should be accounted for as_____.	92%*** (27.95)	100%*** (33.00)
4. For a portfolio of equity investments included as current assets, which of the following items should be included in net income of the period?	72%*** (13.59)	100%*** (26.00)
5. Tony Company made the following short-term equity investments in the year 2022 and didn’t sell any of these securities. How much unrealized holding gains/losses should Tony Company report for the year 2022?	100%*** (n/a)	100%*** (36.00)
6. Cash dividends declared out of current earnings were distributed to an investor. How will the investor’s equity investment account be affected by those dividends?	75%*** (14.59)	100%*** (27.00)
Metacognition knowledge dimension		
7. In its income statement of the year 2021, Fleet Company reported a \$2,000 credit balance in its “unrealized holding gains/losses on equity investments,” acquired in 2021. There were no other changes in 2021 and 2022 in the composition of the company’s equity investments. With the following information, what amount of “unrealized holding gains/losses on equity investments” should be included in Fleet’s income statement for the year 2022?	33%*** (5.96)	0%*** (12.00)
<p>Answer Questions 8-10 using the following information.</p> <p>Terry Company prepared the following schedule of equity investments (<20% holding) at the end of 2020. During 2021, the following transactions occurred.</p> <p>(1) On June 8, the company purchased equity security L for \$50,000.</p> <p>(2) On Oct. 11, the company sold all its holdings in security K for \$35,400.</p> <p>(3) On Dec. 31, the company received dividends of \$900 on the securities L and M.</p> <p>It’s also known that the 2021 year-end market values were available for Terry Company’s equity holdings: security M at \$43,900 and security L at \$49,600.</p>		
8. How much was the ending balance of its equity investments for Terry Company by 12/31/2021?	96%*** (40.41)	100%*** (34.50)
9. What was the total impact on Terry Company’s net income for the year 2021?	54%*** (9.16)	100%*** (19.50)
10. How much was the actual amount of gains/losses from its sales of security K for Terry Company?	58%*** (9.97)	100%*** (21.00)

Panel A: Phase 1 – FASB Codification Research	Mean	Median
Overall factual, conceptual, and procedural knowledge performance (i.e., student average percent correct in the above Questions 1 through 6)	87%*** (57.10)	83%*** (36.00)
Overall metacognition knowledge performance (i.e., student average percent correct in the above Questions 7 through 10)	60%*** (24.08)	50%*** (35.50)
Overall performance (i.e., student average percent correct in the above ten multiple-choice questions after completing Phase 1 of the project)	77%*** (49.88)	80%*** (36.00)

Panel A of Table 2 reports student performance in knowledge tests in Phase 1 of the project: *FASB Accounting Standards Codification* research. The mean and median values are student performance in answering multiple-choice questions after their research in the *Codification*. The mean values for multiple-choice questions are the percentages of students who answered the question correctly. The median values for multiple-choice questions are the performance results, either at 100% (i.e., a correct answer) or at 0% (i.e., an incorrect answer) by the median student. The numbers in parentheses are *t*-statistics for the mean values and *sign-test* scores for the medians. ***, **, and * denote 1%, 5%, and 10% level of significance, respectively.

Panel A suggests that in Phase 1 of the project, students, with the given inquiry questions, were motivated to perform basic accounting research in the *Codification*. Most students could locate and describe the related accounting standards in the *Codification* in the factual, conceptual, and procedural knowledge dimensions. At least 90% of these students (in Questions 1 and 2) effectively identified the fair value method for equity investment transactions. Most students properly applied the fair value concept to report equity investments in a company’s balance sheet (92% in Question 3) and to recognize and calculate unrealized gains/losses (100% in Question 5) for holding equity securities. Regarding reporting unrealized holding gains/losses in a company’s net income, *FASB Accounting Standards Codification* (FASB ASC 321-10-35-1) states that, “... investments in equity securities shall be measured subsequently at fair value in the statement of financial position. Unrealized holding gains and losses for equity securities shall be included in earnings.” However, the inclusion of unrealized gains/losses seems less intuitive. About 72% of the students answered Question 4 correctly on net income reporting.

Questions 7 through 10 assess the metacognition dimension of student knowledge upon completing the *Codification* research. These questions require students to interpret and apply accounting standards and expect students to analyze and evaluate a company’s equity investment activities from its multi-period financial statements. In Question 8, majority (96%) of the students understood the impact of the fair value method on a company’s balance sheet. However, Questions 7, 9, and 10 suggest that fewer students (i.e., 33%, 54%, and 58% in Questions 7, 9, and 10 respectively) could accurately use the fair value concept to report, analyze, and evaluate income statement items in the multi-period scenario.

These results demonstrate that students could conduct basic research in the *Codification* and self study and develop rudimentary understanding and interpretations of the accounting standards. Nevertheless, for less intuitive accounting treatment, for example, the reporting of income statement items for equity investment transactions, supplementary class discussions and additional learning experience seem needed, especially for knowledge of the subject matter along the metacognition dimension.

After completing Phase 1 of the project, we discussed student questions and reviewed multi-period examples in the subsequent class. Students then proceeded to Phase 2, focusing on the applications and evaluations of the related accounting standards in a quasi-real-world simulation. They originated their fictional equity investment activities using real-time market information. They recorded and reported such activities in the general journal and financial statements, based on which they evaluated portfolio performance from their simulated investment decisions.

TABLE 2
STUDENT PROJECT KNOWLEDGE TESTS

Panel B: Phase 2 – Investment Portfolio Simulation Experiential Learning		
Investment portfolio simulation (metacognition knowledge dimension)		
1. Student investment portfolio simulation performance.	94%*** (119.02)	95%*** (36.00)
Final exam questions (metacognition knowledge dimension)		
Final exam multiple-choice questions		
A company had the following information by the end of years 2020 and 2021 for its equity investments in Investees A and B (<20% holding). It's also known that in 2021 the company sold all its investment in Investee A for \$35,000.		
2. How much should the company report as the ending balance in its “equity investments” in its balance sheet on 12/31/2021?	92%*** (27.95)	100%*** (33.00)
3. What is the total impact on the company’s net income, for year 2021 from its investment activities in Investee A?	60%*** (10.26)	100%*** (21.50)
Final exam comprehensive questions on adjusting entries and financial reports		
Your accounting firm performed an annual audit for a client company and found the following additional information: The company’s stated “equity investments” of \$66,000 (to be held in a short term) in its balance sheet, were acquired in 2021 and were recorded at the original acquisition cost. These equity securities had a market value of \$68,000 by 12/31/2021.		
4. Update and prepare correcting/adjusting entries (for its equity investments) for year 2021 for the client company.	89%*** (23.83)	100%*** (32.00)
5. Update equity investments and prepare a corrected classified balance sheet for the client company as of 12/31/2021.	96%*** (40.41)	100%*** (34.50)
6. Update retained earnings for the client company for its classified balance sheet.	78%*** (15.76)	100%*** (28.00)
Overall metacognition knowledge performance (i.e., student average percent correct in the simulation project and in questions from their final exam)	83%*** (31.09)	90%*** (35.50)
<i>Difference</i> in overall student performance in the metacognition knowledge dimension, from completing Phase 1(in Panel A) to completing both phases of the project (in Panel B)	22%*** (6.11)	40%*** (<.0001)

Panel B of Table 2 reports student performance in knowledge tests after completing the second phase of the project: investment portfolio simulation. The mean and median values reported for student simulation are the average and median percentages of total points students earned in the simulation. The mean values for final exam questions are the percentages of students who answered the question correctly. The median values for these exam questions are the performance results, either at 100% (i.e., a correct answer) or at 0% (i.e., an incorrect answer) by the median student. The numbers in parentheses are *t*-statistics for the mean values and *sign-test* scores for the medians. *Difference* reports the difference of student metacognition performance from Phase 1 to Phase 2 of the project. The *t*-value of the mean and *p*-value of the median score tests are included in parentheses. ***, **, and * denote 1%, 5%, and 10% level of significance, respectively.

Panel B of Table 2 reports student performance (an average of 94%) in the simulation. Panel B also demonstrates that, in the closed-book closed-note comprehensive final exam a few weeks after completing the project, most students could maintain their knowledge. Specifically, in these final exam questions on investments, along the metacognition knowledge dimension, most students correctly recorded and reported equity investments in a balance sheet (92% in Question 2, 89% in Question 4, and 96% in Question 5). Many students improved significantly and properly answered questions about income statement items and the impact on retained earnings (60% in Question 3, 89% in Question 4, and 78% in Question 6).

When comparing Panel A (i.e., after students complete Phase 1 of the project) to Panel B (i.e., after students complete both phases of the project) on student performance along the metacognition knowledge

dimension, Table 2 illustrates students, on average, improved their understanding of the subject matter upon completion of both the *Codification* research and the simulation phases of the project. Such improvement in student metacognition knowledge performance was substantial (an average of 22% increase) and statistically significant.

These results support the inquiry-guided experiential learning approach. The inquiry-guided *Codification* research was effective in engaging students to self study and research the authoritative literature. It was helpful in introducing the basic accounting concept and accounting practice. Subsequent class discussions and investment portfolio simulation reinforced and enhanced student learning of the subject matter. The quasi-real-world applications enabled four-stage experiential learning, in which students (1) created organic equity investment activities, (2) made authentic applications of accounting standards, (3) analyzed the impact on self-prepared financial reports, and (4) evaluated and modified subsequent investment decisions. This inquiry-guided research with an experiential simulation learning approach not only enriched student learning along the factual, conceptual, and procedural dimensions of knowledge inquiry, it also promoted student learning along the high-level metacognition dimension.

Student Self-Assessment of Learning

We also used student self-assessment questionnaires to validate the efficacy of the project. Upon completing both phases of the project, student participants completed self-assessment questionnaires on their learning experience and the project. Table 3 shows student perceptions of their learning experience. The first three survey questions relate to the factual, conceptual, and procedural knowledge dimensions of student learning. On a Likert scale of 1 (strongly disagree) to 5 (strongly agree), students felt confident in their knowledge, with a mean of 4.13 as their self-assessment of overall accounting technical skills in equity investments. They also reported an average of 4.43 and 4.21 for their factual, conceptual, and procedural knowledge in recording and reporting a company’s equity investment activities.

TABLE 3
STUDENT SELF-ASSESSMENT OF LEARNING

Survey Questions	Mean	Median
Factual, conceptual, and procedural knowledge dimensions		
1. I know how to record business transactions related to equity investments.	4.43*** (55.35)	4.00*** (28.00)
2. I know how to report the impact of equity investment transactions in financial statements.	4.21*** (50.52)	4.00*** (28.00)
3. I feel confident about my overall technical skills in accounting practice for equity investments.	4.13*** (48.67)	4.00*** (28.00)
4. I know how to use the <i>Codification</i> to research for current accounting practice for equity investments.	3.77*** (36.98)	4.00*** (28.00)
5. I feel confident about my overall technical skills in using the <i>Codification</i> .	3.61*** (32.75)	4.00*** (28.00)
Metacognition knowledge dimension		
6. I can use analytical skills to relate equity investment activities to financial reporting.	4.09*** (52.69)	4.00*** (28.00)
7. I can use analytical skills to analyze the impact of equity investment activities in a balance sheet and in an income statement.	4.04*** (50.17)	4.00*** (28.00)
8. I can use critical-thinking skills to understand the FASB’s rationale for the recent updates in accounting standards for equity investments.	3.80*** (39.31)	4.00*** (28.00)

Overall self-assessment		
9. I feel better prepared to work for a real business for its accounting practice of equity investment activities.	4.09*** (44.04)	4.00*** (28.00)
10. I feel better prepared to work for a real business in using the <i>Codification</i> to guide its accounting practice.	3.80*** (33.03)	4.00*** (28.00)
Overall assessment (i.e., student average score of the above ten survey questions)	4.00*** (63.04)	4.00*** (28.00)

This table reports student self-assessment of learning after completing both *FASB Accounting Standards Codification* research and investment portfolio simulation. A five-point Likert scale was used to measure their responses to each survey question: 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree. The mean and median values are the student assessment. The numbers in parentheses are *t*-statistics for the mean values and *sign-test* scores for the medians. ***, **, and * denote 1%, 5%, and 10% level of significance, respectively.

Survey Questions 4 and 5 focus on the procedural knowledge dimension to perform research in the *FASB Accounting Standards Codification*. Students seemed less confident about their research skills, reporting a mean value of 3.77 as their own assessment of research skills for accounting practice of equity investments and a mean of 3.61 for their overall research skills in the *Codification*. While these students were exposed to the structure of the *Codification* at the beginning of the semester, this project was their first hands-on research experience using the *Codification*. This result calls for more class activities to engage students more often to explore and use the *Codification* and to relate interpretations of the *Codification* to various course topics throughout the semester.

Students answered survey Questions 6 through 8 to provide their self-assessment of learning along the metacognition knowledge dimension. Specifically, Questions 6 and 7 ask students to self-assess their analytical skills to relate equity investment activities to financial reporting and analyze such activities' impact on a company's financial statements. Students showed confidence and self-rated above 4.00 in their analytical skills. In Question 8, students evaluated their critical-thinking skills to rationalize the accounting updates in the *Codification* for equity investments. As in their self-assessment on the procedural use of the *Codification*, students appeared less confident, with an average of 3.80, in the metacognition dimension of their knowledge about the *Codification*. Overall, students were positive about their learning and felt better prepared (an average of 4.09 in Question 9) for real accounting scenarios of a company's equity investment activities.

Student Self-Assessment of the Project

Table 4 reports the mean and median values of student self-assessment of the project. On a Likert scale of 1 (strongly disagree) to 5 (strongly agree), the students reported an average of 4.31 in survey Question 10, suggesting that they highly regarded the project and would recommend it for future use. They also indicated that using the *Codification* research, along with the simulation, made the project interesting. Students were willing to put forth time and effort in learning the subject matter (a mean of 4.38 in Question 6). They considered the difficulty level of the project appropriate (in Question 7). They felt that the project required a broad range of skills, including advanced skills, for example, to research the *Codification* and interpret and apply accounting standards (in Question 8).

TABLE 4
STUDENT SELF-ASSESSMENT OF THE PROJECT

Survey Questions	Mean	Median
1. The project was an effective assignment in learning accounting practice for equity investments.	4.47*** (54.21)	5.00*** (29.00)
2. The project made the course topic on equity investments more relevant by providing a real business context.	4.43*** (56.65)	4.00*** (29.00)
3. The project was an effective assignment in learning about the <i>Codification</i> .	3.97*** (37.02)	4.00*** (29.00)
4. The project enabled me to research the <i>Codification</i> in a real-world scenario for a company's equity investment activities.	4.00*** (38.33)	4.00*** (29.00)
5. The project helped me understand how accounting professionals use the <i>Codification</i> as an authoritative source for accounting practice.	4.02*** (41.50)	4.00*** (29.00)
6. The project was interesting. I was willing to put forth time and effort.	4.38*** (49.71)	4.00*** (29.00)
7. The project was about the right level of difficulty.	4.12*** (50.34)	4.00*** (29.00)
8. The project required a broad range of skills (including, for example, research in the <i>Codification</i> , technical interpretation, and critical-thinking and application skills).	3.98*** (34.93)	4.00*** (29.00)
9. The project helped me prepare for my planned future job.	3.60*** (31.28)	3.00*** (29.00)
10. I would recommend this project for future use in the course.	4.31*** (52.35)	4.00*** (29.00)
Overall assessment (i.e., student average score of the above ten survey questions)	4.13*** (61.16)	4.10*** (29.00)

This table reports student participants' self-assessment of the project for both *FASB Accounting Standards Codification* research and investment portfolio simulation. A five-point Likert scale was used to measure their responses to each survey question: 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree. The mean and median values are the student assessment. The numbers in parentheses are *t*-statistics for the mean values and *sign-test* scores for the medians. ***, **, and * denote 1%, 5%, and 10% level of significance, respectively.

In addition, students confirmed that the project was effective and helped them learn the accounting practice for equity investments (a mean of 4.47 in survey Question 1). The project was considered relevant and provided a real business context for the course topic (an average of 4.43 in survey Question 2). These students also suggested that the project enabled them to research and use the *Codification* in a real business scenario (an average of 4.00 in survey Question 4). It also enabled them to experience how an accounting professional might use the *Codification* as an authoritative source to solve an accounting issue (a mean of 4.02 in survey Question 5).

CONCLUDING REMARKS

Using the inquiry-guided experiential learning approach, we designed and implemented an investment portfolio project with our undergraduate students in an Intermediate Accounting course. Students first explored and researched the authoritative *FASB Accounting Standards Codification* to identify, interpret, and summarize accounting standards to record and report a company's equity investment activities. We then clarified student questions and discussed the accounting treatment for multiple-period investment activities in class, based on which students proceeded in a hands-on quasi-real-world investment portfolio simulation.

Overall, students were positive about their learning experience. They considered the project effective, relevant, and interesting. Upon completing the project, they felt confident about their technical and analytical skills in accounting practice of the subject matter. Their self-assessment of research skills in the *Codification* justifies more frequent uses throughout the semester and maybe in other accounting courses. Their performance in project knowledge tests further validates this inquiry-guided experiential learning approach. With inquiry-guided questions, students appeared motivated for self-study and were able to demonstrate an understanding of basic accounting concepts and procedures. With subsequent class discussions and simulation experiential learning, students seemed able to maintain and learn the course topic in depth. They showed solid understanding of the subject matter, not only in the factual, conceptual, and procedural knowledge dimensions but also in the knowledge dimension of metacognition.

We acknowledge some limitations in our project. First, our institution is a private university, and we have an average class size of 25-35 students in an intermediate accounting class. This could differ from other institutions. Second, our project is not complex regarding the subject matter. Additional course topics, for example, investments in debt securities could also be integrated into the project. Nevertheless, our inquiry-guided experiential learning approach encouraged self-study and research in accounting literature, based on which students were engaged in a deep-learning experiential simulation. Instructors can modify or design their own project(s) and use this learning approach to promote student motivation and learning.

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