Financial Education Pedagogy Case Design

Time Value of Money (TVM)

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Part 1 – Threshold Concept Framework

Threshold Concept Selected: Time Value of Money (TVM)

A. What Students Know

• Students possess a basic awareness that money can grow over time when invested.
• They understand simple and compound interest concepts.
• They can identify fundamental terms: principal, interest rate, time period.
• They recognize that investment returns vary across different instruments.

B. What Students Do Not Know

• Application of discounting and compounding principles to multi-period cash flows.
• Differentiation between nominal and effective interest rates.
• Integration of TVM into capital budgeting tools such as NPV, IRR, and Payback Period.
• Valuation techniques for annuities, perpetuities, and irregular cash flows.
• The impact of opportunity cost of capital and inflation on investment decisions.

C. Underlying Principles

• Principle of Financial Equivalence: A rupee today is worth more than a rupee tomorrow due to its earning potential.
• Compounding: Future values are determined by reinvesting earnings over multiple periods.
• Discounting: Present values are derived by reversing compounding to reflect opportunity cost.
• Decision Relevance: TVM is integral to comparing investment alternatives and assessing risk-adjusted returns.

Part 2 – Case Study Design Using Bloom's, Fink's, and SOLO Frameworks

Case Title: Investment Decision at Zenith Manufacturing Ltd.

Case Context: Zenith Manufacturing Ltd. is evaluating two capital investment proposals:
• Project A: Higher initial capital requirement, steady annual returns.
• Project B: Lower initial outlay, variable cash flows with higher potential upside.
The Finance Manager must recommend the optimal choice using Time Value of Money tools (NPV, IRR), considering both financial and strategic factors.

A. Bloom's Taxonomy Alignment

Bloom's Level	Learning Activity	Expected Student Output
Remember	Define NPV, IRR, and discount rate.	Accurate definitions.

Understand	Explain the rationale for TVM in project evaluation.	Written explanation.
Apply	Compute NPV and IRR for both projects.	Calculation tables.
Analyze	Compare project results, identifying strengths and risks.	Analytical report.
Evaluate	Justify the preferred project selection.	Recommendation note.
Create	Develop a cash flow integration plan for the chosen project.	Strategic proposal.

B. Fink's Taxonomy Alignment

Dimension	**Learning Activity**	**Expected Student Output**
Foundational Knowledge	Review TVM formulas and assumptions.	Concept summary.
Application	Perform project calculations using NPV and IRR.	Calculation workbook.
Integration	Relate findings to organizational objectives.	Cross-functional analysis.
Human Dimension	Reflect on the decision from a CFO's perspective.	Reflective note.
Caring	Articulate the importance of sound investment decisions.	Written commitment statement.
Learning How to Learn	Identify further skills needed for advanced financial analysis.	Learning plan.

C. SOLO Taxonomy Alignment

SOLO Level	**Description**	**Application in Case**
Pre-structural	Lacks understanding of TVM.	No relevant output.
Uni-structural	Understands one aspect (e.g., compounding).	Calculates future value for a single period.
Multi-structural	Knows multiple elements but not integrated.	Computes NPV and IRR separately.
Relational	Integrates concepts to compare projects holistically.	Comprehensive project evaluation.
Extended Abstract	Applies TVM to novel financial contexts.	Designs investment strategy for unrelated projects.

D. Comparative Framework Table

Criteria	**Bloom's Taxonomy**	**Fink's Taxonomy**	**SOLO Taxonomy**
Core Focus	Cognitive skill hierarchy	Holistic, including affective dimensions	Depth and integration of learning

Structure	Sequential, hierarchical	Interrelated, non-linear	Progressive from surface to deep
Strength	Clear scaffolding of cognitive complexity	Links knowledge to real-world and self	Demonstrates mastery through application
Limitation	Limited emotional/reflective scope	Less prescriptive for grading	Less focus on procedural steps

Part 3 – Reflection Questions and Learning Outcome Mapping

A. Reflection Questions

1. How did applying TVM principles influence your project recommendation?
2. Which step in the computation process posed the greatest challenge and why?
3. What qualitative factors should be considered alongside NPV and IRR before making a final decision?
4. How can the principles learned here be applied to personal investment decisions?
5. What is one skill you aim to develop further to enhance your financial analysis capability?

B. Learning Outcome Mapping

Learning Outcome	**Bloom Alignment**	**Fink Alignment**	**SOLO Alignment**
Apply TVM concepts to real-world decisions	Apply, Analyze	Application	Relational
Perform accurate NPV and IRR computations	Apply	Application	Multi-structural
Integrate quantitative and qualitative analysis	Evaluate	Integration	Relational
Reflect on decision-making process	Evaluate	Human Dimension, Learning How to Learn	Extended Abstract
Appreciate strategic role of financial analysis	Evaluate	Caring	Relational