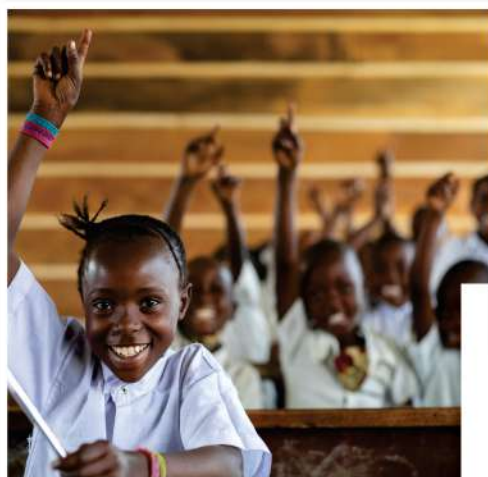




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INNOVATIVE STRATEGIES FOR TEACHING VOCATIONAL, SCIENCE, TECHNOLOGY AND MATHEMATICS EDUCATION: CLASSROOM PRACTICES



**INNOVATIVE STRATEGIES FOR TEACHING VOCATIONAL, SCIENCE, TECHNOLOGY AND
MATHEMATICS EDUCATION: CLASSROOM PRACTICES**

PROF. JOSEPHINE N. OKOLI

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**EDITOR
PROF. JOSEPHINE N. OKOLI**

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PREFACE

The electronic book (e-book) acknowledges that traditional methods in Vocational, Science, Technology and Mathematics Education: Classroom Practices may not be sufficient to equip students with the necessary skills for a rapidly evolving technological landscape.

Therefore, it advocates for the adoption of Innovative teaching approaches that promote a more dynamic and effective learning experience.

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TABLE OF CONTENT

SECTION ONE

EMPIRICAL RESEARCH WORKS

Chapter 1

Effects of constructivism based instructional method on students' achievement in financial accounting in senior secondary schools in Anambra State

Chika M. Okonkwo 1

Chapter 2

Innovative tools for effective teaching of physical and health education in colleges of education in Anambra State.

Anaekwe Grace U., Obiefuna Grace C. 8

Chapter 3

Effect of framing instructional strategy on students' motivation and academic achievement in mathematics in Oron Local government Area of Akwa Ibom State, Nigeria

Ekpenyong Effiong Ibok, Idaka Etta Idaka, Iwuala Patricia Ebere Chilebe 13

Chapter 4

Influence of demographic variables as a determinant principal administrative practices in Enugu State Nigeria

Nweke Phina Amaka, Emmanuel Chukwunwike Onyekwe, Iwenzu Ngozi Caroline Uloaku Victoria Egbuchiwe 22

SECTION TWO

THEORETICAL FRAMWORKS

Chapter 5

Role of smart green schools in the development of environmental education for sustainable development

Regina Ijeamasi Enebechi 31

Chapter 6

Budgeting, Savings and Investment Pedagogy: An Imperative for Graduate Survival and Sustainability

Ehumadu Rophina Ifeyinwa Chima 41

Chapter 7

Inquiry-Based Learning in Mathematics Classroom: A Guide for Teachers

Ogoke Chinemeze James, Tina Uchenna Otumegwu, Achugamonu Pius C 49

Chapter 8

Enhancing Acquisition of Science, Technology, Engineering and Mathematics (STEM) Skills in Early Childhood Education

Obiefuna Grace C, Nwankwo Glory U. 57

Chapter 9

Innovative Teaching Strategies in Basic Science in the 21st Century Classroom Settings

Suleiman Dambai Mohammed, Perekeme Peresuodes 67

Chapter 10

Brainstorming: An Innovative Tool for Enhancing Teaching and Learning of Biology in Schools

Ifeoma B. Okafor, Chukwuma C. Ekechukwu, Caroline I. Okorie 74

Chapter 11

Innovative Strategies for Teaching Mathematics Education in Nigeria: Classroom Practices

Tukur Madu Yemi 80

Chapter 12

Innovative Strategies for Enhancing Mathematical Thinking and Problem-Solving Skills in Nigerian Classrooms

Emmanuel C. Nwigboji, Uzoamaka Chimuanya Okafor-Agbala 85

Chapter 13

Innovative Instructional Strategies in Science Teaching and Learning

John B. Moses, Tamaraudeinyefa Tobi 98

Chapter 14

Instructional Approach and Proofs of Pythagora's Theorem for Problem-Solving

Madu Cletus Ifeanyi, Abur Cletus Terhemba 109

Chapter 15

Building a Strong Foundation in Chemistry for Beginners

Obikezie Maxwell Chukwnazo 117

Chapter 16

Hands-On, Minds-On: Emerging Practices in Classroom Robotics Education

Fadip Audu Nannim, Moeketsi Mosia 124

Chapter 17

From Support to Self-Reliance: Instructional Scaffolding Strategies for 21st Century Science Classrooms

Maria Tsakeni, Stephen Chinedu Nwafor 134

Chapter 18

Think-Pair-Share Comparative Teaching and Learning Strategy

Mohammed Idris, Abel Idoko Onoja 146

Chapter 19

Multiple Intelligence Strategies: An Innovative Instructional Approach to Teaching and Learning in the 21st Century

JohnBosco O.C. Okekeokosisi, MaryAnn Chigozie Ofordum, Odunayo Abigael Bamisebi 152

Chapter 20

Fostering Critical Thinking and Creativity through Interdisciplinary Teaching in the 21st Century Classroom

Nkiru N.C. Samuel 157

Chapter 21

Interdisciplinary Approach to Teaching Basic Science: The Challenges and Benefits

Melody Otimize Obili, Nneka R. Nnorom 168

Chapter 22

Classroom-Based Innovative Teaching Strategies in Agricultural Education

Anyachor Charles N. 177

Chapter 23

E-Learning Platforms for Continuous Professional Development

Chikendu Rebecca Ebonam, Ekoyo Destiny Onyebuchi 182

FOREWORD

This book entitled “**Innovative Strategies for Teaching Vocational, Science, Technology and Mathematics Education: Classroom Practices**”, is a book of readings on various innovative classroom pedagogies. It is a welcome literature for Education System and a very important resource book for teachers who are functioning in the disciplines of Vocational Education, Science, Mathematics and Technology education and training. It is a compendium of most of the **active learning strategies** aimed at producing graduates who have been prepared for adaptation to the conditions of the 21st century world of fluidity. The 21st century world accommodates soft skills which the individual can edit from time to time as the conditions of socio-cultural, economic and technological environments change constantly and uncontrollably. A century in which cross-border job openings are important means of employment, a century where attitude is more important than subject-based excellence, a century where collaboration, innovation and creativity are irreducible demands by employers of labour, a century where adaptive skills are critical for entrepreneurship, creation of jobs and wealth.

All categories of teachers at all levels of education would find this resource book interesting and professionally helpful for their teaching practice. Because conditions of the modern world are in perpetual flux, teachers have to re-skill in order to produce adaptive graduates and the era of lecture method is literally over. It is these modern innovative instructional strategies that would enable teachers to produce such graduates who would survive and then succeed in the 21st century global economy.

This book would also be very useful to researchers and innovators in the envisioned pedagogic paradigm shift of this era. I therefore, proudly recommend this book, a compendium on innovative pedagogies to all classes of teachers and researchers on pedagogies and curriculum reforms in the modern era.

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DEDICATION

This book is dedicated to educators in the world

CHAPTER 6

BUDGETING, SAVINGS AND INVESTMENT PEDAGOGY: AN IMPERATIVE FOR GRADUATE SURVIVAL AND SUSTAINABILITY

Ehumadu Rophina Ifeyinwa Chima

Abstract

This book chapter is on budgeting, savings and investment as an imperative for graduate survival and sustainability. Its objectives are not limited to equipping the student with the understanding of the complexities of budgeting, savings and investment, acquainting them with knowledge of the importance of budgeting and its types, savings schemes and types, appreciating benefits of savings pedagogy in order to adopt wholesome investment approaches. The book chapter discussed concepts of budgeting, savings, and investments, and elaborated on types of financial investments that would assist graduates to survive and be sustained after their studies. The scope of teaching and learning of budgeting, importance of budget, and components of savings were also discussed. The book chapter also discussed benefits and techniques of budget, savings and investment pedagogy for graduate survival and sustainability. It was concluded that the skills and knowledge of budgeting, savings and investment, should be considered prime in the school programme. It was recommended, among others, that curriculum planners should include budgeting, savings and investment in the school curriculum at higher levels, and that schools and governments should organize seminars, workshops and conferences for teachers and students with qualified and capable resource personnel.

Keywords: Budgeting, Savings, investment pedagogy graduate survival and sustainability

Introduction

Budget and savings are crucial factors that propel investments and the laurels of success and civility of individuals and nations anchor on them. The strength of every individual, industry and society behooves largely on these phenomena and their survival and sustenance revolve on them too. Budgeting, which is an estimate of incomes and spending for a set period and the amount of money available for a purpose, is crucial for progress of any family. Proper budgeting brings about savings which result to investment. Budgeting is the process of creating a plan for prudent management of one's finances, appropriately allocating his resources and tacitly achieving set out goals, especially that part of one's assets that can be set aside as savings. Savings, on its part, as act of holding money for later use, is the process of increasing one's assets specifically for those assets that can be saved. Investment, itself, which is a commitment of resources into something expected to gain value over time, is the tool for building wealth. It is a property acquired to generate incomes. So, with proper budgeting and savings one can make investments, as well as a state, that will enable the individual or nation to withstand long intricacies of precarious times for good.

Budgeting, savings and investment are sacrosanct. The trio work as one entity and none can succeed well without concerted adoption of the other. Proper and efficient budgeting results to meaningful savings that lead to concrete investments. There is, therefore, the need to include these veritable phenomena in the national pedagogical curricula if adequate impacts of the desiring skills and knowledge needed to enhance individual and national status, especially those of the graduate students, will be arduously and congruently achieved. Essentially, also, the knowledge and skills gained from the teaching and learning of budgeting, savings and investment in schools will improve the lives of the graduates and provide them with undaunted opportunities to cope with the difficulties prohibiting their survival and sustainability, especially, in the inflationary-driven battered economy.

Statement of the Problem

The current global economic crises, especially in the developing countries such as Nigeria makes it difficult for youths to survive and sustain themselves on graduation. The high depreciation of the Nigerian currency and the meager income per capita of majority of the citizenry are added problems of the Nigerian graduates. These and many more lead to poverty, hunger, starvation, robbery, kidnapping, drunkenness and such other vices among Nigerian graduates. Acquisition of desiring knowledge and skills of budgeting, savings and investment necessary to abet these anomalies are imperative if this ugly trend would be eschewed and their consequences ameliorated for the university graduates. This book chapter, therefore, examined the usefulness of acquired budgetary skills, savings and investment knowledge as a necessity to curb the menace. Thus, it discussed the concept of budgeting, savings and investment and how inclusion of such skills and knowledge in the school curricula will serve as a veritable solution for the syndrome.

Objectives of the Study

After reading this chapter of book, the reader should be able to:

1. define budgeting, savings and investment
2. identify importance of budgeting and its pedagogy
3. explain types of budgeting
4. describe types of savings schemes
5. explain components of savings pedagogy
6. identify benefits of savings pedagogy
7. discuss strategies for saving money
8. identify savings techniques
9. streamline strategies for teaching and learning budget, savings and investments
10. outline need for budget, savings and investments pedagogy as an imperative for graduate survival and sustainability.

Concept of Budget

A budget is a calculation plan, usually but not always financial, for a defined period of time, often one month or a year (Loren, 2013). It is an estimate of incomes and spending for a set period, and the amount of money available for a purpose. A budget can be viewed in various distinct ways by different scholars and businesses, but its central meaning centers on plan to spend a particular amount often tagged to money but ordinarily not excluding time, energy and the likes. A budget may include anticipated sales volumes and revenues, resource quantities as well as periods, costs and expenses. It does not exclude environmental impacts such as greenhouse gas emissions, similar such impacts, assets, liabilities, cash flows and numerous such others. Governments, companies or industries, families, individuals, and other organizations use budgets to express strategic plans of their scheduled activities in measurable terms. A budget may express a surplus, that is, provide planned anticipated resources for use at a future time or a deficit, that is, expenditures which exceed incomes or other resources; or it may express intended expenditures along with proposals for how to meet them up with anticipated or available resources (Almeida, 2022).

An individual budget for home use is a financial plan that allocates future personal incomes forwarding expenses, savings and debts' repayments. Past spending and personal debts are considered when creating a personal or family budget. Generally, a budget specifies a comprehensive financial plan that outlines anticipated incomes, expenses, and resource allocations within a specified time frame. Budgeting is imperative for investments and success of home inmates, industrialists, governments and all other organizations. It is an aiding smooth tool for good governance and leadership at all levels as it is a fundamental aspect of financial management that plays a pivotal role in the strategic and operational functions of human resource management (Michael, 2011). Marynchack (2017), in another angle, believes budget as a spending plan that outlines ones incomes, expenses and other financial goals like savings and debts pay-down. Almeida (2022) was not distinct in his expressed view that budget is an estimate of how much money one will make and spend over a certain period of time, such as a month or a year noting

that it may involve making a comprehensive list of expenditure, or just focusing on a few categories.

The primary purpose of creating a budget in a home is to take control of one's money or resources so as to assist the one achieve short and long term goals. Loren (2013) corroborating this opinion, opined that budget is dynamic. He advised cautiously that it should change based on circumstances that surround an individual or a family which may emanate from life events not limited to movements, changing of jobs, becoming a parent, experiencing a shift in incomes – promotion or demotion, and taking on care-giving responsibilities, as these are likely to impact on one's financial or resource situation.

Importance of Budget

Budgeting is of a great reward to everyone, not just those who struggle financially. It encourages one to invest money to work in the best way possible and can help individual identify over spending. The rubrics of budgeting include:

- **Plan for upcoming expenses** – Budgets can help one plan for how to cover upcoming expenses, industry rent or car payment. Mapping out expenses in advance can help reduce the risk of overspending.
- **Save for the future** - A good budget according to Modiagliani (2018) coaxes one to earmark money for an emergency fund and savings goal like a retirement, building a house and vacation.
- **Get out of debt** – Budget enables one understand how much of the money to put towards debt, as well as how to prioritize different types of debts.
- **Relieve stress** – Budgeting can go a long way in helping one manage financial decisions and be ready for all challenges, thereby, relieving stress and confusion.
- **See where one's money is going** – Stating and tracking expenses and income clearly show how much an individual has to save, spend, or pay towards debts. This will enable one to know where to make adjustments; like if the budget shows that expenses is higher than the income, there is strictly needed for adjustment to avoid borrowing.

Types of Budget

There are different budgets that serve specific purposes. Each budget should be designed to serve the required purpose and achieve goals set out within personal finances, business aims or household needs. Budgets include:

- **Cash budget** - Cash budget zeroes in on the flow of cash in and out of business over a specific period. Avnimelech (2022) posited that cash budget provides a detailed prediction of when money will be received and when payments will be made.
- **Operating budget** – This type of budget is blueprint for managing the daily functions of business. It accommodates all regular expenses, such as varying sales volumes, or production, labour, materials, utilities and administrative costs.
- **Flexible budget** – This type of budget is designed to adapt to changes in business activities or external conditions. Michael (2011) said that this is used when business has stable operation and predictable expenses.
- **Project budget** – This is used to outline the costs, resources, and expected outcomes of a particular project.
- **Sales budget** - This forecasts on the revenues a business expects to generate over a specific period of time that are usually based on market trends, historical data, and sales team projections. Marynchack (2017) outlined that sales budget serves as the foundation of other budgets since sales revenues influence production planning, marketing efforts, and resource allocations.
- **Capital expenditure budget** - This area of budgeting is all about planning for significant investments in assets such as property, machinery, or infrastructure.

- **Family budget** – This encompasses total expected capital and recurrent incomes and expenditures of a family monthly or annual disbursement. It covers tangible and intangible needs of all members of a family.

Concept of Savings

Savings is the money an individual left over after subtracting one's expenses and spending from earnings over a given period. Dell'Arpore (2023) highlighted that savings represent net-surplus of funds one has after all one's obligations have been paid. Savings are mostly kept as cash, cash equivalents which are exposed to minimal risk of loss but come with corresponding minimal returns. Savings is the act of holding onto money for later use.

Savings are acts of increasing assets especially that part of wealth which can be deposited into reserve for future use. They are per se, activities which occur over time and are a flow of variables. Bhakat and Miruganantham, (2017) believed that saving is part of a person's incomes that is spent on mortgage loan repayments. They corroborated adduction that saving is closely related to physical investment in that the former provides a source of funds for such resources to be invested as fixed capital for such individuals and families well-being as well as for factories and machinery production by Ehumadu (2021). She further stated that savings can be vital to increase the amount of fixed capital available which contributes to economic growth. For her, savings are made for their importance like for emergencies and retirements. As admonished, savings should be done by consumers in many different ways including through bank accounts, traditional methods, building societies, insurances and the likes (Lequaller & Blades in Ehumadu, 2021). Savings can be grown through investing as it is one of the economics activities of consumers that are specifically for investments.

Types of Saving Schemes

Saving can be operated through many schemes such as:

- **Fixed deposits** – This is done to save investment with a fixed interest rate for a special duration.
- **National savings certificate** – This is government scheme with a 5 year lock-in period.
- **Senior citizens savings scheme** – This is a high-interest scheme for citizens above 60 years of age.
- **Equity-linked savings scheme** – This is a tax benefits mutual fund.
- **Atal Pension Yojana** - This is the savings scheme for unorganized sector workers' retirement security plan.
- **Post-office monthly income scheme** - This is a monthly income provision.

Strategies for Saving Money

As a result of development and changes of time in the globe, there exists lots of ways through which one can save money for investments. Dell'Arpore (2023) outlined various strategies an individual can save money for investment to include:

- **Create a budget plan** – Establishing a budget plan is the foundation of savings. State down the incomes earned and expenses to be done - this will create room for adjustments. More so, allocate a portion of incomes towards savings while making a budget plan.
- **Automate savings** – This involves setting up automatic transfers from one's checking to a savings account. This creates an opportunity for one to save first, and then spend the leftover cash after.
- **Set clear financial goals** – Make clear indemnification of what the savings are for, whether for building a real estate, stock, education or business ventures. Specific goals help in having a focus.
- **Utilize local market** - Mostly make use of local markets in getting fresh foods instead of supermarkets, goods are usually cheaper at the local markets and more nutritious.

- **Avoid impulse buying** – Always stick to the budget plan. Prioritize savings over discretionary spending that is buying out of plans.
- **Take advantage of tax-advantaged accounts** - utilize tax-deferred savings options.
- **Join savings group** – Cooperatives and mutual savings' groups are some of the traditional ways of saving as well as pooling resources together for investment for survival and sustainability.
- **Negotiate bills** – One should not hesitate to negotiate one's bills such as electricity, phone, internet and more to seek discounts or better terms.
- **Side hustles** – The consideration of taking on freelance work or a side business to earn extra incomes should be necessarily explored. This additional income can be invested for individual and family growth, survival and sustainability.
- **Invest in education** – Investing in skills and vocations and careers can create an opportunity that would lead to better job opportunities for increased incomes that would enable one to make investments.
- **Participate in savings challenges** – Get involved in savings' challenges such as one year challenge, where an individual increments increase his or her savings each week.
- **Cash verses card** – Whenever possible one should pay with cash instead of credit or debit cards. It is easier to overlook spending when using plastic.
- **Use public transportation** – If accessible, use public transport instead of maintaining a car. Car maintenance incurs insurance, fuel and sundry costs.
- **Shop wisely** – Always do market survey, window shopping or price comparison websites and apps to be sure of getting the actual price of a product before making purchases.

Advantages of Savings

Saving of money attracts a lot of benefits to individuals, families, industries and nations.

- **Wealth building** – Savings provide a systematic way of making money over time.
- **Retirement planning** – Savings guarantee post-retirement security.
- **Incentive savings** – These assist in long term financial planning.
- **Reducing loan dependence** – Savings diminish necessity to borrow funds.
- **Tax relief** – Most savings schemes give tax concessions and relief.

Concept of Investment

An investment is a property acquired to generate incomes. It is a commitment of resources into something expected to gain value over time. Graham (2023) asserted that 'if an investment involves money, then it can be described as a commitment of money to receive more money later like fixed deposits in banks.' He denoted that investment is done to tailor pattern of expenditure and receipt of resources to optimize the desirable ways they flow. Chan and Lakonishock (2024) were indifferent too. They highlighted that, in finance, the purpose of investing is to generate a return on the invested asset. The return may consist of a capital gain (profit) or loss, realized if the investment is sold, unrealized capital depreciation or appreciation if yet unsold. It also consists of periodic incomes such as interests, dividends or rental incomes. The return may also include currency gains or losses due to changes in policy or foreign currency exchange rates. Graham (2023) insisted that investors mostly expect higher returns from riskier investments, and low-risk investments are normally low. Investment is to put time, efforts or money into assets with the expectation that it will yield a high return after a period of time.

A consumer may invest most of her money (resources or assets) to prop up an environment of security for future better living. Altogether, investment is a tool of building wealth, albeit it is not for the wealthy alone. Anyone can get started on an investment programme, and various vehicles make it easier to begin even in small scales and gradually periodically build on.

Investment is also a way to set aside some money while one is busy in life and have the money. It is suffering today for a better tomorrow. Rubinfeld and Pindyck (2015), advocated for such a tacit time-enduring phenomenon as a means to a happier end. They admonished that when

investing, it is important not just merely invest but utmost to invest wisely and early in one's life so as to withstand the long intricacies for a better return early enough. They, however, listed many different ways through which one can invest. Such ways are not limited to putting money in stocks, bonds, mutual funds and education. They enumerated different modes of investing as long-term and short-term investments. A consumer who invests soon grows above board and automatically gets out of poverty.

Types of Financial Investments

- **Stocks** – This is a business ownership, known as equity in publicly traded companies.
- **Bonds** – This refers to loans to governmental businesses traded on public markets.
- **Cash** – This is holding a particular currency whether in anticipation of spending or to take advantage of a hedge against changes in a currency exchange rate.
- **Real estate** – This type of financial investment can be rented to provide ongoing income or sold if it increases in value.

Budget and Savings Pedagogy for Investment for Graduate Survival and Sustainability

Budget pedagogy is the teaching and learning of budgeting skills, knowledge and concepts in schools. Budgeting pedagogy involves educating individuals on how to manage their finances effectively, take financial decisions and achieve financial stability.

Savings pedagogy talks about teaching and learning of savings concepts and strategies. Its aims are to equip individuals and families, especially the hapless graduates, with the techniques, knowledge, skills, and habits necessary for effective savings so as to reach utmost financial goals.

Scope of Teaching and Learning of Budgeting

Several diversities are covered in the process of inculcating culture of budgeting to the life of students for their survival and stability on graduation. The scope to cover in such pedagogical curricula is not limited to the following:

- **Budgeting techniques** – Budget pedagogy in schools will enable the students learn how to create and manage a budget, prioritize expenses, and make appropriate financial decisions.
- **Financial literacy** – Students should be taught to understand the basic financial concepts for proper knowledge of budgeting such as incomes, expenses, savings, and debts.
- **Financial planning** – There should be proper knowledge and skills on how to set financial goals, create a congruent financial plan, and achieve long-term financial stability.
- **Critical thinking** – The students would be taught how to develop critical thinking skills to make informed financial decisions and navigate complex financial situations.

Importance of Budgeting Pedagogy

A lot of benefits encapsulate teaching and learning of budgeting for graduate survival and sustainability. Some of them are:

- **Increased financial stability** – Budget teaching and learning enables the individuals to achieve financial stability, reduce financial stress and crises, and improve their overall well-being.
- **Improved financial management** – Budget pedagogy fortifies the students to learn how to manage their finances effectively, reduce debts and increase savings for survival and sustainability on graduation.
- **Informed financial decision-making** – Chander (2022) articulated that teaching and learning of budgeting helps the individuals or the students to acquire the knowledge and skills of informed financial decisions, to avoid financial pitfalls, and achievement of profitable financial goals. Therefore, incorporation of budgeting pedagogy into Nigerian school system will equip students develop the skills and knowledge needed for efficient management of finances to achieve financial stability and at the end enjoy survival and sustainable living.

Components of Savings Pedagogy

The teaching and learning of savings in Nigerian educational system would cover diversities of skills, techniques and knowledge such as:

- **Savings strategies** – Savings pedagogy will enable the students to learn various savings techniques and methods, such as the emergency funds and automated funds.
- **Understanding savings objectives** - The teaching and learning of savings in schools will make the learners to identify and set specific measurable, achievable, relevant, and time-bound savings goals.
- **Financial literacy** - The pedagogy of this concept will impact in the students the understanding of basic financial concepts, including interest rates, inflation, and compound interest management.
- **Behavioural aspects of savings** – Pedagogy of savings to the students will enable them recognize the psychological and emotional factors that influence savings behaviour such as procrastination, impulsivity, and financial stress.

Savings Pedagogy Benefits

Proper and efficient savings teaching and learning will result to several benefits to the students on graduation. Such benefits will not be limited to:

- **Increased savings rate** – The pedagogy of effective savings strategies impacts in individuals the knowledge and skills of increasing their savings rates and achieve financial goals' initiatives.
- **Better financial decision-making** – Savings pedagogy, according to Dell'arpore (2023), equips the students with the knowledge and skills of making informed financial decisions, avoiding debts and financial pitfalls.
- **Improved financial stability** – The teaching and learning of savings in Nigerian schools will help them develop healthy savings habits, thereby reducing financial stress and increase financial security for graduate survival and sustainable living.
- **Peace of mind** – Savings teaching and learning will help reduce financial stress and anxiety befalling graduates.

Savings Pedagogy Techniques

- **Creation of budget** – This is about how pedagogy of allocation of a portion of incomes to savings impacts on graduates while doing a budget.
- **Automation savings** – This is about setting up automatic transfers to remit specified amounts to savings account.
- **Avoid impulse buying** – Techniques of always sticking to the budget plans would be imbibed as well as skills on how to prioritize savings over discretionary spending or buying out of plans.
- **Take advantage of tax-advantaged accounts** – Utilizing tax-deferred savings options' techniques and skills will not be eluded.

Budget, Savings and Investment Pedagogy for Graduate Survival and Sustainability

From the look of things, it is obvious that the teaching and learning of budget and savings in Nigerian schools will actually enhance graduate survival and sustainability as it will encourage them to invest for the rainy days. Acquiring all the knowledge, skills, techniques and strategies, will enable them to be able to handle their incomes through proper budgeting thereby making some savings for investment that will assist them tackle any financial challenges in their lives and families.

Budget, savings and investment pedagogy for graduate survival and sustainability is a must inclusion in the Nigerian school curriculum. It will create proper room or opportunity to be acquainted with all the rigours of practicing functional budgeting and active savings' techniques for congruent investments. The students on graduation will be very useful to themselves and the

society at large, and in turn result to individual, society and national development. The graduates will always have financial stability and security and there would be no room for procrastination, financial stress, crises and accumulated debts – this will go a long way to reduce crimes in the society and grant them survival and sustainable living.

Conclusion

Budget, savings and investment are very crucial elements for the sustenance of individuals and families as well as societies. After acquiring resources, there is need for proper budgeting, savings and investment for growth, development and sustainable living. Necessary skills, techniques and knowledge of budgeting, savings and investment, as embedded in this text and more, should be acquired as they are imperatives for graduate survival and sustainability.

Recommendations

Based on discussions in this book chapter the following recommendations were made;

1. The curriculum planners should include budget, savings and investments in the school curriculum at higher levels.
2. Schools and the governments should organize seminars, workshops and conferences for teachers and students with qualified capable resource persons or home economists to cope.
3. Homemakers should imbibe the habit of budgeting, savings and investments in their various homes through which the children will learn.
4. Teachers at all levels of education should initiate practical teachings of budgeting, savings and investments using drama.
5. Teachers and students at all levels should be encouraged to participate in science and vocational clubs where they should learn how to plan and execute the act of budgeting, savings and investments, so as to be part their lives in society.
6. Effective implementation of these recommendations will go a long way in creating awareness for students on the skills, techniques and knowledge of budgeting, savings and investments.

References

- Almeida, A. (2022). Debt- to equity (D/E) Ratio: Meaning and formula. New York: Diamond press.
- Avnimelech, G. & Teubal, M. (2016). Creating venture capital industries that co-evolve with high technology: insights from an extended industry life style perspective. *Journal of knowledge based innovation system*, 35(10); 1477-1498.
- Bhakat, R.S. & Miruganantham, G. (2017). A review of impulse buying behaviour. *International journal of marketing studies*, 5 (3); 149-154.
- Cham, L. & Lakonishock E. (2023). Value and growth investing. Review and update. *Financial Analysts Journal*, 60(1); 7-86.
- Chander, S. (2022). Investment strategies to learn before trading. Michigan university press.
- Dell'Arpore, G. (2023). Household prosperity to save, in Arnaldo Mauri (ed), mobilization of household savings, a tool for development. Finafrica, Milan.
- Ehumadu, R.I.C. (2021). Consumer behaviour strategies for enhancing family stability in the south-east, Nigeria. Unpublished Ph.D thesis. Michael Okpara university of agriculture, Umudike
- Loren, G. (203). *Why budgeting kills your company*. New York: Harvard manage update.
- Michael, J. (2011). Corporate budget is broken, let's fix it. Harvard business review.
- Marynchack, Y. (2017). The financial nexus between an individual and a state public finance; legal aspect. Riga: Baltija publishers.
- Modigliani F. (208). The role of intergenerational transfers and the lifecycle saving in accumulation of wealth. *Journal of economic perspectives*, 5(2); 66-78.
- Rubinfeld, D. & Pindyck, R. (2015). *Microeconomics: Explaining consumers' channel- switching behaviour using the theory of planned behaviour*. Mainland China: Tsinghing university press, Prentice hall.