

# Financial Ratios for Seventh-day Adventist Academies

---

DS Penner, PhD  
AD Lopes, MA

North American Division Office of Education  
*Project Affirmation*

1990 ( revised 2005)

**Purpose of the Book:** The purpose of this book is to provide an additional way to look at the financial health of Adventist academies. Financial ratios are widely used in business to explain relationship between different elements in the financial operations. This book, originally written in 1990 as a part of *Project Affirmation*, is designed to be used primarily in Seventh-day Adventist secondary schools. Along with the statement of financial activities and a "Highlights" page (see Penner, *The Financial Report*) administrators, managers and boards will better understand the financial condition of the school. Excepting the definitions and formulas which are technical by their very nature, the material is written in less technical terms so that persons without extensive training in financial accounting will be able to understand and utilize the ratios in decision-making. While financial ratios may have not been widely used in SDA secondary schools, it is hoped that the suggestions in this document will help provide another avenue for understanding.

**Contents:** The first section (pp 3-5) introduces the concept of financial ratios. The second section (pp 6-15) consists of a selection of twenty-one financial ratios that might be useful in the secondary school setting. These were selected and adapted from dozens of possible ratios currently used in higher education and by commercial businesses. Not all ratios may be practical or beneficial in every situation and each school will, no doubt, choose those ratios that appear to be most useful in their situation. Each ratio is defined four ways—moving from general to specific. The *Purpose* of the ratio is summarized in a one-sentence statement and is followed by a simple, non-technical *Explanation* that will help the reader to interpret the ratio. Both the *Definition* and the *Formula* are written in more technical terms for those who will calculate the ratios. This section concludes with a summary of the academy financial ratios (pp 15-16). The third section (pp 17-22), populated with real but dated figures, has been left in this revision simply as a sample of what the ratios look like as trends or comparisons. The ratios were prepared from information submitted in 1990 by four academies, two boarding and two day academies. A short bibliography of works used in preparation of this documents concludes this document (p 23). Academy financial statements used to calculate the ratios are not referenced.

**Supplement:** In 1990 a fourth section, printed separately, was also prepared which contained ratios reported in financial statements submitted by many academies at that time. The ratios were reported according to size and type (day or boarding) and showed the averages and the ranges for each ratio. This was particularly valuable for comparing one's individual schools with SDA national norms. If a school found itself outside the range it could exam the reasons for that difference and perhaps make some positive adjustments. However, this information ages rapidly and a comparison with older data is not as useful. Since it has not been updated, it is not included in this revision. New averages should be calculated every five years and distributed in a new supplement.

Since the original publication is no longer in print, it is hoped that this revised document will make this material available once again. Although the current comparative ratios are not available at this time, it is still felt that the explanation of the ratios can be of help to those wishing to know more about the academy financial situation.

DS Penner  
11 September 2005

## Part I: Introduction

Those responsible for the management of Seventh-day Adventist educational institutions are regularly confronted with the task of evaluating the financial operations of the school. School principals and business managers, board members and chairpersons are all called upon to make important decisions about schools based on their understanding of the financial reports of the organization.

In order to make decisions on the future needs of the school, they must be able to see trends and make comparisons. This can be done through a detailed analysis of the financial statements. In order to make a more informed decision one must know where to look for the pertinent information, understand the figures when located, interpret the data so as to perceive trends, project that information to the future, and then apply the information to the current decision to be made. Software accounting packages can present a wide range of detail of which much is included in the monthly statements. If everything is included in the financial report, board members and administrators face an immense task of sorting through the minutia. There must be a better way to see the "big picture" and scan the various trends. Financial ratios are just the thing—a type of shorthand or snapshot giving a quick check on specific financial issues.

Further few board members have the time or patience to complete this process for every item on the agenda. In addition, many are not trained in accounting and are often overwhelmed and confused at what is presented. Instead of focusing on decision-making, time is used in attempting to find the information (some academies have been known to produce monthly financial statements several hundred pages in length) or in making sense of the figures presented. If vital information could be reduced to a few, simple percentages, more individuals would be able to quickly understand the overall situation and participate in decision-making. Financial ratios are designed to assist in this effort.

The idea of financial ratios is widely used in business and has been adapted for use in higher education. In order to assist in understanding the finances of the academies and as an aid to planning, the "Financial Strategies Task Force" for *Project Affirmation* in 1990 requested that this information be collected and made available to the North American Division secondary schools.

The concept of this book was originally inspired by *Ratio Analysis in Higher Education* prepared by individuals associated with Peat, Marwick, Mitchell & Co.; L. F. Rothschild, Unterberg, Towbin; and John Minter Associates, Inc. Some ratios such as the balance sheet and operating ratios are taken from the *Academy Accounting Manual* prepared by the General Conference of Seventh-day Adventists Auditing Service.

**Definition:** Financial ratios simply state a relationship between two numbers. By combining two numbers, a third, possibly more useful, figure can be created. Chabotar (1989) in "Financial Ratio Analysis Comes to Nonprofits" notes that relationship between tuition revenues and instructional expense may be more useful than either number alone (p 188). Further, Brigham (1989) suggests that financial ratios are "designed to reveal the relative strengths and weaknesses of a company as compared to other companies in the same industry, and to show whether the firm's position has been improving or deteriorating over time" (p 287).

As noted, in the business community financial ratios are widely used. The primary purposes are in managerial analysis and in determining credit worthiness. Other uses, just to name a few, include: estimating sales, predicting corporate failure, determining credit rating, and calculating risk. The emphasis may differ somewhat in nonprofit organizations. While other organizations stress profitability, Anthony (1980) advises, the "emphasis of ratio analysis in nonprofits is on stewardship and accountability" (cited by Chabotar, p 189). Stewardship and accountability are unquestionably high priority goals for SDA educational institutions.

**The Use of Financial Ratios:** In a school setting ratios are designed to show in very simple terms the financial strength of the school, its reliance on specific sources of funding, and the percentage of that funding needed for major categories of expense. The great strength of financial ratios is that it adjusts for both the effects of time and across organizations. This allows comparison with various size organizations and over a period of years where a similar comparison of actual figures would be confusing due to inflation and growth/decline.

There are several types of analysis in which financial ratios are used. "Trend analysis" examines the school's financial ratios over time and is used to determine the improvement or deterioration of its financial situation, a shift in funding, or an area of increasing expense. To care for abnormalities in financial trends, a minimum time span recommended is five years. "Comparative ratio analysis" compares one school's ratios with those of other schools with similar characteristics. Comparisons are particularly useful for demand and contribution ratios.

A review of academy financial statements shows that the ratios most commonly reported are the *Current Ratio*, the *Liquidity Ratio* and the *Percentage of Required Working Capital Ratio*. Although useful, these ratios reveal only one aspect of the financial picture. Other areas of academy operations perhaps not reported as ratios are the demand and contribution ratios. These ratios include among others: personnel resource allocations; dependence on student financial aid; plant operation and maintenance costs; and church/conference subsidies.

A word of caution is in order at this point. Financial ratios are only one of many methods of evaluation. Other evaluation and reporting techniques should be combined to complete the picture of the school at any given moment. Ratios can also be misleading if, in comparing schools or one year with another, classification of income and expenses vary extensively. Chabotar also cautions the users to remember that national norms are "averages not ideals" and that they are only "a reflection of prevailing and sometimes undesirable, financial conditions" (p 191). Consequently, a school may wish to choose a different target for its particular situation other than the reported norm.

Analytical tools, such as ratios, reveal important information about a given financial entity. The challenge facing academy administrators and board members is to understand, interpret and take the necessary steps to ensure that academy resources are optimized and that its mission is achieved. Ignoring the warnings of financial indicators such as represented in these ratios is similar to a pilot who, as the aircraft takes off on a flight from New York to London, disregards a gauge indicating low fuel. Financial ratios can help to focus discussion and decision-making on essential issues and can help give valuable direction to academy administration and board.

**Some Examples of Financial Ratios:** In the following sections twenty-one financial ratios are developed. These ratios are merely examples; there are many others. These ratios are defined in the following section.

A. Balance Sheet Ratios

- Liquidity Ratio
- Current Ratio
- Percentage of Required Working Capital
- Percentage of Receivables to Operating Fund Balance
- Debt Percentage
- Percentage of Operating Fund Balances to Earned Operating Income

B. Operating Ratios

- Percentage of Net Income to Total Earned Income
- Percentage of Operating Expense to Total Earned Income
- Accounts Receivable Turnover

C. Contribution Ratios

- Tuition to Operation Expense Ratio
- Auxiliary Independence Ratio
- Conference Subsidy to Operating Expense Ratio
- Endowment and Investment Income to Operating Expense Ratio

D. Demand Ratios

- Personnel Costs to Income Ratio
- Instructional Personnel Costs to Tuition Income Ratio
- Administrative Personnel Costs to Tuition Income Ratio
- Support Staff Personnel Costs to Tuition Income Ratio
- Student Labor (On-Campus) to Total Student Income Ratio
- Percentage of Employee Related Expense to Total Personnel Costs
- Operation and Maintenance of Plant to Income Ratio
- Scholarship to Tuition Income Ratio

## Part II: The Financial Ratios

### A. Balance Sheet Ratios

- Liquidity Ratio
- Current Ratio
- Percentage of Required Working Capital
- Percentage of Receivables to Operating Fund Balance
- Debt Percentage
- Percentage of Operating Fund Balances to Earned Operating Income

#### Liquidity Ratio

*Purpose:* The purpose of the Liquidity Ratio is to measure the academy's ability to repay debts that are due within one year using its available cash resources.

*Explanation:* The higher the ratio the better. A ratio of 1:1 (100%) or higher indicates that the organization is capable of paying all its current financial commitments as listed on the balance sheet.

#### Definition:

*Numerator:* Cash and Banks include all Cash, Marketable Securities (such as bonds, stock certificates, certificates of deposit or of indebtedness, etc) and other Investments. Receivables from Higher Organizations are funds due to the academy by the Conference or Union.

*Denominator:* Current Liabilities include all claims or obligations expected to be paid within a year. Total Operating Fund Balance includes Allocated and Unallocated Fund Balances.

	Cash and Banks
+	Securities and Investments
+	<u>Receivables from Higher Organizations</u>
	Total Current Liabilities
+	Unallocated and Allocated Operating Fund Balance

#### Current Ratio

*Purpose:* The purpose of the Current Ratio is to measure the academy's ability to repay debts that are due within one year using its available cash and other assets easily converted into cash.

*Explanation:* This ratio measures liquidity and solvency. If the ratio is 1:1 (100%), debts which must be paid within one year are just covered by available current assets. The rule of thumb is: the greater the ratio the better. (The usual ratio is 2:1).

#### Definition:

*Numerator:* A Current Asset is unrestricted cash or other asset which can be converted into cash or other similar asset, or useful goods or services, within one year. Examples of Current Assets are: Cash, Accounts Receivable (Net), Notes Receivable (Current), Merchandise and Supplies, Prepaid Expenses, Due from Other Funds, etc.

*Denominator:* A Current Liability is an existing obligation or claim against existing assets, expected to be paid within a year or less. Examples of Current Liabilities are:

Accounts Payable, Notes Payable (Current), Deferred Restricted Operating Income, Deposits, etc.

It is important to ensure that receivables are indeed collectible and inventories usable if the ratio is to be a meaningful indicator of financial position.

$$\frac{\text{Total Current Assets}}{\text{Total Current Liabilities}}$$

### **Percentage of Required Working Capital**

*Purpose:* The purpose of the Percentage of Required Working Capital ratio is to show the academy's financial ability to continue operations for a short period of time (say 2 months) without any income and still be able to meet its obligations.

*Explanation:* The higher the ratio the better. A percentage of 100 or above indicates that the academy has at least adequate funds to meet operational expenses for 1.8 months if the denominational policy of 15% is used in the ratio (see Definition below). A favorable ratio does not necessarily mean that the academy has sufficient Cash because the Current Assets available may not be in the form of Cash or easily converted into Cash.

*Definition:*

*Numerator:* Working Capital represents the difference between Total Current Assets and Total Current Liabilities.

*Denominator:* Required Working Capital is a standard set by denominational policy specifying the amount of working capital to be carried by an academy in order to provide a safe margin for operational costs. For academies the Operating Activity fund balance should equal 15% of the Unrestricted Income of the Educational and Auxiliary Activity sections for the current year. Auxiliary Activity includes the Bookstore, Cafeteria, Dorms, Laundry and Staff Housing.

$$\frac{\text{Working Capital}}{\text{Required Working Capital}}$$

### **Percentage of Receivables to Operating Fund Balance**

*Purpose:* The purpose of the Percentage of Receivables to Operating Fund Balance ratio is to show the amount of credit extended by the academy to students and other debtors.

*Explanation:* The lower the percentage the better. A high percentage may indicate a sizable number of delinquent debtors or that credit facilities are too generous. A norm has not been established. The Academy Accounting Manual recommends a maximum of 60-65%. At registration there may be a sharp increase and at graduation a decrease.

*Definition:*

*Numerator:* Accounts Receivable Net and Notes and Loans Receivable are balance sheet items representing the total of accounts and notes due from students and other debtors after making provision for bad or doubtful debts.

*Denominator:* The Unallocated and Allocated Operating Fund Balance is the difference

between the Total Assets and Total Liabilities in the Operating Fund, but excludes any long term Accounts Payable.

$$+ \frac{\text{Accounts Receivable Net} \\ \text{Notes and Loans Receivable}}{\text{Unallocated and Allocated Operating Fund Balance}}$$

### **Debt Percentage**

*Purpose:* The purpose of the Debt Percentage ratio is to show the degree of relative freedom from creditors demanding repayment of debts.

*Explanation:* The lower the percentage the better the position. A low percentage indicates that the academy is largely free from pressure to pay accounts, due to creditors, that fall within the current year. If debt percentages are high or increasing, it is a signal for caution to administration.

*Definition:*

*Numerator:* A Current Liability is an existing obligation or claim against existing assets expected to be paid within a year or less. Examples of Current Liabilities are: Accounts Payable, Notes Payable (Current), Deferred Restricted Operating Income, Deposits, etc. Other Operating Liabilities are non-current commitments and include, for example, Agency Funds, Notes Payable (Long Term), Loans Payable (Long-Term), etc.

*Denominator:* The Unallocated and Allocated Operating Fund Balance is the difference between the Total Assets and Total Liabilities in the Operating Fund, but excludes any long term Accounts Payable.

$$+ \frac{\text{Total Current Liabilities} \\ \text{Other Operating Liabilities}}{\text{Unallocated \& Allocated Operating Fund Balances}}$$

### **Percentage of Operating Fund Balances to Earned Operating Income**

*Purpose:* The purpose of the Percentage of Operating Fund Balances to Earned Operating Income ratio is to show the short-term operating viability of the academy in terms of its ability to generate income.

*Explanation:* The higher the ratio the better the position.

*Definition:*

*Numerator:* The Unallocated and Allocated Operating Fund Balance is the difference between the Total Assets and Total Liabilities in the Operating Fund but excludes any long-term Accounts Payable.

*Denominator:* Earned Operating Income includes all income generated by the academy but excludes Subsidies, Donations, etc.

$$\frac{\text{Unallocated \& Allocated Operating Fund Balances}}{\text{Earned Operating Income}}$$

## **B. Operating Ratios**

- Percentage of Net Income to Total Earned Income
- Percentage of Operating Expense to Total Earned Income
- Accounts Receivable Turnover

### **Percentage of Net Income to Total Earned Income**

*Purpose:* The purpose of the Percentage of Net Income to Total Earned Income ratio is to show the academy's dependence on external funding.

*Explanation:* A positive ratio means that the academy does not rely on external Operating Subsidies. A negative ratio means that the academy requires external Operating Subsidies. For example, a -.95 indicates limited dependence, while a figure of -.75 would indicate greater dependence.

*Definition:*

*Numerator:* Net Income refers to the balance that remains when all Operating Expenses are deducted from Earned Income.

*Denominator:* Earned Operating Income includes all income generated by the academy but excludes Subsidies.

$$\frac{\text{Net Income}}{\text{Earned Operating Income}}$$

### **Percentage of Operating Expense to Total Earned Income**

*Purpose:* The purpose of the Percentage of Operating Expense to Total Earned Income ratio is to show the percentage of expenses that is covered by the income the academy generates.

*Explanation:* The lower the percentage the better. Management generally has greater control over Operating Expenses than over Income and this ratio shows to a certain extent management's ability to control expenses.

*Definition:*

*Numerator:* Total Operating Expenses are all expenses incurred in conducting the regular operating activities of the academy but exclude Capital Expenditures and Improvements.

*Denominator:* Earned Operating Income includes all income generated by the academy but excludes Subsidies, Donations, etc.

$$\frac{\text{Total Operating Expense}}{\text{Earned Operating Income}}$$

### **Accounts Receivable Turnover**

*Purpose:* The purpose of the Accounts Receivable Turnover ratio is to determine the average number of days it takes to collect accounts due from students and other debtors.

*Explanation:* The lower the number the better. A low number indicates that students and other debtors pay their accounts promptly. Every academy must establish its credit terms to students and this ratio must be interpreted with this policy as a guide.

*Definition:*

*Numerator:* Net Student Income includes Tuition, Fees and other student charges (such as Dorms, Cafeteria, etc.) to student accounts whether actually received or not.

*Denominator:* The average of Accounts Receivable is calculated by adding the opening balance of Accounts Receivable at the beginning of the period to the closing balance of Accounts Receivable at the end of the period, divided by 2. To determine the average number of days to collect receivables, divide 365 days by receivable turnover. Academy Balance Sheet may not report student separate from commercial Accounts Receivable.

$$\frac{\text{Net Student Income}}{\text{Average Accounts Receivable from Students}} \\ (\text{A/R Beginning} + \text{A/R Ending divided by 2})$$

### **C. Contribution Ratios**

- Tuition to Operation Expense Ratio
- Auxiliary Independence Ratio
- Conference Subsidy to Operating Expense Ratio
- Endowment and Investment Income to Operating Expense Ratio

#### **Tuition to Operating Expense Ratio**

*Purpose:* The purpose of the Tuition to Operating Expense Ratio is to show the percentage of Operating Expenses that are covered by Tuition and Fees.

*Explanation:* A high ratio indicates that the academy is tuition-driven. Since Tuition and Fees are directly related to student enrollment, an academy that is heavily dependent on tuition to finance its operations is susceptible to severe financial crisis should enrollments decline sharply. Conversely, a low ratio might indicate a significant reliance on conference or outside funding.

*Definition:*

*Numerator:* Tuition and Fees includes all amounts charged to student accounts whether actually received or not.

*Denominator:* Total Operating Expenses are all expenses incurred in conducting the regular operating activities of the academy but exclude Capital Expenditures and Improvements as well as Auxiliary and Industry expenditures such as the Bookstore, Cafeteria, Dorms, Laundry and Staff Housing.

$$\frac{\text{Tuition and Fees}}{\text{Total Expense (excluding Auxiliary and Industries)}}$$

#### **Auxiliary Independence Ratio**

*Purpose:* The purpose of the Auxiliary Independence Ratio is to show whether Auxiliary Income covers Expenses or, more importantly, to what extent the auxiliaries are subsidized

by or are subsidizing the instructional program.

*Explanation:* A ratio of 1:1 (100%) or higher indicates that the Auxiliary is breaking even. Ratios of more than 1:1 (100%) indicate a profit (which may, in fact, be helping to reduce the tuition rate or cover overspending) and those lower than 1:1 (100%) indicate a loss (which may be drawing resources away from the instructional funds).

*Definition:*

*Numerator:* Auxiliary Income includes the Bookstore, Cafeteria, Dorms, Laundry and Staff Housing.

*Denominator:* Auxiliary Expense includes the Bookstore, Cafeteria, Dorms, Laundry and Staff Housing.

$$\frac{\text{Auxiliary Income}}{\text{Auxiliary Expense}}$$

### **Conference Subsidy to Operating Expense Ratio**

*Purpose:* The purpose of the Conference Subsidy to Operating Expense Ratio is to show the level of financial support contributed by the conference to the operating income of the academy.

*Explanation:* The higher the ratio the more the conference is contributing to the academy to cover operating expenses. This may indicate a strong support for secondary education in the conference or it may suggest a restructuring of tuition or the development of other outside funding. It could also mean inefficient operation of school resources, human and financial.

*Definition:*

*Numerator:* Conference Operating Subsidy is the amount of Unrestricted Funds that the conference provides to the academy for a given year for Operating Expenses. This may come in the form of salary subsidies, etc. This figure does not include any capital appropriations, student scholarships or any other monies which are to be used other than operating.

*Denominator:* Total Operating Expenses are all expenses incurred in conducting the regular operating activities of the academy but exclude Capital Expenditures and Improvements as well as Auxiliary and Industry expenditures such as the Bookstore, Cafeteria, Dorms, Laundry and Staff Housing.

$$\frac{\text{Conference Operating Subsidy}}{\text{Total Expense (Excluding Auxiliaries and Industries)}}$$

### **Endowment and Investment Income to Operating Expense Ratio**

*Purpose:* The purpose of the Endowment and Investment Income to Operating Expense Ratio is to show the level of contribution that Endowment Income and Investment Income make toward Operating Expenses.

*Explanation:* A rising ratio of Endowment Income suggests that there has been an increase

in the amount of Endowments to the academy and/or that they have been invested well. A declining ratio may indicate a number of underlying factors, including a change in investment policy, less favorable investment opportunities, or a decline in the amount of Endowments available for investment. A decline may also indicate that expenditures are rising faster than Endowment Income.

*Definition:*

*Numerator:* Endowment and Investment Income includes all income from investments and Unrestricted Endowment funds. It also includes gains and losses on investments, as well as expired term endowments, expired annuity and life-income contracts as well as Interest Earned on other fund investments (unrestricted).

*Denominator:* Total Operating Expenses are all expenses incurred in conducting the regular operating activities of the academy but exclude Capital Expenditures and Improvements as well as Auxiliary and Industry expenditures such as the Bookstore, Cafeteria, Dorms, Laundry and Staff Housing.

$$\frac{\text{Investment and Unrestricted Endowment Income}}{\text{Total Expense (Excluding Auxiliaries and Industries)}}$$

**D. Demand Ratios**

- Personnel Costs to Income Ratio
- Instructional Personnel Costs to Tuition Income Ratio
- Administrative Personnel Costs to Tuition Income Ratio
- Support Staff Personnel Costs to Tuition Income Ratio
- Student Labor (On-Campus) to Total Student Income Ratio
- Percentage of Employee Related Expense to Total Personnel Costs
- Operation and Maintenance of Plant to Income Ratio
- Scholarship to Tuition Income Ratio

**Personnel Cost to Income Ratio**

*Purpose:* The purpose of the Personnel Cost to Income Ratio is to show the percentage of Income that is spent on personnel costs.

*Explanation:* The higher the ratio the larger the portion of income that is spent on personnel.

*Definition:*

*Numerator:* Total Personnel Costs include Salary, Benefits and all other worker-related expenditures incurred with Administrative, Instructional and Support staff. All Student Labor is excluded.

*Denominator:* Total Income includes all Earned and Donated Income, including unrestricted Conference Operating Subsidy.

$$\frac{\text{Total Personnel Costs}}{\text{Total Income}}$$

### **Instructional Personnel Costs to Tuition Income Ratio**

*Purpose:* The purpose of the Instructional Personnel Costs to Tuition Income Ratio is to show the percentage of Tuition and Fees Income that is spent on Instructional Personnel salaries and benefits.

*Explanation:* This ratio highlights the amount of funds that are designated for instructional personnel, as opposed to administration, maintenance, etc., and is something of an indication of emphasis on instruction.

*Definition:*

*Numerator:* Instructional Personnel Costs include salary, benefits and worker-related expenses for Teachers, Registrar and the Librarian. All Student Labor is excluded.

*Denominator:* Tuition and Fees includes all amounts charged to student accounts whether actually received or not.

$$\frac{\text{Instructional Personnel Costs}}{\text{Total Tuition and Fees}}$$

### **Administrative Personnel Costs to Tuition Income Ratio**

*Purpose:* The purpose of the Administrative Personnel Costs to Tuition Income Ratio is to show the percentage of Tuition and Fees that is spent on Administrative Personnel.

*Explanation:* This ratio provides an indication of whether administrative costs are too high, reasonable or low.

*Definition:*

*Numerator:* Administration Salaries and Benefits includes the Salaries, Benefits and all worker-related costs for the Principal, Vice Principal, Administrative Secretary, Business Manager and other office and security staff. All Student Labor is excluded.

*Denominator:* Tuition and Fees includes all amounts charged to student accounts whether actually received or not.

$$\frac{\text{Total Administration Salaries and Benefits}}{\text{Total Tuition and Fees}}$$

### **Support Staff Personnel Costs to Tuition Income Ratio**

*Purpose:* The purpose of the Support Staff Personnel Costs to Tuition Income Ratio is to show what percentage of Tuition and Fees is spent on Support Staff.

*Explanation:* This ratio provides a guideline to determine appropriate levels of Support Staff. It is not possible to prescribe what levels are ideal because institutions vary in age, operation, enrollment size, etc.

*Definition:*

*Numerator:* Support Staff includes anyone employed by Plant Services and Auxiliary (Bookstore, Cafeteria, Dorms and Laundry and Staff Housing). If Industry operations are part of the academy, the manager's salary and benefits is also included. All Student Labor is excluded.

*Denominator:* Tuition and Fees includes all amounts charged to student accounts whether actually received or not.

$$\frac{\text{Total Support Staff Salaries and Benefits}}{\text{Total Tuition and Fees}}$$

### **Student Labor (On-Campus) to Total Student Income Ratio**

*Purpose:* The purpose of the Student Labor (on-campus) to Total Student Income Ratio is to show the extent to which Total Student Income returns to students in the form of on-campus student labor.

*Explanation:* This ratio indicates the extent to which the academy uses student labor as a tuition discount.

*Definition:*

*Numerator:* Student Labor (on-campus) includes all student labor costs, including those from Instructional and Auxiliary activities (Bookstore, Cafeteria, Dorms, etc.) but excludes student labor income from industries or outside employment.

*Denominator:* Total Student Income includes Tuition, Fees and other student charges (such as Dorms, Cafeteria, etc.) whether actually received or not.

$$\frac{\text{Student Labor (on campus)}}{\text{Total Student Income}}$$

### **Percentage of Employee Related Expense to Total Personnel Costs**

*Purpose:* The purpose of the Percentage of Employee Related Expense to Total Personnel Costs ratio is to show what percentage of Total Personnel costs is spent on Benefits and worker-related costs.

*Explanation:* Salaries are generally fixed for a period of time whereas employee related expenses (see definition below) are difficult to predict and can rise to unexpected levels depending on many factors, for example, staff turnover related costs, Board policies and legal requirements prescribed by government. Spiraling costs in these areas can be traced in a trend analysis of this ratio over time.

*Definition:*

*Numerator:* Employee Related Expenses includes Allowances and Benefits and all worker-related costs, such as, Educational Allowances, Retirement contributions, Social Security, Workmen's Compensation, Moving costs, etc., but exclude Salary and all Student Labor costs.

*Denominator:* Total Personnel Costs includes Salary, Benefits and all other worker-related expenditures incurred with Administrative, Instructional and Support staff. All Student Labor is excluded.

$$\frac{\text{Employee Related Expense}}{\text{Total Personnel Costs}}$$

### **Operation and Maintenance of Plant to Income Ratio**

*Purpose:* The purpose of the Operation and Maintenance of Plant to Income Ratio is to show what percentage of Total Income is spent on Plant Operation and Maintenance.

*Explanation:* The lower the ratio the better. This ratio may indicate that plant is aging and that the academy is required to spend more on major repairs and improvements. Deferred maintenance (not keeping up with repairs) will keep this ratio low but will leave the plant in poor condition. This ratio might also identify that there is wastage or inefficiency. Since academy facilities vary in size and age, it is difficult to set a norm, but comparison over time and with facilities of similar size and age may be helpful.

*Definition:*

*Numerator:* Operation and Maintenance of Plant includes all operating costs including salaries.

*Denominator:* Total Income includes all Earned and Donated Income, including unrestricted Conference Operating Subsidy.

$$\frac{\text{Total Plant Operation and Maintenance Costs}}{\text{Total Income}}$$

### **Scholarship to Tuition Income Ratio**

*Purpose:* The purpose of the Scholarship to Tuition Income Ratio is to give an indication of the level of Financial Aid.

*Explanation:* The higher the ratio the greater the level of support that students are receiving in the form of financial assistance.

*Definition:*

*Numerator:* Scholarships includes all funds provided to students in the form of Financial Aid including all scholarships whether they be conference, local church, alumni or academy and whether funded from operating funds, endowments or direct payment.

*Denominator:* Tuition and Fees includes all amounts charged to student accounts whether actually received or not.

$$\frac{\text{Scholarships}}{\text{Total Tuition and Fees}}$$

## Summary of Academy Financial Ratios

**Liquidity Ratio:** The purpose of the Liquidity Ratio is to measure the academy's ability to repay debts that are due within one year using its available cash resources.

**Current Ratio:** The purpose of the Current Ratio is to measure the academy's ability to repay debts that are due within one year using its available cash and other assets easily converted into cash.

**Percentage of Required Working Capital:** The purpose of the Percentage of Required Working Capital ratio is to show the academy's financial ability to continue operations for a short period of time (say 2 months) without any income and still be able to meet its obligations.

**Percentage of Receivables to Operating Fund Balance:** The purpose of the Percentage of Receivables to Operating Fund Balance ratio is to show the amount of credit extended by the academy to students and other debtors.

**Debt Percentage:** The purpose of the Debt Percentage ratio is to show the degree of relative freedom from creditors demanding repayment of debts.

**Percentage of Operating Fund Balances to Earned Operating Income:** The purpose of the Percentage of Operating Fund Balances to Earned Operating Income ratio is to show the short-term operating viability of the academy in terms of its ability to generate income.

**Percentage of Net Income to Total Earned Income:** The purpose of the Percentage of Net Income to Total Earned Income ratio is to show the academy's dependence on external funding.

**Percentage of Operating Expense to Total Earned Income:** The purpose of the Percentage of Operating Expense to Total Earned Income ratio is to show the percentage of expenses that is covered by the Income the academy generates.

**Accounts Receivable Turnover:** The purpose of the Accounts Receivable Turnover ratio is to determine the average number of days it takes to collect accounts due from students and other debtors.

**Tuition to Operating Expense Ratio:** The purpose of the Tuition to Operating Expense Ratio is to show the percentage of Operating Expenses that are covered by Tuition and Fees.

**Auxiliary Independence Ratio:** The purpose of the Auxiliary Independence Ratio is to show whether Auxiliary Income covers Expenses or, more importantly, to what extent the auxiliaries are subsidized by or are subsidizing the instructional program.

**Conference Subsidy to Operating Expense Ratio:** The purpose of the Conference Subsidy to Operating Expense Ratio is to show the level of financial support contributed by the conference to the operating income of the academy.

**Endowment and Investment Income to Operating Expense Ratio:** The purpose of the Endowment and Investment Income to Operating Expense Ratio is to show the level of contribution that Endowment Income and Investment Income make toward Operating Expenses.

**Personnel Cost to Income Ratio:** The purpose of the Personnel Cost to Income Ratio is to show the percentage of Income that is spent on personnel costs.

**Instructional Personnel Costs to Tuition Income Ratio:** The purpose of the Instructional Personnel Costs to Tuition Income Ratio is to show the percentage of Tuition and Fees Income that is spent on Instructional Personnel salaries and benefits.

**Administrative Personnel Costs to Tuition Income Ratio:** The purpose of the Administrative Personnel Costs to Tuition Income Ratio is to show the percentage of Tuition and Fees that is spent on Administrative Personnel.

**Support Staff Personnel Costs to Tuition Income Ratio:** The purpose of the Support Staff Personnel Costs to Tuition Income Ratio is to show what percentage of Tuition and Fees that is spent on Support Staff.

**Student Labor (On-Campus) to Total Student Income Ratio:** The purpose of the Student Labor (on-campus) to Total Student Income Ratio is to show the extent to which Total Student Income returns to students in the form of on-campus student labor.

**Percentage of Employee Related Expense to Total Personnel Costs:** The purpose of the Percentage of Employee Related Expense to Total Personnel Costs ratio is to show what percentage of Total Personnel costs is spent on Benefits and worker-related costs.

**Operation and Maintenance of Plant to Income Ratio:** The purpose of the Operation and Maintenance of Plant to Income Ratio is to show what percentage of Total Income is spent on Plant Operation and Maintenance.

**Scholarship to Tuition Income Ratio:** The purpose of the Scholarship to Tuition Income Ratio is to give an indication of the level of Financial Aid.

### Part III

**Academy Examples:** The following examples are included in this revision only as illustrations of what a collection of ratios would look like for an academy or what comparison figures might tell us if they were assembled. These examples (with names removed) were taken from actual academy financial statements 1985-1988. A new comparative study should be done to give updated figures.

#### Adventist Academy Boarding A

Year	84-85	85-86	86-87	87-88
<b>Balance Sheet Ratios</b>				
Liquidity Ratio	.15	.09	.13	.14
Current Ratio	2.04	1.58	1.97	3.93
Percentage of Required Working Capital	1.18	.81	1.32	2.18
Percentage of Receivables to Operating Fund Balance	.21	.39	.30	.16
Debt Percentage	.97	1.73	1.03	.34
Percentage of Operating Fund Balances to Earned Operating Income	.44	.30	.38	.60
<b>Operating Ratios</b>				
Percentage of Net Income to Total Earned Income	-.34	-.27	.10	.22
Percentage of Operating Expense to Total Earned Income	1.31	1.28	1.16	1.10
Accounts Receivable Turnover	21	19	14	16
<b>Contribution Ratios</b>				
Tuition to Operation Expense Ratio	.76	.78	.92	.84
Auxiliary Independence Ratio	.85	.87	.89	.98
Conference Subsidy to Operating Expense Ratio	.11	.22	.20	.15
Endowment and Investment Income to Operating Expense Ratio	.0076	.0060	.0002	.0011

**Demand Ratios**

Personnel Costs to Income Ratio	.47	.45	.47	.50
Instructional Personnel Costs to Tuition Income Ratio	.54	.51	.52	.52
Administrative Personnel Costs to Tuition Income Ratio	.19	.20	.15	.17
Support Staff Personnel Costs to Tuition Income Ratio	.32	.35	.35	.38
Student Labor (On-Campus) to Total Student Income Ratio	.20	.19	.19	.15
Percentage of Employee Related Expense to Total Personnel Costs	.18	.20	.18	.23
Operation and Maintenance of Plant to Income Ratio	.29	.24	.17	.20
Scholarship to Tuition Income Ratio	.0304	.0200	.1182	.1435

## Comparative Examples

Year 84-85 85-86 86-87 87-88

### Balance Sheet Ratios

#### Liquidity Ratio

Academy A (boarding)	.15	.09	.13	.14
Academy B (boarding)	.24	.08	.03	.18
Academy C (day)	.78	.63	.64	.64
Academy D (day)	.49	.48	.79	1.70

#### Current Ratio

Academy A (boarding)	2.04	1.58	1.97	3.93
Academy B (boarding)	8.82	5.59	3.14	3.40
Academy C (day)	4.62	25.68	24.09	9.08
Academy D (day)	.87	1.08	1.95	6.02

#### Percentage of Required Working Capital

Academy A (boarding)	1.18	.81	1.32	2.18
Academy B (boarding)	.72	.78	.77	.79
Academy C (day)	3.12	2.12	2.16	1.31
Academy D (day)	-.09	.05	.66	1.67

#### Percentage of Receivables to Operating Fund Balance

Academy A (boarding)	.21	.39	.30	.16
Academy B (boarding)	.58	.54	.51	.62
Academy C (day)	.22	.25	.20	.19
Academy D (day)	.92	.49	.65	.66

#### Debt Percentage

Academy A (boarding)	.97	1.73	1.03	.34
Academy B (boarding)	.14	.16	.39	.35
Academy C (day)	.28	.04	.04	.12
Academy D (day)	.97	.84	.76	.40

#### Percentage of Operating Fund Balances to Earned Operating Income

Academy A (boarding)	.44	.30	.38	.60
Academy B (boarding)	.21	.34	.24	.25
Academy C (day)	.88	.61	.54	.33
Academy D (day)	.17	.18	.18	.17

## Operating Ratios

Percentage of Net Income to Total Earned Income				
Academy A (boarding)	-.34	-.27	.10	.22
Academy B (boarding)	.06	.17	.05	.03
Academy C (day)	-.08	-.16	.14	.07
Academy D (day)	-.08	-.09	.01	-.02
Percentage of Operating Expense to Total Earned Income				
Academy A (boarding)	1.31	1.28	1.16	1.10
Academy B (boarding)	1.11	1.04	1.11	1.12
Academy C (day)	1.69	1.71	1.40	1.42
Academy D (day)	1.46	1.52	1.33	1.38
Accounts Receivable Turnover				
Academy A (boarding)	130	132	99	109
Academy B (boarding)	194	91	79	70
Academy C (day)	38	33	39	57
Academy D (day)	125	66	64	59

## Contribution Ratios

Tuition to Operation Expense Ratio				
Academy A (boarding)	.76	.78	.92	.84
Academy B (boarding)	.61	.91	.98	.90
Academy C (day)	.51	.45	.48	.45
Academy D (day)	.66	.62	.71	.68
Auxiliary Independence Ratio				
Academy A (boarding)	.85	.87	.89	.98
Academy B (boarding)	1.63	.99	.70	.73
Academy C (day)	.94	1.39	1.47	1.39
Academy D (day)	-	-	-	-
Conference Subsidy to Operating Expense Ratio				
Academy A (boarding)	.11	.22	.20	.15
Academy B (boarding)	.15	.22	.19	.20
Academy C (day)	.14	.22	.25	.24
Academy D (day)	.11	.12	.14	.13
Endowment and Investment Income to Operating Expense Ratio				
Academy A (boarding)	.0076	.0060	.0002	.0011
Academy B (boarding)	.0149	.0116	.0104	.0227
Academy C (day)	.0000	.0000	.0000	.0000
Academy D (day)	.0007	.0009	.0000	.0006

## Demand Ratios

### Personnel Costs to Income Ratio

Academy A (boarding)	.47	.45	.47	.50
Academy B (boarding)	.46	.42	.45	.47
Academy C (day)	.77	.72	.67	.66
Academy D (day)	.78	.84	.71	.77

### Instructional Personnel Costs to Tuition Income Ratio

Academy A (boarding)	.54	.51	.52	.52
Academy B (boarding)	.57	.54	.50	.52
Academy C (day)	.80	.95	.99	1.03
Academy D (day)	-	-	-	-

### Administrative Personnel Costs to Tuition Income Ratio

Academy A (boarding)	.19	.20	.15	.17
Academy B (boarding)	.17	.16	.15	.16
Academy C (day)	.23	.29	.29	.30
Academy D (day)	-	-	-	-

### Support Staff Personnel Costs to Tuition Income Ratio

Academy A (boarding)	.31	.34	.24	.26
Academy B (boarding)	.29	.29	.23	.27
Academy C (day)	.13	.10	.12	.16
Academy D (day)	-	-	-	-

### Student Labor (On-Campus) to Total Student Income Ratio

Academy A (boarding)	.20	.19	.19	.15
Academy B (boarding)	.14	.14	.15	.15
Academy C (day)	.08	.11	.10	.08
Academy D (day)	.11	.11	.11	.09

### Percentage of Employee Related Expense to Total Personnel Costs

Academy A (boarding)	.18	.20	.18	.23
Academy B (boarding)	.24	.20	.19	.19
Academy C (day)	.09	.26	.30	.19
Academy D (day)	.17	-	-	-

### Operation and Maintenance of Plant to Income Ratio

Academy A (boarding)	.29	.24	.17	.20
Academy B (boarding)	.22	.18	.12	.13
Academy C (day)	.09	.03	.04	.03
Academy D (day)	-	-	-	-

### Scholarship to Tuition Income Ratio

Academy A (boarding)	.0304	.0200	.1182	.1435
Academy B (boarding)	.0000	.0000	.0000	.0069
Academy C (day)	.0160	.0209	.0164	.0379
Academy D (day)	-	-	-	-

## Selected Bibliography

- Anthony, R. N. "Making Sense of Nonbusiness Accounting." Harvard Business Review 58 (May/June 1980): 83-93.
- Brigham, Eugene. Fundamentals of Financial Management. 5th ed. Chicago: The Dryden Press, 1989.
- Chabotar, Kent John. "Financial Ratio Analysis Comes to Nonprofits." Journal of Higher Education 60, 2 (March/April 1989): 188-208.
- General Conference Auditing Services. Academy Accounting Manual. Washington, DC: General Conference of Seventh-day Adventists, 1984.
- Minter, John; Hughes, K. Scott; Robinson, Daniel D.; Turk, Frederick J.; Buchanan, A. Dean; and Prager, Fredric J. Ratio Analysis in Higher Education. New York: Peat, Marwick, Mitchell & Co., 1982.
- Office of Archives and Statistics. Financial Summary of Educational Institutions: North American Division, 1984-1985. Washington DC: General Conference of Seventh-day Adventists.
- Office of Archives and Statistics. Financial Summary of Educational Institutions: North American Division, 1985-1986. Washington DC: General Conference of Seventh-day Adventists.
- Office of Archives and Statistics. Financial Summary of Educational Institutions: North American Division, 1986-1987. Washington DC: General Conference of Seventh-day Adventists.
- Office of Archives and Statistics. Financial Summary of Educational Institutions: North American Division, 1987-1988. Silver Spring, MD: General Conference of Seventh-day Adventists.
- Penner, David S. "The Financial Report: Keep it Simple And Understandable", Journal of Adventist Education, (December 1999/January 2000): 34-38.