

## Chapter 9

# Evaluation of TAPS Packages

### INTRODUCTION

This Chapter provides evaluation techniques used in the evaluation of TAPS packages. The Chapter also discusses the students learning styles and the methodology and results of statistical analysis used in the evaluation of the TAPS packages.

### RESEARCH METHODOLOGY EMPLOYED FOR EXAMINING STUDENTS' LEARNING STYLES

The evaluation was carried out to examine the distribution of learning styles (discussed in Chapter 2) of the third year undergraduate engineering students and suggest effective problem solving approaches that could increase the motivation and understanding of slow learners at UNITEN. For this study, a sample target population of 60 third year undergraduate engineering students who had taken the Engineering Mechanics subject was tested. These students were selected based on their second year grade point average (GPA) of less than 2.5 as this study emphasizes on slow learners.

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## Evaluation of TAPS Packages

Table 1. Percent frequency values

<i>Preference</i>	<i>% Freq.</i>	<i>Preference</i>	<i>% Freq.</i>	<i>Preference</i>	<i>% Freq.</i>	<i>Preference</i>	<i>% Freq.</i>
Strong Sensing	5.0	Strong Visual	38.3	Strong Active	1.7	Strong Sequential	3.3
Moderate Sensing	21.7	Moderate Visual	38.3	Moderate Active	18.3	Moderate Sequential	21.7
Balanced <i>Sens-Int</i>	58.3	Balanced <i>Vis-Verb</i>	23.3	Balanced <i>Act-Refl</i>	70.0	Balanced <i>Seq-Glob</i>	61.7
Moderate Intuitive	11.7	Moderate Verbal	0.0	Moderate Reflective	10.0	Moderate Global	13.3
Strong Intuitive	3.3	Strong Verbal	0.0	Strong Reflective	0.0	Strong Global	0.0
Total	100.0	Total	100.0	Total	100.0	Total	100.0

The study focused on issues of problem solving methods, user interface, and multimedia attributes of the TAPS packages. The aim was to develop quality TAPS packages that would promote learning. In this study, the survey was made anonymous and voluntary.

The students were given the index of learning styles (ILS) instrument based on Felder-Silverman model to obtain the learning styles of the students. The same students were also given a set of questionnaires that adopt the Likert-type assessment (Kinshuk 1996), i.e. based on the scale 1 (Strongly agree) to 5 (Strongly disagree) to access their perception of the TAPS packages. The results of the survey were used to determine whether the TAPS packages had potential pedagogic advantages over conventional teaching approach.

Since the objective of the evaluation of students' learning styles in this book was to design the TAPS packages tailor-made to students needs, mainly quantitative methods were employed in the evaluation.

As an adjunct to quantitative data collected, some qualitative views from students have also been sought in the evaluation study but the data obtained from various sources was not consistent and was merely in the form of observations and open-ended questions relating to their computer usage. Though this data was of limited value for statistical analysis, it provided an indication of students' keen interest towards the TAPS packages and the perceived strength and weaknesses of the packages.

## Procedure Used to Evaluate the Students' Learning Styles

The ILS was administrated to the students in the form of printed questionnaire at the commencement of the first study semester in 2003. The responses to the learning style questions were then entered on-line using the Web for each respondent. The responses were processed on-line and the results of analysis were displayed as a report and printed for each respondent. Thus 60 printed reports corresponding to 60 respondents formed the basis of the data analysis and the results are presented in following Section.

## Data Analysis and Results

The analysis report consists of scores on a scale of 1 to 11 (odd numbers only) for one of the dichotomy of each of four dimensions of the ILS. For example, the result for the hypothetical individual student may consist of the following scores along the four dimensions: 3 reflective, 5 sensing, 7 visual and 9

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