CHAPTER V

OUTCOME MEASUREMENT

The outcome of this study were divided into two variables categories, independent variable and dependent variable. The outcome attributes being measured are specified below.

Independent Variables consist of the student charachteristic factors and the instruction factors.

1. The Student Characteristic Factors

1.1 Past Academic Grade

The investigator selected both the fifth year and the fourth year cumulative grade point average. The fifth year cumulative grade was measured in the case which the investigator used the sixth year clinical practicum grade as the dependent variable. The fourth year cumulative grade was measured in the case which the investigator used the sixth year cumulative clinical practicum grade as the dependent variable. The reason was that almost all of the theory part finished at the fourth year and almost all of the cumulative clinical practicum grade was caculated from the fifth year to the sixth year. Therefore, the fourth year grade represented the prerequisite knowledge and would be relavant to the whole picture of clinical practicum achievement of dental students. Indeed, the fifth year

grade would be also relavant to the sixth year clinical practicum grade.

1.2 Study Habits and Attitudes

Study habits and attitudes were classified into 4 categories as the following.

- Delay avoidance
- Working method
- Teacher approval
- Educational acceptance

Delay avoidance was to avoid the postponement of time, to induce to carry out work entrusted by the professor, personal responsibility assured in decision making, planning study in advance, arrangement of study and work, prediction of future and the division of useful time for study.

Working method was related to the fruitful use of learning and learning skills in reading and memorizing lessons, writing memorandum for writing reports, or doing homework, revising the lessons, using the library, using other study equipments such as pictures, maps, graphs, time table for exam.

Teacher approval was about the feeling of confidence, the devotion of the students towards the teachers for teaching and evaluation, importing knowledge of

the subject taught, dressing, manners and words spoken to students, governing the use of right of freedom, the advice and assistance given to the students.

Educational Acceptance was for the students to sex the importance of education, the agreement to the educational purpose, learning situations, the result of learning, the need for education and gaining professional education needed for further education.

1.3 Sex

1.4 Socioeconomic Status with Regard to;

- Occupation of father
- Occupation of mother
- Education of father (number of year in school)
- Education of mother (number of year in school)
- Expense per month (bath/month)

2. The Instruction Factors

opinion on instruction were categorized into five areas as the following.

- content
- learning activities

- evaluation
- teacher
- learning facilities.

Dependent Variables

The investigator selected clinical practicum grade in academic year 1991 from each department and average grades from all the departments. The investigator used both the sixth year clinical practicum grade and the sixth year cumulative clinical practicum grade to be the dependent variables as the folowing.

1. The Sixth Year Clinical Practicum Grade of;

- Oral Surgery Department
- Pedodontic Department
- Oral Diagnosis Department
- Orthodontic Department
- Periodontic Department
- Restorative Department
- Prosthodontic Department
- Oral Biology Department (Occlusion)

and the sixth year clinical practicum average grade of all departments.

2. The Sixth Year Cumulative Clinical Practicum Grade of;

- Oral Surgery Department
- Pedodontic Department

- Oral Diagnosis Department
- Orthodontic Department
- Periodontic Department
- Restorative Department
- Prosthodontic Department
- Oral Biology Department (Occlusion)

and the sixth year cumulative clinical practicum average grade of all departments.

Instrument

The instruments used to measure the attributes were specified below :

1. Survey form of study habits and attitude by Brown and Holtzman (translated and developed by Suchit Sirirat)

2. Questionnaire for personal data and socioeconomic status (developed by the investigator)

3. Questionnaire for opinion on instruction such as; content, learning activities, evaluation, teacher, and learning facilities (developed by the investigator)

4. Record of clinical practicum grade from transcript

Validity and Reliability (Donald, Lucy , and Asghar, 1979)

There are two important characteristics that every measuring instrument should possess; validity and reliability.

- Validity refers to the extent to which the instrument measure what it is intended to measure.

- Reliability is the extent to which a measuring device is consistent in measuring whatever it measures.

1. Survey Form of Study Habits and Attitudes (by Brown and Holtzman)

This survey form was translated and developed by Suchit Sirirat (1980). There was 100 items in the survey form and consisted of 4 parts as the following.

- Delay avoidance 25 items
- Working method 25 items
- Teacher approval 25 items
- Educational acceptance 25 items

The survey form was made on the five point rating scale(Likert scale). The levels were; "Strongly agree", "Agree", "Agree nor disagree", "Disagree", "Strongly disagree". This survey form had already been analyzed for reliability and the reliability was 0.92.

2. Questionnaire for Sex and Socioeconomic Status

For this questionnaire, the investigator used the open ended questions to ask the following;

- sex
- occupation of father
- occupation of mother
- eduction of father
- education of mother
- expense per month (bath/month)

This questionnaire need not be analysed for reliability because it asked the fact about personal data

3. Questionnaire for Opinion on Instruction

For assessment of instruction factors, questionnaire for opinion on instruction was categorized in five areas as the following.

- Content
- Learning activities
- Evaluation
- Teacher
- Learning facilities

These queationnaires were used for each department and average whole picture of all the departments. The assessment was made on a five point rating scale. The level were; "the most", "much", "fair", "little", "the least".

Content validity refers to the extent to which the instrument represents the content of interest. In order to obtained an external evaluation of content validity, the investigator should ask a number of experts to examine content of the questionnaire systemically and evaluate its relavancy to the specified universe. If all agree that the questionnaires represent the content domain adequately, the questionnaires can then be said to have the content validity. Therefore, this study tried to establish the content validity by requesting 5 experts in dental education to examine the questionnaires and to suggest ways to improve

it. The name of the five experts was listed in the appendix.

Checking for reliability was done by examining the questions constructed to check for internal consistency with other questions. In this study, the pretests of the questionnaires were done by the fifth year dental students of Khon Kaen University which had similar characteristics as the target population. After pretests, the questionnaires were modified. Then the reliability of the questionnaire was calculated by using Cronbach's Alpha Coefficient ( ).

The formula (Cronbach, Lee J., 1970) is as the following;

$$= k/k-1 \ .(1-Si^2)/st^2$$

= coefficient of reliability of the questionnaire
k = the number of the question in the questionnaire
Si = varience of each item in the questionnaire
St = varience of all items in the questionnaire

The result of the reliability of this questionnaire was 0.82

<u>Data Collection</u>

Direct access questionnaire was the strategy for data collection in this study. The objectives of the study were explained to the sixth year dental students before the questionnaires were distributed to them. The students were requested to return the questionnaires in that day and

return the survey form in the following day. The total instruments were returned: ie 100% of the instruments were available for data analysis.

The other method is copying score record from the transcripts.

Data Processing

Data processing is an integral part of the study. Most of the student characteristic factors; expense, education of parents, the 4th year and the 5th year grade, study habits and attitude, are measured in interval scale which are continuous data. Thus, they can be summarized as mean and standard deviation(S.D.) for analysis. But sex and occupation of parents are measured in nominal scale. Therefore, the data were transformed into dummy variables and coded. A dummy variable is defined as any variable in a regression equation that takes on a finite number of values so that different categories of a nominal variable can be identified. It simply relates to the fact that the values taken on by such variables like 0, 1, and -1 indicate no meaningful measurement but rather the categories of interest(Kleinbaum, D.G. et al 1988). Dummy coding involves the assignment of the weights 1 and 0 to represent membership in the categories of the nominal variable such as; male is scored 1 and female is scored 0.

For instruction factors, they are measured in interval scale and for the dependent variables, both the

sixth year clinical practicum grade and the sixth year cummulative clinical practicum grade, they are also measured in interval scale too. Hence, they can be summarized as mean and S.D. for further analysis.

Since the questionnaires and survey form have a lot of data, the instruments were checked within one week of return in order to immediately correct the data by direct contact with the respondents.

The researcher checked all the instruments (not sampled checking) in order to correct all mistaken data. There were some blank in survey form. Thus, the researcher asked for help in correction immediately by telephone and direct contact with the respondents.

For computer processing, DBASE III plus and SPSS/pc+ (Statistical Package for the Social Science) were used for data processing and statistical analysis in this study.