PROBING ISSUES OF CONSISTENCY AMONG INSTRUCTORS IN CLINICAL DENTAL HYGIENE

By

LYNNE I. VICZKO

Dip. D.T., Wascana Institute, 1977
Dip. D.H., Wascana Institute, 1982
B. V/T Ed., University of Regina, 1991

A thesis submitted in partial fulfilment of
the requirements for the degree of

MASTER OF ARTS

in

LEADERSHIP AND TRAINING

We accept this thesis as conforming
to the required standard

Project Sponsor, Marge Reveal, MBA

Faculty Advisor, Robert Priebe, PhD

Committee Chair, Gerry Nixon, PhD

ROYAL ROADS UNIVERSITY

April 1999

© Lynne Viczko, 1999

Copyright © 1998 Royal Roads University. All rights reserved.

National Library of Canada
Bibliothèque nationale du Canada

Acquisitions and Bibliographic Services
Acquisitions et services bibliographiques

395 Wellington Street
Ottawa ON K1A 0N4
Canada

395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file Votre référence

Our file Notre référence

The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.

The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

0-612-41821-9

Canada

TABLE OF CONTENTS

CHAPTER ONE- STUDY BACKGROUND 1

The Problem/Opportunity.. 1
The Organization 3

CHAPTER TWO- LITERATURE REVIEW 5

Review of Organizational Documents.. 5
Review of Supporting Literature.. 5
Consistency Issues in Clinical Evaluation.. 5
Learning Processes and Challenges.. 9
Systems Consideration in Problem Solving.. 12

CHAPTER THREE – CONDUCT OF RESEARCH STUDY 15

Research Methods.. 15
Data Gathering Tools... 16
Study Conduct.. 17

CHAPTER FOUR – RESEARCH STUDY RESULTS 24

Study Findings.. 24
Study Conclusions.. 38
Study Recommendations 45

CHAPTER FIVE – RESEARCH IMPLICATIONS 48

Organizational Implementation.. 48
Future Research 48

CHAPTER SIX – LESSONS LEARNED . 50

Research Project Lessons 50
Program Lessons Learned 52

REFERENCES 55

APPENDIX 57
APPENDIX A: Dental Hygiene Program Clinic Manual : General Organizational Information and Evaluation Procedures
APPENDIX B: Questionnaires and Questionnaire Results
APPENDIX C: Figure 2:Phases and events of the novice-expert learning continuum
Figure 3:Conceptualization of novice and expert knowledge structure.

CHAPTER ONE- STUDY BACKGROUND

The Problem/Opportunity

There is a notion among some students and faculty in the Dental Hygiene Program at Camosun College that there is inadequate consistency among clinical instructors in how they instruct and evaluate. This is seen to have a negative effect on student learning. Despite efforts over many years by clinical instructors to address this issue, concerns continue to resurface.

In order to obtain a clearer understanding of the nature and parameters of this issue, student, faculty and graduate perceptions were ascertained by asking the following:

- Is there an appropriate level of consistency among clinical instructors in their expectations of student performance and in application of evaluation criteria when assessing student performance? If not, are there specific areas of concern?
- How do students, graduates and faculty think this affects student learning and successful completion of the clinical component of the Dental Hygiene Program?
- Is there a need for the situation to change?

Background

The process of dental hygiene care entails assessment, planning, implementation and evaluation of dental hygiene services aimed at meeting specific oral health needs of a client or client group. In Dental Hygiene Programs across Canada, students develop clinical skills and learn to integrate classroom theory while providing dental hygiene services to the public, in school clinics. Clinical instructors supervise, teach, coach and evaluate students in this environment. Most clinical instruction and student performance evaluation (formative and summative) is carried out while students work with human clients who have genuine dental hygiene needs. Chambers and Glassman (1997, p. 653) call this type of evaluation "authentic evaluation" as it closely resembles real practice. Authentic evaluation involves use of clinical judgement as it would in actual dental hygiene practice. Since students are assessed while working with different clients, the context of the evaluation is never exactly the same from student to student.

In evaluation of student performance in dental education, the terms "standardization" and "calibration" are commonly used. Courts (1997, p. 947) characterizes standardization and calibration as follows, "to standardize is defined as 'to conform to a standard'" and, "to calibrate is to ' check, adjust or determine by comparison with a standard'". Calibration then, is viewed as a process that seeks to achieve consistency and standardization of evaluation criteria and evaluation methods among different evaluators. Inter-rater reliability is a related term. Chambers and Glassman (1997, p. 659) define inter-rater reliability as "a measure of the consistency that might exist between two examiners looking at the same project, i.e. a laboratory practical examination." The term "calibration" is commonly used in the Dental Hygiene Program at Camosun College to describe the process of achieving consistency among instructors in clinical teaching and evaluation.

In recent e-mail discussions with members of DHEC (Dental Hygiene Educators of Canada) about the issue of calibration of clinical instructors, there was clear indication that these educators all encounter similar challenges in trying to maintain a reasonable level of consistency (or calibration) among clinical instructors. In dealing with this issue, most efforts seemed to be aimed at increasing instructor calibration and standardization of procedures.

The Problem/Opportunity

In the Dental Hygiene Program at Camosun College, calibration or consistency among instructors in clinical teaching and evaluation is a common topic of discussion at faculty meetings and in e-mail discussions among instructors. The usual purpose of these discussions is to deal with a particular issue of alleged inconsistency that has been brought forward by students or faculty, or to share information for the purposes of achieving or improving consistency and standardization in clinical teaching or evaluation. Although the issue of inconsistency is generally not considered a severe problem, a considerable amount of time and effort is spent in addressing it. Systematic and effective inquiry into this issue has not been undertaken in the Dental Hygiene Program at Camosun College.

On a 1996 survey of dental hygiene graduates, this issue was expressed as follows in response to a question that asked former students to describe any issues relating to the curriculum that needed attention and improvement. "The clinical instructors (need) to be more calibrated with one another on what is acceptable and not acceptable" (Camosun College Graduate Survey, 1996). Furthermore, in nearly every class of students there are varying numbers of students who complain about instructor inconsistency, saying for example that one instructor tells them one thing while another instructor suggests something different. Some students feel disadvantaged because in their view the perceived differences create ambiguity and as such are a source of confusion and frustration in the learning process.

This type of complaint is not unique to dental hygiene programs. It can be assumed that participants in any education program with a clinical component using authentic evaluation likely experiences similar challenges. Hence this research may be of interest to other educational programs with clinical components as well as any other programs where students maintain there is inconsistency among instructors. During the second summer residency of the MALT 97-2 class (Master of Arts in Leadership and Training), it was interesting to witness a similar type of complaint during informal discussion by a number of graduate students. Frustration was expressed about MALT program expectations for completing the literature review for the Major Project Proposal. At the time, some students thought they were hearing differing guidelines from different faculty and thought that all faculty should "get their act together" and say the same thing so that students would know what was expected of them. The reality was that MALT faculty members were suggesting their own versions of how a literature review might be done. Intentionally, there was no stipulated *-one right way-* to complete a literature review. Noting parallelism between this scenario among graduate students and the "calibration issue" in dental hygiene programs points out that this type of issue may be fairly common and not just a clinical issue. There seems to be a perception in both cases that there is an obvious solution and that is for instructors to designate a single protocol that all students should adhere to and that all faculty should express and adhere to this same single approach so

that students aren't confused. Perhaps the single approach view or the notion of a *one right way* of accomplishing a task is a source of this problem along with student expectations and the manner in which instructor information is interpreted.

The goal of this project is to use action research to:

- investigate issues of consistency/ inconsistency among clinical instructors in the Dental Hygiene Program at Camosun College,
- to assist faculty and students in understanding this issue more clearly, and
- to guide the faculty in learning a process for uncovering the root causes of this problem and developing long term solutions

The Organization

The Dental Hygiene Program at Camosun College in Victoria, British Columbia has been in operation since 1989 as a program within the School of Health and Human Services. The Dental Hygiene Program is a two-year diploma program that involves classroom as well as clinical instruction and evaluation. The clinical component of the program is a form of competency-based education. Students develop clinical skills by integrating theory, instruction and practice during practice sessions that are carried out on mannequins and on peers before providing dental hygiene care to clients from the public. Students are constantly supervised in both the first and second year of the program by clinical instructors who provide guidance and both formative and summative evaluation. The majority of clinical evaluation is criterion-referenced. Since the program is not open-ended, students choose when they want to be graded for summative evaluation purposes within certain time limits. Further details about the clinical evaluation procedures can be found in Appendix A-4 and A-5.

The Dental Hygiene Program at Camosun College is staffed by five full time faculty, three continuing part-time faculty and three to four regular part-time faculty with a total FTE of 8.3. Most faculty members have worked together continuouslya in this program for at least five years.

The student body typically consists of 22 first year and 22 second year students. The students tend to be females ranging in age from their twenties to forties. Students do not enter this program directly from high school for two main reasons: the prerequisites for this program include a number of first year, university level courses that must be completed before applications are accepted, and there is a three-to-five year wait list for entry into the Dental Hygiene Program. About one third of dental hygiene students are qualified as certified dental assistants.

Significance of the Problem

As stated earlier, the issue of instructor calibration is generally not considered a severe problem, although it has been the subject of much discussion and a source of frustration among students

and faculty for a number of years. The issue of instructor calibration and communication among faculty and between faculty and students was identified as source of conflict in a 1998 student appeal. Although inconsistency was not the focus of this student appeal and the summative student evaluation by program faculty was upheld, the allegations of inconsistency among instructors were disconcerting.

Calibration of clinical faculty is an area of interest to the Canadian Commission on Dental Accreditation, the body that accredits dental programs in Canada. During accreditation site visits, dental programs are usually asked to explain what measures are taken to achieve calibration of faculty in clinical evaluation. The Dental Hygiene Program at Camosun has usually responded by explaining that faculty have discussions on calibration issues as the need arises during regularly scheduled bi-weekly faculty meetings. More recently e-mail is used as a medium for group discussion among faculty about calibration issues.

In addressing the concerns about inconsistency among instructors in clinical dental hygiene, the solutions generated have mainly focused on efforts to *increase* consistency among instructors. Despite continuing attempts to deal with the issue in this way, the long-term result is that issues of inconsistency among clinical instructors continue to surface and frustrate both students and faculty. This may be a clear indication that an in depth understanding of the problem has not been established. It may also imply that the methods of problem solving used by the dental hygiene faculty are insufficient to generate long- term solutions to complex problems.

Impact if the problem is not solved:

If the issue of inconsistency among clinical instructors is not addressed in a more in-depth way, the status quo will prevail. In other words, if the root cause(s) are not identified, satisfactory long-term solutions will not be generated, implemented and evaluated, and the same problem will continue to surface. The ramifications of continuing with the status quo are:

- time, effort, and emotion will continue to be spent in dealing with symptoms of the issue and in fabricating and implementing short term solutions
- the clinical evaluation system will continue to be a source of frustration among faculty and students
- stress and frustration among faculty and students will persist
- faculty and staff may become fragmented over the issue
- instructor calibration in clinical evaluation may improve but will not generate the resolution to the problem
- other student appeals may cite this issue as a source of contention

CHAPTER TWO- LITERATURE REVIEW

Review of Organization Documents

Evaluation methods for the clinical component of the Dental Hygiene Program are outlined in the program's Clinic Manual (see Appendix A). Evaluation is based on defined competencies that are criterion referenced. The Clinic Manual includes a description of the criterion referenced evaluation system and discusses the purposes of formative and summative evaluation. Authentic evaluation is also widely used in the clinical program. Authentic evaluation is defined as "observation of performance or products of performance in contexts that resemble those that will be encountered following the educational program" (Chambers & Glassman, 1997, p. 653). The nature of authentic evaluation and its use is not described in the Clinic Manual. Although authentic evaluation has always been used in this program, faculty members were unfamiliar with the term itself and its implications for consistency in evaluation. Authentic evaluation is discussed further in the Review of the Supporting Literature which follows.

Review of Supporting Literature

The literature review is divided into three main sections:

- consistency issues in clinical evaluation ;
- learning processes and challenges; and
- systems considerations in problem solving.

Consistency Issues In Clinical Evaluation

One of the main goals of this study is to determine whether or not students and faculty think there is adequate consistency among instructors in clinical teaching and evaluation. In other words, when clinical instructors evaluate students for formative (feedback for the purpose of learning) or summative (endpoint assessment to prove competency) purposes, is there an adequate level of common standards?

Although the term "authentic evaluation" was unfamiliar to most dental hygiene instructors and students prior to this project, the process was well known. Authentic evaluation is widely used as an evaluation method particularly in the second year of the dental hygiene clinical course when students are being evaluated at exit level. Student performance is evaluated as dental hygiene care is provided to human clients with real dental hygiene needs in the school clinic. Instructors initially provide coaching and feedback to students (formative evaluation) and eventually evaluate student performance to certify competency for graduation (summative evaluation). Student complaints about instructor inconsistency arise in both formative and summative evaluation.

Other terms found in the literature that are related to 'consistency among instructors' in clinical evaluation are "calibration" and "inter-rater reliability". As stated earlier, the term "calibration"

is commonly used in the Dental Hygiene Program in reference to consistency among evaluators; and the term refers to a process that seeks to achieve consistency and standardization of evaluation criteria and evaluation methods among different evaluators. Inter-rater reliability is defined by Chambers (1997, p. 659) as, "a measure of the consistency that might exist between two examiners looking at the same project, i.e. a laboratory practical examination".

Several reasons for inconsistency (unreliability) in clinical evaluation were found in the literature. Chambers (1987, p. 724) claims that a student grade in clinic work is often the composite of several factors. He writes, "the student's true score is modified by random student factors, (such as fatigue), random rater effects (such as comparisons with the previously rated student), other random influences and interactions, and the private rater standards of the faculty who happen to evaluate that student". In a later article (Chambers and Glassman, 1997, p. 659), some of these reasons are reaffirmed. The authors write, "A single evaluation normally has *rater, patient, test setting and other sources* of unreliability". Considering the definition of reliability cited above, *unreliability* can be interpreted to mean *inconsistency* between two examiners examining the same student in the same context. The first source of unreliability cited by Chambers and Glassman is that of the rater or the evaluator. This confirms that inconsistency may exist because instructors *do* evaluate differently.

Pippin and Feil (1992) note that many studies have been published in the Journal of Dental Education in the last decade on inter-rater and intra-rater reliability. Most have been about restorative dentistry, whereas only two have been found relating to subgingival calculus detection, a critical competency for dental hygienists and one of the most difficult skill areas for students to acquire. In previous studies as well as their own, the authors found that "there was low overall faculty agreement" on detection of subgingival calculus. Their study did not involve dental hygiene instructors and therefore should not be directly extrapolated to dental hygiene faculty. However, the article does point out that this particular competency (subgingival scaling) requires significant skills in tactile sensitivity and evaluation is highly subjective because the result can not be visually inspected. As such, high consistency among evaluators in this skill area is very difficult to achieve. Pippin and Feil suggest that it is possible to improve inter-rater agreement through careful calibration; however, they do not propose how that may be accomplished. Considering the information in this article and what is known about the subjective nature of calculus detection, it was interesting that calculus detection was not specifically identified as source of instructor inconsistency by any students participating in this project and it was identified by only a few graduates. This article confirms that some skill areas of dental hygiene, regardless of the client, are difficult to evaluate objectively and as such present challenges to instructor calibration. Another observation is that the authors seem to automatically assume that engaging in faculty calibration sessions is the solution of choice.

An abstract by Wolfe & Chiu, (1997) sheds some light on prevalent patterns of evaluator inaccuracies in performance assessment in general. In the abstract, the following three main rater errors were identified as, (1) accuracy/randomness; (2) harshness/leniency; and (3) centrality/extremism. These rater discrepancies may have relevance for explaining why inconsistency among instructors might exist.

Chambers (1987, p. 723) supports the claim that harshness and leniency are common evaluator errors and exemplifies this claim in relation to dental educators. He writes, "The long literature

on rater calibration in dental education seems to confirm the fact that 'hard' and 'easy' graders will always be with us. Regardless of whether announced evaluation policies are criterion or norm referenced, faculty tend to retain personal standards". Chamber maintains that faculty training sessions for the purpose of calibration are of questionable value in terms of practical use of time. He claims that even though many hours may be spent in calibration exercises, most often the improvement in consistency among evaluators is not statistically significant. However, Chambers does not propose that calibration exercises be totally abandoned and he does acknowledge the other side of the issue. He recognizes that antagonism such as student and faculty criticism often occurs when evaluators are seen as inconsistent with one another. The author concedes that a certain level of inter-rater consistency is needed for quality assurance reasons. Chambers (1987, p. 723) writes, " Some measure of calibration is appropriate to make the essential characteristics of preparations public, to give new instructors some confidence, to lend credibility to the grading process and to approach the critical underlying issue of the validity of grading decisions". Chambers's assertions illustrate the impracticality of calibration sessions in achieving inter-rater reliability. The article also tends to leave the reader wondering what constitutes an *appropriate* level of calibration for quality assurance in dental hygiene and how do instructors know when they reached that level.

Chambers & Glassman (1997) identified *patient* and *test* setting as further sources of unreliability. Both of these sources of unreliability are pertinent to this project because of the wide use of authentic evaluation in the dental hygiene clinical course. In authentic evaluation, students are evaluated in differing contexts because they work with real clients who present different oral conditions, different care needs and differing levels of difficulty regarding implementation of dental hygiene care. Furthermore, in a single client, certain aspects of a client's oral condition, particularly the condition of soft tissues, can differ from one appointment to the next. In consideration of the previous definition of "unreliability" (inconsistency between two instructors evaluating the student in the same context), it is worth noting that in the dental hygiene clinic at Camosun College, individual students are rarely evaluated in a single procedure by two different instructors. That is, two instructors rarely evaluate students in the same context (same procedure, same client, on the same day). Students are usually evaluated for a procedure by one assigned instructor during each clinic session. Although students may ask another instructor for a second opinion in the same evaluation context, this rarely happens.

One may assume that the use of authentic evaluation is an important and substantial source of unreliability or inconsistency among instructors and might therefore be used with caution. The need for clinical judgment by instructors when applying evaluation criteria in authentic assessment and the manner in which authentic evaluation precludes control over the context of the evaluation session may help to explain why students perceive inconsistency among instructors. Chambers & Glassman (1997) are proponents of authentic evaluation in competency-based education, and advise that its use is most appropriate once the student has acquired some basic skills and knowledge. The authors also point out that when using authentic evaluation, there is a greater focus on evaluator judgment than on objectivity. They claim that it is not possible to standardize realistic dental situations and further state that "The variation inherent in professional practice will always elude capture by a set of rules" (p. 654). Despite the tendency for use of clinical judgement on the part of the evaluators, Chambers and Glassman suggest that the benefits of authentic evaluation outweigh the disadvantages. They state, (1997, p. 653).

> " What is lost in the move from tests to authentic evaluation is faculty control over the context; what is gained is the opportunity for students to demonstrate their ability to 'read' the real world and to fashion an appropriate response out of previously learned knowledge, skills and values."

The authors further note that traditional methods of evaluation , including simulations, do not have the same capacity as authentic evaluation to allow learners to accurately self assess competence as they approach completion of the program. Chamber and Glassman believe that professionalism can be more accurately and readily observed through authentic evaluation. The authors also recommend authentic evaluation because it tends to move away from normative grades and favors the " dichotomous judgement" (p. 654) of competent/not competent to certify students' ability to perform capably as beginner practitioners.

Linn, Baker & Dunbar (1991, p. 15), note that use of alternative forms of assessment such as authentic assessment is a fairly recent movement in mainstream educational reform. The information in their article support the notion that variation among instructors is a concern in performance assessment. In discussing criteria for evaluation of assessment methods, they claim that to be able to generalize the results of performance assessments, more data is needed to scope the extent of variability due to rater and to the selection of tasks. They further state, (p. 19) " Experience with performance assessments in other contexts such as the military [e.g. Shavelson, Mayberry & Li & Web, 1990] medical licensure testing [e.g. Swanson, Norcini, & Grosso, 1987] suggests that there is likely substantial variability due to task". What is common about the "other contexts" mentioned in this article is the use of authentic evaluation. One could therefore assume that the claim about "substantial variability due to task" could also apply to areas such as dental hygiene, nursing, dentistry and other health professions where students are evaluated with real clients. This analysis lends further support to the notion that when authentic evaluation is used, the quest for high inter-rater reliability is affected more by variability in the task than by differences in evaluator judgement.

A study by Jiang et al (1997, abstract) reviewed and integrated existing studies on the reliability and generalizability of performance assessments. In their statement, "As performance-based assessments have gained wider use, there are increasing concerns about their dependability", the authors acknowledge that anxiety does exist around inter-rater reliability in performance testing. Jiang et al proposed that use of professional judgment in scoring performance tests should not be expected as a major source of measurement error and that "the greatest source of variance in evaluators is not judgment of the evaluators but 'task and occasion facets' " (1997, abstract). Task and occasion facets" can be interpreted in relation to the subject of this study as the differing client contexts in which students are evaluated. The abstract by Jiang et al further supports the idea that evaluator judgement in authentic evaluation should not be seen as a liability in reliability of performance assessments.

A study by Mescher and Kerber (1982) further supports the previous discussion. The study was implemented to inquire into the effect of instructor variance on final student scores in a clinical component of a dental hygiene program. The authors reported that although instructor variance was responsible for eleven percent of the variation in the students' final scores, this result represented less than one standard deviation. Mescher and Kerber (1982, p. 83) conclude, "the

students grades were reliable and that individual differences among instructors did not duly affect student final scores". Although student performance in the Dental Hygiene Program at Camosun is not graded in the same way as was in this study, the overall findings are consistent with those of Jiang et al, cited above and other authors. That is, instructor variance or inter-rater reliability is not a significant source of error in assigning grades for student performance.

Meetz, Bebeau and Thoma (1988) also make reference to the difficulties encountered with inter-rater reliability in assessing clinical performance of medical and dental students. The following statement may give some insight into alternate considerations for resolving clinical evaluation issues, "It may be that knowing the student well is the key to reliable ratings, rather than the specificity of the anchors or the items" (1988, p. 290). This statement is based on observations that there was a higher coefficient of inter-rater reliability with faculty who worked with medical students on a more frequent basis.

Given the preceding discussion regarding the difficulty in achieving consistency among instructors due to the subjective nature of some of the competency areas and the use of authentic evaluation, it appears that calibration of clinical instructors in dental hygiene is a difficult endeavor. Most authors on authentic evaluation propose that the advantages of using of authentic evaluation outweigh the disadvantages in terms of face validity. Previous discussion also suggests that many of the sources of variation in clinical evaluation are inherent in the use of authentic evaluation and that variance among evaluators and the use of clinical judgement is a less significant contributor to evaluation error than "task and occasion". In consideration of these points, it is questionable whether the practice of trying to resolving the issues of inconsistency among clinical instructors by *mainly* focusing on calibration of instructors is a practical or even attainable goal. Finding solutions that have greater leverage for effectively resolving this issue in the long term requires a fuller understanding of the issue.

Learning Processes and Challenges

Some students participating in this study said that they experienced frustration as learners, and a number said they felt disadvantaged by instances where they thought inconsistency among instructors existed. Even though many students' statements exemplifying *how or why* they felt they were disadvantaged had nothing to do with instructor inconsistency, it is safe to assume that most students experience stress as learners while completing the program. Westerman, Grandy, Ocanto, and Erskine (1993, p. 225) reported that inconsistency among instructors was a source of stress among dental students and made the following referenced statements about stress, "The perception of stress, in fact is frequently influenced by one's personal system of beliefs and attitudes. These self-cognitions mediate the perceived stressors and consequent student behavior. Self cognitions associated with control and self-efficacy tend to lower stress and distress levels, resulting in improved academic performance." The remarks of Westerman et al, about what influences levels of stress suggests an important link between stress, frustration and learner self-esteem and performance.

Chambers and Glassman (1997), as well as Hendricson and Kleffner (1998), write about competency-based education, performance evaluation and stages of learning as students progress toward competence. Chambers and Glassman (1997, p. 651) state that learners progress

through several stages of competence on the way to becoming a qualified professionals. These stages, which are on a continuum, are labeled as "novice, beginner, competent, proficient and expert". The authors claim that there are unique student learning needs, attitudes and performance capabilities as well as appropriate evaluation methods for each stage. Hendricson and Kleffner, suggest that an ample body of research exists about development of complex motors skills and thinking processes. They describe a model called the "Three P's Model". The three P's refer to the three learning phases of "*Prepare, Practice, Perfect*" (1998, p. 183). Hendricson and Kleffner expand on the learning stages presented in the article by Chambers and Glassman (1997), labeling the stages as *candidate, novice, competent and expert* and describe the changes in learner self-concept associated with each stage. A reference copy of the "Three P's Model" is included in Appendix C (see " Figure 2. Phases and events of the novice-expert learning continuum").

The "Three P's" learning model models can be readily correlated to dental hygiene education at Camosun. When applied, potentially relevant information evolves in terms of explaining different levels of student self-esteem, knowledge and skill level plus their learning needs as they progress toward completing the dental hygiene program. This learning model also gives insight into why some students find the learning process stressful and why differences among instructors may induce student frustration.

Further analysis of these learning stages with dental hygiene students may also help in understanding some of the student or graduate comments and suggestions that were gathered during this study about learning, stress, frustration and instructor inconsistency. While in the first year of the program, dental hygiene students would be deemed "candidates" at the "unconscious competent" stage of learning and moving toward the "novice"stage on the continuum, according to Hendricson and Kleffner's model (1998, p 185). At the time of completing the project questionnaire, the dental hygiene students were beginning the second year of the Program. According to the "Three P's Model", students in this study could be placed somewhere in the late "beginner" to "novice" stage of competency, what Hendricson and Kleffner (p. 185) call the "conscious incompetent" stage.

Hendricson and Kleffener (1998, p. 184), state that although students go through the learning phases or stages at different rates, a common occurrence when the learner moves into the novice stage is that they become intensely aware of what they do not know and what they have yet to learn. The authors' description of this phenomenon is the following,

> "the learner's self- concept shifts dramatically to 'conscious incompetent' "... "Negative self-talk can dominate the novice learner, producing an undue focus on perceived deficiencies, which stimulates efforts to hide weaknesses from instructors, thus hindering the learning process. Students at this stage are frustrated and defensive, which may manifest itself in passive-aggressive behavior (perceived by faculty as apathy or passivity) or overt hostility (perceived as a 'bad attitude'). Novice learners are extremely concrete in their thinking and hesitant to deviate from rules and guidelines learned earlier in the preparation phase. They are reluctant to contemplate abstractions or alternative desiring instead precise prescriptions from instructors: e.g. 'just tell me what to do' ".

It is conceivable that notions about instructor inconsistency and the associated stress and frustration stem from this phenomenon that is characteristic of the "novice" learner. Hendricson and Kleffner characterize the novice learner at the "conscious incompetent" stage as experiencing a decrease in self-esteem and high preference for concrete, linear information and instructor direction. The authors advise that is important for instructors to see this phenomenon for what it is and to be prepared to support the learner through it.

In the same article, Hendricson and Kleffner (1998, p. 185) discuss how, according to Edward De Bono, knowledge tends to be "compartmentalized and vertical" in the novice learner whereas, in the expert professional it is "horizontal or lateral and highly networked featuring interrelated chains of frequently utilized knowledge". See Appendix C for a copy of "Figure 3: Conceptualization of novice and expert knowledge structure: (1998, p. 186). The authors hypothesize that the compartmentalized structure of the novice learner is in part a result of a common curriculum structure in education where disciplines are studied in isolation rather than in an integrated fashion. They suggest that an ideal dental school curriculum is one that includes learning experiences that "will facilitate the student's transition from a vertical organization of knowledge to a horizontal, networked structure"(p. 186). This suggests that horizontal, lateral and networked thinking is a more desirable mental skill in a graduate practitioner than mental processes that are linear, 'black and white', recipe-like and promote a "one right way" mentality. It is reasonable to assume that lateral thinking is more compatible with critical thinking and problem solving than vertical or linear thinking. Dental hygiene faculty members believe that critical thinking, problem solving and integrating of new ideas are important skills for contemporary and future dental hygiene practice. The article by Hendricson and Kleffner suggests that for many students, the shift from compartmentalized knowledge to networked knowledge is very challenging, particularly at the "novice stage" of learning which is the stage that most student participants were at during this study.

Peter Vaill (1996), claims that the type of thinking patterns that many people developed from being in traditional classrooms are not conducive to the level of critical thinking and problem solving needed to navigate in today's fast paced world that he calls "the world of permanent white water". Vaill (1996, p. 32) states, "Permanent white water not only creates extraordinary learning challenges for us all, it also places enormous stress on the theories and forms of learning we practice to meet these challenges." In his book entitled, Learning as a way of being: survival strategies in a world of permanent white water (1996), he uses the term "institutional learning" to depict the traditional and prevailing classroom model of learning found in many learning institutions. While he acknowledges that institutional learning is appropriate for many learning tasks, he is convinced that in today's world, where change is now considered the constant, our learning needs are very different. Vaill hypothesizes that institutional learning has promoted a 'one right way' mentality. He states (1996, p. 36), "One clear implication of all this model's characteristics is that *institutional learning is likely to be answer oriented* and indeed, it has ingrained generations of learners with an obsession with getting the 'right answer'." This statement may also shed light in explaining frustration that students experience while learning complex processes especially in the early "novice" stage of learning described by Hendricson and Kleffner. Novice learners, intent on hearing or finding that there is one right answer or one way of accomplishing a task, would find differences among instructors difficult to reconcile and adapt to.

Vaill also suggests that although many adult educators are often frustrated by student requests for prescriptive learning tools like checklists, current adult learning environments actually perpetuate this kind of thinking by failing to encourage learners to take greater responsibility for creating their own learning. Vaill states, (1996, p. 37)

> "Teachers, trainers, and consultants often decry learners' desires for a 'cookbook' or a 'five–point checklist, but that obsession is understandable when you look at the cues that surround learning settings. There is very little that communicates to the learner, 'You are expected to take coresponsibility for the basic design of this learning effort '. Instead, most of the cues say, 'you are to make good use of what has been placed in this learning setting for you.'"

Vaill's statements suggest that instructors and students would benefit from understanding and keeping in mind how "institutional learning" has shaped their learning and subsequently the teaching/learning expectations of both faculty and students.

Systems Considerations in Problem Solving

The relationship between groups or individuals may be seen as a significant aspect of any problem where humans are involved. In this project, for example, the main groups associated with this problem are the students and faculty. It stands to reason that examining how groups or individuals act or react to each other in a system has potential for clarifying and resolving problems.

Barry Oshry (1996) writes about the relationships of people in organizations or systems. He believes that much human conflict is the result of the inability of people or groups to see the bigger picture or the larger system to which they belong. Oshry asserts that failure to recognize both the whole and the parts of the system and patterns within the system results in misunderstanding, antagonism and undermines the potential for productive partnerships. He describes a common behavior pattern he calls "The Dance of the Blind Reflex or DBR" (p. 54). DBR refers to a debilitating but habitual, unconscious behavior pattern in which people engage when in relationships within any system such as an organization, educational program, family, team, etc. This pattern of behavior includes designating who has the responsibility for the success of the system particularly when the system is faced with challenges. Oshry (1996, p. 58) calls one version of "DBR", "Top/Bottom" and states,

> "the Top/Bottom relationship is one in which one party – Top – has designated responsibility for the system or a piece of the system (organization, division, department, classroom, meeting, project and so forth) and the other party – Bottom – is a member within that system (worker, student faculty member, subordinate, meeting attender, team member, and so forth)."

Oshry believes that the ideal relationship for "Tops and Bottoms" is that of a mutually beneficial partnership with shared responsibility. He contends that when difficulties arise, the tendency is to reject that relationship and fall into a behavior pattern called the "The Top/Bottom

Dance of the Blind Reflex" (p. 61). In this version he maintains that, "Top becomes increasingly responsible for the system, organization, classroom . . . while the Bottom becomes decreasingly responsible" (p. 63). "Tops" unaware of this unconscious habit, pull responsibility toward themselves and "Bottoms" also unaware, push responsibility away. Oshry notes that when groups engage in this "Dance" they impair their capacity for partnership. The result is that the "Burdened Tops" (e.g. instructors) feel encumbered by the responsibility for fixing the situation and the "Bottoms" (e.g. the students) hold the "Tops" responsible for the success of the system while feeling like they are disadvantaged victims of the situation.

According to Oshry, the solution begins with recognizing the "Dance" and then making a conscious choice to continue with it or to end it. This choice may seem obvious; however, changing behavior patterns is not necessarily simple or easy. Often the perspectives or positions people choose whether consciously or unconsciously are ingrained patterns that have beneficial psychological side effects. For example, Oshry (p. 66) points out that some "Bottoms" complain about their oppression and some "Tops" complain about their burden yet each holds on to the oppression or burden. In giving other examples, he points out that at times some Tops see the "burden" as just part of the job and some bottoms see the "burden" as what the Tops get paid for. The "Top/Bottom Dance of the Blind Reflex" behavior pattern appears to have relevance in explaining current student and faculty behavior patterns in addressing and resolving the issue of consistency among instructors in the clinical evaluation.

Peter Senge has also studied behavior patterns in organizations or systems and is a fervent advocate of "systems thinking". Similar to Oshry's ideas on the advantages of being aware of systems, Senge (1990, p. 94) asserts "*Structures of which we are unaware hold us prison.* Conversely, learning to see the structures within which we operate begins a process of freeing ourselves from previously unseen forces and ultimately mastering the ability to work and change them." The structures (such as a dental hygiene program), in which we operate are systems. "Systems thinking" is recognizing patterns of behavior within those systems in order to gain leverage in resolving problems. Senge (1990, p. 94) describes a number of common behavior patterns or structures known as " systems archetypes". A systems archetype that may underlie the inconsistency issue in this study and may help to explain why a different approach for problem solving is needed is called "shifting the burden". Senge, Kleiner, Roberts, Ross and Smith (1994, p. 137) describe "shifting the burden" as a situation that,

> "usually begins with a problem symptom that prompts someone to intervene and 'solve it'. The solution (or solutions) are obvious and immediate; they relieve the problem symptom quickly. But they divert attention away from the real or fundamental source of the problems, which become weaker as less attention is paid to it. This reinforces the perception that there is no other way out except the symptomatic solution."

Senge (1990) notes that the symptomatic fix usually seems obvious, is easier, faster and is well intentioned whereas the fundamental solutions are more obscure, difficult, slower and often more costly to address and resolve.

An important feature of "shifting the burden" is a tendency to attend to the symptoms of the problem. This relieves the problem temporarily and also shifts attention away from the more

basic or root cause and hence away from a fundamental solution. Because the symptoms are dealt with rather than the underlying cause, the problem resurfaces. Senge suggests that "shifting the burden" is very common in society and in everyday life, citing the practice of borrowing money to pay bills, rather than budgeting, as just one example.

The key to dealing with any archetype is first to recognize it and then to analyze the situation to determine where leverage can be achieved. According to Senge (1990, p 115), leverage is "seeing where actions and changes in structures can lead to significant, enduring improvements". He advises the leverage in dealing with "shifting the burden" is "a combination of strengthening the fundamental response and weakening the symptomatic response" (p. 110)

In Chapter One of this report, it was stated that despite continuing attempts to deal with complaints about inconsistency among instructors, the long-term result is that issues of inconsistency among clinical instructors continue to surface. It was also stated that an in-depth and systematic analysis of this problem has never been undertaken, but instead informal methods of problem solving such as discussion and then choosing what seems to be the most obvious solution, has been used.

Senge's systems archetype, "shifting the burden" may be applied in understanding the problem solving method that has been used in the Dental Hygiene Program for dealing with the issue of inconsistency among instructors. The recommendation of dealing with a case of "shifting the burden" by identifying the leverage point(s), has potential for developing long-term resolution to the issue in this study.

CHAPTER THREE- CONDUCT OF RESEARCH STUDY

Research Methods

The research method used in this project is action research or, more specifically, participatory action research. Action research is a qualitative research method that has been developed and modified by several writers going back as far as 1940 to Kurt Lewin (Seymour-Rolls and Hughes, 1995, URL). Deshler and Ewert (1995, URL) state, "Although there are variations, participatory action research (PAR) is defined as a process of systematic inquiry, in which those who are experiencing a problematic situation in a community or workplace participate collaboratively with trained researchers as subjects, in deciding the focus of knowledge generation, in collecting and analyzing information, and in taking action to manage, improve, or solve their problem situation." Dick (1997, URL) describes action research as, "of a family of research methodologies which pursue action and research outcomes at the same time. It therefore has some components which resemble consultancy or change agency, and some which resemble research."

Action research was chosen as the research method in this study because it encompasses a practical, collaborative and progressive approach to dealing with issues. It is considered by Stringer (1996, p. 15) to be a more "user-friendly" way of carrying out research than many other methods because it focuses on cooperation and human development rather than completion of a task. It is a flexible and adjustable process intended to be responsive to the needs of the participant group rather than the needs of the researcher. Action research is practical because it enables participants to learn how to inquire into and solve their own problems rather than having a researcher do it for them. The researcher becomes a facilitator rather than an expert and as such, guides the participants in the process of describing and clarifying the status quo, interpreting meanings, analyzing the situation and resolving their own issues. Stringer (p. 23) describes the researcher as a "catalyst" whose role is "not to impose but to stimulate people to change". The goal is to help the group to learn how to value and create long-term effective solutions as opposed to using quick fix solutions (Stringer p.19). The highly participatory nature of action research has the capacity to leave a legacy of learning and skill development in working through and resolving issues.

Action research has high catalytic validity. Palys (1997, p. 410) defines catalytic validity as, "the extend to which research empowers people by enhancing 'self understanding' and facilitating social transformation. A work with no catalytic validity merely sits on the shelf and collects dust once it's complete; one with high catalytic validity enhances people's understanding of themselves and the world, providing insights in how both they and the world might be transformed, should they wish to do so".

Action research is cyclical, meaning that the process does not end when the data is gathered analyzed and recommendations are given. It is an ongoing process that includes evaluation of solutions and the results of change and then continues on to begin another cycle of inquiry based on the results of the previous cycle.

Finally, action research was used in this project because it embodies a philosophy of collaborative learning that is consistent with the principles of a learning organization. Peter Senge (1990, p. 13) states that,

> " At the heart of a learning organization is a shift of mind – from seeing ourselves as separate from the world to connected to the world, from seeing problems as caused by someone or something 'out there', to seeing how our own actions create the problems we experience. A learning organization is a place where people are continually discovering how they create their reality. And how they can change it".

Action research provides a process for discovering realities and creating change in the Dental Hygiene Program at Camosun College.

Data Gathering Tools

Questionnaires, workshops and focus groups were used to gather data.

Questionnaires:

The purpose of the questionnaire was to gain a preliminary sense of whether participants thought there was consistency or inconsistency among instructors and whether the participants viewed inconsistency as a problem. Questionnaires were chosen to gather this data because they provide participants the opportunity to express their views individually without interference of the group dynamics associated with peer pressure or "group think". Another advantage of using questionnaires is they afford participants time to think (within some time limits) before responding and the opportunity to add comments to further explain their responses. Questionnaires also provide written documentation that is easily stored and referenced.

Workshops

Workshops were chosen to provide opportunity for discussion and sharing of information between participants groups. These group sessions were intended to allow participants a more active role in the research process than many other data collection processes allow. This participatory involvement is consistent with the principles of action research in that the researcher's aim is to facilitate the problem solving process rather than taking responsibility for problem solving *for* the participants.

Focus Groups

One focus group session was held with graduates. Since this participant group was off campus and spread out in various parts of British Columbia and beyond, the focus group participants were chosen according to location and availability. Nearly all of the approximately ten graduates

in the Victoria area were invited to participate in the focus group. It was considered important to have some face to face contact with this group since their viewpoints were relevant even though they were no longer students at Camosun College.

Discussion Format

The nominal group technique was used to structure the discussion of specific questions during workshops and the focus group. The advantage of using this technique is that it allows each person a chance to collect and record their own thoughts (uninfluenced by "group think") before presenting them to the smaller group. Small groups tend to promote increased participation by group members and a more equal sharing of views by everyone. In the small groups each member is able to present an individual response before it is discussed and summarized for the larger, entire group.

Study Conduct

Project Goal

As identified in Chapter One of this report, the goal of this project was to use action research to investigate issues of consistency/inconsistency among clinical instructors in the Dental Hygiene Program, to assist faculty and students in developing a clearer understanding of the nature and parameters of this issue, and to guide the faculty in learning a process for uncovering the root causes of this problem in order to develop long term solutions. Inquiry into the perspectives of students, faculty and recent graduates was essential in clarifying the nature and scope of the issue. To that end, answers to the following questions were obtained in various ways.

- Is there an appropriate level of consistency among clinical instructors in their expectations of student performance and in application of evaluation criteria when assessing student performance? If not, are there specific areas of concern?
- How do students, graduates and faculty think this existing level of consistency affects student learning and successful completion of the clinical component of the Dental Hygiene Program?
- Is there a need for the situation to change?

Once a clear picture of the nature and scope of the issue of inconsistency among clinical instructor was developed, the issue was analyzed in order to understand why the situation existed. Understanding of the issue and identification of the fundamental cause or causes are critical components leading to development of effective solutions.

The Process:

The action research framework applied in this study is consistent with the basic principles of

"look, think and act" as described by Stringer (1996, p. 16). The "look" phase includes the gathering of data and developing a description or portrait of the current situation. In the "look" phase of this project, data was gathered through questionnaires as well as through discussion in workshops and a focus group. From this data, a portrayal of the situation was compiled into an informal summary report entitled and presented to participants as "What's the Picture". In keeping with the principles action research, the participants were asked to confirm the accuracy of this picture.

The project then moved into the next phase, (the "think" phase) where, in separate and combined workshops, the participants groups were guided in the process of analyzing why the present situation existed and whether or not changes were desirable. Identification of desired outcomes was initiated.

The third phase (or the "act" phase) of action research includes planning for change, then implementing and evaluating the change. Recommendations are usually part of the "act" phase of action research. The recommendations are intended as a guide to assist the faculty in taking actions towards long-term resolution of the main issues associated with inconsistency between clinical instructors in teaching and evaluation of dental hygiene students. Also in keeping with the principles of action research, the faculty group by virtue of their participation in the process, should have an increased knowledge and skill level in the use of action research and problem solving. This capability should enable the faculty to continue on with the action research cycle to the stage where processes and outcomes are evaluated thus forming the catalyst for another cycle of inquiry.

The Participants

The study involved the following three participant groups: dental hygiene clinical instructors, students currently in the second year of the Dental Hygiene Program and the most recent dental hygiene graduating class. In this report, these three groups will be referred to, respectively, as faculty, students and graduates.

Consent and Confidentiality Issues

Consent and confidentiality issues were addressed in introductory sessions. In each of the introductory sessions, both the purposes of the project and the action research process were outlined. Each of the three participants groups was informed that participation in the project was voluntary and that attendance at workshops was considered implied consent. At that time, confidentiality issues were also discussed. In the graduate questionnaires that were mailed, a letter outlining the purpose of the project was included with the questionnaire. Since participation in the survey was voluntary, the completion and return of the instrument was also considered implied consent. Several of the workshop sessions were audio taped to provide back up information to the researcher. At each session permission to audiotape was verbally requested and granted.

The Procedure

The main research activities directly involving the participant groups during the project were the following:

1. introducing the project and soliciting participation
2. having participants complete questionnaires;
3. facilitating the preliminary workshops for students and faculty;
4. leading a focus group with graduates; and
5. holding combined and separate student and faculty workshops

The first step was to introduce the project to each participant group. The short introductory sessions included a brief overview of the proposed project, a description of action research and a discussion period. The purpose of these introductory sessions was to provide information about the project, to outline the potential benefits of the project and of the action research method, to establish "buy in", and to request participation (consent). This introduction was presented to each group in separate sessions lasting about half an hour each.

Preliminary information on instructor inconsistency issues was collected through questionnaires that were group administered during the first student or faculty workshop and the graduate focus group. Questionnaires were mailed to the graduates not participating in the focus group along with a self-addressed and stamped return envelope.

A number of sessions or workshops were conducted separately by the researcher for each group. The purpose of these workshops was to provide information and to involve each group in the process of identifying and sharing the perceptions within their own peer group. These workshops were organized for students within regular class time and for faculty mainly within regularly scheduled faculty meeting times. Subsequent combined workshops were planned to bring the two groups together for the purpose of sharing information, exchanging perceptions and ideas, and encouraging open discussion and collaboration. A brief description of each workshop follows:

First Faculty Workshop (September 30, 1998)

The purpose of this workshop was to identify, clarify and share faculty perceptions regarding issues of consistency (calibration) among clinical instructors in teaching and evaluation of dental hygiene students. The agenda was discussed and terms of confidentiality and consent clarified. Faculty members completed individual questionnaires. The following discussion questions were then posed to the group:

- What does "calibration" of clinical teaching mean to you?
- What does "calibration" of clinical evaluation mean to you?

Since the term "calibration" is commonly used by this faculty in discussions about consistency among instructors in clinical practice, these questions were considered by the researcher to be an important starting point. The purpose was to illustrate whether or not there was consensus in how faculty members understood the term "calibration". The preliminary questionnaire results were also shown to faculty at the end of the workshop as a point of interest regarding congruence of responses.

During this preliminary workshop, five other questions were presented to faculty for discussion. The group chose to answer the following two questions:

- Are faculty consistent enough in the way they coach/give feedback and in how they evaluate students in the clinic?
- Is consistency among clinical instructors more important in some aspects of clinical teaching than in others? If so, what areas and why?

Time did not allow for discussion of these questions during this workshop, therefore the group agreed to answer the questions on an individual basis and send their responses to the researcher by a certain date. The researcher then compiled the responses and provided the faculty with the results.

First Student Workshop (October 9, 1998)

The first student workshop generally followed the same format as the first faculty workshop in terms of purpose, consent and confidentiality issues and completion of individual questionnaires. The main difference was that the focus of this workshop was on identifying and clarifying *student* perceptions. A number of discussion questions were also posed to the students. The following question was chosen for discussion during the workshop:

- Are there specific areas or situations where clinical faculty members need to increase their level of calibration (with each other) in *clinical teaching*? If so, what areas and why?

There was not enough time left in this workshop to address any of the other questions; therefore, it was requested that students answer the questions individually and send their responses to the researcher. The additional questions were as follows:

- Are there specific areas or situations where clinical faculty members need to increase their level of consistency (with each other) in *clinical evaluation?* If so, what areas and why?
- Are there situations when it is okay for instructors to differ in *clinical teaching*? If so, what would those be and why?
- Are there situations when it is okay for instructors to differ in *clinical evaluation*? If so what would those be and why? Or, are there situations when it's okay for instructors *to differ in approach or use of evaluation criteria*? If so, what would those be and why?

Focus group session (November 2, 1998)

Four graduates attended a focus group session in early November. An overview of the project including the role of action research and confidentiality issues was presented before having the participants complete the questionnaire. The group was then asked to address and discuss the following question:

- In what aspects of clinical teaching is it important (or realistic) to have consistency among clinical instructors? Why?

In the remaining time, the following question was briefly discussed:

- Are there any learning advantages to having difference among instructors in their clinical teaching? If so what are the advantages?

Second Student Workshop (November 13, 1998)

Prior to the second student workshop, students were given a copy of the student and faculty responses collected to this point. The workshop opened with a review of the action research process and what stage we were at. An overview and comparison of responses from student and faculty questionnaires were presented along with the researcher's reactions. Discussion of the students' reaction to the data ensued. The informal document " What's the Picture?" was presented for discussion. This document represented the researcher's descriptive summary of the student and faculty viewpoints on the issue of consistency among clinical instructors in clinical teaching and evaluation of dental hygiene students. Students were asked to comment on the accuracy of the summary and to further discuss the "the picture". The section of the document outlining the advantages and disadvantages of both consistency and differences among clinical

instructors was given particular attention. Students were in general agreement with the concepts outlined.

Second Faculty Workshop (November 18, 1998)

In this one-hour session, an overview comparison of responses between students and faculty was presented and discussed to solicit the reactions and observations of faculty. The following statement, depicted by the researcher as one of the major dilemmas surrounding the issue under study, was presented for discussion.

> *A need for balance?*
> A high consistency among instructors in clinical teaching ("black and white" approach) makes learning easier and less confusing.
> Versus
> There is a need for students to develop skills in integrating new (sometimes conflicting) information, critical thinking and problem solving by exposing them to different approaches and points of view (as exists in the world of dental hygiene practice).

A list outlining the pros and cons of having consistency versus differences among clinical instructors (the same list presented to and validated by the students) was presented to faculty for discussion and corroboration.

Collaborative Student-Faculty Workshop (November 25, 1998)

The purpose of this workshop was to bring the two main participant groups together to begin collaboratively analyzing the situation and to identify desired changes. The informal document "What's the Picture" was again introduced to give both groups a chance to hear each other's reaction to it. The following questions were posed and discussion followed:

- Is this an accurate picture?
- Is this a clear picture?
- Are the common philosophies correct?

The participants were next asked to address the following questions in small (mixed) groups. Group responses were subsequently shared with all workshop participants.

What is the desired outcome and how important is it?

Key questions to consider in regards to consistency (calibration) among clinical instructors are:

- Do we want to make changes to this picture OR is the present picture fine?
- What is the picture you would like to see? (What kind of situation, environment, results would you like to see us have as a group of people who work together everyday and who have common overall goals?)
- What is the desired outcome (endpoint) in regards to consistency among clinical instructors?
- How important are these changes or the desired outcome (i.e. how badly do you want to make changes)?

A list of desires outcomes was generated. The next workshop, tentatively scheduled for the first week of classes in January, was discussed to determine a suitable time for both faculty and students.

A Change of Plans

Action research is not intended as a researcher driven, linear process. Stringer states (1996, p. 17),

> " As experience will show, action research is not a neat, orderly activity that allows participants to proceed step by step to the end of a process. People will find themselves working backward through the routines, repeating processes, revising procedures, rethinking interpretations, leap frogging steps or stages, and sometimes making radical changes in direction."

Important tenets of action research are flexibility and responsiveness to the needs of the participants. Stringer (1996, p. 18) further states. "Its intent is not only to 'get the job' done but to ensure the well being of everyone involved ". These very concepts were applied when the original research plans were seen to be in conflict with the participants' needs. To that end, the plan to hold a second collaborative student-faculty workshop was revised.

The second collaborative student-faculty workshop, originally intended for the first week of classes in January, did not occur. In December, discussion with faculty members about confirming a January date for a second workshop revealed that there were varied levels of understanding and agreement about the purpose of this project. A major concern was that there were clinical issues that needed prompt resolution that were either not being addressed in project workshops or not being addressed in a timely fashion. There seemed to a perception among participants, that the project workshops were intended to address all clinical issues. Further discussion clarified, for faculty, that the focus of the project was mainly on issues associated with consistency among instructors. The project workshops were not intended to preclude any other discussion sessions that instructors supervising the clinic would normally have with students. To address this issue, it was agreed that an open forum for students and clinical faculty, for the purpose of addressing *any* clinical issues, would be held in the first week of classes instead of a "project workshop". The forum would be lead by the instructors responsible for clinic. The next project steps were to be determined after this session.

In January the researcher sent an e-mail message to all faculty describing the status of the project. The e-mail message indicated recognition of the need to "back up " the process in order to accommodate faculty discussion on any issues of concern about the project. The faculty was asked to consider the following questions for discussion at the next regularly scheduled faculty meeting.

- What value (if any) do you see for our program in this particular project?
- What is your understanding about the chosen research method?
- Does the action research process make sense to you? Do you need more information?
- What are your feelings about the methods and progress so far? Does the method fit the issue?
- What is *your* expected or desired outcome of this project?

The group agreed to participate in another faculty "project" session to be held in February during a regular staff meeting time.

Third Faculty Workshop (February 10, 1999)

The workshop opened with a review of "where we have been" in reference to the action research process. The group reconfirmed the document "What's the Picture" as accurate and then agreed to continue with the "think" phase of action research which involves interpreting and explaining why things are the way they are. A list of the main issues identified from the data gathering phase was presented. Faculty chose to examine just one issue, that of gingival assessment, and to continue working with this one issue until reaching the solution stage. The consensus was that exploring inconsistency issues associated with gingival assessment would overlap into many of the other issues that were listed. The group was led through a brainstorming session that resulted in the generation of a long list of preliminary causes, (reasons why there was a perception that there is inconsistency among instructors when evaluating gingival assessments completed by students). The ideas were then grouped into the following five categories: communication, the nature of clinical evaluation, documentation, students' stage in the learning process, and differences between instructors. It was acknowledged that some ideas fit into more than one category. Next the group discussed the components of a recent case where a student cited differences between instructors as the cause for getting a low grade in gingival assessment. At the end of the workshop it was agreed that the group would continue the "think phase" and work toward identifying root causes. The proceedings of the workshop and recommendations for the next task were summarized and copies distributed to faculty members. It was recommended that the "5 whys" technique be used in the next workshop to get down to the root causes of this issue.

In early February, the students were asked as a group whether or not they wanted to be included in continuing the process of resolving the issue of inconsistency among instructors, and how they might be involved. The general response was that they did not see themselves as having a significant further role in workshop sessions. The consensus was that since students had already told us what they saw as problems, there was not much more they could do and that it was now up to the instructors to address the issues. Students expressed interest in receiving a summary of the February 10th faculty workshop and in receiving updates on the process.

In terms of this project report, the conduct of the research study ends here. Recommendations for continuing with this process will be made as part of the project report. The process of identifying root causes (the "think" phase of action research) continues, to be followed by creation of solutions, implementation and evaluation. The researcher continues to facilitate this process as faculty member/internal consultant to the Dental Hygiene Program.

CHAPTER FOUR- RESEARCH STUDY RESULTS

Study Findings

The following is a descriptive summary of responses from faculty, student and graduate questionnaires. Sample questionnaires and the questionnaire results in terms of numbers of responses are included in Appendix B.

Relevance of responses from each participant group.

Faculty comments reflect the view of an instructor group that has consistently worked together for five years or more. From observations in working with this group for over five years as well as during this project, the researcher would describe the faculty as a cooperative and highly conscientious group of instructors. The faculty members have a considerable level of familiarity with each other. They are also well acquainted with the clinical program and its evaluation system which are both are under constant review and adjustment.

Student comments reflect the views of a learner group that is currently just past the halfway mark in completing the two-year program. Their comments can be seen as contemporary and as a reflection of their stage of learning and skill development in the program.

Graduate responses reflect the retrospective views of a group that has recently completed two full years as students in the dental hygiene program. As such, graduates have a greater overall view of experiences in the clinical program compared to the student group. Furthermore, graduates are able to identify the relevance of their student experiences to the workplace; for example, most graduates said that frustrations experienced while a student have little relevance to how they currently practice and continue learning.

Clinical Teaching and Clinical Evaluation

The distinction made between clinical teaching/coaching and clinical evaluation, for the purpose of this study was the following: clinical evaluation was considered to mean summative clinical evaluation (evaluation in which grades are assigned toward meeting a competency requirement) and formative evaluation (non-graded feedback for the purpose of learning) was considered part of the process of clinical teaching/coaching.

Presentation of the Study Findings

In the following pages, the findings are presented in table form. Table 1 summarizes the findings from the faculty questionnaire. Table 2 is a synopsis and comparison of the findings from student and graduate questionnaires. Table 3 compares faculty responses with student and graduate responses. Table 4 includes a summary of findings from questions that were not on the questionnaires but responded to by the various groups in the workshops or outside of organized sessions. Finally, Table 5 summarizes the “desired outcomes” identified collaboratively by all

three groups in the combined student-faculty workshop.

Findings from Faculty Questionnaires

The questionnaire was completed by the seven clinical instructors who are employed on a continuing basis and one part-time instructor. The questions and summary of findings are outlined below in Table 1.

Table 1: Responses to Faculty Questionnaire

Survey Questions	Findings
1. Overall, how would you rate the *level of consistency* among clinical instructors in *clinical teaching*? 2. Overall, how would you rate the *adequacy* of calibration (consistency) among clinical instructors in clinical teaching?	• little difference in responses to either question • half rated the *level of consistency* among instructors in clinical teaching as "*moderate*" and further rated that level generally as "*adequate*". • the other half rated the *level of consistency* as "*low" to "moderate"* and indicated that this level was "*inadequate*".
1. Overall, how would you rate the level of consistency among clinical instructors in *clinical evaluation*? 4. Overall, how would you rate the *adequacy* of calibration (consistency) among clinical instructors in clinical evaluation?	• responses ranged from "low" to "high" • half of the faculty rated the level of consistency below "moderate" and indicated that this level was "inadequate" • the other half rated the level of consistency as "moderate" to "high" and generally rated that level as adequate or higher • almost all rated the first two questions about consistency in clinical teaching in exactly the same way as they answered these questions (3 and 4) about evaluation • this may imply that instructors do not see consistency among themselves or adequacy of consistency different in clinical teaching than in clinical evaluation
5. Overall what effect do you feel calibration of clinical instruction has on student learning while they are taking the Dental Hygiene program?"	• responses ranged from "detracts learning" to "greatly enhances learning" • most (2/3) faculty felt that calibration of clinical instruction enhanced learning. • in further comments, faculty explained that it reduced anxiety and frustration in learning.

	• of those who thought that consistency enhanced learning, most also considered that differing instructor opinions also provided good lessons in critical thinking. • one faculty member said that a high level of "calibration" detracted from learning, because "integrating several viewpoints was more important than being able to follow strict guidelines" and included the following quotation by Aldous Huxley, "consistency is the hobglobin of simple minds".
6. How do you think a low level of consistency among clinical teaching and evaluation affects students in terms of number of students?"	The intent of this question was to find out whether the effect on students is isolated or affects all students. • responses ranged from "just a few very vocal students" to " all students" • the overall response was that many or all students were affected when consistency among instructors in clinical teaching was at a low level.
7. What kind of effect do you think a low level of calibration among clinical faculty has on the decision making and clinical performance skills of students once they are graduates?	• responses ranged from "a major, negative effect" to a "minor effect" • about one third chose "moderate" and did not rate whether that effect was positive or negative • subsequent comments indicate the effect was seen as neutral • there were no common threads among those that responded, "negative effect".

Comparison of Student and Graduate Questionnaires

Twenty out of twenty one students completed the student questionnaire and ten out of twenty one graduates completed the graduate questionnaire. Table 2, which begins on the following page, outlines and compares findings from student and graduate questionnaires. Students and graduate questionnaires were generally the same, except graduates were asked two additional questions.

Table 2: Summary and Comparison of Responses from Student and Graduate Questionnaires

Survey Questions	Findings
1. Overall, how would you rate the *level of consistency* among clinical instructors in *clinical teaching*?	• responses ranged from "low to high" • the majority of students rated the level of consistency among instructors as moderate or slightly above • graduates responses were very similar.
2. Overall, what level of consistency among clinical instructors *should* there be in *clinical teaching*? Please explain why.	• student responses ranged from "very high" to "moderate" • over half said that it should be at a high level • other responses were generally equally divided between "very high" and "moderate" • graduate responses were again, very similar
Comparison of responses between questions 1 and 2	• clearly indicates that a high majority (70-80%) of students and graduates feel the level of consistency among instructors in clinical teaching is moderate and should be high • a smaller group (20-30%) of graduates and student were satisfied with the current level, which was rated at either moderate or high.
Summary of comments under, "Please explain why".	A number of themes emerged as follows: • consistency in clinical teaching should be at a high level in order to avoid confusion, and decrease ambiguity and frustration when learning clinical concepts and skills. • high consistency (teaching only one specific way of doing something) is especially important when students are in first year and learning basic skills • introducing different methods, concepts and ideas is more appropriate in second year students. • several students mentioned the need for a high level of instructor consistency in expectations for documenting the assessment phase of client care. • graduates were more inclined than students to point out that there were learning benefits in having clinical instructors introduce different approaches and methods once the basics were mastered

3. Overall, how would you rate the *level of consistency* among clinical instructors in *clinical evaluation*?	• student responses ranged from "very low" to "high" whereas graduates responses ranged between "low" and "moderate" • most students rated the level as "moderate" or "high" whereas most graduates answered moderate with a few rating it below "moderate"
4. What level of consistency among clinical instructors *should* there be *in clinical evaluation?* Please explain why.	• student response range: "very high" to "low" • graduate response range: " low" to "moderate" • most students answered "high" or "very high" • graduate responses were very similar. • proportionally, more students than graduates thought that the level should be "very high" possibly indicating that students have slightly higher expectations than graduates for consistency among instructors in evaluation.
Comparison of responses between questions 3 and 4	• almost half of the students gave the same rating in question 3 (what is the level?) as in question 4 (where should it be?), indicating that they were satisfied with the existing level (rated at "high" to "very high") of consistency among instructors in clinical evaluation. • none of the graduates entered the same response in both questions 3 and 4 indicating that none thought that the level of consistency in clinical evaluation was at the level that it should be.
Comments regarding "Please explain why".	Subsequent comments indicated that the main reasons students felt the consistency should be high or very high in clinical evaluation was to achieve fairness (a uniform standard for passing), to promote clear expectations and to increase student awareness of skill level. Graduates also cited fairness and clear expectations and were more likely to mention that a very high consistency may be "unattainable" given the human element.
4. Overall, what is the effect on your learning in the clinical setting when there is a high level of consistency among clinical instructors in how they *teach/coach*?	• almost all (in both) groups indicated it had either a "positive" or "very positive effect " on their learning • students chose "very positive effect" more often than graduates did. Only one (a student) said "no effect"

Comments under " Please explain why":	Students and graduates explained that: • consistency of information reinforced learning and decreased confusion and frustration, thereby making it easier to learn, particularly when learning something new, • high consistency can increase student confidence in what they are learning On the other hand several participants also expressed the view that many concepts and methods in dental hygiene are not straight forward and simple and therefore presenting information in that way could impede critical thinking. For example, one student said, "it is positive to have each instructor teaching the same basics. It would be nice and less frustrating for us if everything was black and white (i.e. this is clearly a rolled margin not festooned) however I feel that we learn better by having to think critically, i.e. develop our own opinions by taking all the information and putting it together". A graduate said, "if there is too much consistency the challenge is lower and less learning takes place"
6. Have you ever felt personally disadvantaged in your learning by an incident (or incidents) of inconsistency among instructors in *clinical teaching/coaching*? If yes, can you give an example?	• student responses ranged from "many times" to "never" whereas graduate responses were only divided between "a few times" and "almost never" • overall, half of the students indicated that this had occurred "a few times". Slightly more than one third said "almost never" or "never" and a few said "many times" • most graduates responded that they had felt disadvantaged a "few times" and the rest responded with "almost never ". • most examples did not cite problems about receiving different information from different instructors • most described differences in instructor approach and personalities in clinical teaching as well as differences in how much time instructors spend with different students • other comments were about differing instructor opinions on client assessment findings, in whether or not a particular aspect of client assessment should be documented, and in how client assessment findings should be described on client charts • several students voiced frustration with a specific area of client assessment area called gingival assessment (describing the appearance of gum tissue). For example one student said, "I just feel frustrated. for example in

	gingival assessment – what is rolled, rounded or festooned? What is dark pink and what is red?" • many graduates said that they could not remember specific incidents but remember feeling frustrated. • several graduates' comments suggested that often these incidents were due to miscommunication between instructors and students.
Graduate question: 6(b) Does this affect your clinical practice or your learning now that you are a graduate dental hygienist? (i.e. now that you are practicing, do you still feel that you were disadvantaged?)	• most graduates answered no.
7. Have you ever felt personally disadvantaged in your learning by an incident (or incidents) of inconsistency among instructors in *clinical evaluation*?	• student and graduate responses were similar in that most responded with "few times" and "almost never" • in both groups only one student said "many times". • a quarter of the student group answered "never", whereas no graduates answered "never".
If yes can you give an example?	• overall, there were few comments • several of the student comments did not pertain to clinical evaluation but to how much time instructors spend with each student • only one comment alluded to differences among instructors in how they might rate student performance.
Graduate question: 7(b) Does this affect your clinical practice or your learning now that you are a graduate dental hygienist? (i.e. now that you are practicing, do you still feel that you were disadvantaged?)	• eight out of 10 graduates replied "no"
8. Do you feel that there may be learning advantages by having differences among clinical instructors in how they *teach/coach* in the clinical setting? Please explain your answer	• a large majority (70-80%) in both groups replied "yes" and the rest answered "maybe" • students wrote that different approaches by instructors facilitated connection with different learning styles of students • students also indicated that differences among instructors provided them with options for choosing what worked for them

	• several students and graduates noted that these differences were more beneficial in their second year after they had a good grasp of the basics • Graduates were more emphatic about the value of integrating instructor differences (e.g. methods, opinions) into their learning and also said that as students, instructor differences helped to formulate a way that worked best for them as individual students • several felt this reflected the way learning happens in the workplace
9. Do you feel that there may be learning advantages by having differences among clinical instructors in how they *evaluate* in the clinical setting? If yes, please explain.	• graduates responded differently than students; half of the graduates answered "maybe" whereas the majority of students responded "no" • only a third of students answered "maybe", whereas about half the graduates chose "maybe". Student and graduate comments generally supported the idea that instructor consistency is most important in clinical evaluation because evaluation is the determining factor for graduation. Fairness and quality control were also cited as reasons for higher consistency in clinical evaluation.

Comparison of Faculty Responses with Student and Graduate Responses

Table 3 below, compares the views of faculty with that of students and graduates on similar questions.

Table 3: Comparison of Faculty Responses with Student and Graduate Responses

Questions	Comparison Analysis
1. Overall, how would you rate the level of consistency among clinical instructors in *clinical teaching*?	• response mode for all three groups was "moderate" • students gave the overall highest rating to the level of consistency among instructors in clinical teaching and faculty gave themselves the overall lowest rating; it appears that students feel there is a higher consistency among instructors than do the instructors
2. Overall, what level of consistency among clinical instructors *should* there be in *clinical teaching*? Please	• generally, most participants thought the level of consistency should be higher than what it was rated at

explain why. Question 2 was worded as follows for faculty: Overall, how would you rate the *adequacy* of calibration (consistency) among clinical instructors in clinical teaching?	• nearly half the faculty group and about one third of the students thought the existing level was adequate.
3. Overall, how would you rate the level of consistency among clinical instructors in *clinical evaluation*? 4. What level of consistency among clinical instructors *should* there be in *clinical evaluation*? The question was worded as follows for faculty: Overall, how would you rate the adequacy of calibration (consistency) among clinical instructors *in clinical evaluation?*	• most students chose "moderate" to "high" and most graduates chose "moderate" • again, faculty generally rated themselves slightly lower than students and graduates did. • whereas nearly half of the students thought the level of consistency in clinical evaluation was adequate (rated in question 3 as "high" to "very high") and the other half thought it should be higher • most graduates rated the level of consistency in evaluation as moderate and thought it should be high • faculty responses were divided between "adequate" and "inadequate" • there does not seem to be great discrepancy between the views of the three groups.
5 Overall, what is the effect on your learning in the clinical setting when there is a high level of consistency among clinical instructors in how they teach/coach?	In general, students, graduates and faculty were in agreement that consistency has a positive effect/ enhances learning.
9. Do you feel that there may be learning advantages by having differences among clinical instructors in how they *teach/coach* in the clinical setting? Please explain your answer	Students and graduates answered this question on the questionnaire whereas faculty responded to this question later by e-mail. • the participants in all three groups answered yes and cited similar reasons.

Summary of Findings from Other Questions

In Table 4 presents the findings from responses to questions other than those asked on the introductory questionnaires. These questions were discussed during workshops, focus groups or answered by e-mail after workshops.

Table 4: Summary of Findings from Other Questions

Questions	Summary of Findings
Question 3: Are there areas or situations where clinical faculty need to increase their level of calibration (with each other) in *clinical teaching*? If so what areas and why?	Students indicated the following: • evaluation of the assessment phase of client care (the specific area of gingival assessment was mentioned more often than other areas) • higher consistency is more important when learning new skills • higher consistency is needed in expectations for documentation of client care (what to record and what not to, charting, chart audits) • instructors should divide their time more equally among students • clearer and more consistent expectations for the treatment planning phase of client care (e.g. what is a considered an oral health problem and what is not) Faculty answered: Beginners need consistent messages and not too many options to confuse them; the dilemma is weighing the benefit of trying some different options versus being too prescriptive which can prevent students from developing problem solving skills • there should be more consistency among instructors in the following areas: • type and amount of feedback given on students' daily evaluations sheets • instrumentation principles • charting/documentation protocols/protocols as outlined in the clinic manual • gingival assessment
Graduates participating in the focus group were asked this question: In what aspects of *clinical teaching* is it important (or realistic) to have consistency among clinical instructors? Why?	Graduates responded with the following: • when presenting new skills/protocol instruments/instrumentation techniques, charting procedures, areas where objectivity is a realistic expectation (e.g. the areas where protocols are "black and white) • client protocol for treatment planning, organization of

	charts (what should be included in the chart), the client completion process • there should be more detail in the clinic manual on the above protocols rationale for procedures should be consistent
Question 4: Are there areas or situations where clinical faculty need to increase their level of consistency (with each other) in *clinical evaluation*? If so, what areas and why?	Students responded that : • during competency evaluations when in a "pass or fail" situation, it is important to have each student evaluated by exactly the same standards so that everyone has a fair chance • others said, "clinical evaluation is done on an individual basis so I think the instructors should have some flexibility in evaluating each student and at the same token have an increased level of consistency" Faculty said that consistency in clinical evaluation should increase in the following areas: • clinic protocol/guidelines • competency testing (following criteria on competency forms) • a greater understanding of and adherence to common standards is needed when evaluating all levels of performance but particularly at exit level performance (called level 3) in second year students • client assessment procedures
Question 5: Are there situations when it is okay for instructors to differ in *clinical teaching*? If so, what would those be and why?	The ideas expressed in these two quotes are quite representative of thoughts expressed by the other eight students who responded: "I think it is OK for instructors to differ in clinical teaching. I don't think it is a black and white teaching issue i.e. best place to fulcrum for various areas of the mouth, which instrument should be used in which area." "Other than in any initial introduction to a new skill, I think differences in teaching methods are fine. They allow the student to experiment to find out what works best for them. (Once the basic principles are understood, why not figure out your best/most efficient way to accomplish them?)"
Question 6: Are there situations when it is okay for instructors to	Students said that this depended on the range of differentiation of evaluation and how different the

differ in *clinical evaluation*? If so, what would those be and why? Or Are there situations when it is okay for instructors to differ in approach *or use of evaluation criteria?* If so, what would those be and why?	approaches were. If it is too great then each student may be tested differently and therefore unfairly compared to others.

Summary of Desired Outcomes

In the collaborative student-faculty workshop, the participants were asked to collaboratively consider whether the status quo (as presented to them in "What's the Picture") was worth changing and furthermore, what were the outcomes that were desirable. Table 5 below, represents a summary of the responses.

Table 5: Desired Outcomes Identified at Combined Student and Faculty Workshop

- Continue to rectify problems through e-mail and class discussion (some problems in first year seem to be rectified)
- Acknowledge/awareness that personality and emotional tone play a "big" role in student learning
- Promote an environment where the student feels the teacher is approachable and willing to admit they don't know all the answers
- Students and instructors have a willingness to communicate
- An opportunity is created for some unstructured clinic time that instructors may be present to help student with weaknesses
- When there is a discrepancy between instructor and student there is dialogue so instructors can understand the student's rationale and vice versa
- Agreement on the endpoint of instrumentation
- Examples of how to fill out the problem list, progress notes, reassessment and describing gingiva are available in the clinic manual
- There is equality in time spent with each student
- There is a mechanism or method to get feedback on skill processes (instructors mostly check product unless it is a coaching session)
- Instructors not teaching DHYG 260 are aware of when subjects areas are taught (e.g. margination is not taught until the end of November)
- Problem list and Treatment plan: There is clarity on expectations for protocols and documentation (e.g. details vs. general? Are expected outcomes listed for every problem or if they are repeated is it Ok to have listed once?)
- Fluoride: There is clarity or consistency on what techniques and which products to use

Overall Summary of Research Findings

The following is an overall summary of the findings from questionnaires, workshop discussions, e-mail messages and focus groups. Conclusions drawn from these findings are cited in the following section.

1. The majority of individuals in all three participant groups agree that consistency among instructors is most critical in summative clinical evaluation and that there was a need for improvement in this area.
2. The majority of participants in all three participant groups agree that an increased high level of consistency among instructors (instructors all giving the same information and directives) in clinical teaching creates a positive effect on learning. A single approach simplifies learning and instructor expectations, decreases confusion and lowers frustration.
3. After the concept of "authentic evaluation" was introduced and discussed during workshops, participants acknowledged that authentic evaluation was widely used in clinical evaluation of dental hygiene students and was relevant to addressing the issue of perceived inconsistency among clinical instructors. There was agreement that use of authentic evaluation presents challenges to calibration or consistency among instructors because it involves clinical judgement and because the context of evaluation differs with the each client with whom the evaluation occurs.
4. All three groups agreed that differences among instructors in clinical teaching also had a positive effect on learning. Differences among instructors was considered to potentially provide students with different viewpoints, different options for accomplishing tasks, the opportunity to select and integrate new ideas, and promote critical thinking.
5. All groups indicated that differences should not be introduced too soon in the learning process when students are learning new concepts/skills. Introduction of different points of view and options for accomplishing different tasks is more appropriate when once students have mastered the basics.
6. Following are the specific areas where the need for an increased level of consistency was identified:
   - Evaluation of the assessment phase of client care, especially gingival assessment (identified by all three participant groups)
   - Expectations and protocol for documentation in client charts, for example charting protocol, chart audits, what to record and what not to record. (indicated by all three groups)
   - Time management by instructors so that equal time is spent with each student in clinic sessions (identified by students)
   - Clarification of expectations for the treatment planning phase of client care, for example, what is considered a problem and what is not (identified by students)
   - Instrumentation principles (identified by faculty)
   - More consistency among instructors with type and amount of feedback given on the students daily evaluation sheets (identified by faculty)
   - Agreement on endpoint of instrumentation (identified in the combined student/faculty workshop as a "desired outcome")
   - Fluoride: clarity and consistency on what techniques and which products to use (identified in the combined student-faculty workshop as a "desired outcome")
7. The following were areas identified as "Desired Outcomes" in the combined student and

faculty workshop and are listed here separately, as they did not fall under any of the other categories previously listed.

- Students and instructors should have a willingness to communicate
- An opportunity should be created for unstructured clinic time that instructors may be present to help student with weaknesses

8. In a brainstorming session with faculty, five categories emerged regarding reasons why instructors were seen as inconsistent with one another in the specific area of "gingival assessment". This specific area of assessment was chosen because it was seen to exemplify many of the other issues identified in this study. The five themes were:
   - the nature of clinical evaluation
   - differences among instructors
   - communication
   - documentation protocols and expectations
   - stage of the student in the learning process

Study Conclusions

The Magnitude of the Problem

Overall, the range of variance in responses on questionnaires was small between groups. There were more commonalties than differences in perceptions among students, faculty and graduates regarding the issue of consistency among instructors in clinical teaching and evaluation. For example, all three groups thought there was inconsistency among instructors in clinical teaching and evaluation that resulted in confusion and frustration. At the same time, however, all three groups acknowledged that differences among instructors provided some learning advantages. There was also agreement that students and faculty have common overall goals, that is, for students to learn to become excellent dental hygienists skilled in critical thinking, problem solving and integrating new information.

Although faculty members from time to time have described calibration as a "hot issue", there was very little evidence in this research to indicate that this was a very contentious matter. There did not appear to be major or divergent issues or highly emotional responses. The student-faculty relationship in this program is generally considered congenial and respectful. The atmosphere of the workshops, focus group and other discussions was generally calm, cooperative and sincere.

It is concluded that the issue of inconsistency among instructors is not a grave or highly contentious issue in terms of program operation and student success. However, the level of consistency among instructors is a shared concern that should not be ignored but rather addressed as part of the continual efforts to improve the Dental Hygiene Program and its responsiveness to student. Considering that this is a recurring and long-standing issue, a different and concerted approach is required to achieve satisfactory and long-term resolution.

Perspectives, Roles and Responsibilities of Participant Groups

Among the three groups of research participants, faculty generally gave themselves the lowest ratings when assessing the level of consistency among instructors. Many faculty members were surprised to find that students and graduates had given faculty a higher rating on consistency in clinical teaching and evaluation then faculty had given themselves. *From questionnaire responses and group discussions, it is clear that faculty see themselves as having the biggest responsibility in both creating the perceived problems and in resolving them.* It is reasonable to assume that the faculty group has the greatest vested interest in understanding and resolving the issue under study because they are faced with it year after year whereas, student and graduates experience this as an issue mainly while they are in the program.

The tendency for the faculty to assume the major responsibility for this issue can be related to Oshry's (1996, p.61) systems view of "Burdened Tops" in "The Dance of the Blind Reflex". When the system (students and/or faculty) is challenged, such as with the emergence of issues of perceived inconsistency, the faculty tends to instinctively assume the ownership of the problem. In consideration of their position of authority as instructors, there is a tendency for instructors to take on the bulk of responsibility for fixing the problem. In doing so, they deprive the students of potential responsibility, accountability, power and partnership.

As stated earlier, student comments reflect their current experiences and stage of learning in the program. Although students were quite cooperative in the data-gathering phase of the project, their interest in continuing to analyze and actively resolve the issue through the process of action research was limited. After the data gathering phase of this study, students were asked informally if and how they wanted to be involved in continuing the action research project to the solution stage. The class indicated that they wanted to be kept informed but not directly involved. The sentiment verbalized by a number of students in a generally non-confrontational way was that they had already communicated their thoughts on the issue and they couldn't see what more they could do. In their view, it was now up to the instructors to devise a solution. One likely reason for this student reaction is that current students are highly preoccupied with other priorities such as meeting the high workload demands of the program. Another reason may be that students do not see themselves as having a part in causing the problem and therefore do not see themselves as part of the solution. Hence these comments may be interpreted as a situation where students are disclaiming ownership of the problem and are assuming that because instructors create the problem and have the responsibility for running the program, they should be held accountable for solving the problem. *This student position, like the faculty position described in the previous paragraphs, has some relation to Oshry's (1996, p. 61) description of "oppressed bottoms" in the "Top/Bottoms Dance of the Blind Reflex". The authority and responsibility for fixing the problem is handed over to the instructors. In doing so, students relinquish power, accountability, responsibility and the potential for partnership.*

Oshry, (1996) contends that the ideal relationship for groups within a system is a partnership with shared responsibility. It is noteworthy that the relationship between students and faculty in the Dental Hygiene Program is generally considered quite cooperative. On a conscious level, both groups would agree with Oshry's point about a mutually beneficial partnership. In fact during the combined workshop, students and faculty did agree that student success is a shared responsibility. However, an important consideration in Oshry's theory of the "Dance of the

Blind Reflex" is that neither side *consciously* chooses to take away or give away responsibility or power. As Oshry (1996, p. 63) says, " these shifts happen without either awareness or choice by either Top or Bottom".

The solutions are awareness and choice. Once aware of the position to which each side has gravitated and once aware of how this "Dance" limits the potential for a mutually beneficial partnership, the groups can choose to maintain the status quo or to operate in a different way. Having both groups fully recognize that each has an important role and responsibility for creating and solving problems is a major part of the long-term resolution of this issue.

Since graduate responses reflect the retrospective views of former students who have recently completed the program and have become licensed practitioners, their views are important in putting these issues into perspective in terms of relevance. Most graduates said that frustrations experienced while they were students have little relevance to how they currently practice and continue learning. Graduates were also more inclined to see the larger view and were more likely to understand the challenges of the evaluation system as well as the benefits of not portraying the process of dental hygiene care in terms of "black and white". *These graduate responses should not imply that issues of inconsistency among instructors are irrelevant but rather from a larger view that long-term student success is not substantially impeded by variation among instructors teaching and evaluation and may even be enhanced by it.*

The Issue Itself - Inconsistency among Clinical Instructors

During a brainstorming session, faculty generated a list of reasons why clinical instructors were possibly seen as inconsistent with one another when teaching or evaluating a specific area of the client assessment phase of dental hygiene care. The list of reasons for perceived inconsistency was grouped into the following five categories:

- the nature of clinical evaluation,
- differences among instructors.
- stage of the student in the learning process
- communication,
- documentation protocols and expectations

The literature review in this report supports most of the categories cited above as main reasons for the broader issue of inconsistency among clinical evaluators, particularly the first three on the list above (nature of clinical evaluation, differences among instructors and stage of the student in the learning process). Communication was not a specific area of focus area in the literature review; however, few would question the significance of effective communication in conflict resolution. Communication is a definite theme in some of the study recommendations. The last category listed above, "documentation protocols and expectations" generally represents issues that are specific to clinical policies of the Dental Hygiene Program at Camosun College although many other dental hygiene programs may use similar protocols. These issues are generally addressed within the discussion of the broader topics in this section of the report.

The Nature of Clinical Evaluation

It was found that the majority of participants in all three groups thought there should be a higher level of consistency among instructors in clinical teaching or coaching and in clinical evaluation. There was also agreement that it was most critical to have consistency among instructors in summative clinical evaluation. The findings of the study and the history of how this problem has been addressed points to an assumption that the issue of inconsistency among instructors should be viewed as a straightforward problem with a clear solution. The general assumption has been that solving the problem was mainly a matter of instructors working harder at calibrating with each other.

It was revealed in the literature review that there are several reasons why variations may exist among instructors when evaluating the clinical performance of students; the main reasons for variation in evaluation included rater variation, client variation, and student performance variation. All three of these reasons apply in explaining the notion that there are inconsistencies among clinical instructors in the Dental Hygiene Program at Camosun College. Each reason is further discussed below.

Rater Variation

Rater or evaluator variation refers to differences among instructors in how they evaluate. Most students and faculty saw this as the crux of the problem. In other words it was assumed that the major reason why inconsistencies were seen to exist among instructors was because the instructors themselves were truly inconsistent. The literature supports the notion that evaluator variation does, in fact, contribute to inconsistencies in evaluation. The question of how much of the inconsistency in evaluation is due to rater variation in this Dental Hygiene Program is unclear. What is clear, however, is that rater variation is not the sole reason and is likely not the main reason for variation in evaluation when the relevance of the other reasons are considered. Furthermore, Chambers (1987, p.723), who may be considered an authority on issues in dental education, claims that extensive efforts in calibration have generally produced limited results and hence is of questionable value in terms of hours spent and results achieved. He does say, however, that a reasonable level of calibration among instructors is needed for reasons of fairness and educational quality assurance. *Hence this research concludes that calibration should not be totally abandoned but it should be put into proper perspective as a method of resolving the issue of inconsistency among instructors. In other words, trying to resolve the issue by focusing solely on calibration is likely a shortsighted approach.*

Client Variation

As discussed in the literature review, client variation is inherent in the use of authentic evaluation. The need for instructors to use clinical judgement in authentic evaluation and the mere fact that conditions and needs of clients vary make it next to impossible for instructors to control the evaluation context. Consequently, inconsistency is evaluation nearly a certainty. However, most authors on authentic evaluation maintain that the benefits outweigh the challenges. In addition Jiang et al (1997, abstract) contend that "the greatest source of variance

in evaluators is not judgment of the evaluators but 'task and occasion facets'" . "Task and occasion" aspects are consistent with client variation factors and student performance factors.

"Unreliability" has been defined as inconsistency between two instructors evaluating the same student in the same context (Chambers and Glassman, 1997). At Camosun, individual students in the dental hygiene clinic are rarely evaluated by two different instructors in the same context (e.g. the same client on the same appointment day*). Therefore, the perceived inconsistency, in many cases may be due to differences in the client's condition (or context) rather than due to differences in how instructors evaluate.*

Student Performance Variation

Variations in performance of students was the third major reason cited in the literature explaining why variations are seen to exist among instructors when evaluating the clinical performance of students. There are likely many reasons why student performance may vary. Difference in students' ability seems an obvious reason. Students' stage of learning and self-confidence were discussed in the literature review. Hendricson and Kleffner (1998) present information on different learning stages through which students progress at different rates and describe the corresponding student self-concept during the learning progression to competence. Most of the students participating in this project were at the "novice" stage of learning when they completed the project questionnaire and participated in the workshops. According to Hendricson and Kleffner (1998), this is the stage when students become acutely aware of their shortcomings in regards to competency, and hence the authors call this awareness "conscious incompetence". At this stage the students tend to feel inadequate, negative, and defensive. During this learning phase, students still prefer and expect concrete information and find the transition from linear, prescriptive information (black and white concepts) to complex, abstract or multidimensional information very difficult. *It is very probable that much learner frustration, stress and perceptions of instructor inconsistency stem from this phenomenon that is characteristic of the "novice" learner. Student complaints and frustrations are symptoms of being at the "conscious incompetent stage". This stage of student learning is also a challenging time for instructors particularly if instructors do not understand the situation. Instructors may also feel in adequate and become defensive in response to student behavior during the "novice" stage of learning. Hendricson and Kleffer advise that it is important for instructors to see this phenomenon for what it is and to be prepared to support the learner through it.*

The concepts described by Hendricson and Kleffner (1998) also explain why many students, graduates and faculty, in this study acknowledged that there were some learning advantages to having differences among instructors but clearly pointed out that differences should not be introduced too early. Consistent with the "Three P's" theory described by Hendricson and Kleffener (1998, p. 183), thinking processes in the early stages of learning are concrete and disconnected. The authors believe that learners at the novice level, " are reluctant to contemplate abstractions or alternatives desiring instead precise prescriptions from instructors: e.g. 'just tell me what to do' " (p. 184).

From the preceding discussion, it could be concluded that solving the perceived problem of instructor calibration has less to do with the importance of calibration and more to do with helping faculty and students understand the learning and evaluation environment in which they function.

Criterion Referenced Evaluation

The Dental Hygiene Program Clinic Manual (pg. 01) states that a criterion referenced evaluation system is used in the clinical courses and further defines it as "a system that measures your performance against pre-established written standards or criteria". The problem identified in this study was that instructors are not as consistent with each other in clinical teaching and evaluation as they should be. According to the stated definition of criterion-referenced evaluation, instructor evaluation should be consistent *with the stated evaluation criteria*, rather than with other instructors. It seems reasonable to assume that if all instructors were to evaluate consistently with a stated criteria, they would be also be consistent with each other. However, even well written, standardized evaluation criteria are subject to instructor interpretation (rater variation) particularly when clinical judgement is required in authentic evaluation. When evaluating students in the context of unique clients, the challenge becomes one of blending clinical judgement with standardized evaluation criteria.

In any case, the major focus regarding consistency should be that instructor evaluation is consistent with the stated evaluation criteria rather than instructor with instructor. In order to improve consistency, the evaluation criteria must be validated and used by all instructors. The students should also be held responsible for knowing the evaluation criteria and should be aware that the main focus of evaluation consistency ought to be in accordance with the stated criteria rather than among instructors. Also, given the nature of authentic evaluation, instructors should make continual efforts familiarize themselves with the evaluation criteria and to have regular discussions about possible differences in interpretation.

Specific Areas of Inconsistency

As mentioned in the introduction to this section, most of the specific areas of inconsistency listed in the study findings have been addressed by preceding discussion on the nature of clinical evaluation. A specific area that has not been fully addressed in previous discussion is that of expectations and protocols for documentation in client charts (e.g. charting, chart audits, treatment planning, what to record and what not to record). This was identified by all three groups as an area of inconsistency. In the Clinic Manual, protocols are outlined for most of these procedures. Through observation, this researcher concludes that the following may provide reasons for inconsistencies in this area: instructors and students are not familiar with the protocol described in the Clinic Manual, some clients present with conditions in which protocols must be adapted (using clinical judgement) rather than applied to the letter, and sometimes protocols are revised and not all parties affected are informed of the revision.

Students have asked that more examples of how to document these specific areas be placed in the clinic manual. First and second year students both use the same clinic manual. A concern the

faculty has expressed about including specific examples is that students tend to use these examples as "recipes" for client care rather that individualizing dental hygiene care. Taking into consideration the learning stages described by Hendricson and Kleffner (1998), specific examples would be more appropriate for the beginner and novice learner and less appropriate as students move toward competence where they are expected to analyze and synthesize client care more independently.

Communication

During discussions in student workshops the researcher noted that *misunderstandings were common regarding interpretations of instructor feedback* about "wrong ways versus right ways" and in applying client specific information to all other client evaluations. During the collaborative student-faculty workshop, participants agreed that communication among and between students and instructors was an important consideration in achieving desired outcomes regarding consistency among instructors. *Clearer and more consistent communication requires that all involved take responsibility for continued, enhanced open, honest and respectful dialogue/discussion. This responsibility requires that students and faculty make a greater effort to avoid misunderstanding. Students should make it a habit to seek clarification on instructor feedback and should instructors make it a habit to seek clarification of student understanding.*

At the time when participants were completing questionnaires, it became apparent that some participants, particularly students, had not really considered the different purposes of formative and summative evaluation. Almost all the specific areas in which participants said that consistency among instructors needed to be higher, as well as the areas where students voiced particular frustration, were situations of formative authentic evaluation. It appears that many students still feel threatened by evaluation even if the purpose is formative (for learning purposes) and not for developing a grade. *There seemed to be a low awareness about the types and purposes of clinical evaluation even though adequate information was clearly provided in the clinic manual. More discussion on a regular basis with students about the types and purposes of evaluation would be beneficial in lowering some of the angst students experience when being evaluated formatively.*

Problem solving in the Dental Hygiene Program

Problem solving in the Dental Hygiene Program is largely an informal process. A typical problem solving and decision making exercise would entail the following steps: someone brings a problem to a faculty meeting, discussion ensues, ideas are generated and one or a number are chosen as a solution and then implemented. In many cases this has been a quick and appropriate way of dealing with issues, particularly simple problems. For more complex problems, a framework for problem solving or decision making has seldom been used. Some reasons may be the following: 1) that the faculty members are often unaware of the complexity of some issues, 2) solutions dealing with the symptoms seems to alleviate the problem, 3) in depth problem solving takes more time, and 4) a process or framework has not been proposed. A systems archetype that Senge (1990, p. 104) calls "shifting the burden" is described in the literature review. When issues previously addressed continue to resurface it is a signal that the

symptoms have been addressed rather than root causes. In the case of inconsistency among instructors, the symptoms that have demanded attention have generally been student and faculty complaints. The faculty has "shifted the burden" mainly to the solution of having faculty become more consistent with each other, or increasing instructor calibration. Senge (1990, p. 104) describes the typically chosen solution as, "well intentioned, easy fixes which seem extremely efficient ." The solution chosen in the case of inconsistency is definitely a well intentioned one, but it is certainly not an easy or efficient one. Much information from the literature portrays instructor calibration as a difficult, time consuming process. More importantly it has been depicted by Chambers (1987, p. 723) as a questionable use of extended amounts of time.

At stated in Chapter Two, the path to dealing with any archetype is to identify it and then to gain understanding of the problem by analyzing the situation to determine where leverage can be achieved. Senge (1990, p. 115), advises the leverage in dealing with "shifting the burden" is "a combination of strengthening the fundamental response and weakening the symptomatic response". *Leverage in the case of this problem will be gained by identifying and dealing with the fundamental or root causes. A bonus side effect is that this weakens the symptoms or diminishes their effect.*

Although the process of identifying all the root causes to the issue of inconsistency among clinical instructors is not complete, considerable progress has been made. Many of the potential and probable root causes, at this point, have been discussed in this section. These include the nature of authentic evaluation, modes of communication, stage of the student in the learning process, and other reasons for rater variation such as client variation and student performance variation.

Study Recommendations

Magnitude of the Problem

Although it has been concluded that the issue of inconsistency among clinical instructors is not an overwhelming problem, it is nonetheless, a concern that should be addressed. Considering the history of this problem's recurrence, it is clear that is must be addressed in a different way than in the past. It requires a new type of solution based on different thinking and therefore it should be further analyzed, understood and addressed using a systematic approach.

Perspectives, Roles and Responsibilities of Participant Groups

In resolving the issue of inconsistency among instructors it is important that participant groups recognize and address systems foibles such as those identified by Oshry and Senge. As Oshry advises, the first step is to increase student and faculty awareness about the tendency for groups in a system to take positions that are not conducive to a partnership with shared responsibility (such as described in "Dance of the Blind Reflex"). The next step is to make an enlightened choice. In making the choice faculty should not only ask what their role is, but also ask what is the students' role in creating and solving the problem beyond informing instructors of the

problems they encounter in the system. Instructors should keep in mind that when they shoulder all the responsibility (consciously or unconsciously); they also shift the balance of power and in doing so take away accountability and responsibility from the students. Students should not only consider what the instructors' role is in creating as well as solving the problem but also what is their own role beyond identifying problems and giving suggestions for how instructors should change. It is noteworthy that these recommendations may be applied to other program issues and should be considered a central part of any issues analysis.

The Issue Itself - Inconsistency among Clinical Instructors

Efforts to calibrate clinical instructors should be put into proper perspective as a method of resolving the issue of inconsistency. Other factors such as client variation and student performance variation, particularly the stage of learning of the student should be taken into consideration. Awareness should be increased in regard to the relevance of these other factors in contributing to perceptions of inconsistency among instructors by including such information in written material, auch as manuals, and by having regular discussions with students about the nature of clinical evaluation.

Earlier it was stated that students' complaints and frustrations are reflections of their stages of learning, and are symptomatic of the overall issue of inconsistency among instructors. Since much of the learner frustration, stress and perceptions of instructor inconsistency could stem from the stage the students are at along the learning continuum, clinical instructors should be aware of the challenges students face at the different phases of the learning process, particularly the early stages. Clinical instructors should understand and furthermore, *expect* this type of student reaction and should prepare strategies to support the learners and themselves through it.

Criterion Referenced Evaluation

As stated earlier, the major focus regarding consistency should be that instructor evaluation is consistent with *stated evaluation criteria* rather than a focus on whether instructors are consistent with each other. In order for this strategy to have an effect on general improvement in instructor calibration, the evaluation criteria must be carefully articulated and used by all instructors. The students should also be held responsible for knowing the evaluation criteria and they should be aware that the main focus of evaluation consistency should be to the stated criteria. In considering the nature of authentic evaluation, instructors should also make efforts to routintely familiarize themselves with the evaluation criteria and to have regular discussions about possible differences in interpretation.

The faculty members have already begun a process of curriculum review regarding the clinical component of the Dental Hygiene Program. It is therefore recommended that the faculty continue to revise, clarify and establish instructor agreement on evaluation criteria focusing *first on the main core competencies*.

Specific Areas of Inconsistency

Following are recommendations for improving consistency in use of documentation protocols

- Encourage greater use of the Clinic Manual by faculty and students as a reference for clinic protocols;
- Develop a more formalized system to ensure that faculty and students are aware of agreed upon changes in clinic protocols;
- First and second year clinical instructors should collaborate and determine the types of examples of client care protocols for inclusion in the Clinic Manual.

Communication

All of the preceding discussion indicates that addressing the perceived problem of instructor calibration has less to do with the importance of calibration and more to do with helping faculty and students understand the learning and evaluation environment in which they function. Increased awareness and understanding of the complexities in any issue is enhanced by communication. Following are recommendations regarding communication strategies.

- Include a description of authentic evaluation in the Clinic Manual.
- In the clinical courses (DHYG 160-262), formally plan to include regular discussion with students about the various types clinical evaluation used in the clinical component (authentic, formative, summative). The goal is to increase understanding and awareness of the characteristics and purposes of evaluation used in the clinic.
- Discuss with students the stages of learning on the learning continuum

Problem solving in the Dental Hygiene Program

In order to develop long term solutions to this particular clinical issue and any other issues, a formalized process such as action research should continue to be used to identify, prioritize and address root causes. Systems thinking should be part of the process whenever possible. Solutions should be aimed at root causes rather than symptoms. Consistent with the principles of action research, the implementation of solutions should be evaluated.

And finally, some advice from Peter Senge, who claims that it is not enough to say that "we must look at the big picture and take the long term view" and it is not enough "to appreciate his basic systems principles". He notes, " this can lead to solving a problem but it will not change the thinking that produced the problem in the first place". New solutions require new ways of thinking.

CHAPTER FIVE- RESEARCH IMPLICATIONS

Organization Implementation

Stringer (1996, p. 16) describes the basic stages of action research as "look" (gather data and describe or define the situation), "think" (explore, analyze, interpret and explain the situation) and "act" (plan, implement and evaluate). In terms of this project, the research study ended at the "think" phase of the action research process. At this point the faculty group has been launched into the process of analyzing the situation. The goal is to identify the root causes of the perception that there is inconsistency among clinical instructors and to decide how it should be addressed. Substantial progress has been made in this area as major categories of potential causes have been identified and further analyzed. This "think phase" continues to be led by the researcher as an internal consultant in the action research process. The think phase will be followed by the "act phase" which includes the generation of solutions. The findings and recommendations in this report will be considered in these future deliberations. Implementation and evaluation of the solutions will become the responsibility of faculty as a whole.

One of the basic premises of action research is that the process is *as* important and sometimes *more* important than the result. Stringer (p.23) expresses this philosophy as follows: "The essence of the work is process- *the way things are done-* rather than the result achieved." One important goal of using action research as the methodology was to enable participants to learn how to inquire into and solve their own problems. Even though this researcher will continue to lead the faculty to the stage where strategies for resolving the issue (of inconsistency among instructors) are identified, the ultimate goal is to have all faculty develop skills in conducting systematic problem solving or issues analysis procedures rather than depending on a consultant.

Experience provided through this research process has changed faculty awareness of the complexities of the issue of consistency among instructors in that we have looked beyond what was seen as an obvious solution. Faculty insight about systematic problem solving methods has also changed as groups were guided through the process of describing and clarifying the status quo, interpreting meanings, and analyzing the situation. Eventually faculty members and students will participate in the implementation of the solutions, as they are identified.

Another principle of action research is its cyclical nature. This means that the process does not end when the research phase is completed. As stated earlier in this report, to achieve its full potential action research must be seen as an ongoing process that includes evaluation of solutions and the results of change. Another cycle of inquiry should begin based on evaluation results.

If this research endeavor ends with the submission of the project report, without the completion of at least one cycle of action research, the full potential of action research and the full value of the change process will not be realized. At minimum, one could say those involved in the project have an increased awareness of the issue that was studied and a greater appreciation of problem solving processes. However if this new awareness does not lead to change or action on the part of the participants, the entire endeavor will have made a minimal impact and the status quo will likely remain.

Much of the discussion in the conclusions and the recommendations of this report indicates that addressing the perceived problems of instructor calibration entails a greater focus on helping faculty and students understand the learning and evaluation environment in which they participate rather than a focus on calibration. Resolution of this issue requires different thinking and a different approach to problem solving than has been used in the past. Awareness and communication again are key processes in initiating change. Motivation, leadership and commitment are equally important in the change process.

Future Research

The most obvious opportunity for future research is to evaluate the success of the solutions that are implemented concerning the perception of inconsistency among clinical instructors. Another worthwhile topic of study would be to assess faculty views on the value of the action research process in addressing learning/teaching and evaluation issues.

Systems thinking has been introduced as an important consideration in issues analysis and problem resolution. A study into the feasibility of integrating and implementing systems thinking into the dental hygiene curriculum would be useful.

Student learning stages were also discussed in relation to frustration experienced as students were challenged in the learning process. A valuable area of investigation would be an examination of the dental hygiene clinical curriculum with a focus on determining if concepts and skills are introduced at the optimal phase on the learning continuum , as described in the article by Hendricson and Kleffner (1998).

A final proposed area of research would be an examination of why some students are generally positive and optimistic about the challenges of learning, while others feel they are victims of the system. Take for example the issue of differences among instructors in clinical teaching/evaluation: why do some students see this as learning opportunity and others see it a barrier to learning? Is it associated with level of maturity, learning style, and self-esteem or with other factors?

CHAPTER SIX – LESSONS LEARNED

Research Project Lessons Learned

Action Research

Ernest Stringer's book Action Research: A Handbook for Practitioners was a central reference for this research process. It was determined that the book had been studied well enough to know what needed to be done in order to carry out action research. When going back to the reference book throughout the project for guidance, it was interesting that many of the potential pitfalls, important considerations, or characteristics of action cited by Stringer (1996) proved to be highly accurate. Although the information had been earlier scrutinized in preparation for the project, great relief was experienced in rediscovering the following passages. "Action research is not a neat, orderly activity that allows participants to proceed step by step to the end of the process. People will find themselves working backward through the routines, repeating processes, revising procedures, rethinking interpretations, leapfrogging steps or stages and sometimes making radical changes in direction" (Stringer, p. 17). The beauty of action research is that it allows for aberrations. Rediscovering this passage felt like receiving permission to make a mistake and adjust accordingly. On one hand, a lesson learned was the need for the researcher to become more flexible in style of facilitation; on the other hand, flexibility was one of the initial reasons for choosing action research as the method of inquiry.

Another passage that had great relevance when read for the second time while in the midst of the project was the following; "your role is not to impose but to stimulate people to change. This is done by addressing issues that concern them now." (Stinger, 1996, p. 22) This statement helped reconcile the decision about changing the original plan of holding a second collaborative student-faculty workshop to a having an open forum so that students and faculty could address general clinic issues, regardless of whether or not they were about instructor consistency. It also helped confirm the decision to retrace steps with faculty and address their concerns about the project before proceeding with the rest of the study.

Other advice to anyone contemplating action research as a formal process of inquiry is as follows: Although one may have timelines or deadlines, it is important to spend the necessary time and effort up front to make sure, rather than assume, that participants understand both the purpose and the process. It is worthwhile noting that just because something has been carefully explained doesn't automatically assure it is understood. The researcher would advise asking participants up front what *they* hope to get out of a project, and then keep checking in with participants along the way. This was not done at the beginning of this study. In retrospect, it is presumed that had participants been asked this earlier, there may have been less of a sentiment among faculty and students that this was "Lynne's project" instead of an important Dental Hygiene program issue that was under study.

The final observation is that action research takes more time than may be expected because action research is intended to be "people friendly". If this basic principle is adhered to, then relationships and learning become as important as the task. *Expect* and be prepared to slow down, stop, and change plans.

The Art of Facilitation

The challenge of the role of group facilitator was a big one. As a result, one continuing goal is to become skilled at facilitation. What was learned was not to get too attached to a process or agenda even if many hours have been spent in carefully planning it. In retrospect it is recognized that an important consideration was not given sufficient attention in a key workshop. The important consideration was making sure in the beginning that the group *truly* understood and was in support of the purpose of the workshop. Whether or not adequate time is spent up front in this exercise can greatly affect the success of the workshop. Other lessons learned in the process of group facilitation was to listen more carefully to what participants are saying and to check back to assure that the message has been correctly interpreted. It is important that participants feel they are heard and acknowledged.

Facilitating groups that are task oriented can be very challenging, especially when participants are from one's own peer group. Uncertainty still remains in regards to how to work effectively in this setting. Skill in balancing the need to get something accomplished, attending to the needs of the individual participants and ensuring an appropriate process is used, is definitely part of the art of facilitation that can be realized through continued practice.

The Challenges of the Change Agent

Throughout this project, and as this researcher informally continues to be the "internal consultant" in regards to resolving the issue of inconsistency among instructors, one of the most difficult aspects was (and still is) trying to be a change agent among one's peers. Although this peer group, (the faculty in the Dental Hygiene Program) is a very supportive and cooperative group, maintaining self-confidence, poise and being patient was still a great challenge. In carrying out this project, many times it felt like a case of the "blind leading the blind" since the researcher was learning many of the processes at the same time as leading them. However, exploring new approaches together is the essence of a learning community. What is important is achieving the balance between exhibiting a reasonable level of self-confidence at the same time as acknowledging what one does not know. Skills in achieving that balance have improved over the course of the Master of Arts and Leadership program and as a result of this project.

Learning continues in the realization that leadership and learning is about the willingness to take risks. The old saying "fake it until you make it" has some merit, however being authentic must also be factored into the equation. One of the more significant learnings was in remembering to look for the learning opportunities after things seem to go wrong. For this researcher, 'things going wrong' meant things not going according to the "carefully planned agenda". Being authentic about feelings of distress after the combined faculty-student workshop and then asking for honest feedback from peers was a difficult but rich learning experience. This was the point of realization that there was varying levels of "buy in" and understanding about the purpose of the project and that flexibility is a key strategy in facilitation

The researcher's desired outcome for this project is still that, as a faculty group, we learn how to investigate and act on issues through a systematic process such as action research to the extent

that we can clearly describe our situation, isolate the root of the problem and make action plans accordingly (based on the root causes rather than on the symptoms). This project could be viewed as an exercise in problem solving using action research. The issue could be anything, however; in this case it was probing the issues of inconsistency among clinical instructors. As the principal researcher, it was important to be continually reminded and to continually remind the participants that the researcher's role was not intended as a solo act of gathering and analyzing information in order to tell the organization what the researcher thinks ought to be done. Rather, the researcher's role was to guide the participants through the process of learning how to do it for themselves, eventually leaving a legacy of learning and self-sufficiency.

Program Lessons Learned

The following ten competencies are assessed through the completion of the Major Project. The Master of Arts and Leadership Program chose the first five competencies and the last five were chosen by the learner.

1 c) Provide leadership
2 b) Apply systems theories to the solution of leadership and learning problems
5 a) Identify, locate, and evaluate research findings
5 b) Utilize research methods to solve problems
7 b) Communicate with others through writing

4 e) Help others learn
7 d) Contribute to team success
7 c) Communicate orally
4 c) Create learning opportunities in the workplace
7 a) Interpret oral communications

1c) Provide leadership

Leadership was provided by initiating, organizing and managing the research project with the three participant groups. The leadership role taken in this project was that of process facilitator. Rather than taking total responsibility for the issues analysis and problem solving for the group, participants were included in the process in order that they share responsibility and learn the process themselves. Through organization and implementation of the data collection phase, leadership was provided by leading or facilitating group discussions to help participants clarify their perceptions of the issue and then communicate the results to their peers and others. Participants were guided to a new awareness of the issues as a prelude to analyzing and resolving them. Leadership was also demonstrated by being flexible enough to change or slow down the action research process and taking a step back when it appeared at one point that faculty members had issues that needed to be addressed. The researcher has demonstrated commitment to the project and the process by continuing to act as internal consultant until solutions and a plan for their implementation is realized.

2b) Apply systems theories to the solution of leadership and learning problems

Systems thinking was applied through the use of action research, which in itself is a systematic process of inquiry and problem solving. Oshry's "Dance of the Blind Reflex" was identified as a tendency in the student-faculty relationship in regards to the issue. In addition, Senge's archetype, "shifting the burden" was suggested as a prevalent pattern that diminished the potential for long-term resolution of the problem.

Brainstorming, use of the "five whys" technique and general group processes were used as methods of information gathering, issues analysis and problem solving. Work continues in understanding, applying and helping others learn "systems thinking". Progress has been made past the novice stage in understanding and application of these principles but there is still work needed to reach a level of professional comfort.

5a) Identify, locate, and evaluate research findings.

In completing the literature review, relevant articles and information were obtained from professional journal, books, and the Internet. Information was evaluated for relevance and used as guides in the research methodology and design. Information from the literature review was also used to inform and support the conclusions and recommendations in this report.

5b) Utilize research methods to solve problems

Action research was chosen as the research method because it entails a collaborative approach that leads to skill development of the participants. Data was gathered through use of questionnaires, workshops and focus groups. The main role assumed by the researcher was that of designer, organizer and facilitator. Skills in the art of facilitation were developed, enhanced and continue to be an area of personal growth and development.

7b) Communicate with others through writing

Communication through writing was included in this project through the following measures: in production of the project proposal, in providing information to participants about action research, in preparation and use of visuals for the workshops, in questionnaires and cover letters, in e-mail discussions with students, faculty advisors and sponsors, and in the writing of this final report

7a) Interpret oral communications

Listening and interpretation were a large part of facilitating the workshops and the focus group. During the workshops and focus groups, information was gathered, clarified, shared and interpreted for relevance to the project. Participants were encouraged to voice their viewpoints opinions, concerns and questions.

7 c) Communicate orally

Verbal communication was used to introduce the project, to facilitate workshops and focus groups, to explain results, to present information, to ask for clarification, and to acknowledge the contributions of participants. The quality of the oral communication was appropriate to the participant groups.

7 e) Contribute to team success

It was very easy to identify with the faculty group since the researcher is a faculty member. The student and graduates were very familiar individuals, after having worked with them as their instructor. As researcher, trying to identify with both groups at the same time was challenging and although a serious attempt was made at being as open minded as possible, the tendency was to think like an instructor rather than like a dental hygiene student. Being a graduate student during this project helped to identify with the pressures that students face as learners.

Much thought and effort was put into designing, organizing implementing the workshops and focus groups as well as the presentation materials. Timelines were attended to as much as possible. When concerns were expressed about the project, these concerns were verified and solutions sought. Interpreting group dynamics was a key part of workshop facilitation. Dealing effectively with group dynamics was a challenge in itself. Learning continues in this area.

4 c) Create learning opportunities in the workplace
4 e) Help others learn

One of the purposes of using action research as a methodology was to introduce a systematic method of issues analysis and problem solving to both faculty and students, but particularly to faculty. As this was a more in depth and time consuming method than the one normally used in resolving program problems, having the participants continue to support and value the process over a longer period of time was difficult. After recognizing some resistance to the project at the end of the Fall semester, it was necessary to "regroup" and ensure that faculty clearly understood the intent of the project and how important the process was in changing our thinking about how we as a faculty group can or should resolve problems. At the time of writing this report, faculty members are beginning to expand their views about the issue as we continue to work on identifying root causes. They are gradually and continually recognizing the value of the process. At times, recognizing the full value of or trusting the process is challenging, especially for those of us who tend to be very task oriented.

References

Chambers, D.W., Glassman P. 1997. A Primer on Competency-Based Evaluation. J Dent Educ, 61: 651-666.

Chambers, D.W. 1987. Adjusting for hard and easy graders. J Dent Educ, 51:723-726

Courts, F.J. 1997. Standardization and Calibration on the Evaluation of Clinical Performance. J Dent Educ, 61:947-950

Dick, B. 1997. A beginners guide to action research.
URL: http://www.scu.edu.au/schools/sawd/arr/guide.html

Deshler, D., Ewert, M. 1995. Participatory Action Research: traditions and major assumptions, The PAR Tool Box.
URL: http://www.PARnet.org/parchive/docs/deshler_95/#Definitions

Hendricson, W. D., Kleffner, J. H. 1998. Curricular and Instructional Implications of Competency-Based Dental Education. J Dent Educ, 63: 183-196.

Jiang, Y.H., et al. 1997. Error sources influencing performance assessment reliability or generalizability: a meta analysis (abstract). Paper presented at the Annual Meeting of the American Educational Research Association,Chicago, IL, March 24-28.

Knight, G.C. 1997. Toward Faculty Calibration. J Dent Educ, 61:941-946.

Linn, L. L., Baker, E. L., Dunbar, S. B. 1991. Complex, performance-based assessment: expectations and validation criteria. Educational Researcher, November 16-21.

Meetz, H. K., Bebeau, M. J., Thoma, S. J. 1988. The validity and reliability of a clinical performance rating scale. J Den Educ, 52:290-297.

Mescher, K. D., Kerber P.E. 1982.The effect of instructor variance on students' grades. J Dent Educ, 46:83-87.

Oshry, B. 1996. Seeing systems; unlocking the mysteries of organizational life, Berrett-Koehler Publishers, San Francisco.

Palys, T. 1997. Research decisions: quantitative and qualitative perspectives, second ed. Toronto, Harcourt Brace.

Pippin, D., Feil, P. 1992. Interrater agreement on subgingival calculus detection following scaling. J Dent Educ, 56:322-326.

Senge, P. 1990.The fifth discipline: the art and science of the learning organization, New York. Doubleday.

Senge, P., Kleiner, A., Roberts, C., Ross, R., Smith, B. 1994. The Fifth discipline fieldbook: strategies and tools for building a learning organization. New York, Doubleday Dell Publishing Group.

Seymour-Rolls, K., Hughes I. 1995. Participatory action research: getting the job done. URL: http://www.beth.cchs.usyd.au/~arow/Reader/rseymour.htm

Stringer, E. 1996. Action research: a handbook for practitioners. Thousand Oaks, Ca, Sage Publications.

Vaill, P. 1996. Learning as a way of being: strategies for survival in a world of permanent white water. San Francisco, Jossey-Bass.

Westerman, G.H., Grandy, T.G., Oncato, R.O., Erskine, C.G. 1993. Perceived sources of stress in the dental school environment. J Dent Educ,57:225-231.

Wiggins, G. The Case for Authentic Assessment. ERIC Digest.
URL: http://www.ed.gov/databases/ERIC_Digests/ed328611.html

Wolfe, E.W., Chiu, C.W. 1997. Detecting rater effects with a multi-faceted rating scale model. Paper presented at the Annual Meeting of the National Council on Measurement in Education. Chicago, IL, March 25-27.

Clinic Manual - General Organizational Information

INTRODUCTION

Goals of the Clinical Program

The purpose of the clinical experience in dental hygiene can be expressed generally in the following criteria:

Upon completion of the clinical dental hygiene program, the student will be able to:

1. Identify and gather information necessary for preventive treatment assessment and planning.
2. Assess preventive treatment and educational needs of the client.
3. Identify oral problems requiring attention of the supervising dentist and bring these to the dentist's attention.
4. Plan appropriate individualized preventive care.
5. Provide the planned care at a level of competence specified in the clinic manual.
6. Evaluate the outcomes of dental hygiene care.

Dental Hygiene Class "I Believes" About Dental Health Education

We believe that...

1. The Client Is To Be Involved

   We believe in sharing our knowledge in order to increase the client's dental awareness. Varied approaches should be used to meet the client's individual needs and wants. The intent is to help the client choose what is best for them and participate in self care. We need to be flexible with treatment planning and revise when necessary.

2. The Client's Decision Should Be Accepted With Respect

   We believe that the client is intelligent enough to decide the oral health care they want to receive and to be treated as an equal. This also includes not giving up too soon (review progress notes, informed consent, etc.) and not being judgmental towards the clients especially if they have neglected their oral health in the past.

3. We Want to Educate the Client As We Proceed With the Client's Care

   Every appointment should integrate some relevant aspect of oral health care.

4. We Want to Role Model Professionalism, Emotional and Physical Health

   We need to show confidence and be approachable and friendly. We believe health is an essential aspect of total health and well being - spiritual, physical, mental, social and emotional.

5. We Need to Focus Fully on the Client When With Them

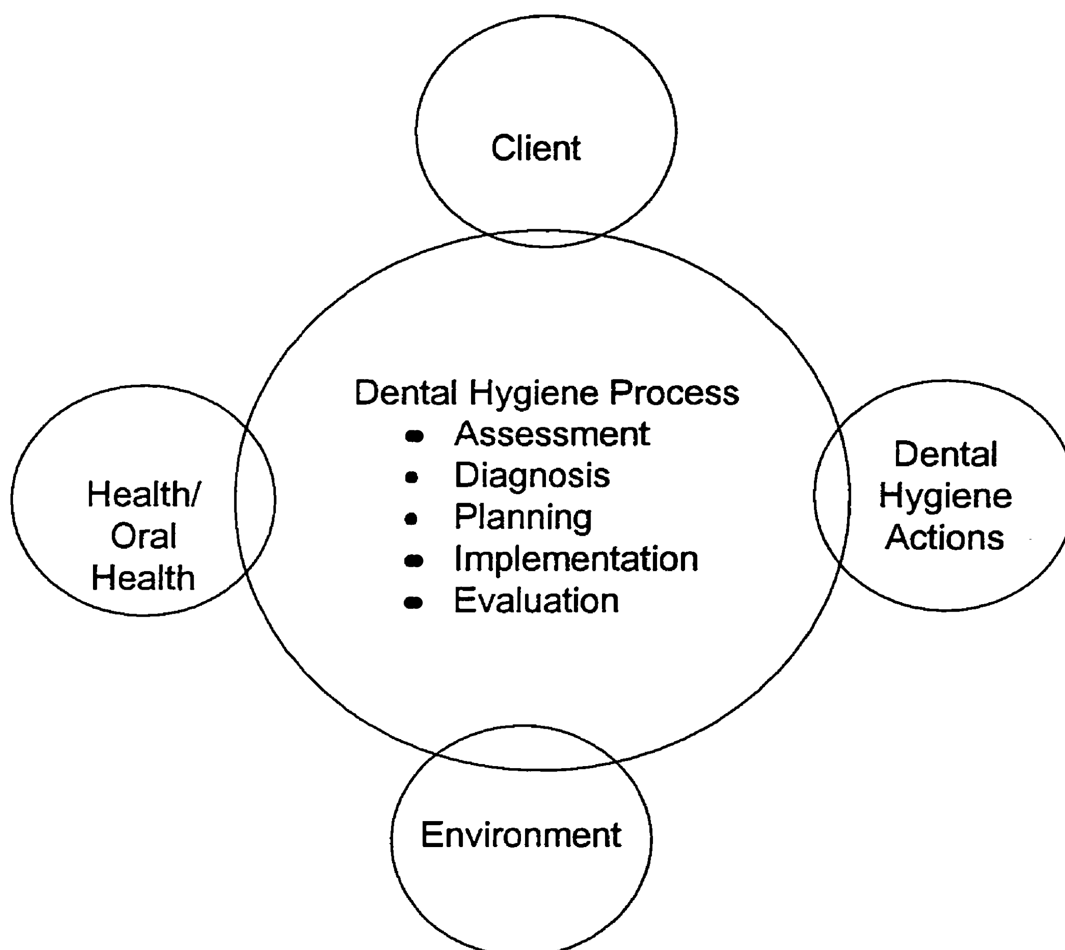
This includes being an "active" listener and being focused on the client's non-verbal behaviour. Sometimes stress (times constraints, pressures) directly interferes with participation in the learning process. We have to prioritize tasks and make the client most important while with them. We are to in turn show the client how to prioritize.

6. We Want to Be Supportive

This includes being honest and integrous with the client. Also, compromising treatment plans when needed to meet the client's needs and wants more closely. We need to: pinpoint specific needs, provide pertinent education, reinforce and evaluate at each appointment, then move on to their next need.

7. We Want to be Resourceful With All Aspects of Client Care

This involves keeping current in theory and skills through Continuing Education, being involved in your association and perceiving dental hygiene as a career. Participation in improving knowledge and skills communicates to the client that you want to give them the best. The client may feel more appreciated and important.



Relationship of human need theory to the dental hygiene process (Redrawn from Yura, H., and Walsh, M. The Nursing Process, 5th ed. Norwalk, CT: Appleton & Lange, 1988, p.98.)

Clinic Manual - General Organizational Information

Dental Hygiene Competencies

Dental Hygiene competencies as used in this manual refer to those things that a graduating student should be proficient in at the time of entry to practice.

Some competencies have been identified by the Canadian Dental Hygienists Association and the Canadian Dental Association as those minimally necessary to any program granted accreditation status by the Council on Accreditation. They form part of the competencies expected of students graduating from Camosun College.

Criterion Referenced Evaluation

Criteria are descriptive statements which explain the standards of performance for a competency.

1. *What is a Criterion Referenced Evaluation System?*
   It is a system that measures your performance against pre-established written standards, or criteria.

2. *Who Established the Criteria?*
   Criteria are established by the dental hygiene faculty in consultation with other faculty, students and appropriate resources. The resulting criteria are based upon a minimum performance level necessary to be clinically competent. Criteria are not engraved in stone, they are periodically reviewed and evaluated as to their appropriateness.

3. *How Does the System Work in the Clinic?*
   Students will receive written and verbal feedback from instructors based on the student performance relative to the criterion statements in the clinic manual. These statements should also be used routinely by students to evaluate their own performance. A summative clinical evaluation will take place when the student and clinical faculty agree that the student is ready.

4. A Criterion Referenced System Does **Not**...

   - Measure your performance against other students...it measures your performance against an established standard.

   - Average your scores over the year in order to achieve a final grade. Therefore, poor initial performance when you are just learning a technique or skill will not influence your final achievements in that area.

5. A Criterion Referenced System **Will**...

   - Give you some control over your learning. If you are uncomfortable about your performance on a competency you can choose to get assistance and immediate feedback.

   - Define clearly the standard at which you are expected to perform and the standard against which you are being evaluated.

   - Allow you, within limits, to proceed at your own pace.

Clinic Manual - General Organizational Information

Separation of Teaching and Grading in the Clinic and Student Evaluation

Evaluation

Evaluation is the process whereby one measures something using some sort of measuring tool, and then interprets the results of that measurement against some standard (in our case, the competencies).

It is a learning process.

There are two types of evaluation employed in the Dental Hygiene Program. These are formative and summative evaluation. For the purpose of this course, these are defined as follows:

Formative evaluation: is the process of assessment that occurs continuously throughout the learning process. This applies to both self and instructor evaluation.

Summative Evaluation: is the process of assessment that uses indicators from the overall performance or at the conclusion of the task. This applies to both self and instructor evaluation.

Formative clinical evaluation: takes place during the learning clinical phase when students are providing dental hygiene care to their client with close instructor guidance (written and verbal feedback).

Summative clinical evaluation: begins when you have had sufficient experience so that you feel confident in meeting the criteria for the stated competencies, and the clinic coordinator or instructor agrees that this is so. You will provide dental hygiene care on your demonstration (testing) clients without instructor input. A label is applied in the form of a numerical grade ranging from 1-3. This will signify that you have been "tested" on your performance. For these clients, every competency involved must be performed at an acceptable level.

This policy is designed so that you will be able to seek as much help as you need during the earlier stages of your clinical experience.

Practice Standards

Practice standards have been established and are published in the document "Practice Standards for Clinical Practice of Dental Hygiene in Canada." These practice standards were generated and content validated by practicing Canadian dental hygienists. They relate to the structure, process and outcomes of dental hygiene care. You may wish to begin referring to this document early in your dental hygiene education, to assist in applying the standards in practice.

Dental Hygiene Course Organization

The course is divided into two aspects:

a) Didactic
b) Clinical

Questionnaires

Camosun College Dental Hygiene Program
Faculty Workshop – Perceptions on Issues of Clinical Calibration
Wednesday, Sept,. 30, 1998

Taking the Temperature (an introductory survey)

Please circle your response and add comments as you feel appropriate

1. Overall, how would you rate the **level of consistency** among clinical instructors in **clinical teaching**?

very low low moderate high very high

2. Overall, how would you rate the **adequacy** of calibration (consistency) among clinical instructors in **clinical teaching**?

very inadequate inadequate adequate very adequate exceptional

3. Overall, how would you rate the **level of consistency** among clinical instructors in **clinical evaluation?**

very low low moderate high very high

4. Overall, how would you rate the **adequacy** of calibration (consistency) among clinical instructors in **clinical evaluation?**

very inadequate inadequate adequate very adequate exceptional

5. Overall what effect do feel high calibration of clinical instruction has on students' learning while they are taking the Dental Hygiene program? (choose one)

highly detracts from learning, detracts from learning no effect

may enhance learning enhances learning greatly enhances learning

Please explain:

6. How do they think a low level of consistency among clinical teaching and evaluation affects students in terms of number of students ?

no students just a few very vocal students many students all students

7. What kind of effect do you think a low level of calibration among clinical faculty has on the decision making and clinical **performance skills of students once they are graduates?** Circle two of the following

major effect moderate effect minor effect

positive effect no effect negative effect

Please explain your answer:

Camosun College Dental Hygiene Program
Student Workshop 1 – Perceptions on Issues of Clinical Calibration
Friday, Oct. 9, 1998

Taking the Temperature (an introductory survey)

Please circle your response and add comments where indicated. Use the additional comments section and the back of the last sheet if you need more room.

1. Overall, how would you rate the **level of consistency among** clinical instructors in **clinical teaching**?

very low low moderate high very high

2. Overall, what **level of consistency among** clinical instructors should there be in **clinical teaching?**

Very high level high level moderate levellow level very low level

Please explain why:

3. Overall, how would you rate the **level of consistency among** clinical instructors in **clinical evaluation?**

very low low moderate high very high

4. What level of consistency among clinical instructors should there be in **clinical evaluation?**

very high level high level moderate levellow level very low level

Please explain why:

5. Overall, what is the effect on your learning in the clinical setting when there is a high level of consistency among clinical instructors in how they teach/coach ??

very negative effect   negative effect   no effect   positive effect   very positive effect

Please explain why:

6. Have you ever felt personally disadvantaged in your learning by an incident (or incidents) of inconsistency among instructors in **clinical teaching/coaching**?.

all the time   many times   a few times   almost never   never

If yes, can you give (an) example(s)

7. Have you ever felt personally disadvantaged in your learning by an incident (or incidents) of inconsistency among instructors in **clinical evaluation?.**

all the time   many times   a few times   almost never   never

If yes, can you give (an) example(s)

8. Do you feel that there may be **learning advantages** by having **differences** among clinical instructors in how they **teach/coach in the clinical setting?**

Yes maybe no

Please explain your answer:

9. Do you feel that there may be **learning advantages** to having **differences** among clinical instructors in how they **evaluate in the clinical setting?**

No maybe yes

Please explain your answer:

Thank you very much for your cooperation and your honesty .

Other Comments: (please use back of this sheet if you need more room)

Camosun College Dental Hygiene Program
Graduate Questionnaire – Perceptions on Issues of Clinical Calibration
Nov 1998

Please circle your response and add comments where indicated. Use the additional comments section and the back of the last sheet if you need more room.

1. Overall, how would you rate the **level of consistency among** clinical instructors in **clinical teaching**?

very low **low** **moderate** **high** **very high**

2. Overall, what **level of consistency among** clinical instructors **should** there be in **clinical teaching?**

Very high level **high level** **moderate level** **low level** **very low level**

Please explain why:

3. Overall, how would you rate the **level of consistency among** clinical instructors in **clinical evaluation?**

very low **low** **moderate** **high** **very high**

4. What level of consistency among clinical instructors **should** there be **in clinical evaluation?**

very high level high level moderate levellow level very low level

Please explain why:

5. Overall, what was the **effect on your learning** when there was a **high level of consistency among clinical instructors** in how they teach/coach in the **clinical setting**?? (eg. they all say exactly the same thing)

very negative effect   negative effect   no effect   positive effect   very positive effect

Please explain why:

6(a) Did you ever feel personally disadvantaged in your learning by an incident (or incidents) of inconsistency among instructors in **clinical teaching/coaching** while you were a student at Camosun?

all the time   many times   a few times   almost never   never

If yes, can you give (an) example(s)

6(b) Does this affect your clinical practice or your learning now that you are a graduate dental hygienist? (i.e. now that you are practicing, do you still feel that you were disadvantaged?)

Yes   maybe   no   not applicable

Please explain your answer:

7(a). Did you ever feel personally **disadvantaged in your learning** by an incident (or incidents) of inconsistency among instructors in **clinical evaluation?.**

all the time **many times** **a few times** **almost never** **never**

If yes, can you give (an) example(s)

7 (b) Does this affect your clinical practice or your learning now that you are a graduate dental hygienist? (i.e. now that you are practicing, do you still feel that you were disadvantaged?)

Yes **maybe** **no** **not applicable**

Please explain your answer:

8. Do you feel that there are **learning advantages** to having **differences** among clinical instructors in how they **teach/coach in the clinical setting?**

Yes **maybe** **no**

Please explain your answer:

9. Do you feel that there are **learning advantages** to having **differences** among clinical instructors in how they **evaluate in the clinical setting?**

No **maybe** **yes**

Please explain your answer:

Thank you very much for taking the time to respond to this questionnaire. Your views are an important part of this action research project.

May I contact you by telephone to further clarify or discuss your responses?
Yes **No**

If yes, please give your name, phone number and the best times to contact you.

Other Comments: (please use back of this sheet if you need more room)

APPENDIX B: QUESTIONNAIRES RESULTS (DATA)

Student, Graduate & Faculty Responses to Questionnaires

Participant numbers: Students=20/21; Graduates=10/21; Faculty=8/10 clinical instructors (2 part-time clinical faculty did not participate)

1. Overall, how would you rate the **level of consistency among** clinical instructors in **clinical teaching**?

Students

very low	low	moderate	*	high	very high
		14	3	3	

Graduates

very low	low	moderate	high	very high
	1	8	1	

Faculty

very low	low	*	moderate	high	very high
	1	-2-	5		

2. Overall, what **level of consistency among** clinical instructors should there be in **clinical teaching?**

Students

Very high	*	high level	*	moderate	*	low level	very low
5		11	-1-	2			

no ans:1

Number of students who rated level of consistency the same in questions 1 and 2
(in other words the level of consistency was where they thought it should be)
Mod = 2 mod/high =1 high =3 total = 6 students (30%) satisfied with the current level

Graduates

V. high level	*	high level	*	moderate level	low level	v. low level
2	1	6	1			

Faculty: The question was worded as follows:
Overall, how would you rate the adequacy of calibration (consistency) among clinical instructors in clinical teaching?

v. inadequate	inadequate	*	adequate	*	v. adequate	exceptional
	3	-2-	2		1	

3. Overall, how would you rate the level of consistency among clinical instructors in **clinical evaluation**?

Students:

very low	low	*	moderate	*	high	very high
1	1	-1-	8	-2-	6	1

Graduates:

very low	low	*	moderate	high	very high
	1	-2-	7		

Faculty

very low	low	*	moderate	•	high	very high
	1	- 3-		-1-	1	

4. What level of consistency among clinical instructors **should** there be in **clinical evaluation?**

Students:

v. high level	high level	*	moderate	low level	v. low level
8	10	-1-	1		

Graduates

very high level	*	high level	moderate level	low level	very low level
2	-1-	6	1		

Faculty: The question was worded as follows:
Overall, how would you rate the **adequacy** of calibration (consistency) among clinical instructors in **clinical evaluation**?

v. inadequate	inadequate	*	adequate	v. adequate	exceptional
	3	-1-	2	1	

no ans:1

5. Overall, what is the effect on your learning in the clinical setting when there is a high level of consistency among clinical instructors in how they teach/coach?

Students

v. negative effect	negative effect	no effect	positive effect	v. positive effect
		1	6	12

no answer:1

Graduates

v. neg. effect	negative effect	no effect	positive effect	*	very pos. effect
			4	-1-	5

6. Have you ever felt personally disadvantaged in your learning by an incident (or incidents) of inconsistency among instructors in clinical teaching/coaching?.

Students:

all the time	many times	a few times	almost never	never
	2	10	5	3

Graduates:

6(a) Did you ever feel personally disadvantaged in your learning by an incident (or incidents) of inconsistency among instructors in **clinical teaching/coaching** while you were a student at Camosun?

all the time	many times	a few times	almost never	never
		8	2	

Graduates:

6(b) Does this affect your clinical practice or your learning now that you are a graduate dental hygienist? (i.e. now that you are practicing, do you still feel that you were disadvantaged?)

Yes	maybe	no	not applicable
	7		

7. Have you ever felt personally disadvantaged in your learning by an incident (or incidents) of inconsistency among instructors in **clinical evaluation?**

Students:

all the time	many times	a few times	almost never	never
	1	7	6	5

Graduates:

all the time	many times	a few times		almost never	never
	1	6	-1-	2	

Graduates:

7a) Does this affect your clinical practice or your learning now that you are a graduate dental hygienist? (i.e. now that you are practicing, do you still feel that you were disadvantaged?)

Yes	maybe	no	not applicable
1	1	8	

8. Do you feel that there may be **learning advantages** by having **differences** among clinical instructors in how they **teach/coach in the clinical setting?**

Students:

Yes	maybe	no	(yes&no: 1)
16	4		

Graduates:

Yes	maybe	no
7	3	

9. Do you feel that there may be **learning advantages** by having **differences** among clinical instructors in how they **evaluate in the clinical setting?**

Students:

no	*	maybe	yes
8	-2-	6	4

Graduates:

No	*	maybe	*	yes
3	-1-	5	1	

Other Responses From Faculty Questionnaire

5. Overall what effect do feel calibration of clinical instruction has on student learning while they are taking the Dental Hygiene program? (choose one)

highly detracts from learning	detracts from learning	no effect
	1	
may enhance learning	**enhances learning**	**greatly enhances learning**
	6	1

6. How do they think a low level of consistency among clinical teaching and evaluation affects students as far as number of students ?

no students	just a few very vocal students	many students		all students
	1	5	-1-	1

7. What kind of effect do you think a low level of calibration among clinical faculty has on the decision making and clinical **performance skills of students once they are graduates?** Circle two of the following

major effect	moderate effect	minor effect
1	4	2
positive effect	**no effect**	**negative effect**
1		4

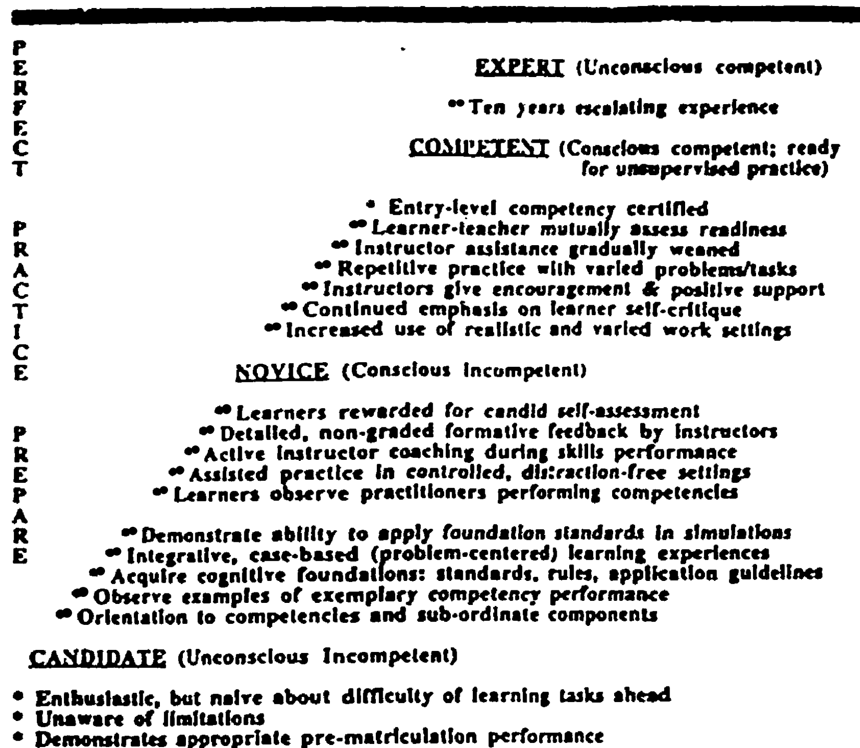


Figure 2. Phases and events of novice-expert learning continuum

Sources: Fischman, 1982; Hagman, 1983; Johnson, 1984; Schneider, 1985; Druckman and Bjork, 1991; Carry and Wergin, 1993

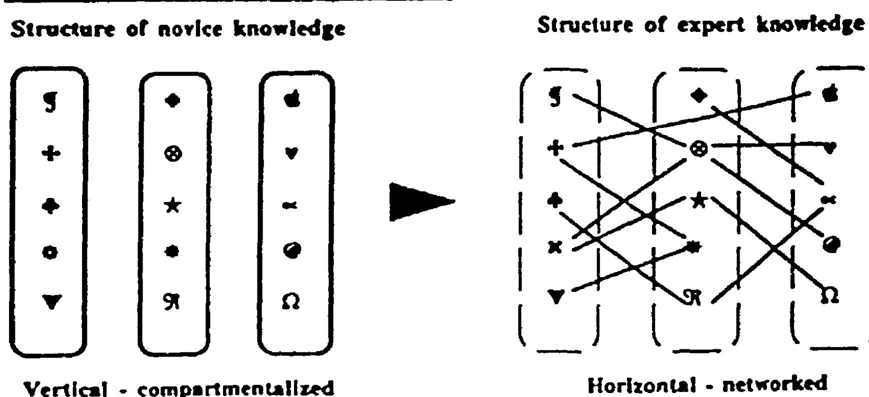


Figure 3. Conceptualization of novice and expert knowledge structure

Sources: Debono, 1983; Anderson, 1985; Bordage, 1990

Source: Hendricson, W. D., Kleffner, J. H. 1998. Curricular and Instructional Implications of Competency-Based Dental Education. J Dent Educ, 63: 183-196.