

UNIVERSITÉ DE SHERBROOKE

Une comparaison des journaux non structurés et des journaux structurés rédigés
par les étudiants en hygiène dentaire

A Comparison of Dental Hygiene Students' Unstructured and Structured
Journal Writing

par

Carol Etienne

Essai présenté à la Faculté d'éducation

En vue de l'obtention du grade de

Maître en éducation (M.Éd.)

Maîtrise en enseignement au collégial

Décembre 2010

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SUMMARY

The Canadian Dental Hygienists Association (CDHA) has indicated that there is a need for research in education in the field of dental hygiene. It seems that when compared to the nursing profession, the profession of dental hygiene is only in the earliest stages of investigating ways of teaching critical thinking. The faculty of the dental hygiene program at John Abbott College has always valued the skill of self-assessment in the students, yet there are few specific learning activities provided whereby the students can learn how to perfect and work on this invaluable skill of self-reflection in order to better self-assess. Although self-assessment is required of the students upon the completion of each clinical experience in Clinic 1, 2 and 3, a modest amount of clinical time is allotted to reflect upon this most important skill. It appears that more could be done to prepare our students to assess their learning and clinical practice. Self-reflection as an essential element of practice has a valid place in professional education. The purpose of conducting this study was to find out whether unstructured or structured self-reflective journal writing is a sound pedagogical technique to encourage dental hygiene students' self-assessment through self-reflection.

The research design for the project was a single case study. The paradigm for the study was chosen with a purposeful selection of participants, involving twenty-seven, third-year dental hygiene students at John Abbott College. The students were arbitrarily enrolled in two sections, which for the purpose of this study were referred to as Group A and Group B. Three duplicated coded anonymous journal entries from each student were collected over a ten-week period during the Fall 2009 semester.

To examine the students' level of self-reflection, two methods were used. First a content analysis of reflective journals was used to ascertain the level and

substance of the reflections from their clinical experiences with the intent of looking more specifically at the students' self-assessment. The journal entries were coded and analyzed after the grades were submitted at the end of the school term. This was followed by the distribution of an anonymous questionnaire to the students in both sections.

The responses of the questionnaire were tabulated and analyzed. An analysis was done on the data collected in order to determine whether age, education and or mother tongue of the students in both Groups A and B had an influence on their perceptions of journal writing, as well as the student's opinions about the value of journal writing. This questionnaire included two open-ended questions to assist in gathering additional data on the student's thoughts on writing journals. A content analysis of the qualitative data collected from the open-ended questions in the questionnaire was also analyzed.

Results indicated there were very few differences in the level of self-reflection leading to self-assessment. However, students in Group B who were assigned structured journals showed more evidence of deeper learning. Taken as a whole, the journal entries clearly showed the students were involved in '*reflection-on-action*' of their clinical experiences (Schon 1987, as cited in Asadoorian & Batty, 2005). The quality of the responses for the most part indicated the students took the time and effort to record their perceptions of their clinical experiences. It is important to note that the results do indicate that students did show a need to self-reflect and assess. The students did in fact validate the importance of reflection through journal writing, even though they did not particularly like it as an added assignment.

The journals were found to be very helpful to the research in getting to know what the issues were that held the students' attention. They explained how

and to what extent the students developed relationships with their clients. It was obvious that clinicians have an impact and influence on student learning. The students value the help, role modeling, patience, encouraging words and or gestures, positive reinforcement, and understanding provided by their clinicians.

This research provides some evidence that students do believe that self-reflection through structured journal writing helped them better prepare for future clinical sessions with their clients. Our goal as educators should be to encourage dental hygiene students to self-assess through written self-reflection as an established practice for deeper learning.

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RÉSUMÉ

La principale question de recherche dans cette étude était la suivante: «Y a-t-il une différence entre les niveaux d'autoréflexion et d'autoévaluation des étudiants en hygiène dentaire selon qu'ils rédigent des journaux réflexifs non structurés ou des journaux réflexifs structurés?» Un essai a été fait pour déterminer si les étudiants étaient capables ou non d'autoréflexion et d'autoévaluation dans leur journal réflexif et, si oui, le faisaient-ils davantage dans des journaux non structurés ou dans des journaux structurés. Selon l'Association canadienne des hygiénistes dentaires, il y a un besoin de recherche en éducation dans le domaine de l'hygiène dentaire. Il semble que, contrairement aux infirmiers et infirmières, les hygiénistes dentaires ne font que commencer à se pencher sur des moyens d'enseigner la pensée critique.

Le corps professoral du programme d'hygiène dentaire du Collège John Abbott a toujours valorisé l'habileté d'autoévaluation des étudiants mais il y a peu d'activités d'apprentissage prévues au cours desquelles les étudiants peuvent apprendre à développer et à améliorer cette inestimable habileté qu'est l'autoréflexion afin de mieux s'autoévaluer. Bien que l'autoévaluation soit exigée des étudiants, peu de temps clinique est alloué pour réfléchir à cette habileté d'une très grande valeur. Il semble que l'on doive faire davantage pour préparer nos étudiants à évaluer leur apprentissage et leur pratique clinique. L'autoréflexion, étant un élément essentiel de la pratique, doit avoir une place importante dans l'enseignement professionnel.

La méthode de recherche était une simple étude de cas. Le modèle d'étude a été choisi avec un groupe de participants et participantes volontaires, incluant trente-et-un étudiants de troisième année en hygiène dentaire au Collège Abbott. La cohorte comprenait 29 étudiantes et 2 étudiants. Tous les participants de l'échantillon parlaient anglais bien que leur langue maternelle ne soit pas nécessairement l'anglais, mais plutôt le français ou une autre langue. Les caractéristiques des étudiants, à savoir l'âge, le niveau de scolarité et l'expérience de vie, étaient variées. Tous les étudiants de cet échantillon en étaient au même stade dans leur formation en hygiène dentaire. La taille de l'échantillon final a été déterminée par le nombre d'étudiants qui ont choisi de participer volontairement à l'étude.

Durant la quatrième semaine de leur cinquième semestre, tous les étudiants du semestre de l'automne 2009 inscrits au cours Stage clinique II ont été invités à participer à cette étude de recherche. Cette classe avait déjà été divisée en deux groupes sélectionnés de façon arbitraire au moment de l'inscription au cours.

Pour les besoins de cette étude, ils ont été identifiés comme le groupe A et le groupe B. Chacun des étudiants de ces groupes a été informé individuellement de la nature de l'étude, tant verbalement que par écrit. On leur a expliqué qu'ils devraient consigner trois entrées de journal entre les semaines six et dix inclusivement. Cette demande a ensuite été modifiée pour s'étendre aux dix dernières semaines du semestre afin que les étudiants puissent avoir suffisamment de temps pour soumettre leurs entrées de journal. On a demandé aux étudiants du groupe A de rédiger des journaux non structurés, comme ils le faisaient au cours de leur deuxième année du programme, et aux étudiants du groupe B de rédiger des journaux structurés à partir de questions fournies par le chercheur pour les guider dans la rédaction de leur journal. Les étudiants avaient la possibilité de mentionner qu'ils ne voulaient pas que les données inscrites dans leur journal soient utilisées dans cette étude.

Les étudiants de deux groupes devaient consigner trois entrées dans leur journal au cours des dix dernières semaines du semestre de l'automne 2009. Les étudiants choisissaient sur quelle expérience clinique ils désiraient écrire. Ils devaient remettre le même jour deux copies dactylographiées de leurs entrées de journal à la directrice du département, et cela, dans la semaine suivant l'expérience clinique. Pour assurer l'anonymat et la confidentialité, on a demandé aux étudiants d'inscrire seulement leur code numérique ou alphabétique ainsi que le code de groupe (A ou B) sur chaque copie. Une copie anonyme fut envoyée au chercheur par la directrice de département pour commentaires et la seconde copie fut placée dans une enveloppe scellée et rangée dans un classeur verrouillé. Il fut demandé à la directrice de département de s'assurer que les entrées des groupes A et B soient conservées séparément. Les entrées de journal furent conservées dans un classeur verrouillé dans le bureau de la directrice de département jusqu'à la fin du semestre.

Pour analyser le niveau d'autoréflexion des étudiants, deux méthodes ont été utilisées. Premièrement, le contenu des journaux réflexifs rédigés durant le cinquième semestre a été analysé pour déterminer le niveau et la substance des réflexions liées à leurs expériences cliniques afin d'examiner plus spécifiquement l'autoévaluation des étudiants résultant de l'autoréflexion. Deuxièmement, un questionnaire anonyme transversal (voir annexe E) a été distribué aux étudiants. Les données ainsi recueillies ont été analysées afin de déterminer si l'âge, l'éducation et/ou la langue maternelle des étudiants des groupes A et B avaient eu une influence sur leurs perceptions de la rédaction d'un journal ainsi que sur l'opinion des étudiants concernant la valeur de rédiger un journal. Afin d'obtenir des données plus approfondies sur ce que les étudiants pensaient de l'autoréflexion et de l'autoévaluation, le questionnaire incluait deux questions ouvertes. Finalement, une analyse du contenu des données qualitatives recueillies grâce aux questions ouvertes du questionnaire a également été faite. Les étudiants avaient la possibilité de refuser de remplir le questionnaire. Le questionnaire fut remis aux étudiants par un facilitateur indépendant (une personne à l'extérieur du

département) qui ne connaissait pas les étudiants. De cette façon, si un étudiant ne voulait pas remplir le questionnaire, le chercheur ne serait pas en mesure d'identifier l'étudiant.

On a demandé à tous les étudiants de participer volontairement à la recherche et on leur a spécifié que leurs notes ne seraient pas affectées par l'étude. Lorsqu'un étudiant acceptait de participer à l'étude, on lui remettait un formulaire de consentement qu'il devait remplir (voir annexe A).

Les résultats indiquèrent qu'il n'y avait pas de différence globale dans le niveau d'autoréflexion menant à l'autoévaluation. Toutefois, dans les faits, il était évident que les journaux réflexifs structurés favorisaient davantage la réflexion et que la réflexion amenait des changements comme cela a été constaté dans le groupe B, soit le groupe d'étudiants qui avaient pour tâche de rédiger un journal structuré à partir de questions-guides. Considérées dans leur ensemble, les entrées de journal ont démontré clairement que les étudiants s'étaient engagés dans une démarche de « réflexion sur l'action » ou de métacognition tout en réfléchissant sur leurs expériences cliniques. Dans la plupart des cas, la qualité des réponses a montré que les étudiants avaient pris le temps et fait les efforts nécessaires pour consigner leurs perceptions de leurs expériences cliniques. Mais plus important encore, il est essentiel de noter que les résultats indiquent que les étudiants ont montré un besoin d'autoréflexion et d'autoévaluation. Les étudiants ont, en fait, validé l'importance de la réflexion faite à travers la rédaction d'un journal même s'ils n'ont pas particulièrement apprécié cet ajout de tâche.

Cette recherche fournit certaines preuves que les étudiants croient que l'autoréflexion par la rédaction d'un journal structuré les a aidés à mieux se préparer pour leurs futures séances cliniques avec leurs clients. Notre objectif en tant qu'éducateurs devrait être d'encourager les étudiants à s'autoévaluer par l'autoréflexion écrite. Si les éducateurs en hygiène dentaire doivent favoriser la pratique réflexive, le programme doit alors intégrer le temps et les tâches appropriées pour aider l'étudiant à maîtriser cette compétence. Ce temps devrait être accordé en quantité suffisante dans la portion formation des études en hygiène dentaire afin de donner aux étudiants la possibilité d'utiliser la réflexion tout au long de leur programme.

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I want to thank John Abbott College for permission to carry out this research, and the dental hygiene class of 2010 at John Abbott College for their willingness to participate with their time and contributions to further research in the field of dental hygiene. This would not have been possible without you. Thank-you.

Finally, a special thanks to my family for encouraging and supporting me throughout this program.

INTRODUCTION

Reflective learning is recognized as being significant to the education of professionals, as the learner is encouraged to connect theory with practice and relate that to their own clinical experiences. In self-assessment through reflection, the learner internalizes their clinical practice reviewing what they have done, how they did it, what they learned from the experience, and how they might improve. All learning necessitates students to actively connect with knowledge, but reflection makes this connection an essential part of the process.

According to the Canadian Dental Hygienists Association (CDHA) there is a need for further research in education and the practice of dental hygiene. Some examples of research considered necessary include an analysis of the processes involved in clinical decision-making, the investigation of the gaps between research and dental hygiene practice and the relationship between dental hygiene education and life-long learning (Canadian Dental Hygienists Association, Dental Hygiene Research Agenda, 2003).

This research study examines whether there is a difference between dental hygiene students' level of self-reflection and self-assessment when writing unstructured reflective journals or when writing structured reflective journals. In particular, the degree to which students self-assess in these two types of journal writing will be analyzed. Participants in the study were third year, Fall 2009 dental hygiene students at John Abbott College. To examine self-reflection and self-assessment two methods were used: content analysis of reflective journals and an anonymous cross-sectional questionnaire. It was hoped that should the study find reflective journal writing pedagogically sound and one type of journal writing prove to be more efficacious, then those findings would be used to make recommendations to the dental hygiene program at John Abbott.

CHAPTER ONE: PROBLEM STATEMENT

Until recently, it seems the quality of dental care had been relatively unexplored. Instruments to assure quality were either unevaluated or untried. One study conducted in 1978 by Milgrom, Weinstein, Ratener, Read and Morrison investigated dentists' quality assurance of patient treatments. This study reported on restorative dentistry that was evaluated either by peer review (colleagues) or by self-assessment (dentist him/herself). The dentists studied were in fact more critical of themselves about the treatments they gave their patients than were their peers. It was concluded that self-assessment might prove to be an effective procedure in dental quality assurance. More recently, a study of dental students conducted by Manogue, Brown and Foster (2001), found the most regularly used tools of assessment by educators in restorative dentistry were "observation and judgment (a glance and mark)". They go on to say that "oddly, peer-assessment, self-assessment, reflective learning, feedback and communication skills were most valued, yet the least used" (p. 367).

In the busy practices of today's professionals, care must be taken to stay current. Dental professionals have to complete continuing education credits toward professional development on an annual basis for licensure. Self-assessment could conceivably help improve the effectiveness of professional learning (Bowers & Wilson, 2002). Knowles (1975) is quoted as saying that, "the clearer that learners are about their needs for learning in a particular situation the more efficiently can they plan their learning" (as cited in Asadoorian & Batty, 2005, p. 1317). Asadoorian and Locker (2006) refer to a study of Canadian dental hygienists, where it was determined that when professionals know their learning needs through self-assessment, they spend less time involved in continuing education that did not pertain to their practice.

According to Boud and Falchikov (1989) there is a need for further studies to look at the different ways of approaching self-assessment to investigate areas in which student assessment can be realistically implemented. The literature on self-assessment related to dental hygiene shows a need to augment the curricula indicating there was to date, no published curricular component to teach self-assessment (Jackson, Bowen & Boyd, 2007) and little research done in the field of dental hygiene in relation to critical thinking (MacDonald, 2006). In the nursing profession one can find an abundance of literature on the subject. It seems that when compared to the nursing profession, the profession of dental hygiene is in the earliest stages of investigating ways of teaching critical thinking.

The faculty of the dental hygiene program at John Abbott College has always valued the skill of self-assessment in the students, yet there are few specific learning activities provided whereby the students can learn how to perfect and work on this invaluable skill of self-reflection in order to better self-assess. Although self-assessment is required of our students, upon completion of each clinical session in fourth (Clinic 1), fifth (Clinic 2), and sixth (Clinic 3) semesters it may be implemented at times with little thought and in a rather cursory fashion. A modest amount of clinical time is allotted to reflect upon this most important skill. It appears that more could be done to prepare our students to assess their learning and clinical practice. Self-reflection as an essential element of practice has a valid place in professional education.

Journal writing has been used in at least one dental hygiene course in the second year of the dental hygiene program at John Abbott College, however the students enrolled in this course had few requirements concerning the content and structure of their journal entries. The self-reflection and further self-assessment found in these journals was often not what one would have expected from students in a professional program. Clearly, as educators of future health professionals we

need to create opportunities for students to learn how to precisely self-assess their performance.

Research shows that educators in many fields including nursing, dentistry and medicine are using journal writing as a tool to learn and develop the skill of self-reflection (Boyd, 2002; Pee, Woodman, Fry & Davenport, 2000; Riley-Doucet & Wilson, 1997). In the Master of Education in College Teaching Program at the University of Sherbrooke, reflective journal assignments have been used to help students contemplate their learning. It has been noted that writing these journals has helped to demonstrate growth and development in personal and professional learning over time. Kerwin-Boudreau (2009) states:

Reflection on practice over time emerged as the major mechanism underlying changes in perspectives on teaching and learning. Although some participants had initially questioned the value of reflecting, they came to regard it as a key element of their professional identity. The process of reflecting helped them to link theory with practice. It provided them with tools to deconstruct what was happening in their classrooms thereby affording them critical insight into their practice. (p. 237)

In health education accurate assessment of knowledge and skills is considered to be paramount. Even so, the skills of critical thinking and the ability to accurately reflect and self-assess one's own competencies and learning needs, seem for the most part to evade many assessment methods. A methodology assessing skills related to self-directed learning is needed, and until one is introduced there will be little knowledge available to understand how effective experiential learning is, in preparing health professionals (Mattheos, Nattestad, Falk-Nilsson & Attstrom, 2004). It is due to these findings that this study was initiated. It investigates whether there is a difference between dental hygiene students' level of self-reflection and self-assessment when writing unstructured reflective journals or when writing structured reflective journals. In particular, the degree to which students self-assess in these two types of journal writing will be analyzed.

CHAPTER TWO: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

1. INTRODUCTION

Health care professionals are increasingly challenged with vast amounts of new information, which at times can be overwhelming. Assimilation of this knowledge using traditional methods is not always effective or possible. Because dental hygienists are required to offer the best possible care to their clients, it is essential that dental hygienists have the skills to critically evaluate their learning opportunities. As individuals, each has the responsibility to know what skills and knowledge they need to know to provide optimum care. This literature review looks at evidence-based-practice in the education of professionals in higher education including studies in self-directed learning and attitudes toward self-reflection and self-assessment. In addition, research that has studied the efficacy of journal writing as a learning activity amongst health professionals has been perused with the purpose of gathering evidence of the value of self-reflective written journals as valid means to improve self-reflection in health professionals.

In support of educational research in Canada the CDHA recognizes that research is necessary to provide and nurture the advancement of dental hygiene to provide current evidence-based knowledge to professionals. Education and research are recognized by the CDHA as two connected paths towards evidence-based practice (Canadian Dental Hygienists Association, 2009, p.8). Evidence based practice refers to the melding of clinician expertise together with the best available evidence from research (Cobban, 2004, p. 153). It is clear that dental hygienists are looking for solid research to help guide them in their daily practice (Cobban, Wilson, Covington, Miller, Moore & Rudin, 2005; Forrest & Miller, 2001).

The National Dental Hygiene Competencies for Entry-to-Practice (Canadian Dental Hygienists Association, 2010) include a lengthy list of competencies deemed important to dental hygiene. Below are a few competencies the entry-level dental hygienist must reliably demonstrate that are relevant to this study:

1. Evaluate the effectiveness of the implemented clinical therapy;
2. Evaluate the effectiveness of learning activities and revise the educational process when required;
3. Self-assess professional performance in relation to standards of practice;
4. Apply evidence-based decision-making approaches to the analysis of information and current practices;
5. Create personal plans for continuing competence and professional development (pp. 10-24).

It is therefore expected that the dental hygienist has many roles as suggested above: a clinical therapist, an oral health educator, a professional, as well as a critical thinker, and an advocate of dental hygiene.

In order to be able to demonstrate these abilities as part of the foundation of their practice, dental hygienists must employ self-assessment. Dental hygienists need to continually perfect the skills required to provide quality care to their clients. More than ever it is required of health care professionals to be able to identify their own learning needs. According to Galbraith, Hawkins and Holmboe (2008), the ability to evaluate one's own needs as far as strengths and weaknesses in terms of clinical practice (knowledge and skills), should not be assumed. They have found that the accuracy of one's own self-assessment can be dubious. It is thought that students can at times misconstrue their own efficacy. Further they propose that self-assessment be made more effective through its implementation in practice everyday and that occasional external validation of self-assessment results

be implemented to strengthen the process of self-assessment. In this way goals and future plans for improvement can be made for the individual student. Educational programs therefore have a responsibility to include in their programs the use of activities involving reflection and encouragement of self-assessment with their students.

2. CRITICAL THINKING

According to Boyd (2002), critical thinking originated with Socrates, and logic with Aristotle. Exactly how these two concepts are interrelated has been discussed over the years. However, in reference to students studying dental health care, Boyd suggests that making decisions about perplexing problems is what dental students are faced with on a daily basis. They need to think critically and apply logic to solve those problems. Tanner (1983) suggests that when it comes to the patients' dental needs there are so many variables that it can be difficult for the student to make decisions due to the variety of treatment options available. He proposes the reflective thinking feature of critical thinking is critical to dental students' development of valid clinical decisions. These clinical decisions involve deciding what is best for the client from the clinical assessment, the diagnosis, and the treatment options (as cited in Boyd, 2002). The theoretical frameworks of critical thinking and self-directed learning in adult education have been studied by Sedlak (1997) and Garrison (1992). They established that educators have found that critical thinking and self-directed learning go hand-in-hand as a part of the students' learning processes. Sedlak (1997) points out that, when students reflect about their practice they begin to think critically about their experiences and this helps students to know what they need to learn in order to become skillful professionals. Garrison (1992) found a strong liaison between critical thinking and self-directed learning, and states that in order to be a critical thinker one has to be self-directed as well as the reverse, in order to be a self-directed learner one needs

to be a critical thinker. He adds that an element central to critical thinking is taking responsibility for one's own learning.

Kurfiss (1988) suggests three types of knowledge are needed in reflective thinking: declarative, procedural and metacognitive. Dental students spend the first two years of their program gathering declarative knowledge from lectures and required reading. This knowledge is not sufficient alone to perform skills, indicating that knowledge of how things work is needed or, in other words, procedural knowledge (as cited in Boyd, 2002, p. 711). Rittle-Johnson (2001) points out that conceptual knowledge can help improve procedural knowledge, and strides in procedural knowledge can lead to better conceptual knowledge. An example of this is the concept of periodontal pocketing and probing. Students have listened to lectures on, read about, and seen photographs of periodontal pocketing and probing in class, yet the actual placement of a probe for the first time into a deep pocket in a client's mouth can be a moment the student will never forget (personal experience). Rittle-Johnson goes on to say, that asking students to reflect on and explain the concepts for the procedures they are performing may facilitate learning. Metacognition, the third type of knowledge, aids the student to monitor the strategies they used in applying declarative and procedural knowledge (as cited in Boyd, 2002, p. 711). Bruer (1997) defines metacognition as "the ability to think about thinking, to be consciously aware of oneself as a problem solver, and to monitor and control one's mental processing" (as cited in Boyd, 2002, p. 711). Over and above these three types of knowledge, it is proposed that learners need to develop cognitive frameworks or schemas, in order to organize know-how and information into structures. Kurfiss (1988) suggests that the development of these schemas would show a characteristic of an expert rather than a novice learner. A novice would have few schemas from which to draw experience to approach a problem whereas an expert would have a number of schemas. Therefore, this indicates to us as educators that students must be given the necessary time to

assimilate their knowledge from the classroom and clinic into schemas to help them develop from novice into competent professionals (as cited in Boyd, 2002).

3. SELF-REFLECTION

Malcolm Knowles, (1975) often referred to as the “father of adult education,” explains the importance of adults learning how to learn, rather than only learning the information. This is similar to the often-heard ancient Chinese proverb: Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime. This proverb helps us understand that if we teach someone to learn how to learn they need not rely on anyone else. With support, one can be taught to develop a certain skill set which leads to independence. This independence will further motivate the learner to be self-sufficient and feel better about themselves thereby cultivating a new found self-confidence This, Knowles explains is the process of self-directed learning. He further states that a learner who wants to be self-directive needs to be successful in self-assessment (as cited in Asadoorian & Batty 2005, p. 1316).

Knowles (1975) found that learners are more motivated as a result of self-diagnosed learning needs than those externally diagnosed. He also comments “when learners are clear about their own learning needs in a given situation, the better they can plan for their learning” (p. 1317). Knowles states that “self-assessment is not instinctive, we must learn it...the availability of tools to self-diagnose one’s learning needs are inadequate” (as cited in Asadoorian & Batty, 2005, p. 1317). Kolb (1984) and Fink (2003) with their work on learning experiences, and Eylar’s (2001) views on reflective practice, all accentuate the necessity to afford students with worthwhile opportunities to make learning meaningful. Eylar (2001) refers to Kolb’s cycle of action and reflection as the “What? So what? Now what? process”, suggesting these three questions can provide the foundation for journal writing. She points out that these questions can

be used to help the student go beyond the reaction and observation of a situation (as may be written in a journal) and link those observations to course theory and future action. For example, the “Now what?” aspect may most probably be something that needs an answer or possibly a strategy for trying something a little different next time around (as cited in Chabon & Lee-Wilkerson, 2006, p. 148).

Schon (1987) has advocated self-reflection as a learning tool. He says, “Professional education should be redesigned to combine the teaching of applied science with coaching in the artistry of ‘*reflection-in-action*’” (as cited in Wong, Kember, Chung & Yan, 1995, p. 50). Schon points out that reflective practice blends both “science and tacit knowledge”. He makes a distinction between ‘*reflection-in-action*’ which happens during an event that changes that event and ‘*reflection-on-action*’ which occurs after an event where it can be pondered (Schon, 1987, as cited in Asadoorian & Batty, 2005, p. 1319). Loo (2002) further develops Schon’s view of the reflective practitioner by offering the concept of ‘*knowing-in-action*’, suggesting that in journaling the learner takes a fair amount of control over their learning experiences and gives meaning to these experiences. When a student becomes competent or has the know-how / ‘*knowing-in-action*’, the student is comfortable. However when an unfamiliar result occurs from a usual treatment the student will become unsettled. For example, when ‘*knowing-in-action*’; the student is able to evaluate the need for a fluoride treatment. However, what happens when there is an unfamiliar result, projectile vomiting due to a fluoride treatment? When such a situation occurs ‘*reflection-on-action*’ would be necessary. Time does not always allow for this. An expert professional would be able to ‘*reflect-in-action*’ and make the necessary changes. When students have few previous experiences upon which to reflect, they are unable ‘to ‘*reflect-on-action*’. It is hoped with advancement in their education, students will learn to practice, ameliorate and consistently use ‘*reflection-in-action*’ (Schon, 1987, as cited in Walker, 2006, p. 216).

Self-assessment methodologies have been studied in the past (Manogue, Brown, Nattress & Fox, 1999). The best contribution self-assessment can make is in its learning potential, rather than its use for summative assessment. Therefore, “the goal of self-assessment should shift from the student’s focus on how good am I? to how can I get better?” (Mattheos *et al.* 2004, p. 385). As educators it is our responsibility to help students learn how to do this.

Contemporary dental curricula identifies continuous assessment as central to overall assessment in two ways: first to assess the achievement of the competency and secondly to support frequent self-evaluation/assessment. In self-assessment students reflect on clinical performance taking into account feedback from their clinician and then further documenting their plan to improve their performance (Mossey & Newton, 2001). When students build on prior learning experiences, opportunities for self-reflection and the development of self-directed learning occurs (Sedlak, 1992).

Researchers Asadoorian and Batty (2005) and Chabon and Lee-Wilkerson (2006) have presented tried and true models of self-assessment and reflection to help guide professionals to self-assess their skills and knowledge and take the appropriate steps to reeducate themselves in order to maintain their competence. Self-direction is an important skill for most but particularly important for health care professionals. Cameron and Mitchell (1993) state that when a student learns to be self-directed they are much more likely to develop responsibility and independence.

Boud, Keogh and Walker (1985) provide a model of the reflective process. In response to an experience, a re-evaluation of that experience takes place when the experience is re-visited. They have determined that four steps to the

re-evaluation occur: the first is association where a new situation has occurred and new information is added to the learner's conceptual framework. For example, the student begins their first clinical experience using instruments (previous knowledge) in the mouth of a client (new experience/knowledge). Second is integration where the connections between this new and previous data are formed. Here, the student working with a client in clinic will experience, for example, new feelings and reactions. This new knowledge will have to be integrated with what the student already knows. The third step is validation where the learner looks at the soundness of the ideas and feelings that have followed the experience. It is at this point that the student will apply the learning into their life. The fourth step is appropriation where the learner incorporates the new knowledge as their own (as cited in Wong *et al.* 1995, p. 50).

Reflection incorporates experiential learning and constructivist learning theories, both of which are significant to the practice of dental hygiene. Wong *et al.* (1995) state that reflective learning for professionals is of utmost importance. While students begin to reflect on current learning experiences they integrate the experiences with previous knowledge frameworks, encouraging deeper learning and understanding. Asking students to probe and ask themselves questions such as why they did something in a certain fashion or why they felt the way they did, helps them look deeper for the answers. Professional competence is boosted by reflection (Wong *et al.* 1995). As in any thoughtful self-inquiring experience, reflection is not easy. Richert (1987) summarizes the importance of professional reflection:

Practice in any profession requires the processing of technical and scientific knowledge for use in a context that is rapidly changing and uncertain. The ability to think about what one does and why—accessing past actions, current situations, and intended outcomes—is vital to intelligent practice that is reflective rather than routine or reflexive. Reflection also influences how one grows as a professional

by influencing how successfully one is able to learn from one's experiences. (as cited in Saylor, 1990, p. 11)

In a 2006 study of students attending a program of communication sciences, journal writing was used to find out how students applied course materials to their professional experiences. As a part of the theoretical framework, Kolb's (1984) experiential learning model was used. This model shows learning as a cycle involving "experience, reflection, abstract conceptualization and active experiment". Kolb points out the notion that experiential learning that incorporates reflective thinking has been supported and studied for decades (as cited in Chabon & Lee-Wilkerson, 2006, p. 148). It was found that students are in fact making strong associations between what goes on in the classroom and what actually happens in the work environment. Kolb (1984) and Schon (1987) see reflection as vital to knowledge development and comprehension where learning is happening in practiced-based milieus involving experiential learning. Reflection allows new experiences to be amalgamated with previous knowledge to construct knowledge (as cited in Pee *et al.* 2000, p. 755).

4. THE ROLE OF ATTITUDES TOWARD SELF-ASSESSMENT

Self-assessment or self-evaluation (not always clearly differentiated by authors) has held the interest of researchers over the past half century. Nevertheless, the incentive for introducing self-assessment through self-reflection into courses in post secondary education has varied from a basic curiosity as to whether the students could do the task, to reasons more related to educational goals and objectives. In the nursing profession for example, "reflection has become more than ever a cornerstone whether in teaching, clinical practice or research" (Charalambous, 2003, p. 1). This ability to self-assess is vital for all health professionals. Due to the nature of dentistry and the medical professions, after graduation, others seldom evaluate the quality of their work (Mattheos *et al.* 2004).

In Maryland, 2001 a study of practicing dental hygienists' perceptions regarding self-assessment was implemented applying the theoretical model of behavior called the 'theory of reasoned action' introduced by Fried, DeVore and Dailey (2001). This theory implies that a person will use a certain behavior if they think it is a good thing and if they think others, who are important to them, think this behavior is worthwhile. Two hundred dental hygienists were asked through a survey what their attitudes, beliefs, motivations and intentions towards self-assessment were. The data analysis involved descriptive statistics and correlations to predict intention and behavior. The number of surveys collected was 119. The majority (75.6%, n=90) of dental hygienists responded that they not only had the time to perform self-assessment, but also (76.5%, n=91) did so in a consistent way while affording dental hygiene care. The results indicated that dental hygienists valued the benefits of self-assessment and their positive attitudes correlated strongly with intention to self-assess. The results also suggest that, knowing the importance self-assessment plays as an essential of quality assurance, plans to help develop self-assessment in educational institutions need to be implemented (Fried *et al.* 2001).

Wilkinson (1999) points out that the literature suggests that reflection is prompted by an event during practice. Often this event evokes feelings. An issue at the center of self-assessment is feelings. Orest (1995) says that a negative practice outcome may be a powerful incentive for self-assessment. Newell (1992) refers to the fact that intense situations, or those that may cause angst or tension, provide great potential for reflection. Atkins and Murphy (1993) have developed a list of five skills important to reflection. They are listed as the practitioner's ability to: be aware of feelings, be able to describe a situation complete with thoughts and feelings, be able to analyze feelings and knowledge related to the situation, be able to evaluate the relevance of the knowledge and synthesize the new knowledge with

earlier knowledge and be able to use this new found knowledge in a new situation. Self-assessment is complicated and can never be objective, yet self-assessment tools are best used to encourage reflection-on-performance (Stewart, O'Halloran, Barton, Singleton, Harrigan & Spencer, 2000).

Although crucial and of great value to all professionals, self-assessment is not a competency being taught in many educational institutions (Fried *et al.* 2001). Nevertheless, as Boyd (2002) concluded, when dental health care providers are able to self-assess, they are more likely to be aware of their needs in continuing education.

5. JOURNAL WRITING

Usually the focus in dental education has been on the incorporation of enormous amounts of knowledge with little thought of reflection on learning (Pee *et al.* 2000). However, more recently the value of self-reflective written journals as a valid means to improve self-reflection in health professionals has been realized.

The use of journal writing has been an interest of educators and researchers alike for many years (Ibarreta & McLeod, 2004; Riley-Doucet & Wilson 1997; Wong *et al.* 1995). Journal writing and its benefits is the main focus of the studies by Asadoorian and Batty (2005), Chabon and Lee-Wilkerson (2006), Ibarreta and McLeod (2004), Loo (2002), Riley-Doucet and Wilson (1997), and Walker (2006). Journal writing seems to have many different applications depending on the objectives of the instructor and student. Boyd (2002) refers to a journal as a written reflection paper. She presents guidelines to help focus the student's writing. The guiding principles she asks of her students are: reflect back on your day in clinic and think about what happened; did any feelings come to mind?; ask yourself what went well and what might you have done differently?;

and why? (p. 713). Pee *et al.* (2000) on the other hand, used a similar format to that of a reflective journal, called a progress file. Within this file the students were asked to think about their practice and keep track of their development from a clinical point of view, and to develop a way to record progress and further continuing professional development. Brown, and Sorrell (1993) state that a clinical journal provides guided opportunities for students to ‘think aloud’ on paper and reflect on their own thoughts and comprehension of the situations encountered (as cited in Walker, 2006, p. 217). Hahnemann (1986) thought that journal writing promoted risk taking on the part of the student. Before actually trying to “solve a problem during an actual situation, the student could write potential solutions, feelings and frustrations on paper” (as cited in Walker, 2006, p. 217).

Ibarreta and McLeod (2004) found that students through journal writing were expected to apply knowledge from readings and classroom content to their clinical situations. It has been suggested that journal writing, as it should include a record of events, comments, observations and feelings as the basis for reflection, becomes a purposeful method of problem solving which leads to self-directed learning. Stark (1994) noted that through the use of reflective journals in the clinical setting, both the educator and student could advance the growth of self-directed skills through the assessment of their learning. In this way the student will be able to know what they need to know.

Tang (2002) points out that reflective students need to “question what they see, hear, read and experience and relate what they learn to what they do to help them with future decisions” (p. 2). In this case study of in-service master education students, reflective journals in the form of reflective diaries were used to help and assess reflection where the students were asked three questions. One question was before the session: What is it that I want to learn most from this session? The two questions students answered after the session were: What is the

one main point I learned in this session? And, what is the chief question that has not been answered in this session? Assessment of the reflective diaries, revealed evidence of reflection and of the three objectives which were: reflection of practice, connection of theory to practice and development of plans for change or improvement. These results indicate once again that the reflective diary is a useful tool in facilitating reflection and reflective learning (p. 3).

Therefore, in the literature, the use of reflective journals has been well accepted as a tool for reflection. Reflective journal writing has been found to “give power to not only convey student’s feelings, but also disclose their questions and thoughts. All the while, instructors are able to analyze what students are learning, help them to connect previous knowledge with new knowledge and support active participation in the process of learning” (Chabon & Lee-Wilkerson, 2006, p. 157).

The merits of using reflective journals seem vast. Keeping a journal about clinical experiences encourages the learner to adopt a thinking mode rather than that of a task list mode. Having this written record of the students’ clinical experiences will spur recollections of the experience (Saylor, 1990). Davies (1995) states that journal writing gives students the occasion to go back to their clinical experiences and in so doing, look at how the situation might be dealt with differently in the future. Holmes (1997) suggests we need to constantly prod our students to think about why they decided to do what they did and or why they have the feelings they have about a situation or idea. In so doing, the student will be prompted to go deeper in their thought for the response.

In yet another study with physical therapy students, Ritchie (2003) used unstructured self-reported data collected through journal entries to look at how journal writing helped and encouraged dialogue between faculty and students during their clinical experience. She found that, after having completed seven

weeks of journal entries, both students and faculty had the opportunity to receive and give feedback, ask questions and offer ideas for additional reflection. In so doing, a trust was formed between student and faculty. Students also began trusting themselves and found it beneficial to be able to get confirmation, without being vulnerable in front of other students. Using journal writing as a teaching-learning component of the practice environment affords educators a way to identify affective outcomes of learning such as increasing self-awareness and professional growth (as cited in Walker, 2006). Reflective journals, as an assessment method “provide proof of comprehension of content knowledge, reflection, professional judgment and application as well as improved critical self-reflection and self-awareness” (Biggs, 1999; O’Rourke, 1998, as cited in Tang, 2002, p. 1).

In one study Eyler (2001) examined structured journals. In contrast to the unstructured journal approach described above, she points out two benefits to the use of structured journals: journals encourage students to look at the associations between course content and their clinical sessions and journal entries give both the student and faculty members a foundation from which changes in approach and ways of thinking can be carefully watched. It is emphasized however, that learning would more likely happen if reflection is an integrated aspect of the course and that it is continued throughout the semester. It is also imperative that there is full explanation of the connection between the classroom and outside experience.

6. RESEARCH QUESTION

The primary research question in this study is: Is there is a difference between a dental hygiene student's level of self-reflection and self-assessment when writing structured reflective journals versus unstructured reflective journals?

An attempt will be made to ascertain whether or not the students self-reflect and self-assess in their reflective journals, and if so, do they do this more in structured journals or in unstructured journals. The following definitions have been chosen from the literature, as they are the most appropriate. For the purposes of this study, the concepts self-reflection, self-assessment, critical thinking, journal writing, unstructured journals, and structured journals are defined as follows:

1. Self-reflection: Even though the terms reflection and reflective learning journals are often used throughout the literature, there is no agreement as to how to define these terms. This lack of transparency makes operationalizing these concepts and comparing them to the research findings very complex (Getliffe, 1996, as cited in Thorpe, 2004, p. 328). However, Boud *et al.* (1985) offer a very useful definition. They define reflection “as a generic term for those intellectual and affective activities in which individuals engage to explore their experiences in order to lead to new understandings and appreciations” (as cited in Boud & Knights, 1994, p. 231);
2. Self-assessment: Oddly, self-assessment is rarely defined in published studies. Sometimes it is referred to as self-reflection, self-evaluation, reflection, critical self-awareness, and critically thinking of past events. Asadoorian and Batty (2005) define self-assessment as: “An active process of developing an awareness of a pressing personal learning need,

within one's professional activities to guide the initiation of appropriate learning activities" (p. 1316);

3. Critical thinking: It is involved in reflective thought. "Critical thinking is a purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, inference, as well as the explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment was based" (Facione, 1990, as cited in MacDonald, 2006, p. 315);
4. Journal writing: It is defined by Martin (2000) as "a teaching/learning exercise in which students express in writing their comprehension of, response to, or analysis of an event, experience, or concept" (as cited in Chabon & Lee-Wilkerson, 2006, p. 146). Unfortunately none of the authors consulted in the literature review have specifically referred to unstructured versus structured journals. A number of terms are used to refer to journal writing as listed in Chabon and Lee-Wilkerson (2006) such as: interactive journal, reaction paper, learning journal, reflective summary writing, guided journal (structured journal), reflective journal, dialogue journal or simply a journal. Below is a description of unstructured and structured journals as developed in this research project:
 - A. Unstructured reflective journal: It is a written assignment whereby the students have not been given any firm guidelines as to what is to be included in the journal. When writing a journal entry at required intervals, it is the learner's choice to use the journal as they wish thereby deciding to write about their experience or vent or just write freely on any topic.

B. Structured reflective journal: It is the antithesis of the unstructured journal where the student is given the parameters for the frequency of the reports, what is and is not to be included in the journal. They are given organized guidelines such as specific questions to help them organize their thoughts. While writing the structured reflective journal the student is expected to use a process of '*reflection-on-action*' (Schon, 1987, as cited in Asadoorian & Batty, 2005) and make connections between clinical sessions and their experience(s) therein. An emphasis on critical reflection of learning events and or experiences is to be made rather than merely giving a description of them. The student is required to describe how they felt about events and explain what other ideas may have stemmed from their experiences. Reflection is actually thinking critically about the actions one has performed. Such reflection on events from the student's clinical sessions would lead to the development of critical assessment of themselves and their actions.

Although the primary focus of this research study will be to compare the level of reflection in structured and unstructured journal entries, there are some secondary questions as well. They are:

1. What are the main pre-occupations of dental hygienist students when reflecting upon their clinical experiences?
2. How do they explain these experiences?
3. What do they learn from reflection upon their experiences?

From the survey responses, it is hoped that answers to the following questions will be ascertained:

1. What are their opinions about the value of journal writing?
2. What is their understanding of self-assessment?

CHAPTER THREE: METHODOLOGY

1. RESEARCH DESIGN

As an educator at the college level in a dental hygiene program, the researcher has had an interest in further investigating and fostering the student dental hygienists' self-assessment through self-reflection abilities. Learning to self-reflect on clinical experience is essential to competent dental hygiene practice (Asadoorian & Batty, 2005). The purpose of conducting this study was to find out whether unstructured or structured self-reflective journal writing is a sound pedagogical technique to encourage dental hygiene students' self-assessment through self-reflection.

The research design for the study was a single case study. The paradigm for the study was chosen with a purposeful selection of participants, involving twenty-seven, third-year dental hygiene students at John Abbott College. The students were arbitrarily enrolled in two sections, which for the purposes of this study were referred to as Group A and Group B. The research involved collecting three duplicated, coded, anonymous journal entries from each student over a ten-week period during the semester. They were coded and analyzed after the grades were submitted at the end of the school term.

2. PARTICIPANTS

The population from which the sample was drawn included all dental hygiene students registered in Anglophone colleges in Quebec. These students all study under the same provincial program following the same program competencies from the ministry and have the same exit profile.

A convenience sample was taken from students enrolled in John Abbott College's professional program of dental hygiene. All participants in the sample spoke English. However their mother tongue was not necessarily English, it might have been French or another language. The sample was the third-year, fifth semester cohort. They consisted originally of 31 students, composed of 29 female and two male students. The characteristics of the students varied in age, formal education and life experience. All the students in this sample were at the same stage in their dental hygiene education. The number of students who volunteered to be part of the study determined the final sample size, which was twenty-seven.

3. METHODS AND INSTRUMENTATION

To examine the students' level of self-reflection two methods were used:

1. Content analysis of reflective journals written during the fifth semester was used to ascertain the level and substance of the reflections from their clinical experiences with the intent of looking more specifically at the students' self-assessment through self-reflection;
2. An anonymous cross-sectional questionnaire (see Appendix E) was distributed to the students after all journal entries had been read and returned to the Department Chair's office for the students to collect. The responses were tabulated and analyzed. An analysis was done on the data collected in order to determine whether age, education and or mother tongue of the students in both Groups A and B had an influence on their perceptions of journal writing as well as the student's opinions about the value of journal writing. This questionnaire included two open-ended questions to help get more

information on the student's thoughts on writing journals. Finally, a content analysis of the qualitative data collected from the open-ended questions in the questionnaire was also completed.

The anonymous cross-sectional questionnaire was tested as a pilot with two former graduate students. The test confirmed:

1. Whether the time allotted to answer the questionnaire was sufficient;
2. If all questions were clearly understood;
3. If there was need for any further clarification.

As a result of the pilot test it was noted that the time allowed for the questionnaire was insufficient for one graduate student. It was clear that more time was needed. Consequently the time limit was increased to give each student adequate time to complete the questionnaire. The participants of the pilot test stated that they fully understood the questions.

4. PROCEDURES

During the fourth week of the fifth semester, all thirty-one students were asked to participate in this research study. They were asked to voluntarily participate in the research, and told their grades would not be affected by the study. Upon agreement to participate in the study, each student was given a consent form to fill out (see Appendix A). A total of twenty-seven students volunteered. The students had already been divided into two groups (Group A and B). They had been arbitrarily selected upon registration into the course. Each of these groups of students was informed separately of the nature of the research study, both verbally and in writing (see Appendix B). It was explained that they would be asked to write three journal entries between weeks six and ten inclusively.

- a) Group A was asked to write unstructured journals, as they did in their second year of the program (see Appendix C). Group B received the new “treatment.” They were asked to write structured journals with guided questions to aid them with their journal entries (see Appendix D). Since the students had been a class together for more than two years, it was thought there might be some discussion between them comparing their assignments, so for transparency, both groups were told that they had a slightly different assignment from the other group and the allocation to Group A or B was arbitrarily chosen at registration.

- b) As part of the requirements in the students’ clinical sessions all students were required to participate in writing three journals during the semester for the purposes of formative assessment. The students had the option to say they did not want the data used from their journals. Originally both groups of students were asked to complete the journal entries within weeks six to ten of the Fall ‘09 semester, however the students did not complete the entries as scheduled, so an extension to submit the journal entries was given until the end of the semester, thereby giving them ten weeks to complete the task.

- c) Students chose the clinical experience they wanted to write about. Journal entries were required to be typed and submitted within the week following the clinical experience. Two copies of their journals were to be submitted to the department Chair on the same day. To ensure anonymity and to maintain confidentiality students were asked to record only their group and code number or letter on each copy. Group A was asked to choose a letter to help identify themselves and group B was asked to choose a number. A student

representative from each group and the department Chair kept a copy of the student's codes, in case a student should forget their identity code. One anonymous copy of each journal entry was forwarded to the researcher via the department Chair for feedback. It was deemed important to give feedback in this formative stage during the semester, rather than to have the students wait until the following semester. The second copy was placed in an envelope, indicating Group A or B, sealed and locked in a filing cabinet. The Chair was asked to ensure that all entries from Groups A and B were kept separate. The journal entries were kept in a locked filing cabinet in the Chair's office until the end of the academic semester.

- d) The researcher designed a questionnaire using a Likert scale. It was intended to explore and understand students' experiences using journal writing. The questionnaire was distributed after the feedback from the journal entries had been returned to the students. The students had the opportunity to opt out of taking the questionnaire. The questionnaire was distributed separately to Groups A and B during a class meeting time. The questionnaire was given to the students by an independent facilitator (someone from outside the department), who did not know the students. In this way when a student chose not to complete the questionnaire, the researcher was unable to identify who the student was, thus assuring anonymity. It took approximately 15 minutes for the twenty-three students who wrote the questionnaire to complete it, and then the independent facilitator collected the questionnaires. The questionnaires were kept in a sealed envelope, in a locked filing cabinet in the department Chair's office until the end of the academic semester.

5. PROTECTION OF HUMAN RIGHTS

An application was made to the Ethics Review Board of John Abbott College on September 20, 2009. The committee met in order to deliberate and give feedback to the applicant before beginning the collection of data. The application included a completed form signed by the research supervisor, a sample of the informed consent form, a debriefing statement, a copy of all instruments used, and a summary of the research design. The research project was approved (see Appendix G).

Due to the voluntary nature of this study and the safeguards set in place to guarantee students' anonymity, there were no foreseen risks involved by completing the self-reflective journal entries, and responding to the questionnaire. Students were not penalized if they chose not to participate in the research.

CHAPTER FOUR: PRESENTATION OF FINDINGS

1. SUMMARY OF REFLECTIVE JOURNAL ENTRIES

A total of 83 reflective journal entries were collected by the end of fifth semester of Fall 2009 from 27 students; 15 students were in Group A (who were given no prompting) and 12 students were in Group B (who were given the structured questions). Each journal entry was read carefully in order to interpret meanings from the writings. A preliminary coding system was developed. Following this, a synthesis of emerging patterns and themes were found in the data.

During the collection and counting of the reflective journal entries it was noted that there was an imbalance in the number of entries from the two groups. This had little to do with the fact that there was one less student in Group B. Overall, Group A handed in their journal entries sooner and more regularly than Group B, and Group B had to be reminded more often of their task to complete their journal entries. It seemed that students in Group A were more enthusiastic about writing their journals. Forty-nine reflective journal entries were gathered from Group A and thirty-four from Group B (see Table 1). Each of the students agreed to submit their reflective journal entries for analysis by signing a consent form, yet not all students handed-in reflective journal entries. All but one student in Group A submitted all three reflective journal entries. However, interestingly only 11 out of 15 students from Group B the group that received the treatment, completed all three reflective journal entries and one student from this group submitted only one journal entry.

Curiously enough, two students from Group A submitted five reflective journal entries rather than three. When submitting their journal entries they were

asked by the Department Chair, why they had completed five journal entries. They stated that they were unsure whether the total number of journal entries were to be three or five, and just decided to go ahead and write five. These students chose not to refer back to directions of the assignment, even though it meant further effort on their part in writing two extra journal entries. The directions were however clearly described in the written instructions for both Groups A and B (see Appendices C & D).

Table 1
Reflective Journal Entries

Group	Number of students in each group	Number of students who participated in each group	Number of journal entries by group	Average number of journal entries per student
A (no prompting)	16	15	49	3.2
B (structured questions)	15	12	34	2.8
Total Number	31	27	83	

The journal entries were analyzed by selecting the *reflective passages* written by the students. The passages were read twice. In the first round, 1285 passages were deemed *reflective* at some level. The goal was to categorize the passages into *non-reflective*, *reflective* and/or *reflective leading to change*. Examples are found later in Tables 3 and 4. The categories were not mutually exclusive. The second round was done in two parts: 1) to identify the themes within the 844 passages that were concerned with the students' preoccupations, and then 2) to categorize them and count them. These categories were not mutually exclusive.

2. EVIDENCE OF REFLECTION IN JOURNAL ENTRIES

The reflective journal entries were read first to see to what extent the students reflected on their learning. Instances where they demonstrated reflection were categorized into the three levels of reflection: *non-reflective*, *reflective* and *reflective leading to change*, adapted from Mezirow (1991) (as cited in Wong *et al.* 1995).

According to Mezirow (1991), as cited in Wong *et al.* (1995) non-reflection involves no thought in action and no introspection. Little learning will result. Reflection requires the person to reflect on content, process their reflection and be self-aware. This means the person has the skills to analyze a situation. Students who reflect in such a way as to effect change demonstrate their ability to reflect on a situation and transform ideas leading to change of perspective and/or model an increased self-awareness. In these cases, students will look for the “why” and experience deeper learning. It was found that all journal entries indicated reflection to various degrees (see Table 2).

Table 2
Evidence of Reflection in Journal Entries

Summary			
All participants	Number of reflections	Average number of reflections	
Group A (15)	827	55	
Group B (12)	458	38	
Levels of reflection	Total number of reflections / category in the reflective Journal Entries	Average number of reflections / student/category	Percentage of average number of reflections / student
1. Non-reflective:	0	0	0
2. Reflective:			
Group A (15)	780	52.0	6.7%
Group B (12)	429	35.6	8.3%
3. Reflective leading to change:			
Group A (15)	47	3.0	6.4%
Group B (12)	29	2.4	8.3%

In terms of the Levels of Reflection, the categories of *reflective* (780 and 429) and *reflective leading to change* (47 and 29) as recorded in Table 2 are not mutually exclusive, that is to say, some journal entry phrases were found to be in both categories of *reflective* and *reflective leading to change*. From the total number of 27 participants, all students demonstrated reflection, indicating they wrote about an awareness of their learning. The students who were indicating the *reflective leading to change* category, described sound, thoughtful, in depth experiences signifying a future change in behavior and or thinking due to the event(s) they experienced in clinic (see Table 2).

In the *reflective* category, Group B demonstrated a larger percentage at 8.3%, when compared to Group A at 6.7%. As well, in the *reflective leading to change* category, Group B once again was higher at 8.3% when compared to Group A at 6.4%. This finding is important as it relates to the study's initial research question. This will be discussed further in the following chapter.

One of the purposes of this research was to look for evidence of self-assessment through self-reflection as seen in the students' journal entries. Tables 3 and 4 provide examples from the students' journal entries in both Groups A and B equally demonstrating self-assessment. The students' exact words are presented in quotations. The examples also show the difference between the *reflective* and *reflective leading to change* categories.

Table 3
Types of Reflection in Journal Entries-Group A

Group A Level of self- reflection:	Quotes
Non-reflective	"It was the first appointment with this client".
Reflective	"Actually I consider this (indirect vision) and the 6 mm pockets the 'crème de la crème' of my session. The only downside was that my client didn't improve significantly his oral hygiene, so I still need to motivate him".
Reflective leading to change	"The calculus is tenacious so it was really challenging to remove it, but it forced me to try different instruments, even those that I usually avoid".

Table 4
Types of Reflection in Journal Entries-Group B

Group B Level of self- reflection:	Quotes
Non-reflective	“Today in clinic, my client arrived half an hour late”.
Reflective	“I think it’s great that we have the power to influence people’s health and behaviors in such a drastic way, and I think it’s important that we try to relate to the client or find the cause of the problem and deal with that instead of just stating facts”.
Reflective leading to change	“If I would ever work on this person again, I would be more affirmative and I wouldn’t show myself tense up even if I would be slightly uncomfortable. I have to remember that I am in control and in charge of my client and I have to keep my composure to keep my client comfortable and that would make the session go smoother”.

Self-assessment, it has been said, ensures competence. It is thought of as a process whereby the professional continuously reviews their performance, and as a result becomes aware of their need(s) and seeks the appropriate learning activity to maintain their competency. An important way to improve learning is to allow for time between the learning experience and the reflective activity, giving the student time to reflect and make connections (as seen in this research through journal writing).

3. THEMES REVEALED IN JOURNAL ENTRIES

The reflective journal entries, both the reflective and reflective leading to change were read to ascertain the main preoccupations of dental hygiene students

when reflecting upon their clinical sessions. The following seven major themes emerged after a close reading of the data. a) the dental hygienist and affective learning; b) the dental hygienist and client interaction; c) the dental hygienist learning something new; d) the dental hygienist and clinician interaction; e) the dental hygienist and connection between didactic classes/theory/pre-clinical labs and clinical, f) the dental hygienist and evidence of personal growth, and g) the dental hygienist and performance evaluations.

The categories of responses denoting the themes were not mutually exclusive. Each sentence was read first looking for *non-reflective*, or *reflective*, and then further for the *reflective leading to change* category passages and then one last time for one or more of the predominant themes. That is, some sentences from the students' journal entries were used to ascertain two or more levels of self-reflection and themes. As an example: "I really did learn a lot from my clinician as far as communication with client and detection and ultrasonic use". This quote was used as an example of the *reflective* category that illustrated two themes: "the dental hygienist and clinician interaction" as well as "the dental hygienist learning something new". Or: "This definitely helps me in the future for the simple reason it illustrated to me that everyone has their own experiences that they have gone through...I will continue to make it routine...and hope this will help the client ...feel a little more at ease". This quote was used as an example of the *reflective* and as well, the *reflective leading to change* category and was tabulated to show evidence of two themes "the dental hygienist and evidence of personal growth" and "the dental hygienist learning something new".

Table 5
Themes Revealed and the Percentage of Response

Theme	Percentage of responses	
	Group A	Group B
1. The Dental Hygienist and Affective Learning (N=229) (positive N=96) (negative N=133)	72% 56%	28% 44%
2. The Dental Hygienist and Client Interaction (N=158)	46%	54%
3. The Dental Hygienist Learning Something New (N=149)	61%	39%
4. The Dental Hygienist and Clinician Interaction (N=112)	68%	32%
5. The Dental Hygienist and Connection Between Didactic Classes/Theory, Pre-Clinical, and Clinical (N=82)	65%	35%
6. The Dental Hygienist and Evidence of Personal Growth (N=58)	45%	55%
7. The Dental Hygienist and Performance Evaluations (N=56)	86%	14%

3.1 The Dental Hygienist and Affective Learning:

The experience of affective learning most frequently involves feelings, emotions and self-esteem, as well. It was noted that dental hygiene students regularly used feelings to express themselves when describing their learning during clinical sessions. There were a total of 229 expressions of feelings/emotions from both groups. From this 96 were positive expressions and 133 were negative. Group A reflected through the expression of positive feelings approximately 72% of the time, and Group B a total of 28%, indicating that Group A overwhelmingly felt

more at ease in expressing positive feelings time and again than did Group B. Of the 133 negative expressions, Group A exhibited approximately 56%, and Group B 44%. Once again Group A expressed feelings more often, but this time in a negative fashion. According to Taylor, 1996, "Emotions are constantly regulating what we experience as 'reality' (as cited in Boyd, 2002, p. 717). The following quotes are from the data and are recorded exactly as the students wrote them. Examples of positive expression of feelings used in the *reflective* entries are as follows:

Group A:

"At the end of the session I was so happy because I learned a lot. I am very excited, as I'm waiting for my next session, since I will use in one sextant only hand instrumentation".

"After this session I felt happy and confident. Looking back I realize that I really enjoyed my session, although in the beginning I was so afraid".

"I feel more comfortable working with hand instruments. I felt more control when working with hand instruments".

Group B:

"I am so boosted up by this client I feel like I want to do periodontal treatment on every clinical session from now until forever".

"I am so thankful for this experience, and look forward to working with more children".

"For the first time in my short clinical career, I feel really empowered and rewarded for a job well done".

Examples of negative expression of feelings used in the *reflective* entries are as follows:

Group A:

“I was really upset after the client was dismissed...I couldn’t believe the mistakes I was making...it was still discouraging to realize I know so little”.

“I felt so exasperated! I kept telling him about the dangers of smoking...”.

“I could see his face and it only made me more nervous and uncomfortable, so everything I was doing felt wrong and I felt like it was taking forever”.

Group B:

“Then after that it ruined the whole appointment because I was scared of hurting her and she was probably scared of getting hurt so we were a little tense”.

“I was very frustrated and discouraged because I felt that at this point I should be doing much better”.

“I felt extremely nervous. I was getting frustrated during the session because I could see I was my own enemy”.

3.2 The Dental Hygienist and Client Interaction:

Students made a connection between the dental hygienist and client interaction on 158 occasions in the journal entries. Forty-six percent of the entries on Dental Hygienist and Client Interaction were made by people in Group A, whereas, approximately 54% of the entries on the same theme were made by people in Group B. Group B showed more concern with client interaction than Group A. This is a pivotal area of reflection for the dental hygiene student. A deep connection develops with dental hygiene students and their clients. While the client is learning from the student about oral health and how it affects the body, the student continues to learn and respect all that the client represents to them. A

student's first clients and the experiences they bring to the student are rarely forgotten. The interactions between the dental hygienist and client mentioned in the journal entries range from subjects including concern for the clients, to connections with the clients and frustrations in dealing with clients. Examples of interactions involving the dental hygienist and client interaction are as follows:

Group A:

"If that wasn't bad enough, her anesthetic was wearing off in the last 30 minutes of the appointment, and I could barely probe without hurting her, let alone debride".

"He was annoyed when my clinician and I advised him about his high blood pressure, and even got so fed up with OHI that he threw the piece of floss he was using on the floor in agitation. Needless to say I was not pleased with his reactions and really wasn't sure how to proceed".

"I got Janet a pillow for her head, and from then on she knew I was there for her and would do what I could for her to make this experience comfortable for her".

"My client is so easy going: I would apologize for the extra time it was taking and he would reassure me that he just wanted me to succeed".

Group B:

"I found that my client really calmed down and trusted me when I explained that I was going to use a new desensitizer on her one side and that I wanted her to tell me which one felt more effective. She seemed almost excited to participate in my little experiment".

"The client was superb and amazing, I could not ask for a better client".

"I asked her if she is interested to stop smoking, she said she knows everything about smoking but she just loves it and she will never stop smoking because she enjoys it".

"Oh, that was a bomb! He finally woke up. I stopped the procedure and put his chair upright for him to see his

radiographs. I explained everything again, but this time I had his full attention”.

3.3 The Dental Hygienist Learning Something New:

When considering, ‘the dental hygienist learning something new’ theme, it was observed a total of 149 times. Group A wrote 61% of the comments and Group B wrote approximately 39% of the comments expressing this idea, indicating that Group A has expressed ‘new learning’ more frequently during this time period. These are the ‘ah ha’ moments of a student as they are learning through their reflection of their experience. A deeper cognitive learning awareness is ongoing when theory and clinical are placed together. Reflection on what the student has learned seemed to help place the clinical session in perspective. The students are ecstatic when they realize that they are able to put into words what they have accomplished or learned no matter how small a step, from how to avoid overfilling impression trays, how to avoid client gagging or using the high-speed suction, to learning that one can be both efficient and time conscious at the same time. Each of these learning steps enriches the students’ knowledge base and encourages them to continue. The following quotes reflect that the dental hygienist had learned something new:

Group A:

“I think that the most valuable thing I learned today was developing a good rapport with our clients”.

“Although it was a difficult day for me I learned a lot, such as how to deal with difficult clients. I realized, even if my clients are sensitive it is important to do a thorough job”.

“I learned that there are exceptions to the rules and yes, they definitely can be bent if need be. I had used ultrasonics before but... Now that was a light bulb moment for me...this is a great start and I can only build up and get better from it”.

“I realized that when you receive positive reinforcement from people, you feel like you can accomplish anything”.

Group B:

“I learned that by involving your clients during your treatment plan, and asking for their feedback on the products that you use, makes the client feel as though they are somewhat in control and this relaxes them”.

“This was my first very, very talkative client. I have had to learn how to cut certain conversations short without making it obvious that I am trying to do so”.

“Today I learned it is extremely difficult to treat someone that is close to you”.

“I learned that next time I will try to take a step back to take a deep breathe and refocus, or let the person know how their complaints are just making me unfocused, and that the goals will be met faster if I am focused”.

3.4 The Dental Hygienist and Clinician Interaction:

Reference to the dental hygienist and clinician interaction was seen very often, for a total of 112 instances, with Group A having a total of 68% and Group B 32% of the occurrences. This indicated that Group A reported slightly more than double the interaction with their clinicians than did people in Group B. The reference to ‘clinician’ in this case could mean the student was discussing a clinical situation with a dental hygienist, the dentist or a dental technician, all of whom are role models for the dental hygiene students. The relevance of these relationships (of student and clinician) is paramount to the students. Overwhelmingly the students are looking for confirmation of their judgment, and acknowledgement of their work from their mentors. It is evident that the students grow and blossom with positive reinforcement and constructive criticism from their clinicians. These interactions come from situations dealing with a wide range of emotions from positive to negative, where the student is feeling supported, to one where there is frustration involved. Such terms as ‘pleased’, “happy spirits”, “means a lot to me”,

“I am getting it”, “gift of empowerment”, “a light bulb went off”, “how to do better” and “made me feel better”, are recorded in the students comments related to this theme. The following are instances of comments dealing with the dental hygienist and clinician interaction as stated in the *reflective* journal entries:

Group A:

“I was very pleased with the responses that I received from them, and from (clinician), (clinician) and Dr. (...). I think we as students do realize that our clinicians, teachers, administrators and mentors do care for our well being, but it is nice to see it in action”.

“The clinician congratulated me at the end of the session and that brought back my happy spirits and my confidence”.

“My clinician encouraged me, saying that I did good work. This means a lot to me, as I admire her and value so much her feedback”.

“Some clinicians have the gift of empowerment that they carry around in their pockets all day to those who need it, and some have a boot to kick the lesson in but all the same, they all mean well and no matter the delivery, I am getting it slowly but surely”.

Group B:

“Thanks to my clinician that day who actually performed detection having my hand on top of hers and letting me feel the lightness of the grip as well as the lightness of pressure”.

“I started the debridement and it was only until my clinician brought it to my attention the healing I was performing for this client...it was as if a light bulb went off. If my clinician was not there to put things into perspective, I do not believe that I would have done as good a job as I did today”.

“However, my clinician made me feel better about my session after telling me that in private practice, this client would have to return about 4 times”.

“Actually two of my clinicians gave me great tips on how to do better the next time for example when I do my PA I should measure...furthermore I should be more focused”.

3.5 The Dental Hygienist and Connection Between Didactic Classes/Theory, Pre-Clinical, and Clinical:

The theme of connection between didactic classes/theory pre-clinical and clinical was mentioned 82 times, approximately 65% in Group A’s journals and approximately 35% in Group B’s journals. Group A demonstrated more connections between theory and practice than did Group B. Both groups made reference to previous learning indicating connections and deeper learning. Students who made these connections specifically referred to the associations they made between their experience in clinic and their classroom experience, citing the following courses as reference: Advanced Periodontology, Dental Anatomy, Detection of Oral Diseases, Nutrition, Orthodontics, Periodontal Instrumentation, Prevention 1, Prevention 2, Prosthodontics, Radiology, and Restorative. The learning seems almost palpable when terms such as: “amazing”, “eager”, “something I will never forget”, “it seems easier to apply”, “makes sense given the opportunity to see it clinically” are used by the students when discussing their cases. To quote one of the students, s/he poignantly states; “the transition from theoretical knowledge to the practical one is a life-long process”. Illustrations of quotes from the journal entries dealing with the connection between didactic classes/theory pre-clinical and clinical are as follows:

Group A:

“Also, I was able to see things in his mouth that I had only learned about before, such as furcation involvement, and severe recession. It is much easier to see connections when we can see things for ourselves. The knowledge we acquired in previous classes is now starting to present itself clinically. I think our understanding is growing and that is why it seems easier to apply now”.

“I find that a lot of what we are learning in advanced periodontology is beginning to make sense when we have the opportunity to see it clinically”.

“I swear I had (clinician’s name) class jump right in with me. By the way, it was my first encounter with hairy tongue...it was gray, slimy and yes, hairy!!!! The sensation of feeling it between my fingers was really a lesson in itself; something I swear I will never forget”.

“I see my advanced perio, my prevention, my resto, my oral pathology, my anatomy even my ortho class in his mouth and I feel so eager to start and make a difference”.

Group B:

“In classes such as Prevention 2: educating the client, it was established that building good rapport with your client can increase their compliance”.

“I learned in Advanced Periodontics in detail what exactly is happening when there is periodontal disease at the cellular level”.

“I remember from a theoretical course that abrasion is mechanical wearing of the enamel, whereas erosion is chemical wearing off.... From previous clinical experience last semester I thought I could visually differentiate one from another”.

“Much of the inflammation has subsided and his gingiva has become firmer. It is amazing how the right tooth brushing and flossing technique can make a difference even with minimal professional debridement. I now have the proof that homecare works!!!”

3.6 The Dental Hygienist and Evidence of Personal Growth:

Evidence of personal growth appeared a total of 58 times in the journal entries, approximately 45% in Group A, and 55% in Group B, thus indicating that Group B articulated personal growth more often. Personal growth is crucial for any professional, a valuable quality that cannot be denied. The licensing bodies of dental hygienists require their members to be involved in an ongoing process of continuing education and professional growth which in turn leads to lifelong personal growth. Where better to learn to practice becoming aware of ones own needs concerning personal growth than while in school? Examples of student reflections of personal growth in the journal entries are as follows:

Group A:

“Today I felt a little more accomplished because I finished treatment with my client and so far, this was my most difficult case. I feel that it has better prepared me for other clients because at least I know I am capable”.

“I feel confident that my client left our session today with ‘positive vibes”. I have realized that because of my client’s individual needs and for his comfort, I will have to take my time with him”.

“I came to realize the way I was working I was making my client feel as if I was not completely taking care of him. At this moment I stopped, took a breath, and told myself the time did not matter”.

“It made me realize that the client truly is the most important thing because when they are not comfortable, I cannot function properly and then they do not want to come back”.

Group B:

“She has taken all the fears that I had towards more difficult classes with her positive personality”.

“I was not just debriding, I was debriding with the intent of stopping the disease from progressing. In the future ...I will

always keep in mind the words my clinician spoke to me. This will help me help the client even more”.

“The value of the learning event is to stay true to yourself and you can’t go against yourself to accommodate someone else, even in the learning environment”.

“I learned to be honest with myself and not act irresponsibly when feeling pressured”.

3.7 The Dental Hygienist and Performance Evaluations:

The seventh and final theme, the dental hygienist and performance evaluations were recorded a total of 56 times. This subject matter evokes a wide range of comments from the students, which inevitably involve emotions. This theme, which included discussion/comments concerning requirements/marks/evaluations and/or case portfolio, was certainly more of a focus for Group A in that it was mentioned in approximately 86% of the journal entries, and only mentioned in 14% of the journal entries in Group B. These results indicated that Group A had far more of a focus on performance evaluation than did Group B. It was noted as well, that there were more negative references regarding performance evaluations with Group A, rendering Group B slightly more positive in this area. Examples from both groups are as follows:

Group A:

“Anyways, all this to say, although I received good marks at the end of it all, I still really don’t enjoy the feeling of being rushed and stressed, and I left clinic drained of all my energy”.

“I feel like I learned nothing from the experience, the grades deducted did not improve anything in my skills”.

“It’s just so much pressure to finish our requirements when all I want to do is give my client the proper care they deserve”.

“And so, despite a few bad grades, today I have gained the experience to succeed in the future”.

Group B

“I was disappointed a bit because I wanted to finish my requirements but my clients keep on coming late or not showing up which makes it difficult for me”.

“Finally, one reason that I rushed to get evaluated instead of honestly explaining to my clinician that I was not done, is that I felt embarrassed that I had not finished in the allowed time”.

“I showed my client that I cared about her and not about finishing my requirement and she appreciated that very much”.

“Today I had my class three client whom I’m currently doing a case portfolio assignment on. As part of this assignment we are required to hand debride a certain number of teeth in the mouth and compare their gingival tissue healing response from other sextants where ultrasonics were used”.

3.8 Differences Between Groups in Their Preoccupations

Having stated the preoccupations of both groups it was then necessary to see whether differences existed between the two groups preoccupations. Having looked at both Groups A and B to compare and contrast their preoccupations while in clinic with their clients, it was noted that there were essentially very few differences between the two groups. In “The Dental Hygienist and Client Interaction” theme both groups were reflecting upon similar situations, and the concern, caring, appreciation, excitement as well as the effort to perform best practices were felt in both groups equally. From “The Dental Hygienist and Clinician Interaction” theme it could be seen that students from both groups felt supported, encouraged, proud and appreciative of their clinicians. From “The Dental Hygienist and Connection Between Didactic Classes/Theory, Pre-Clinical, and Clinical” theme students in both groups made connections and yet some

students wrote with excitement about how they now can believe what they had been taught and had read about after having seen it clinically. From “The Dental Hygienist Learning Something New” theme students in both groups overwhelmingly noted experiences with their clients and discussed the impact this learning had on them. As well from the theme “The Dental Hygienist and Affective Learning” it was noted that both groups made reference to positive feelings used toward the learning that took place while working with their instruments and their clients. The negative expressions of feelings were used more to describe the students’ insecurities and discomforts during the process of learning. While in the theme “The Dental Hygienist and Evidence of Personal Growth” theme both groups made references to their client case situations and or to personal learning. Finally there happen to be a slight difference between the groups in the theme, “The Dental Hygienist and Performance Evaluations”. Group A seemed to make more negative references regarding performance evaluations than did Group B.

4. QUESTIONNAIRE DATA

4.1 Respondents

Table 6
Respondents

Group	Number of students who completed the questionnaire	Percentage of students who responded
Group A	9 out of 16	56%
Group B	14 out of 15	93%
Total number of students from Groups A and B who responded	23 out of 31	74%

It was interesting to note that only just over half of the students in Group A (approximately 56%) responded to the questionnaire, whereas in Group B, 14

out of 15 (approximately 93%) of the students responded. As previously noted Group A was quicker to hand-in their journal entries, and handed in more, yet in the end their enthusiasm to respond through answering the questionnaire was not apparent. Although Group B handed-in fewer journal entries, their interest to follow-up with the completion of questionnaire was evident (see Table 6).

4.2 Comparison of Demographics of Groups A and B

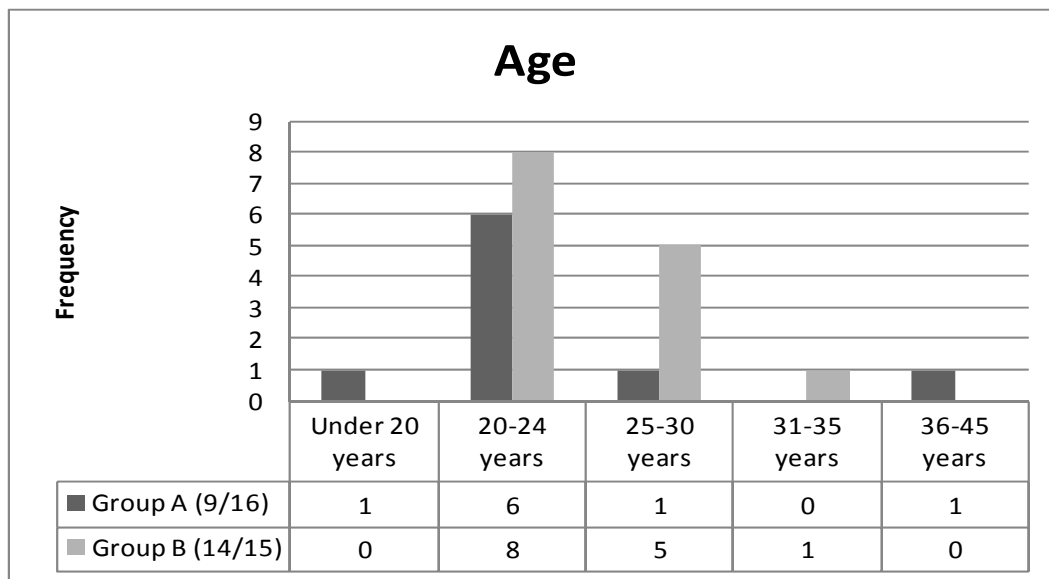


Figure 1. Age of Respondents

Demographic information was not collected from the total sample of students who participated in the journal writing. The demographics provided are solely from those students in Groups A and B who filled out the questionnaire. The age distribution of Group A was within 4 categories. The largest number of students in this group was in the age category 20-24 years with approximately 67% of the students. Three age categories all showed the same percentage at approximately 11% of the students: under 20 years of age, between 25-30 years of age, and as well, in the 36-45 years of age category.

Fifty percent of students in Group B were older than the students in Group A. In Group B the age distribution was between 3 categories. The largest number of students (57%) was in category of 20-24.years of age. In the age range of 25-30 years there was a total of approximately 36% students, and approximately 7% of the group was in the 31-35 years of age category. It was interesting to see there were no students below the age of 20 years in Group B, whereas there was one student in that category in Group A (see Figure 1).

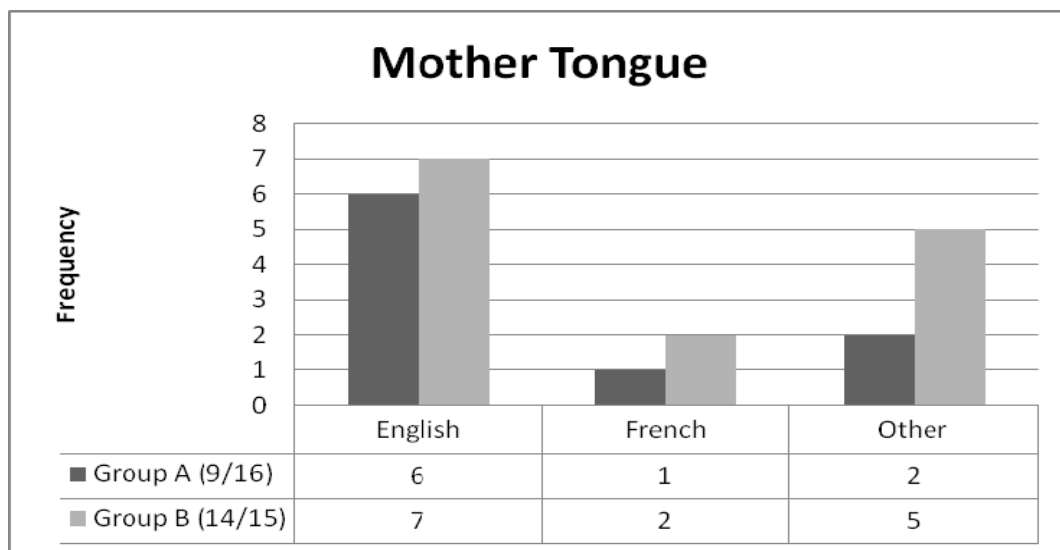


Figure 2. Mother Tongue of Respondents

Mother tongue in Group A was overwhelmingly English. They represented approximately 67% of Group A. There was approximately 11% reporting a mother tongue of French. It is of interest to note that approximately 22% of Group A reported a mother tongue other than English or French.

In Group B, 50% of the students recorded English as their mother tongue and the other 50% of Group B had a mother tongue other than English. Of this latter group, approximately 14% of students stated their mother tongue was French and approximately 36% were from the allophone (a person whose mother tongue is neither English or French) population (see Figure 2).

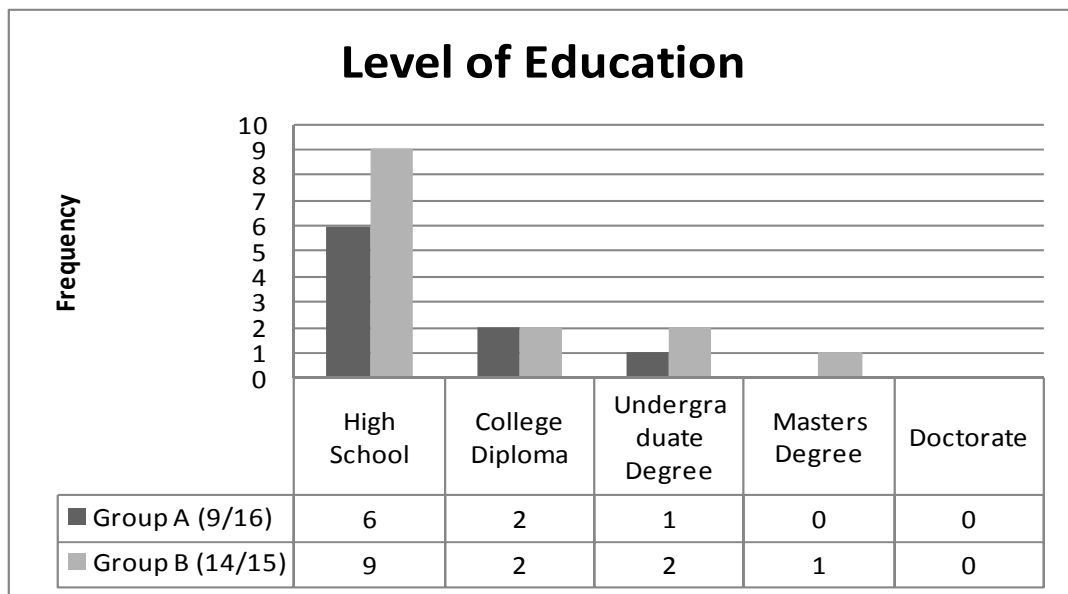


Figure 3. Level of Education of Respondents

The majority (approximately 67%) of students in Group A indicated having attained a high school education, and approximately 33% of them signified that they had further education. Sixty-four percent (64%) of respondents in Group B reported having a high school education, and approximately 37% of this group, compared to 33% of Group A, had further education including one student with a Masters degree. Thus, the educational level of students in Group B was somewhat higher than in Group A (see Figure 3).

4.3 Summary of Responses to Questionnaire Items

Below the findings for the questions #4 - #11 are presented in the figures. For a composite of the data collected from the questionnaire, see Appendix F.

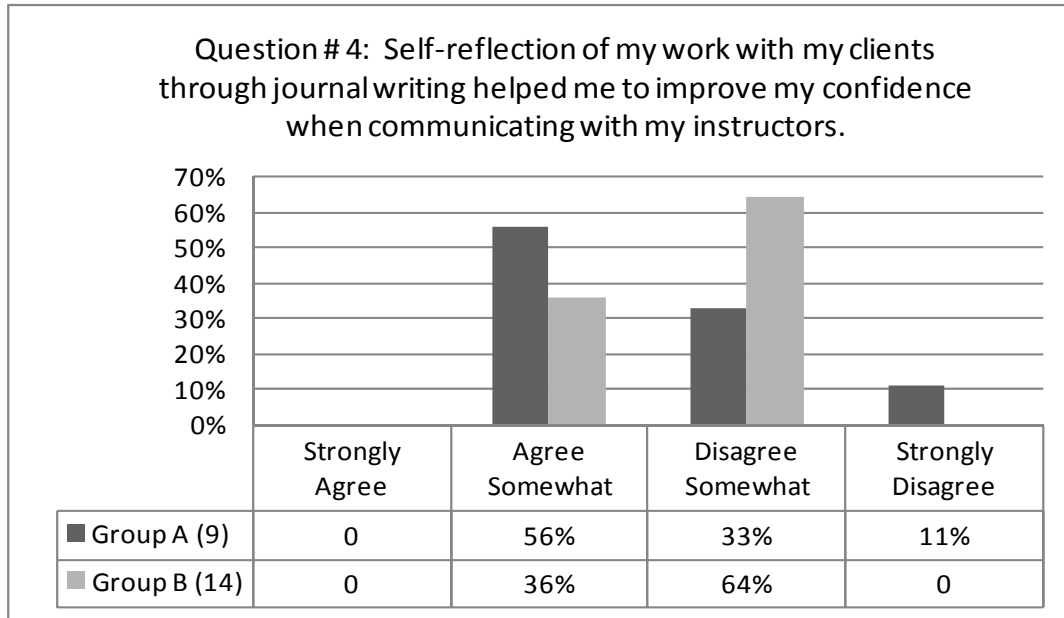


Figure 4. Question #4: Self-reflection of my work with my clients through journal writing helped me to improve my confidence when communicating with my instructors.

It was noted in Figure 4, when responding to question #4 (asking whether the students' self-reflection of their work with their clients through journal writing helped them to improve their confidence when communicating with their instructors) that in Group A, 56% of the students felt that they agreed somewhat with this statement, and the other 44% of students disagreed to some extent. In Group B, 36% students agreed somewhat and 64% students overwhelmingly disagreed with this statement. Clearly Group B did not feel the journal writing experience helped with their confidence when dealing with their instructors as strongly as Group A did.

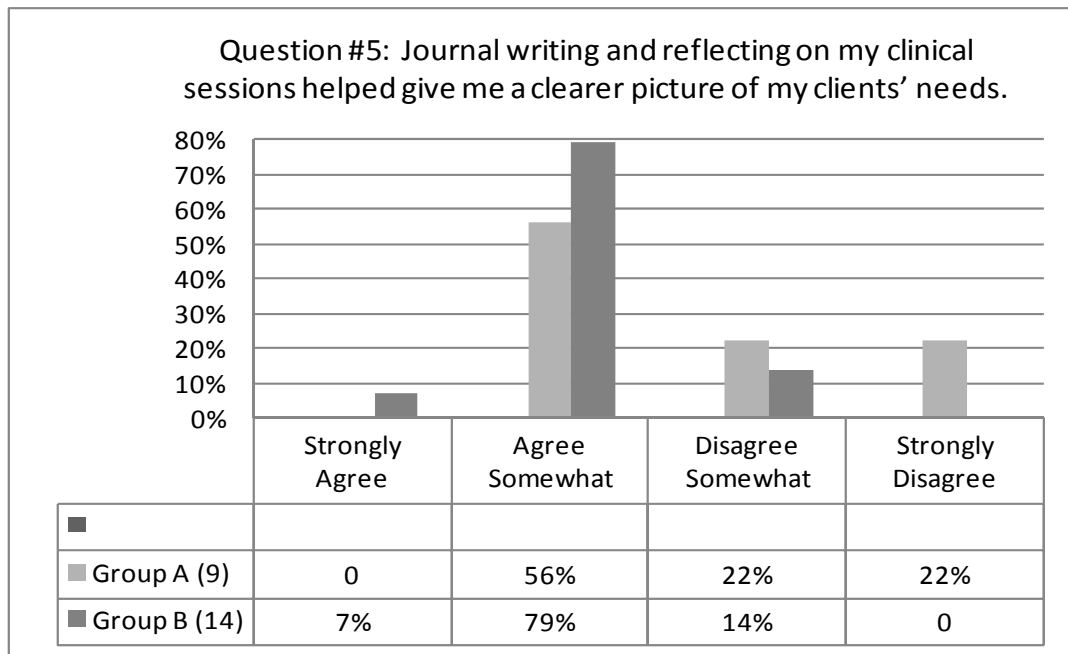


Figure 5. Question #5: Journal writing and reflecting on my clinical sessions helped give me a clearer picture of my clients' needs.

With reference to question #5 (see Figure 5), as to whether or not journal writing and reflecting on their clinical sessions helped give them a clearer picture of their clients' needs, it was seen that Group A had more difficulty in getting a clearer picture of their client's needs through writing and reflection, in that approximately 56% agreed somewhat, yet another 44% either disagreed or strongly disagreed with this statement. In Group B however, approximately 86% either strongly agreed or agreed somewhat, with 14% of students disagreeing somewhat. This indicates that this exercise was far more beneficial to Group B.

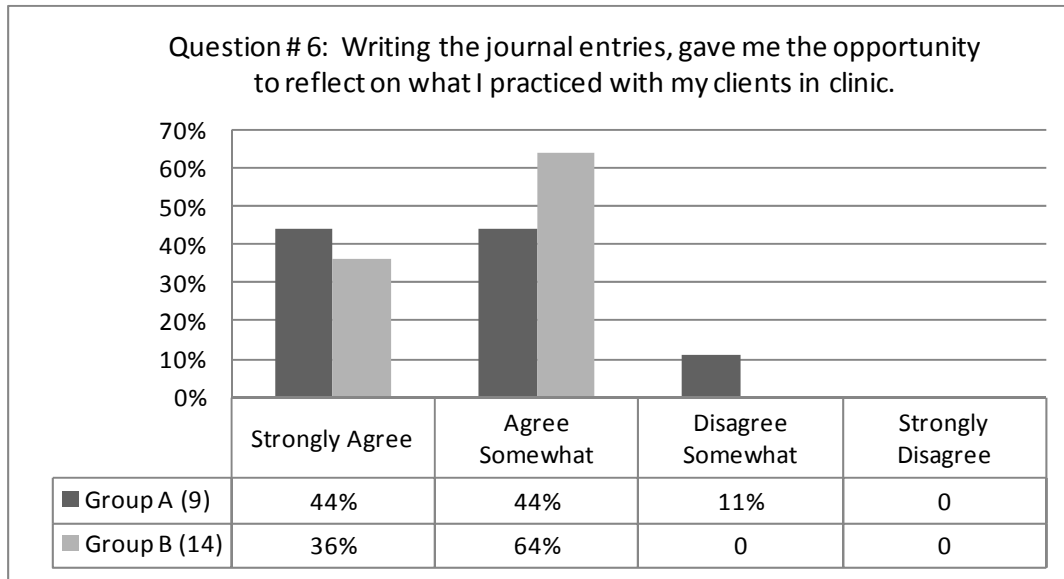


Figure 6. Question #6: Writing the journal entries gave me the opportunity to reflect on what I practiced with my clients in clinic.

Question #6 (see Figure 6) required students to reflect on whether journal writing gave them the opportunity to reflect on what they practiced with their clients in clinic. Interestingly, Group A was positive with approximately a total of 88% of students strongly agreeing or agreeing somewhat, with 11% disagreeing somewhat. In Group B, 100% of all students were positive about the idea and distinctly demonstrated this by either strongly agreeing, or somewhat agreeing. There was no disagreement at all in Group B. Clearly journal writing provided all of Group B and the majority of Group A with the chance to reflect.

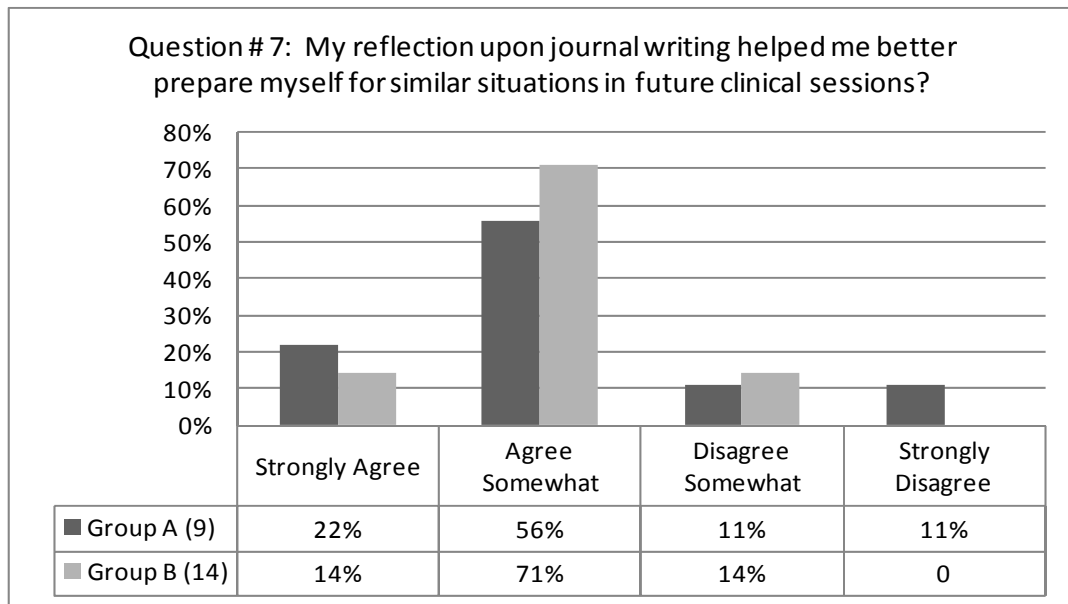


Figure 7. Question #7: My reflection upon journal writing helped me better prepare myself for similar situations in future clinical sessions.

In question #7 (see Figure 7) students were asked whether journal writing helped them better prepare themselves for similar situations in future clinical sessions. Group A was positive with an approximate total of 78% strongly agreeing or agreeing somewhat. However, interestingly approximately 22% of students disagreed somewhat or strongly disagreed. Group B had an even stronger positive response in that approximately 85% of students altogether either strongly agreed or agreed somewhat, while approximately 14% disagreed somewhat.

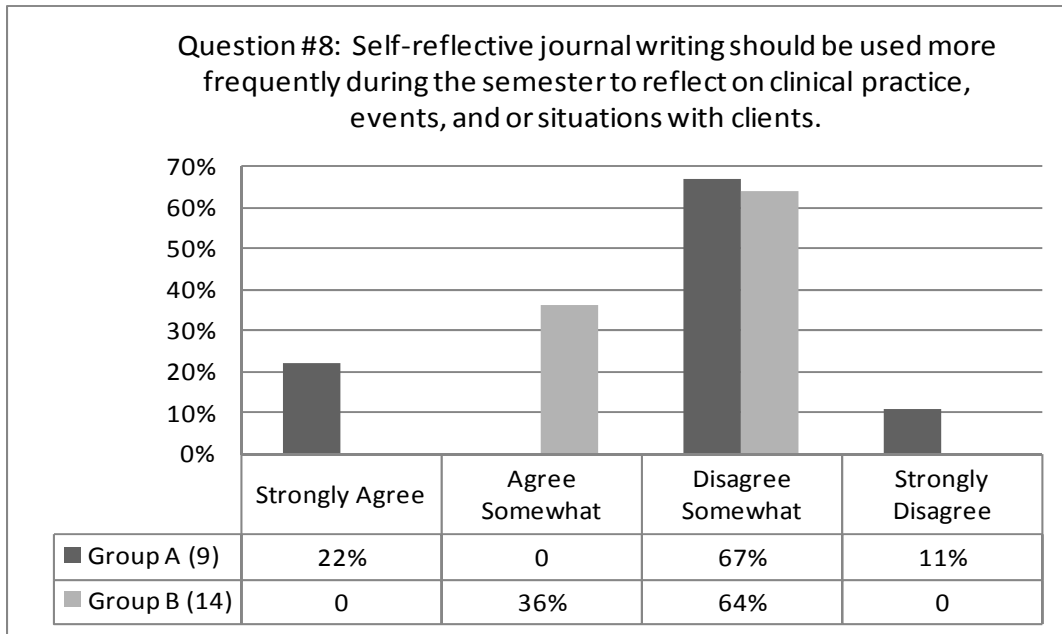


Figure 8. Question #8: Self-reflective journal writing should be used more frequently during the semester to reflect on clinical practice, events, and or situations with clients.

Question #8 (see Figure 8) required the students to assess whether self-reflective journal writing should be used more frequently during the semester to reflect on clinical practice, events, and or situations with clients. Interestingly enough, only 22% of students in Group A strongly agreed and the remainder (approximately 78%) of the group overwhelmingly disagreed. In Group B, there was a slightly stronger positive response to using self-reflective journal writing more frequently. Here 36% agreed somewhat with this statement. However 64% disagreed somewhat. This indicates that a greater number of students in both groups think that self-reflective journal writing should not be used more often. Group A more strongly disagreed with the idea of using journal writing more frequently to reflect on their clinical practice.

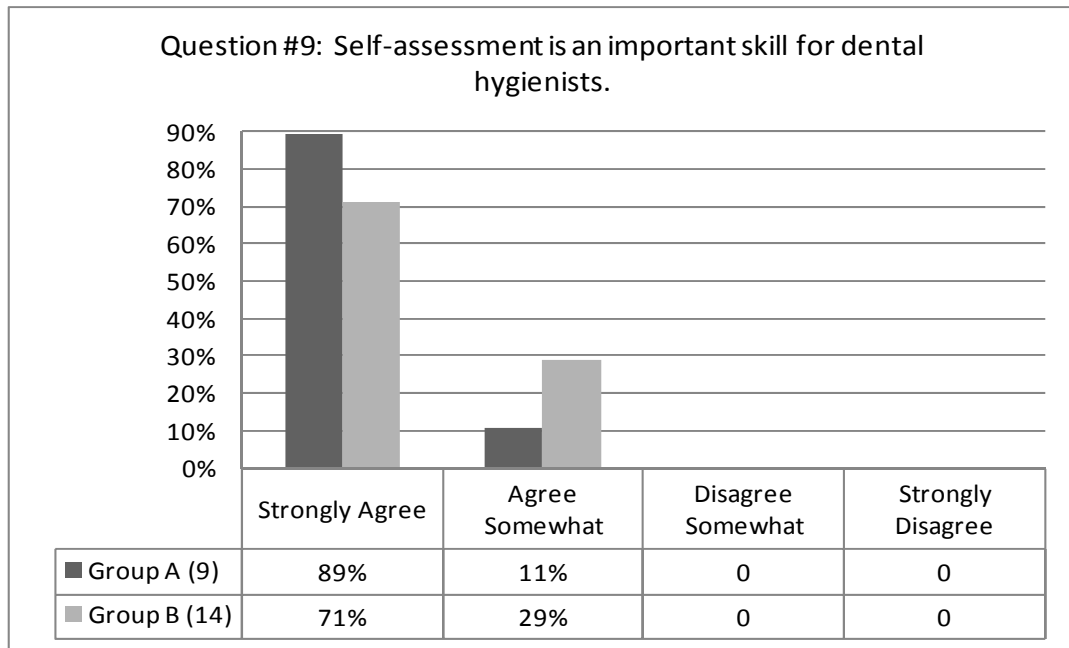


Figure 9. Question #9: Self-assessment is an important skill for dental hygienists.

Question #9 (see Figure 9) asked students whether self-assessment is an important skill for dental hygienists. Neither group disagreed with this statement. In Group A, approximately 89% of students strongly agreed, and 11% agreed somewhat, indicating 100% agreement. In Group B 71% of students strongly agreed, with the other 29% of students agreeing somewhat, indicating another 100% agreement. Fortunately, both groups are totally convinced about the beneficial value of self-assessment for dental hygienists.

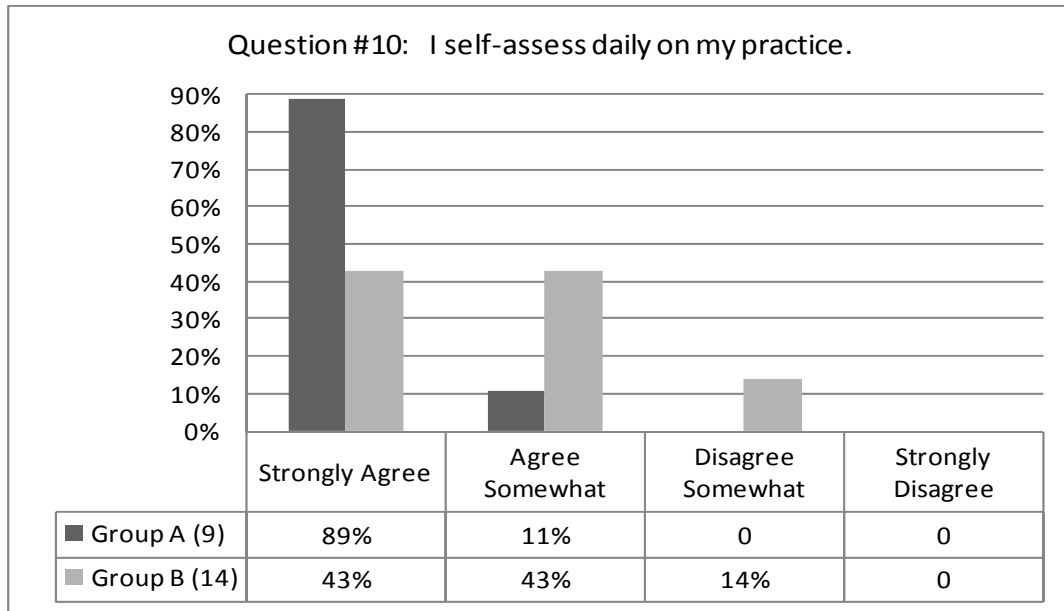


Figure 10. Question #10: I self-assess daily on my practice.

Question #10 (see Figure 10) was: I self-assess daily on my practice. In Group A, approximately 89% of students strongly agreed, with approximately 11% somewhat agreeing. There was no disagreement in Group A whatsoever. It appears that Group A are daily self-assessors. In Group B on the other hand, only approximately 43% of students reported strongly agreeing, with 43% agreeing somewhat, and 14% of students disagreeing somewhat. However honest, even though a majority (86%) agreed in Group B, they are sending the message that each and every one of them do not self-assess on their clinical practice every day.

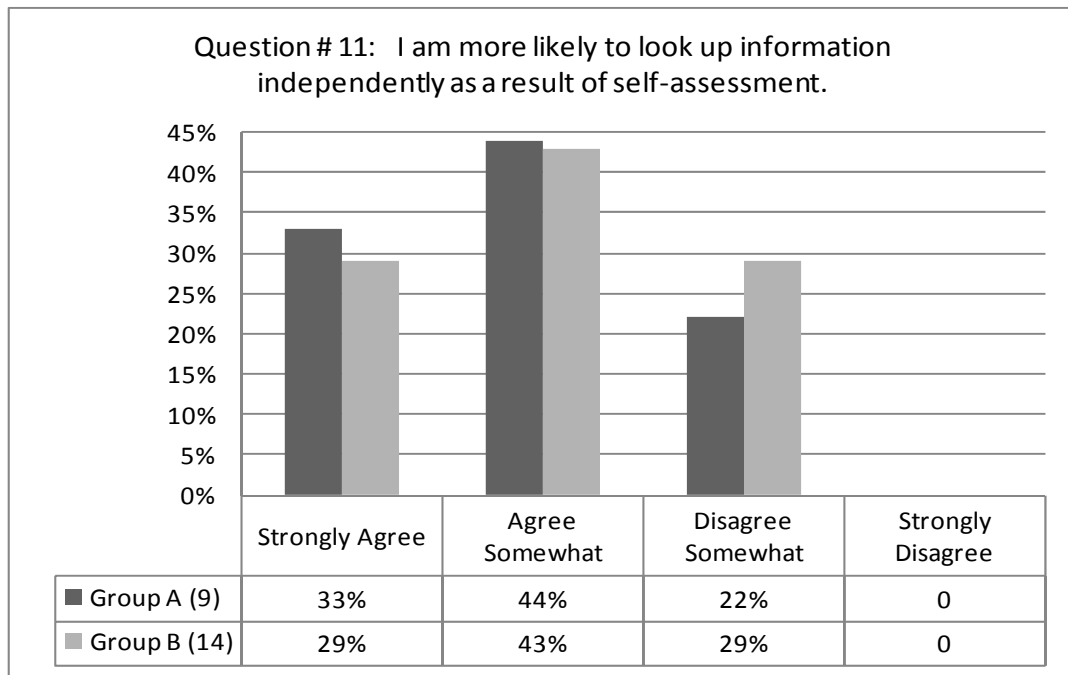


Figure 11. Question #11: I am more likely to look up information independently as a result of self-assessment.

Question #11 (see Figure 11) was: I am more likely to look up information independently as a result of self-assessment. Approximately 77% of the students in Group A reported a positive response. Results were mixed with 33% of students strongly agreeing, 44% agreeing somewhat, and only 22% disagreeing somewhat. In Group B, approximately 72% of the group was positive. Twenty-nine percent of students strongly agreed, and 43% agreed somewhat, with 29% disagreeing somewhat. Clearly, self-assessment has encouraged the preponderance of the students in both groups to look further for answers to their queries.

4.4 Responses to Open-Ended Questions on Questionnaire

The questionnaire included two open-ended questions:

- 1) How would you define self-assessment?
- 2) In what ways do you feel self-assessing your performance in clinic impacts on the quality of care you deliver to your clients?

A content analysis of the responses was done for each question.

The responses of students in both groups were not always clearly defined solely by one key idea as written below; there was a tendency to overlap ideas/thoughts at times. Basically three principal themes were revealed in the responses as follows: Firstly, taking time to reflect on ways to improve, secondly, taking time to review activities, and thirdly, taking time to review one's own performance (see Table 7).

Table 7
Key Ideas Found in Responses to Open-Ended Question

1) How would you define self-assessment?

Key Ideas	Group A Number of responses & Example	Group B Number of responses & Example
1. Taking time to reflect on ways to improve.	4 "Reflecting on the situation & thinking how or what I could change to make it better".	11 "Evaluating yourself. For me it's more talking about it with a friend and see how I can improve. The journals are good...but I like talking about my experience".
2. Taking time to review activities.	2 "To jot down all the procedures, activities, conversations, and arguments etc. one participates in & then evaluate whether you gave it your best & if you succeeded or not".	1 "To review and compare behavior, feelings, and attitudes before and after a clinical session".
3. Taking time to review one's own	3 "Retrospective look at one's past experience	2 "Looking at your own present state, skill levels,

performance. including: actions, and needs and evaluating if they ate at an acceptable level or not”. thoughts, and words”.

In terms of student responses to question 2 “In what ways do you feel self-assessing your performance in clinic impacts on the quality of care you deliver to your clients”, it was found there was little difference between the two groups. It must be noted that all nine students from Group A and thirteen from Group B answered the second open-ended question. There were simply two underlying themes. The first: to evaluate clinical experiences that lead to change and the second: to evaluate strengths and weaknesses, as seen in Table 8 on the following page.

Table 8
Key Ideas Found in Responses to Open-Ended Question

2) In what ways do you feel self-assessing your performance in clinic impacts on the quality of care you deliver to your clients?

Key ideas	Group A Number of responses & Example	Group B Number of responses & Example
1. Evaluating clinical experiences that lead to change.	7 “I feel that self-assessing better prepares me for future experiences that may be similar to those I have encountered. As an example...if I have recommended an adjunct that I see is not as effective ...then I have already prepared myself for changes I could make”.	9 “It [self-assessing ones performance] impacts it [on the quality of care you deliver to your clients] in a way that you can analyze what you did with a client and after seeing results you may alter or stay with the same method according to individual needs of that client”.
2. Evaluate strengths and weaknesses	2 “Self-assessment is important in our field because it forces us to reflect on what we said/did and it helps point-out what could have done better to help the client. Self-assessment is important in our field because it forces us to reflect on what we said/did and it helps point-out what could have done better to help the client”.	4 “I think that after self-assessment you are more aware of your strengths and weaknesses. You can therefore work on your weaknesses to turn them into a strength, thus delivering a superior quality of care to your clients”.

In conclusion, students in both groups were clearly able to accurately define self-assessment. Their statements reflected a good understanding of the concept, and as previously mentioned from the reflective journal data, both Groups A and B agreed that self-assessment is an invaluable skill.

CHAPTER FIVE: ANALYSIS AND DISCUSSION

1. STUDENT LEARNING FROM WRITTEN REFLECTION UPON EXPERIENCE

As the students began to see themselves developing into future professionals, they took on the task of trying to develop their own role and at the same time learn how to perform the duties and functions of the dental hygienist. It was mentioned on many occasions in the journal entries that the students felt thankful for the help of their clinicians. Clinicians hold such influence in their everyday encounters with the students, as well as provide important role modeling for the student, as seen in the following examples: “My clinician was extremely helpful and I can’t thank her enough; she was always so calm and encouraged me for the things I did well. She never lost patience and was always ready to help me in any way possible”.

Many felt a sense of pride when looking back at what they had accomplished during their clinical sessions. A number of students stated in their reflection that they would not have changed anything about their session: “I was very proud of myself”. One student who expressed frustration and disappointment with her performance listened to her clinician telling her how, “skill and patience are so important and the way to excel is to stay calm and apply the knowledge you know. When I looked back at my experience I did learn a lot”. They appreciated positive reinforcement, and clinicians who were understanding, helpful and stayed near by in case assistance was needed. Students came to realize that they learned from their reflections of clinical experiences, for example that: “Everyday is a learning process”; “The client is truly the most important thing”; “For sure, I still have a whole lot to learn about this instrument, but this is a great start and I can

only build up and get better from it". As well, students reported learning about procedures, skills, and self-awareness.

As part of the technical education of dental hygienists, students learned how to perform many *procedures* in clinic. They describe a variety of them in their reflective journal entries as follows: "positioning of clients and self"; "how to use a 10 o'clock position"; "tips on how to remove calculus"; "having sharp instruments"; "re-checking areas previously debrided", and "keeping accurate information". They are all procedural areas students felt were important learning situations to reflect on.

Some of the invaluable *skills* students learned and wrote about in their reflective journals were the following: "I learned so much about detection of calculus; finding deep pockets first with the probe and then with ultrasonics"; "using the probe to look for calculus"; "instrumentation in certain areas"; "visually able to see tissue improvement". Further the importance of: "developing a good rapport with the client"; "how to deal with difficult clients"; "the benefit certain clients bring to their learning", and "the ongoing battle of thoroughness and time management" were of continuing concern in the students learning. The students were deeply involved in the process of developing these skills and of rendering the correct individualized client care to their clients.

The students' development of *self-awareness* was evident. Students recorded in their journal entries how they reacted under pressure, and the feeling of empowerment and reward from a job well done: "I know I did not save his life, but I still feel like I did save it"; "I will be more careful with my choice of wording in the future when self-evaluating" with my clinician. Self-confidence was learned. "I am capable, I am better prepared for other clients, and appreciate friendly clients".

The students were learning how it feels to be emotionally sensing the responsibility of providing professional care to enhance the quality of their clients' lives.

2. COGNITIVE ACTIVITIES AS SEEN IN JOURNAL ENTRIES

The cognitive activities used by the students in their journal entries which inevitably helped them in their self-reflection were as follows: observation, use of questions and revision. All students used *observation* and followed through in writing a description of what they saw or experienced. For example a student had a personal reaction to a clinical session: "When I started debriding with the 'Thinsert' it was night and day. My instrument was going so far sub-g that at times I lost sight of the entire tip. I really enjoyed...did a good job with lavage and calculus removal".

Another cognitive activity seen in the journal entries was the *use of questions*. Students formulated questions concerning various issues such as: theory, administration, self-doubt, or their client's beliefs, for example: "How could I have dealt better in the situation"? or "I don't really like doing double bookings in clinic...what's the use of being stressed and rushing"? And, how could this be happening to my client, "at age 35, it was unexpected for me, yet the risk factors such as smoking, neglecting dental visits and personal oral hygiene contributed to her early breakdown?" The more questions asked the better the self-reflection. The fact that the question(s) was not answered was not necessarily important for the moment, it seemed more relevant to simply be questioning.

Yet another cognitive activity was *revision*. The student has had the opportunity to think back to a situation/fact and rethink his/her stance on the situation, leading to a change of mind "I was a little apprehensive at first because thinking back to my first experience the previous week, it didn't go so well...I told

myself to think positive and do the best job possible. When I panic, it puts me off guard and the rest goes out the window”. Overall, exploration of problems, concepts, and ideas was seen in the journal entries. The process of writing seemed to help the students explain their clinical experiences.

It appeared that students’ reactions to the events and interactions of the day, whether encouraging or not, needed to be recorded. The following quotes from the reflective journals appear to give evidence of deeper learning on the part of the students. It was interesting to read several individual students’ responses regarding the process in clinic and to note the maturity in how their ideas were expressed; “I am so boosted-up by this client I feel like I want to do periodontal treatment on every clinical session...I know it is too soon to say but I just love the challenge”. There were true confessions revealing procedures the student knew they should or should not have done: “I know that when I read a client’s chart I’m not supposed to look at how long it took the previous students to complete their treatment...but...I did”. Or the relief expressed when a student was not the only one found to be a culprit: “Sweet!! No, I ...just found it to be completely hilarious because for the first time it was not me who felt like hiding under a rock”. Humor was often used in the reflection of some students: “While explaining another ‘aha’ moment of the week, she (the clinician) told the class we should take time to eat...well duh!! Sometimes I do carry my head in a basket”. This student realized she was not taking care of herself, which would of course impact the delivery of care she would provide to her client. Also, “I actually felt and saw myself making headway...the ultrasonic machine- \$1,000.00, the price of flicking calculus...priceless”. This student felt the power of achievement and success in a clinical situation, having understood the successful application of the dental instrument in the client’s mouth.

3. ANALYSIS OF JOURNAL WRITING

3.1 Writing Styles

Some students were succinct in their writing, displaying more of a list of feelings, events and reactions or merely just reporting. Others however, chose to narrate their story in full detail. The length of the individual entries varied from one paragraph to a couple of pages. In Group A the journal entries were written either in a continuous long paragraph or divided-up into paragraphs depending on the student's style of writing. More frequent entries were completed as previously mentioned in Group A only. For some in both groups, little care was given toward efforts in spelling and grammar. At times the reflection was more of a tirade about the student's displeasure with the system and/or of himself or herself, while others wrote about their feelings of being encouraged and fortunate to have the exposure to the clinical training they are being afforded.

Even though Group B had been given more instruction with guided questions to help with writing the journals, it was noted that there was a difference within Group B and how they wrote their reflective journals. Few students actually used numbers indicating their responses to the guided questions as written in the explanation of the journal task. Oddly, less than half of the student's journal entries in Group B used separate paragraphs to respond to the guided questions. It seemed many chose a more free style and wrote what came to mind, giving only a cursory thought to the guiding questions and their order. Possibly, this was due to the fact that the students felt this was just another assignment and since they were not receiving any marks for their efforts they wanted to get it out of the way and did not feel the need to refer back to the directions of the assignment and/or to follow the guided questions, as they would have if marks had been assigned.

3.2 Evidence of Self-Reflection

Was there evidence of self-reflection? Yes, both Groups A and B exhibited self-reflection in their journal entries. The reflection was not at the same level for each individual student, but nevertheless the students were found to self-reflect to some degree upon the experiences from their clinical sessions. In the *reflective* category, Group B demonstrated a larger percent (8.3%), when compared to Group A (6.7%). Some of the more reflective journals showed that students changed their thinking by internalizing their values in a variety of areas dealing with client management, such as client-centered treatment, rapport with their clients and working toward their clients' goals when working with others.

When reflections of the students' clinical care with their clients led to change, as a result the most profound learning occurred. Without a doubt it must be noted that Group B students did reflect more leading to change (8.3%), when compared to Group A (6.4%). So, it could be said yes, Group B (the group given the structured questions) did overall clearly reflect at a higher level than did Group A.

3.3 Evidence of Self-Assessment

When looking at the students' quotations taken from the journals, both groups reflected equally in regards to introspection and self-assessment (see Tables 3 & 4). So, it could be said, that indeed, the instructions of the assignment did not make any difference. Students in both groups were equally reflective in this regard.

Self-assessment through reflection can benefit the students in a variety of ways. It appears that self-assessment through self-reflection provides a chance for the student to stand back and *review/analyze* what they have accomplished. As

reflected in one student's writing: "To review and compare behavior, feelings, and attitudes before and after a clinical session". Reflection and self-assessment can further *promote planning and goal setting*, as was described by another student: "Looking at your present state, skill levels, and needs and evaluating if they are at an acceptable level or not". It helps *keep track of progress in acquiring knowledge and skills and stimulates further learning*, as can be seen in this quote: "To jot down all the procedures, activities, conversations, and arguments etc. one participates in & then evaluate whether you gave it your best & if you succeeded or not". In recording the reflection of self-assessment the student can also *help boost their self-confidence and see what has been accomplished*, as defined by a student in: "A tool needed for improvement or confidence recognition that uses self-reflection". As well, having recorded the reflections in journal entries, the student would have *an organized collection of their activities stimulating their clinical development, and demonstrating a continued commitment to learning*.

All students (nine) from Group A and thirteen from Group B answered the second open-ended question: In what ways do you feel self-assessing your performance in clinic impacts on the quality of care you deliver to your clients? For the most part both groups, responded favorably in that they expressed the ways in which self-assessment positively influenced the care provided to their clients through reflection of self-awareness, self-improvement, review of cases, and end results (see Table 8).

Essentially, it is evident that the majority of students in both groups can appreciate the ways in which self-assessment of their performance in clinic can serve to increase the quality of care afforded to their clients.

4. DEMOGRAPHICS OF RESPONDENTS OF QUESTIONNAIRE

Demographic information was not collected from the original sample of students (N=31), or from the total sample of students who submitted journal entries. The following demographic description is derived solely from those students in Groups A and B who completed the questionnaire (see Table 6). The questionnaire provided demographic information to better understand any distinctions existing between Group A and Group B. Group A was overall younger than Group B with Group B having an additional four students older than those in Group A (see Figure 1). Approximately 67% of Group A's respondents reported a mother tongue of English, as compared to 50% of Group B's student population (see Figure 2). When considering education, Group A had less overall education. Thirty-seven percent of Group B had attained postsecondary education (as compared to 33% of students in Group A), including one student with a Masters degree (see Figure 3 and Table 9).

Table 9
Demographic Comparison of Group A and B

Group	Age	Mother tongue	Education
A (9)	78% are 24 years of age or younger 22% are older than 25 years of age	67% English 33% learned another language	33% with post-secondary education
B (14)	57% are 24 years of age or younger 43% are older than 25 years of age	50% English 50% learned another language	37% with post-secondary education

Only nine students from Group A and fourteen students from Group B responded to the questionnaire (see Table 6). This indicated that approximately

44% of students in Group A and approximately 7% of Group B did not respond to the questionnaire. Perhaps the age (maturity) and higher level of education of Group B may account for the fact that larger numbers of students took time to respond to the questionnaire, in that they recognized the value of completing it to encourage further research in education. Conceivably Group B students, who have, on average a higher education and have learned an additional language, have an increased drive to perform. Perhaps, they see a need to make sure they understand what is expected of them in their work, and pursue their commitment to assure they are accepted. Possibly, students in Group A lacked this maturity.

5. ANALYSIS OF DATA OBTAINED IN QUESTIONNAIRE

The questionnaire provided further information that was required to have a better understanding of the students in the two groups that could not otherwise be obtained from their journal entries. Apart from the demographic details obtained from the questionnaire, a better understanding of the students' attitudes, beliefs and current behaviors concerning self-reflection and self-assessment through self-reflective journal writing were attained. The questionnaire presented an opportunity to individually ask each member of the cohort his or her personal ideas and thoughts on self-assessment and self-reflection. As this cohort was further divided into Groups A and B, the data established the similarities and/or differences in the student's responses to the questions dealing with self-reflection and self-assessment (see Appendix F). As well, two open-ended questions provided added insight into individual opinions of the group members that might not have otherwise been revealed in the journal entries.

5.1 Value of Self-Reflection

The questionnaire presented the student's opinions about the value of journal writing. Group A showed fairly strong support with just over half of the

students agreeing at 56%, indicating that the journal writing experience helped most of them with their confidence when dealing with their instructors. A large proportion of students in Group B (approximately 64%) did not feel the journal writing experience helped with their confidence when dealing with their instructors. Group A's higher percentage of agreement could be reflecting a need to self-reflect in order to improve their self-confidence, as opposed to Group B who had attained a higher educational level and may have already achieved a higher level of self-confidence as a result of their previous educational experiences.

5.2 Better Ideas of Clients' Needs

Although students in both groups indicated that reflective writing was important, in Group B a large majority (approximately 86%) reported that journal writing in general was beneficial to them in giving them a better idea of their client's needs. Clearly journal writing provided the majority of Group A at 88% and 100% of Group B with the chance to reflect on specific practices they had used with their clients in clinic.

5.3 Preparation for the Future

In comparing the two groups as to whether reflection through journal writing helped them to better prepare for similar future clinical sessions with their clients, only 78% in Group A supported the idea, whereas 85% of the students in Group B supported it. Only two students in each group unfortunately did not feel better prepared through their reflection.

5.4 Self-Assessment

A resounding 100% agreement was the response to the statement that self-assessment is an important skill for dental hygienists in both Groups A and B.

This is truly a very positive indication that the students do value the competency that an entry-level dental hygienist needs to have the ability to “self-assess professional performance in relation to standards of practice” (CDHA, 2010, p.10).

It appears that most students in Group A self-assess daily. Even though a majority of 86% agreed, it was noted that unfortunately 43% agreed only somewhat. Group B is sending the message that each and every one of them does not self-assess on their clinical practice every day. This indicates that all individuals in Group B and some in Group A have not realized the significance of this competency, and will have to work diligently to achieve the competency to “self-assess professional performance in relation to standards of practice”, in order to become a competent professional dental hygienist (CDHA, 2010, p.10).

Most students from both Groups A (77%) and B (72%) are more likely to look up information as a result of self-assessment of their clinical sessions, indicating the majority of students are searching further for answers and or help to develop their client care delivery for their clients.

5.5 Difference in Response Rates

The low number of participants responding to the questionnaire indicated that not all students wanted to participate, especially those in Group A where only 56% took part. Perhaps this group felt they had given all the time and effort they could through the submission of their journal entries. As mentioned earlier, students in Group A contributed significantly more journal entries than did students in Group B (see Table 6).

5.6 Students' Attitudes Towards Journals as Assignments

It was apparent that students do not think journal writing should be used more frequently in the semester to reflect on clinical practice, events and/or

situations with clients. This was expressed by approximately 78% in Group A and approximately 64% in Group B. Potentially some of the students may have felt that this journal writing task was not an integral part of their clinical course as there were no marks assigned to them and they were not included in their formal course outline. The idea of having to write three more assignments was probably seen as an extra burden. Clearly students do not want additional assignments added to their workload. However it is important to point out that as educators we understand students may not necessarily want to perform an assignment, even though it is implicit that such an assignment would be in their best interest to help clarify and deepen their knowledge in a given situation.

6. COMPARISON OF GROUP A AND GROUP B

In comparing the way in which the journal entries were presented, even though the instructions given to Groups A and B (see Appendices C & D) were different in that Group A was simply told to write about their experiences (without guidelines) and Group B were given specific guidelines, the responses were very similar between the two groups' journals. The manner in which the individual wrote the entry appeared to depend on the individual student. It seemed as if the instructions were not at all important to either group, begging the question, did the students feel this was not a real assignment? The students were instructed both verbally and in writing (see Appendices C & D) about the nature of the assignment and what was expected of them. However, these instructions were not written in their course outline as a requirement for Clinic 2. This may have given them the idea that it was not important because no marks were attached to the assignment.

When comparing and contrasting the comments from the students' journal entries and looking specifically at the preoccupations of Groups A and B, it was difficult to perceive any distinctions, as seen in examples recorded in Chapter

four sections 3.1-3.7. Both groups of students had similar concerns while practicing in clinic. Students expressed feelings indicating the highlights of their sessions. They focused on areas such as working with their client and/or clinician, while making connections between theory and practice. The enthusiasm from students was substantial when new learning occurred encouraging personal growth. On occasion entries were made indicating the frustration with reference to performance evaluations. Little difference in the preoccupations was found in the journal entries perhaps due to the fact that all the students in both groups are trying to meet the same clinical objectives. They are all working towards the attainment of the same professional standards. Ultimately the clinicians are ensuring a professional education that will prepare new professionals who can and do apply theoretical knowledge in the clinical setting. However, it is paramount to note that when considering the *reflective* category in the two groups it was established that Group B (8.3%) demonstrated more reflection than did Group A (6.7%). As well in the *reflective leading to change* category, Group B led once again with an 8.3% as compared to Group A at 6.4%. Since Group B was the group having received the treatment in this study, these findings alone help support the value of structured self-reflective journals and their impact on learning and education.

Differences found demographically between the two groups in age, mother tongue and education noted the following: Group A was overall younger (78%) are 24 years of age or younger than Group B where (43%) are older than 25 years of age; a larger part of Group A's respondents reported a mother tongue of English (67%), as compared to Group B's population (50%) thereby indicating Group B had to work harder to learn another language; and considering education, Group A had less overall education (33%) when compared to Group B (37%) (see Table 9). These factors may have affected the outcome. Group A put their efforts into journal writing which they could do in their mother tongue. This was not the case for people in Group B. Filling out a questionnaire in a second (or third)

language is easier than writing a journal entry. Furthermore, people in Group B had, on average, a higher level of education. Perhaps, they understood the importance of the research study more than people in Group A.

Overall, both groups of students focusing toward their future as dental hygiene professionals had the opportunity to express themselves in written journals and it was discovered that the majority of students value self-reflection and realize the importance of self-assessment as students.

CHAPTER SIX: DISCUSSION AND CONCLUSION

1. DISCUSSION

This chapter begins with the research question, followed by a discussion of the findings, limitations, future studies and conclusion.

The primary research question in this study was: Is there is a difference between dental hygiene student's level of self-reflection and self-assessment when writing unstructured reflective journals versus structured reflective journals? An attempt was made to ascertain whether or not the students self-reflect and self-assess in their reflective journals, and if so, do they do this more in unstructured journals or in structured journals.

Results indicated there were no overall differences in the level of self-reflection leading to self-assessment (see Figure 11 & Table 7). It was found however, that in structured journals there was more evidence of both the categories of *reflective* and *reflective leading to change*, as was seen in Group B (see Table 2).

Taken as a whole, the journal entries clearly showed the students were involved in '*reflection-on-action*' or metacognition while reflecting on their clinical experiences (Schon 1987, as cited in Asadoorian & Batty, 2005). The quality of the responses for the most part indicated the students took the time and effort to record their perceptions of their clinical experiences. Most importantly, it is essential to note that the results do indicate that students did show a need to self-reflect and self-assess. The students did in fact validate the importance of reflection

through journal writing, even though they did not particularly like it as an added assignment.

The journals were found to be very helpful in getting to know what the issues were that held the students' attention. The journal entries explained how and to what extent the students developed relationships with their clients. It was obvious that clinicians have an impact and influence on student learning. The students so value the help, role modeling, patience, encouraging words and or gestures, positive reinforcement, and understanding provided by their clinicians. Students described what was on their minds each step of the way. From their writing the following seven themes were brought out: the dental hygienist and affective learning; the dental hygienist and client interaction; the dental hygienist learning something new; the dental hygienist and clinician interaction; the dental hygienist and connection between didactic classes/theory, pre-clinical, and clinical; the dental hygienist and evidence of personal growth; and the dental hygienist and performance evaluations.

Throughout the entries the students described learning about skills, procedures, self-awareness and self-confidence. Further they used observation, asked themselves questions, and described in detail their experiences in clinic.

1.1 This Study in Context

Although there is a great deal of literature on the benefits of journal writing as a learning tool (Boyd, 2002; Riley-Doucet & Wilson, 1997; Walker, 2006; Wong *et al.* 1995), the literature on studies done on the use of journal writing in the field of dental hygiene is scarce.

The impetus for this study came from three sources: first, the research done by the Canadian Dental Hygienists Association's (CDHA, Dental Hygiene

Research Agenda, 2003) finding that there is a need for further research in education and the practice of dental hygiene; second, from the research focusing on journal writing and its benefits, and thirdly, the experience of the use of journal writing presently at John Abbott College.

In this study, it was found that students were able to use self-reflective journals to: record experiences of the day, voice their opinions, state problems they experienced, ask questions and/or state their feelings. This is similar to what Ibarreta and McLeod (2004) suggested, when they reported that journal writing, should include a record of events, comments, observations and feelings as the basis for reflection and that it becomes a purposeful method of problem solving which leads to self-directed learning. Echoing these findings once again, Chabon and Lee-Wilkerson (2006) reported that reflective journal writing has been found to “give power to not only convey student’s feelings, but also disclose their questions and thoughts.” (p. 157).

Students in both Groups A (78%) and B (85%) expressed how self-reflection helped better prepare them for similar future situations in clinic, indicating agreement with the finding mentioned by Sedlak (1997), and similarly, Stark (1994). As Sedlak (1997) acknowledged, when students reflect on their practice they begin to think critically about their experiences and this helps them know what they need to learn in order to become skillful professionals. In addition, Stark (1994) explained that through the use of reflective journals in the clinical setting, both the educator and student can advance the growth of self-directed skills through the assessment of their learning. In this way the student will be able to know what they need to know. An example of a student quote: “It [self-assessing ones performance] impacts it [on the quality of care you deliver to your clients] in a way that you can analyze what you did with a client and after seeing results you may alter or stay with the same method according to individual needs of that

client”. This mirrors Tang’s (2002), findings that the reflective diary is a valuable tool in facilitating both reflection and reflective learning, and Loo (2002) where reflective journaling was used to promote critical self-awareness and discovered to be a useful learning tool.

Additionally, self-reflection by the students in the study indicated that they are indeed making the connections between theoretical and clinical knowledge as one student noted: “I see my advanced perio, my prevention, my resto, my oral pathology, my anatomy even my ortho class in his mouth and I feel so eager to start and make a difference”. This finding is in agreement with Chabon and Lee-Wilkerson (2006), and Walker (2006) that journaling did help the process of bridging the gap between theory and clinic. Walker (2006) discussed the use of journal writing and revealed that journal writing enhanced reflection, helped the critical thought process and bridged the gap between theoretical and clinical knowledge. Realizing the same conclusion, Chabon and Lee-Wilkerson (2006) concurred indicated that journaling is an approach to reflection and content indicating that students are making associations between theory and clinic

Another finding in this study was the evidence of the impact intense situations had on the students. This was clearly seen in their journal entries as one student noted: “I felt extremely nervous. I was getting frustrated during the session because I could see I was my own enemy”. These findings are reflective of the studies done by Orest (1995) and Newell (1992). Orest (1995) pointed-out that a negative practice outcome may be a powerful incentive for self-assessment. Just as Newell (1992) refers to the fact that intense situations or those that may cause angst or tension, provide great potential for reflection.

The literature has shown that the reflective journals provide an individual the opportunity to think back on events of the day, express personal thoughts,

learning, misconceptions and indicate depth of knowledge while linking theory and practice.

1.2 Applying the Findings of this Study

When comparing the two methods of self-reflective journal writing (structured versus unstructured) it was clearly shown that self-assessment does happen through self-reflection. Both groups equally demonstrated self-assessment (see Tables 3 & 4). It appears salient that in the future students need to fully understand the importance of journal writing and how it can benefit their learning. Keeping a record through journal entries may help boost the student's self-confidence, by seeing what has been accomplished over a period of time and providing a collection of the activities that have encouraged their clinical growth and development. Even though the time spent on journal entries seems overwhelming at times, in retrospect the students would be able to use their collection of entries as a reference to their success. The journal entries have enriched the understanding of how deeply involved the students are at working with their clients to provide the optimal individualized oral health care.

This research has benefited from the many student comments in the journal entries indicating their achievements, beliefs, and concerns. Teachers can benefit and improve from these comments as they develop a better understanding of the individual students' struggles and assist them on their road to the attainment of their goals. It is the task of educators to ensure that self-reflective journal assignments be meaningful and provide valuable learning experiences for the students. Taking the knowledge learned from research and applying it to dental hygiene education can only help operationalize evidence-based practice.

The results of this research provide evidence for the encouragement of self-reflective journal writing as an established practice to promote self-assessment

and deeper learning for dental hygienists. In fact the findings from both the journal entries and the questionnaire reveal that the students value the need to self-assess and when they are given guidelines they are better at self-reflecting, which involves self-assessment.

2. LIMITATIONS

Several limitations were identified in the study. The original sample was a small number of students (N=31) in one year of one CEGEP of a dental hygiene program, It must be noted that only twenty-seven students took part in writing the reflective journals and twenty-three students answered the questionnaire thus limiting the strength of the findings when drawing conclusions from the reflective journals and the questionnaire data. The time period during the semester for data collection was brief. There was not enough time between journal entries to see a change over time in the students' self-reflection and further self-assessment. Some students presented their three journals all together rather than waiting for feedback, as was suggested to them in the instructions, thereby not giving them the opportunity to benefit from their clinician's feedback. As well no formal training was given to the students in regards to reflective journal writing.

It was thought that journal writing innately encouraged self-reflection, yet it appears there are some psychological barriers to journal writing and therefore self-reflection:

1. Fatigue. A student is quoted as saying, "I am usually all self-assessed out by the end of the day".
2. No Marks. Students had the tendency to see journal writing as just one more assignment in an already busy academic year, viewing it as though it was 'tacked on' to their course load. A student quote when referring to self-assessing performance in clinic and writing a journal entry, "Good....Don't need to write it though".

3. Anxiety. Anxiety can limit the process of self-reflection (Asadoorian & Batty, 2005).
4. Contrary to competitive learning. Knowles remarks that exposing our shortcomings in written self-assessment is contrary to the competitive learning process (as cited in Asadoorian & Batty, 2005).

3. FUTURE STUDIES

It is suggested by Asadoorian and Batty (2005) that more self-reflection toward competent self-assessment be taught and experienced specifically in dental hygiene education, through any number of methodologies such as case studies, portfolios and or self-reflective journal writing. Since dental hygiene students are expected to be competent professionals capable of self-assessment through self-reflection, and that self-reflection through writing journals is a well-established and successful learning strategy in a number of fields, such as nursing, dentistry, medicine and physical therapy education, then this learning strategy should be used more in the field of dental hygiene.

Future research might replicate this study using a larger sample. This sample size was limited to only one cohort of 27 students. Ideally measures could be taken to implement a longitudinal study to better understand how dental hygiene students self-reflect and self-assess over time. Future research could measure students' self-reflection over the three semesters of Clinic 1, 2 and 3 and compare the cohort, in fact to see whether there is a change in the depth of their self-reflection and self-assessment over time. The conclusions drawn from this study have implications for dental hygiene education, and therefore should be augmented by further study.

4. CONCLUSION

There appears to be a deficiency of evidence-based reflective practice in dental hygiene education, which is a key feature in many other professional programs. It goes without saying the use of activities involving reflection to enrich learning is a vital teaching practice. Once the skill of reflection has been learned, and realizing it is transferable, professional practice and life-long learning can only be made easier. The value of incorporating techniques that promote introspection, self-reflection, and self-assessment have become apparent. Competency based pedagogy is founded on the theory that a beginner with exposure to suitable teaching strategies and supervision of practice, over time, will acquire the skills needed to perform as a competent practitioner. Achievement of a skill is made possible when students know the criteria that define the end product and performance, and when both students and faculty can evaluate the result and performance (Branson & Toevs, 1999, p. 201).

The practice of taking responsibility for one's own learning, self-awareness and increasing metacognition, appears to be extremely rare in American education. For the most part, students tend to do only what they need to (Gadbury-Amyot, Kim, Palm, Mills, Noble & Overman, 2003). Clearly, a change in how reflective practice is viewed is necessary. After all, the outcome of dental hygiene education is to educate an individual who not only possesses the technical skills required for the provision of optimum client care, but also, and equally important, can be reflective, self-assess, as well as think critically and apply this to the practice of the profession. When taken seriously, reflective journal writing can help learners have the opportunity to learn (Loo, 2002, p. 66).

Throughout the literature on education of professionals, it is evident that self-reflection is truly a necessity. It is widely accepted that professionals need to

reflect on their actions as many tasks performed involve giving individualized client care, where there are few pat answers. In the dental hygiene profession the concept of reflection has been incorporated into the Canadian Dental Hygienists Association, standards of practice (CDHA, 2010, p.10). If dental hygiene educators are to facilitate reflective practice then the curriculum needs to incorporate the time to help the student master this competency. This time would be most appropriately given in the formative portion in the study of dental hygiene, providing the students with the opportunity to use reflection throughout their program. Educators of health professionals need to provide occasions for students to learn how to self-assess correctly. The responsibility rests with educators to prepare students to become professionals for reflective practice. Fundamentally, a part of this responsibility is to establish if and to what extent learning is actually happening. The use of reflective journals may contribute to this process.

Researchers in the field of competency-based education believe one of the feature characteristics of a competent individual is the ability to accurately self-evaluate or assess competence (Gadbury-Amyot *et al.* 2003). This research provides some evidence that students do believe that self-reflection through structured journal writing helped them better prepare for future clinical sessions with their clients. Our goal as educators should be to encourage students to self-assess through written self-reflection.

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APPENDIX A
STUDENT CONSENT FORM

Student Consent Form

Reflective journal writing: how it promotes self-assessment in clinical dental hygiene education.

This project will study the topics or issues that students reflect on when writing their journals. This research will require the student to write three journal entries according to specific instructions. Also, the student will be asked to fill out a questionnaire that will assess student dental hygienist's level of self-reflection. I am asking your permission to use the data collected from both the journal entries and the questionnaire. The aim of this study is to find out how we can help improve the learning process. If you agree to participate, please read and sign the consent form below. Results of this research study will be made available upon request to any interested participant.

Consent to Participate In Research

I, _____ agree to take part in a study about students' self-reflection in journal writing. I understand that participation in the study will involve my completion of three reflective journal entries and my completion of a short questionnaire. I understand that participation in the study will involve the use of data collected from these methods of inquiry.

I have been told that the reflective journals should take about 30 minutes to complete (dependent on the student). The journal entry will be completed outside of clinical practice time. I have been told that the completion of the questionnaire should take about 10 minutes. The questionnaire will be completed during a classroom meeting time.

I have been informed that my participation in the study is voluntary, and I am completely free to decide whether or not to participate in this research project. If I decide not to participate in the study, my clinical and academic performance will not be jeopardized nor will I fail my clinical as a result. I have also been told that I am free to withdraw from the study at any time without penalty.

I understand my name will not appear on the journal entries or on the questionnaire, and the journal entries will be typed in order to maintain student anonymity. All of my specific answers from the questionnaires will remain strictly confidential. I have been told that all appropriate measures to ensure the

confidentiality of any information about me will remain confidential. All data gathered during the study will be locked in the department Chair's office at John Abbott College and will be destroyed at the completion of the research. I will not be identified in any report or presentation that may arise from the study. It has also been explained to me that the data gathered may be used for other research studies in the future. If this is done, the same practices to ensure confidentiality will be observed as within this study.

While I may not receive direct benefit from participating in the study, the information gained may assist and enhance future dental hygiene students learning.

I have read the contents of this consent form and the above research procedures have been explained to me. I have been encouraged to ask questions and any questions have been answered to my satisfaction. I give my consent to participate in this study. I have been given a copy of this form for my records and future reference.

(Signature of Participant)

(Date)

(Printed Name)

Thank-you for your time and cooperation.

APPENDIX B
VERBAL AND WRITTEN EXPLANATION OF THE RESEARCH STUDY
FOR PARTICIPANTS

Verbal and Written Explanation of the Research Study for Participants

Explanation to Student Participants

The explanation will be read aloud to all participants and written copies will be distributed.

GROUP A INSTRUCTIONS:

I am presently in the process of taking courses in the Master Teacher Program through the University of Sherbrooke. As part of my commitment to this program I have a research activity this semester, which will look at a way of improving the success for all students in the program of dental hygiene. In this activity, I will look at an appropriate strategy to enhance clinical teaching and learning and expand the limited data available concerning dental hygienists self-assessment and learning.

As you may remember from your class, Introduction to the Profession in first year, there is a list of National Dental Hygiene Competencies for Entry-to-Practice developed by the Canadian Dental Hygienists Association, (2010) working together with a consortium. Here, (to name a few), it is stated that upon entry-level the dental hygienist has reliably demonstrated the ability to:

Evaluate the effectiveness of the implemented clinical therapy.

Evaluate the effectiveness of learning activities and revise the educational process when required.

Self-assess professional performance in relation to standards of practice.

Apply evidence-based decision-making approaches to the analysis of information and current practices.

Create personal plans for continuing competence and professional development (pp. 10-24).

In order to be able to demonstrate these abilities as part of the foundation of your practice, the dental hygienist must employ self-reflection.

A research study has been designed to look at students' self-reflection through the use of journal writing. As part of the requirements in the students' clinical sessions all students will be required to participate in writing three journals during the semester for the purposes of formative assessment. The students will have the option to say they do not want the data used from their journals.

I am asking all students to voluntarily participate in the research study and provide consent for the use of the data that I would collect from your self-reflective journal entries, and a questionnaire. Students who choose not to participate in any component of the research study will not be penalized or fail clinic as a result. In addition students can withdraw from the research study at any time.

You will be writing reflective journals with instructions. You have a slightly different assignment than (the other half of the class) group B, however the assignment was arbitrarily selected at registration. As part of the clinical expectations you will write three reflective journals based on your experiences in clinic, between weeks six and ten of the semester. This will give you time to get comfortable being back in clinic after the summer (beginning week six until the tenth week) and before the stir of the last five weeks of clinic. You will remember the journals you wrote during Periodontal Instrumentation last year. You will be writing your three journal entries in the same fashion. The length of time required to write a reflective journal is dependant on each of your individual experiences. The journals will be completed outside of the clinical setting. Journal entries will be submitted within one week following the clinical experience. Journal entries will be typewritten, anonymous, and two copies made. Submit both copies on the same day to the department Chair. The first copy with Group A and your code number indicated on will be read and given back to you with feedback within a week. To ensure anonymity and to maintain confidentiality the second copy of your journal entry with Group A and your number indicated on it, will be given to the department Chair. This copy will be stored in a sealed envelope and locked in the Chair's office in a designated filing cabinet until the end of the academic semester. Journal entries will not be reviewed until after the final grades are submitted. Journal entries will be destroyed after the research is completed.

A questionnaire will be distributed to you to answer during a meeting time after your third journal entry has been returned to you. It has been designed to explore and understand students' experiences with journal writing, and their preferences of using one strategy over another. It will take approximately 10 minutes to complete and an independent facilitator (some one from outside the department) will hand out and collect the questionnaires. All questionnaires will be anonymous, you will write only Group A and your code number on it on it. The questionnaires will be stored in a sealed envelop in a locked filling cabinet in the Chair's office until the final grades are submitted at the end of the semester. All questionnaires will be destroyed after the completion of the research study. Your names will not appear on any of the questionnaires and your identity will remain anonymous.

I thank-you in advance for your participation.

GROUP B INSTRUCTIONS:

I am presently in the process of taking courses in the Master Teacher Program through the University of Sherbrooke. As part of my commitment to this program I have a research activity this semester, which will look at a way of improving the success for all students in the program of dental hygiene. In this activity, I will look at an appropriate strategy to enhance clinical teaching and learning and expand the limited data available concerning dental hygienists self-reflection and learning.

As you may remember from your class, Introduction to the Profession in first year, there is a list of National Dental Hygiene Competencies for Entry-to-Practice developed by the Canadian Dental Hygienists Association, (CDHA, 2010) working together with a consortium. Here, (to name a few), it is stated that upon entry-level the dental hygienist has reliably demonstrated the ability to:

- Evaluate the effectiveness of the implemented clinical therapy.

- Evaluate the effectiveness of learning activities and revise the educational process when required.

- Self- assess professional performance in relation to standards of practice.

- Apply evidence-based decision making approaches to the analysis of information and current practices.

- Create personal plans for continuing competence and professional development (pp. 10-24).

In order to be able to demonstrate these abilities as part of the foundation of your practice, the dental hygienist must employ self-reflection.

A research study has been designed to look at students' self-reflection through the use of journal writing. As part of the requirements in the students' clinical sessions all students will be required to participate in writing three journals during the semester for the purposes of formative assessment. The students will have the option to say they do not want the data used from their journals.

I am asking all students to voluntarily participate in the research study and provide consent for the use of the data that I would collect from your self-reflective journal entries, and a questionnaire. Students who choose not to participate in any component of the research study will not be penalized or fail clinic as a result. In addition students can withdraw from the research study at any time.

Your assignment will be to write structured reflective journals with instructions. You have a slightly different assignment than that of group A (the other half of the class), however the assignment was arbitrarily selected at registration. As part of the clinical assignment you will write three reflective

journals based on your experiences in clinic, between weeks six and ten of the semester. This will give you time to get comfortable being back in clinic after the summer (beginning week six until the tenth week) and before the stir of the last five weeks of clinic. You will remember the journals you wrote during Periodontal Instrumentation last year. This journal assignment will be somewhat different, as you will be writing these journals, following guided questions rather than writing as you have done in the past. The length of time required to write a reflective journal is dependent on each of your individual experiences. The journals will be completed outside of the clinical setting. Journal entries will be submitted within a week following the clinical experience.

Journal entries will be typewritten, anonymous, and two copies made. Submit both copies on the same day to the department Chair. One copy with Group B and your code letter indicated on will be read and given back to you with feedback within a week. To ensure anonymity and to maintain confidentiality the second copy of your journal entry with Group B and your code letter indicated on it will be given to the department Chair. This copy will be stored in a sealed envelope and locked in the Chair's office in a designated filing cabinet until the end of the academic semester. Journal entries will not be reviewed until after the final grades are submitted. Journal entries will be destroyed after the research is completed.

A questionnaire will be distributed to you to answer during a meeting time after your third journal entry has been returned to you. It has been designed to explore and understand students' experiences with journal writing, and their preferences of using one strategy over another. It will take approximately 10 minutes to complete and an independent facilitator (some one from outside the department) will hand out and collect the questionnaires. All questionnaires will be anonymous, you will write Group B and your code letter on it. The questionnaires will be stored in a sealed envelope in a locked filing cabinet in the Chair's office until the final grades are submitted at the end of the semester. All questionnaires will be destroyed after the completion of the research study. Your names will not appear on any of the questionnaires and your identity will remain anonymous.

I thank-you in advance for your participation.

APPENDIX C
UNSTRUCTURED REFLECTIVE JOURNAL INSTRUCTIONS GROUP A

Unstructured Reflective Journal Instructions
Group A

The assignment: You are required to typewrite 3 reflective journal entries from your clinical experiences, between weeks 6-10 inclusively. Two anonymous typewritten copies of each journal entry are to be made with Group A and your code number indicated on them. Both are to be given to the department Chair on the same day. The journal entry is due within one week of the clinical event or situation. Choose the clinical sessions you wish to write about. In your journal entries, write about your experience during the clinical session(s), choosing to reflect, narrate, or even vent.

Reflective journals should include observations, impressions, and reactions to your application of the academic portion of the semester to your clinical sessions with your clients. How does the clinical experience change what you thought, felt, or did in the past, and how you may respond in the future?

APPENDIX D
STRUCTURED REFLECTIVE JOURNAL INSTRUCTIONS GROUP B

Structured Reflective Journal Instructions

Group B

The assignment: You are required to typewrite 3 reflective journal entries, between weeks 6-10 inclusively.

Two anonymous typewritten copies of each journal entry are to be made with Group B and your code letter indicated on them.

Both are to be given to the department Chair on the same day.

The journal entry is due within one week of the clinical event or situation.

Choose the clinical sessions you wish to write about.

Reflective journals should include observations, impressions, and reactions to your application of the academic portion of the semester to your clinical sessions. How does the clinical experience change what you thought, felt, or did in the past, and how you may respond in the future?

Please answer the following questions to help guide you in your writing:

Ask myself:	Did I?
1. What happened?	Describe the learning event, or situation (when, where, what, and who was involved.). You do not need to include names. Describe prior knowledge, feelings, or attitudes with new knowledge, feelings, or attitudes.
2. What is my reaction to the learning event or situation? My response may include emotional reactions. Why did it happen?	Analyze the learning event, or situation in relation to prior knowledge, feelings or attitudes. How did this make me feel? How did the client feel about it? How did the client make you feel? Do you think your feelings clouded the issue?
3. What is the value of the learning event or situation that has occurred?	Verify the learning event, or situation in relation to prior knowledge, feelings, or attitudes. What factors influenced your thinking? What sources of knowledge influenced/should have influenced your thinking?
4. What is my new understanding of the learning event or situation?	Gain new understanding of the learning event, or situation. What things stand out for me as I reflect on this experience? What were the consequences of the action? How could I have better dealt with the experience? What other choices did I have?
5. How will I approach the same or similar event or situation in the future?	Indicate how the new learning event, or situation will affect future behavior. How has this made an impact on me? How will this experience impact my future practice?

APPENDIX E
DENTAL HYGIENE STUDENT'S PERCEPTIONS OF JOURNAL
WRITING QUESTIONNAIRE

Please enter your Group_____ Your Code Letter_____ or Number_____

Dental Hygiene Student's Perceptions of Journal Writing Questionnaire

In order to evaluate the impact of the journal writing activity, implemented in the fifth semester of the Dental Hygiene program, the following questionnaire has been designed.

The questionnaire will take approximately 10 minutes to complete.

I would like to thank-you in advance for your participation thus far in the study. The results of this research study will be made available upon completion to interested persons. Your responses and comments will remain anonymous and confidential.

Instructions:

Please circle the appropriate response in the spaces provided.

A space is provided at the end of the questionnaire for any comments you would like to make.

1. How old are you?

Under 20 years 20-24 years 25-30 years 31-35 years 36-45 years 45
years +

2. What is your mother tongue?

English French Other

3. What level of education did you complete before entering the Dental Hygiene program:

High-School College Diploma Undergraduate Degree Masters Degree
Doctorate

The following items are statements.

Please indicate to what extent you agree or disagree with each statement.

Please circle the appropriate number.

4. Self-reflection of my work with my clients through journal writing helped me to improve my confidence when communicating with my instructors.

1	2	3	4
Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree

5. Journal writing and reflecting on my clinical sessions helped give me a clearer picture of my clients' needs.

1	2	3	4
Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree

6. Writing the journal entries, gave me the opportunity to reflect on what I practiced with my clients in clinic.

1	2	3	4
Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree

7. My reflection upon journal writing helped me better prepare myself for similar situations in future clinical sessions?

1	2	3	4
Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree

8. Self-reflective journal writing should be used more frequently during the semester to reflect on clinical practice, events, and or situations with clients.

1	2	3	4
Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree

9. Self-assessment is an important skill for dental hygienists.

1	2	3	4
Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree

10. I self-assess daily on my practice.

1	2	3	4
Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree

11. I am more likely to look up information independently as a result of self-assessment.

1	2	3	4
Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree

12. How would you define self-assessment?

13. In what ways do you feel self-assessing your performance in clinic impacts on the quality of care you deliver to your clients?

Comments:

Thank-you for your participation!
Carol Etienne

APPENDIX F
RESPONSE TO QUESTIONNAIRE QUESTIONS

Responses to Questionnaire Questions

Question #4	Self-reflection of my work with my clients through journal writing helped me to improve my confidence when communicating with my instructors.			
Percentage Response	Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
Group A (9)	0	56%	33%	11%
Group B (14)	0	36%	64%	0
Question #5	Journal writing and reflecting on my clinical sessions helped give me a clearer picture of my clients' needs.			
Percentage Response	Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
Group A (9)	0	56%	22%	22%
Group B (14)	7%	79%	14%	0
Question #6	Writing the journal entries, gave me the opportunity to reflect on what I practiced with my clients in clinic.			
Percentage Response	Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
Group A (9)	44%	44%	11%	0
Group B (14)	36%	64%	0	0
Question #7	My reflection upon journal writing helped me better prepare myself for similar situations in future clinical sessions?			
Percentage Response	Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
Group A (9)	22%	56%	11%	11%
Group B (14)	14%	71%	14%	0
Question #8	Self-reflective journal writing should be used more frequently during the semester to reflect on clinical practice, events, and or situations with clients.			
Percentage Response	Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
Group A (9)	22%	0	67%	11%
Group B (14)	0	36%	64%	0
Question #9	Self-assessment is an important skill for dental hygienists.			
Percentage Response	Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree

Group A (9)	89%	11%	0	0
Group B (14)	71%	29%	0	0
Question #10	I self-assess daily on my practice.			
Percentage Response	Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
Group A (9)	89%	11%	0	0
Group B (14)	43%	43%	14%	0
Question #11	I am more likely to look up information independently as a result of self-assessment.			
Percentage Response	Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
Group A (9)	33%	44%	22%	0
Group B (14)	29%	43%	29%	0

APPENDIX G
ETHICS CLEARANCE CERTIFICATE

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CEGEP JOHN ABBOTT COLLEGE
 Innovation, Research & Development Committee

August 17, 2009

Carol Etienne
 Teacher and MTP Student
 Dental Hygiene department
 John Abbott College
 Sainte-Anne-de-Bellevue, Québec
 H9X 3L9

Dear Ms. Etienne,

After reviewing your application, the College's Innovation, Research & Development Committee (IRDC) is hereby granting you permission to solicit John Abbott College Students to participate in your research on the benefits of Self reflection through the use of two styles of journal writing.

Once the College receives a signed copy of this Approval Letter, stating that you will comply with our Institutional Research Policy, including the section on Ethics Involving Research on Human Subjects, you will be able to start your research.

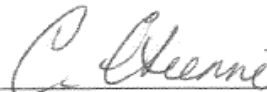
If you do not have a copy of our Institutional Research Policy you can ask for one by sending an email to ids@johnabbott.qc.ca or download a copy available in the IRDC Community on My JAC Portal.

The Committee wishes you the best of luck in your endeavour and hopes that your research is a complete success.

Sincerely,



 Pierre Asselin (date)
 Director of the Communications Office and the
 Information Technology Services
 John Abbott College
 Sainte-Anne-de-Bellevue, Québec
 H9X 3L9



 Carol Etienne (date)
 Teacher, John Abbott College

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CEGEP JOHN ABBOTT COLLEGE
Research Proposal Form

A. Applicant's identification

Date:	September 18, 2009	<input type="checkbox"/> JAC Researcher	<input checked="" type="checkbox"/> MTP Researcher	<input type="checkbox"/> EXTERNAL researcher
Name:	Carol Etienne			
Dept /Affiliation:	Dental Hygiene			
Address:	11 Chatelaine, Kirkland, QC. H9J 2G8			
Email address:	carol.etienne@johnabbott.qc.ca			
Phones:	514-695-4274 <small>(Home)</small>	 <small>(Cell)</small>	514-457-6610-5196 <small>(Work)</small>	

B. Elements of the proposed research project

1. Anticipated time frames of data research and data collection
2. Location(s) of Study
3. Title of Research Project
4. Statement of Purpose (description of project, background, brief literature, review, ...)
5. Type of Research Design (e.g. content analysis, questionnaires, interviews, experiment, ...)
6. Description of Population and Sample
7. Method of Recruitment of Participants
8. Remuneration, if applicable
9. Verbal and Written Explanation to be Given to the Participants (attached as an appendix)
10. Role of the Participants (including activities to be done and time required)
11. Evaluation of the Potential Benefits and Risks
12. Methods of Data Collection
13. Instrumentation (interview questions, questionnaires, experimental design, etc.)
14. Expectations of the College to Provide Materials and/or Services

C. Addressing potential ethical concerns

15. Certificate of ethics delivered by the researcher's institution
16. Has this project been reviewed by an ethics board and if so, please elaborate
17. Informed consent (attached as an appendix)
18. Privacy and confidentiality
19. Deception, if applicable
20. Outline of possible risk and how they will be minimized
21. Post-study explanation and/or debriefing, if appropriate
22. Responsible dissemination of results of study
23. Anticipated secondary use of the data
24. Management of storage and disposal of collected data

D. Signatures

25. Applicant :	<i>Carol Etienne</i>	Date :	<i>Sept. 20/09</i>
26. Dean of program : (I have been informed)	<i>Tom McKenry</i>	Date :	<i>Sept 16/09</i>
27. Research supervisor : (Proposal is complete)	<i>Candy Sellat</i>	Date :	<i>Sept. 18, 2009</i>

Lakeside View  Global Vision
CEGEP JOHN ABBOTT COLLEGE
Research Application Form

A. Applicant's identification

Date:	June 1, 2009		
Name:	Carol Etienne		
Dept or affiliation:	Dental Hygiene		
Address:	11 Chatelaine, Kirkland, Qc. H9J 2G8		
Email address:	carol.etienne@johnabbott.qc.ca		
Phones:	514-695-4274 (Home)	(Cell)	514-457-6610-5196 (Work)

In order to do research at John Abbott College, researcher must provide the following detailed information clearly identifying the different items as listed below.

B. Elements of the proposed research project

1. Location(s) of Study
2. Title of Research Project
3. Statement of Purpose
4. Type of Research Design (e.g. content analysis, questionnaires, interviews, experiment...)
5. Description of Population and Sample
6. Method of Recruitment of Participants
7. Remuneration, if applicable
8. Verbal and Written Explanation to be Given to the Participants (attached as an appendix)
9. Role of the Participants (including activities to be done and time required)
10. Evaluation of the Potential Benefits and Risks
11. Methods of Data Collection
12. Instrumentation (interview questions, questionnaires, experimental design, etc.)
13. Expectations of the College to Provide Materials and/or Services

C. Addressing potential ethical concerns

14. Informed consent (attached as an appendix)
15. Privacy and confidentiality
16. Deception, if applicable
17. Post-study explanation and/or debriefing, if appropriate
18. Responsible dissemination of results of study
19. Anticipated secondary use of the data
20. Management of storage and disposal of collected data

D. Signatures

Signature:


Applicant

Date:

June 1, 2009

Signature:


Department Chair (if John Abbott employee)

Date:

June 1, 2009