

Online Directed Journaling in Dental Hygiene Clinical Education

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Background

Dental educators emphasize the importance of developing students' critical thinking skills.¹ The first year of dental hygiene programs are time intensive with 20-26 hours spent weekly in lecture-based courses and performance-based clinical activities. Both courses and activities provide for delivery of core principles, but often result in isolated knowledge and performance not facilitating the development of critical thinking required in a clinical environment.¹ Williams et al., identified that the rapid increase in scientific and health-related information in the health professions has already created overloaded curricula.¹ In spite of the recognition of the need to develop good critical thinking skills in allied dental education, implementation of strategies to encourage good clinical judgment is limited.² Learning strategies that provide the opportunity for students to develop critical thinking skills which can be effectively integrated into the curriculum, are important to identify and implement.

Entry level dental hygiene education requires the application of foundation knowledge and new clinical skills to patient care. Synthesis of theory from concept to practice relies on critical thinking skills.³ Upon entering the clinic, students face the challenge of integrating their developing clinical expertise with the demands of patients' diverse needs. Students benefit from exposure to a rich range of experiences; however, it is impossible to prepare students for every type of problem they may encounter in practice. Creating op-

Abstract

Reflecting upon and sharing of clinical experiences in dental hygiene education is a strategy used to support the application of didactic material to patient care. The promotion of interactive, clinically focused discussions creates opportunities for students to foster critical thinking and socialization skills in dental hygiene practice. Twenty-eight dental hygiene students in their first semester of patient care utilized online directed journaling via blogging software, as a reflection and sharing strategy. Journal entries found critical thinking and socialization themes including connection of didactic material to clinical experience, student-patient interaction, student-student collaboration, and a vision of the professional role of the dental hygienist. A 7 item evaluation instrument provided data that the online journaling strategy was perceived as effective and valuable by the students. Online directed journaling is a strategy that has the potential to enhance critical thinking and socialization skills in dental hygiene clinical education.

Key words: journaling, reflection, critical thinking, online, blogs

portunities for students to share and benefit from each others' experiences can enhance and expand learning for all.⁴

Journaling is a personal recording of experiences and observations. It is a technique which has been utilized in education for a number of years. Critical thinking benefits to journaling include finding meaning in one's actions and connecting didactic information to clinical application.⁵ However, journaling is often done in isolation, not allowing for the sharing of these experiences with peers. A "real world" dental hygiene environment includes professional socialization, with communication and collaboration as components of clinical reasoning. Student participation in a reflective process that incorporates peer dialogue, results not only in the application of didactic knowledge to clinical performance, but also the sharing of strategies which may be useful in other situations.⁶

Online (web-based) journaling is a strategy that blends reflection with dialogue.⁷ Cohen and Welch identify that with today's array of educational technology, online journaling can be designed to provide opportunities for individual reflection and incorporation of discussion as a means of sharing experiences.⁷ To enhance critical thinking and socialization, an online journaling activity which included reflection and peer sharing was integrated in a first year, second semester dental hygiene clinical seminar course.

Review of the Literature

Skillful performance by health care professionals develops through knowledge, reasoning, and applying reflective, critical thought in practice situations.⁸ The purpose of this is to ensure that the professional has the depth of knowledge necessary to

comprehend the practice situation so that safe, effective, quality care is provided.⁸ This provides an opportunity for every clinical experience to become a lesson which can also be used to guide future practice experiences. Kok et al., identified that problem solving skill development is attained through the use of analytical critical thinking, synthesis, application, and self-evaluation of situations, leading to intellectual growth and self-awareness.⁹ A significant challenge facing health care education today is finding ways of engaging learners in creative problem solving.¹⁰

Reflection has played an active role in education influencing the learning environment and its processes. It is a critical element connecting experience with the student's personal thoughts, feelings, and values in meaningful ways.¹¹ Reflection allows for introspective thought on lessons learned and understanding of the significance of associated actions.¹² It has also assisted in actively focusing learning, while reducing anxiety, and increasing peer support and cooperation.⁴

Journal writing may be viewed as a strategy to facilitate reflection.¹⁰ Writing enhances learning through increasing active involvement and the fostering of critical thinking or a "questioning attitude."¹³ Linking course readings to the practice of reflection provides clinical context, engaging students in an additional discovery.⁷ Journaling may also be used as a learner-centered assessment tool, assisting in determining whether students are making sense of course content.¹³ For the instructor, a review of journal entries may be insightful, assisting in determining the level of meaning being constructed by the students.

In addition to fostering critical thinking, reflective journaling has the potential to promote socialization. Merton et al., defined socialization as the "process by which people selectively acquire the values and attitudes, interests,

skills, and knowledge-in short, the culture-current in the groups of which they are, or seek to become a member".¹⁴ Hammer applied this definition to the field of medicine, and used the term "professional socialization" to describe the transformation of medical students into physicians.¹⁵ Daroszewski, et al., conducted a pilot test to evaluate the effectiveness and value of on-line directed journaling related to critical thinking and socialization.⁴ Using a convenience sample of Advance Practice Nursing students in a 2 quarter community health course, students were required to post one in-depth journal entry per week. Students were provided with goals, objectives, clinical activities, and guidelines for reflection on designated weekly topics. Discussion topics were sequenced to provide structure for cognitive and clinical practice development as the course progressed.⁴ Additionally, students were required to read and comment on at least 2 of their classmates' journal entries weekly. A journaling evaluation form was developed by 3 experienced nurse educators, consisting of 4 demographic questions, 10 items which students rated on a 5-point Likert-type scale, and an open-ended response request for additional comments. Journal entries were evaluated and found 4 major themes: discussion, critical thinking, mentoring, and socialization.

The results of the student evaluations showed online journaling to be highly effective and valuable. The ability to share experiences and reflections with peers, through an online format, enhanced the themes of mentoring and socialization. Daroszewski et al., indicated the need for continued research on the use of journaling in health care education.⁴ The use of online directed journaling in this pilot study indicated a positive benefit, allowing for the sharing of relevant clinical experiences, which can serve to enrich both cognitive and professional growth.

The student perspective on reflective journal writing and how it promotes reflective thinking in clinical education was explored by Kok et al.⁹ A qualitative, descriptive research design was used to determine whether reflective journal writing promotes higher-level thinking skills. A convenience sample of fourth-year nursing students on a 6-month rotation in a psychiatric clinical practice used reflective diaries. Students were given guidelines on how to use reflective journal writing related to their clinical experiences on a daily basis and were asked to submit journals at the end of the 6 month placement. A number of the students in this study did not follow the guidelines for this assignment appropriately, only completing their journal entries the night before the deadline. When surveyed at the end of their rotations, these students indicated the perceived lack of time to complete this assignment on a daily basis was the reason for not addressing entries as prescribed. During the interviews, the students indicated they did not understand that writing shortly after an event provides a more accurate account of the event.⁹ In addition to the issue of perceived lack of time; additional negative student perceptions included lack of clear expectations and uncertainty of level of trust between student and instructor evaluating the journal entries. Positive comments identified the improvement of problem-solving skills, self-evaluation, self-awareness, and intellectual growth.

A secondary outcome of the Kok et al., study was the development of guidelines on how to effectively use reflective journal writing to promote the learner's reflective thinking skills in clinical education.⁹ This included support for the integration of peer group dialogue to strengthen the link between the learning experience and reflective activity, and the use of directing concepts to assist the learner in focusing their journal reflections.

Using weblog technology, Bouldin, et al., conducted a study utilizing a convenience sample of second-year pharmacy students to reflect on course concepts and their application to the environment outside of the classroom.¹³ Themes from learning objectives were derived from evaluated journal entries. The themes which emerged were: application of course concepts outside of class; development of communication skills through self-assessment; and positive influence on attitudes. Data on students' perceptions of their perceived achievement of learning outcomes was also gathered using an attitudinal survey rated with a Likert-type scale. When surveyed, 58% of the students agreed that this learning strategy assisted in fulfilling the goals of this course. The use of weblog technology was identified as favorable by both instructors and students. Bouldin et al., encouraged the continued refinement and integration of the use of technology for reflective journaling.¹³

The decision to incorporate reflective journaling also includes determining an appropriate format for implementation. Online, web-based technology is a mechanism which can meet the desired outcome of directed clinical reflection and sharing occurring outside of the face-to-face class session. Weblog or blog originally defined as an asynchronous (non-simultaneous) online journal is now thought of as an electronic bulletin board. It serves as a user-generated Web site where entries are made in journal style and displayed in a reverse chronological order. The ability for readers to post and reply comments in an interactive format is an important aspect of blogs. Blogs used for reflective journaling have the benefits of time and date stamping of entries, and the archiving of past entries.¹⁶ They also allow for entries to be subdivided by category and by topic. The Web-based asynchronous blog format allows for student posting and replying via Inter-

Table I. Online directed journaling reflection topics

Topic	Reflection direction
Clinic Experience	Identify 1 component of providing clinical patient care you find confusing/difficult and why. Identify 1 aspect of clinical patient care you find enjoyable and why.
Patient Motivation	Jahn CA. Firing up patients' home care motivation. RDH Magazine. 2002;(3) 72-75. Read and reflect on how this will assist you with patient education.
Oral Lesion	Identify an oral lesion or oral condition you have observed in clinic. Describe appearance, location, symptoms, and differential diagnosis process.
Oral Rehabilitation & Implants	Wilkins EM. Clinical Practice of the Dental Hygienist. 9th ed. Baltimore (MD): Lippincott Williams & Wilkins 2005. p. 485-499. Read your assigned section in Chapter 30 titled "Oral Rehabilitation & Implants." Select two important items of information to share with your classmates.

net at any time during the assigned discussion period.

The literature related to journaling suggests that students perceive journaling as a beneficial exercise if guidelines for reflection are provided, explained, and understood, and directed questions are used to facilitate reflection. Sharing of reflective experiences with the learning community is shown to enrich cognitive growth and socialization. Web-based (online) technology is a purposeful means of facilitating directed journaling.

Transitioning from preclinic to direct patient care presents challenges. The opportunity to reflect and dialogue about clinical issues is often limited due to patient scheduling and student course load. The purpose of this study was to evaluate the benefit of online directed journaling for dental hygiene students entering clinical patient care.

Methods

The University of Michigan Health Sciences Institutional Review Board determined that this study was exempt from review by the IRB. In a first year, second semester, clinical seminar course 28 dental hygiene students participated

in online directed journaling for the last 8 weeks of the semester. Four guiding questions and topic categories were identified by the dental hygiene faculty and were provided to students biweekly by the clinical seminar course director. These included clinic experience, patient motivation, oral pathology, and oral rehabilitation (Table I). The sequencing of these topics was correlated with seminar course material. Students were asked to include in their journal entries what they learned, to identify challenges, and to explain how experiences assisted in expanding their patient care knowledge. They were asked to post reflections on 4 topic categories. Additionally, students were asked to reply to 2 of their classmates' postings in any topic category. In total, each student was to submit 6 entries during an 8-week period. Midway through the topic posting periods, both in-class and email announcements were provided to students, reminding them to participate in the online directed journaling. The University of Michigan's weblog technology, mBlog, was utilized for journaling because of student familiarity. In the previous semester, students received instruction in the use of this technology and utilized mBlog communication and collabo-

Table II. Examples of emergent categories of student reflection themes

Total postings	n=176
<p>Relating didactic material to clinical experience</p> <ul style="list-style-type: none"> • I am finding I have a better understanding how a patient's lifestyle affects their oral healthcare." • "It's just very difficult because you have so many different types of patients with different things wrong with them that if you miss a beat sometimes it can throw your whole game off. I just need to take a little more time to analyze the whole patient because some things are not as BOLD and right in front of your face as others. Sometimes you have to dig a little deeper." • "I hope with seeing more patients I will feel more comfortable and just be able to look in a patient mouth and be able to identify restorations off without second guessing myself! Practice makes perfect and I can't give up." • "As we've talked about in Head & Neck Anatomy, the body works in amazing ways! The fistula is created by the body, as a self-regulation of pain! Without the formation of a fistula, drainage from an abscessed tooth would continue to build up and cause considerable pain! The fistula allows a passageway for drainage." • "I had two female patients with oral lichen planus. Lichen planus is an inflammatory disease of the skin and mouth. It is commonly seen inside of the cheeks, but also affects the lips, tongue and the gums. My first patient had lichen planus on her gums and my second patient had it on her cheeks and around her tongue. It looks like fine white lines and sometimes white dots as well. My patients told me that it is very painful when it becomes inflamed. They do not know what causes it and it occurs randomly." 	<p>29% (n=51)</p>
<p>Student-patient interaction</p> <ul style="list-style-type: none"> • "Even though this patient was difficult, he exposed me to new situations that I had to learn to handle." • "When I met my Down's Syndrome patient, that I gave him a lot of attention. I took my time and figured out everything he was saying to me. The appointment went by very well, and I was very proud of him, because he had great oral care." • "I believe it would be helpful for patient motivation, to arrange a display of self-care products in the office. This would be more realistic once we being working in a private practice. Patients would feel better about trying a new product if we provide them with information and allow them to try it out." • "One way to meet a patients primary dental health needs and promote self-direction is to ask the patients how they feel they are doing with their oral hygiene and what areas they are concerned with." • "I think it is great to get the patient comfortable and talking to me because it encourages us both to be honest and realistic." 	<p>16% (n=29)</p>
<p>Student-student collaboration</p> <ul style="list-style-type: none"> • "Try to chart the whole mouth then ask a peer instructor to help evaluate what class restorations I charted" • "Thank you for sharing your experience with us, this way we can all gather knowledge about the situations we may face in our careers." • "I agree that it is difficult to find the line between merely giving our patients possible outcomes and scaring them. Often the outcome may be scary (at least to me). I trust that with experience that line will become clearer to us." • "It was a nice point that you brought up about them 'tuning out' to what we think if they don't even agree or understand themselves! I never really thought of it that way!" 	<p>32% (n=56)</p>
<p>Vision of the professional role of the dental hygienist</p> <ul style="list-style-type: none"> • "Patients come to me with questions and concerns and I have the ability to help them and make an impact on their health, I really feel good about what I do." • "I have the privilege every Tuesday morning being in the cubicle next to you. You have really grown into your own. When you are in clinic, your outer layer is a calm, cool, and confident dental hygienist. You always handled yourself professionally with compassion. Keep it up!" • "I recently saw a teen patient with nicotine stomatitis located on the hard palate. I consulted with the dental student prior to delivering any education, to have a better understanding of what the patient has been told in the past. I put an important emphasis on tobacco cessation since she was so young, and this was already developing." • "It is my goal, as a dental professional not to be Ms. Informative-- I much rather 'partner' with my patients and empower them to take charge of their oral health, and this is what I will keep trying to improve on each time I visit with my patients." 	<p>10% (n=17)</p>

Table III. Student survey responses

Survey statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	N/A
mBlog reflection was a valuable supplement to patient care experiences.	29% (n=6)	48% (n=10)	19% (n=4)	0% (n=0)	4% (n=1)	0% (n=0)
Composing/posting reflections was valuable.	29% (n=6)	33% (n=7)	24% (n=5)	10% (n=2)	4% (n=1)	0% (n=0)
Reading other students' reflections was valuable.	29% (n=6)	57% (n=12)	10% (n=2)	0% (n=0)	0% (n=0)	4% (n=1)
Commenting on other students' reflections was valuable.	10% (n=2)	48% (n=10)	29% (n=6)	10% (n=2)	4% (n=1)	0% (n=0)
mBlog reflection helped me integrate course related information with direct patient care.	15% (n=3)	48% (n=10)	33% (n=7)	4% (n=1)	0% (n=0)	0% (n=0)
The ability to access mBlog at any time was valuable.	24% (n=5)	62% (n=13)	10% (n=2)	0% (n=0)	0% (n=0)	4% (n=1)
The availability of archived postings/comments was valuable.	4% (n=1)	19% (n=4)	62% (n=13)	15% (n=3)	0% (n=0)	0% (n=0)

ration for case-based assignments.

Qualitative data was obtained in the form of analysis of each posting and reply at the end of the semester. Two faculty members independently read each entry, compared results, and reached a consensus on emerging categories of themes. Students also completed a 7-question Likert-type survey (Table III) to evaluate their perception of the use of online (mBlog) journaling for reflective discussion. The survey was based on questions used in studies cited in the literature review.^{6, 10}

Results

Student initial postings and replies totaled 176. Several students replied beyond the required number. One student did not contribute any journal entries or replies. The average student posts/replies remained at 6. Analysis of these postings/replies provided insight into the impact these directed topics had on the students. Four themes emerged: relating didactic material to clinical experience, student-patient interaction, student-student collaboration, and the vision of the professional role of the dental hygienist.

Relating didactic material to

clinical experience was identified in 51 of the 176 journal entries (29%). Student-patient interaction was mentioned in 29 of the 176 postings (16%), and student-student collaboration in 56 of the 176 journal entries (32%). The vision of the professional role of the dental hygienist was cited in 17 of the 176 postings (10%). Examples of comments from each of these themes are included in Table II.

Results of the student survey responses regarding their perceptions of online journaling are identified in Table III. Twenty-one of the 28 students (75%) completed the survey at the end of the 8-week period. Student perception of online directed journaling for reflection on clinical experience found 77% agreed that this was a valuable supplement to their patient care experience. Sixty-two percent agreed that composing and posting journal entries was valuable. Reading other students entries was found by 87% of the students to be very valuable. Fifty-eight percent found commenting on other students' postings valuable, and 63% agreed that online directed journaling helped integrate course information with direct clinical care. The ability to access mBlog at any time was considered a positive aspect of

this exercise by 86% of the students. Sixty-two percent of the students were neutral to the value of the archived reflection postings available on mBlog.

Discussion

The use of online directed journaling using mBlog, provided an opportunity for first year students to reflect upon and share clinical experiences. Student clinical concerns related to the dental hygiene process of care treatment planning, time management, and appropriate documentation and protocols were identified through the postings. Presentation of these concerns allowed for immediate and direct clarification from faculty either online or through in-class feedback. The students permitted the course director to share their mBlog Web site with the clinical dental hygiene faculty, and they were encouraged to read postings to assist in identifying students' need for additional individualized instruction. Data on faculty mBlog access usage for instruction was not collected. This has been identified as an area for further study.

Socialization and a sense of community were developed through on-

line, directed journaling. One student commented, "At first the journal entries were 'just another thing to do' but after patient care started, I found these postings were comforting!" Another student stated, "I didn't really have enough time to read all of the postings, but the ones I did read, made me feel like I wasn't alone."

Students found the online format attractive as postings and reading could be accessed and completed at any time. They also identified posting and reading what was pertinent to them allowed for individualized learning. In-class seminar time is designed to cover content outlined in a syllabus; however, the clinically related content of this course lends itself to discussion of student clinic concerns. This discussion is valuable, but time consuming. In the early weeks of the online journaling, 3 first year students approached the Clinical Seminar Course Director indicating they felt too much time was being spent in-class discussing clinic experiences. They perceived this as distracting from the course syllabus objectives and identified

such discussions as "wasted time," especially if the discussion centered on an area they already understood. They preferred this discussion take place in the online format.

Students surveyed acknowledged the benefit of having time to construct and clarify their reflection and response postings in a written draft prior to posting. They found the online environment safe and supportive of total class participation. Guiding reflection with topics that aligned with clinical seminar content permitted an opportunity for students to better focus their thoughts. First year students with limited dental hygiene experience provided thoughtful insights in their online postings.

Conclusion

Online directed journaling is a beneficial reflective strategy that has the potential to enrich critical thinking and socialization skills essential in dental hygiene education and practice. It offers an opportunity for

students to reflect upon and share clinical experiences, supporting the application of didactic material to patient care. In entry level dental hygiene education, journaling may be enhanced if strategies for reflection are provided and guiding (directed) questions are used. Web-based technology is a purposeful means of facilitating directed journaling. Further study is needed to continue to explore this effectiveness.

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References

1. Williams KB, Schmidt C, Tillis TSI, Wilkins K, Glasnapp DR. Predictive validity of critical thinking skills and disposition for the National Board Dental Hygiene Examination: A preliminary investigation. *J Dent Educ.* 2006; 70(5):536-544.
2. Williams KB, Glasnapp DR, Tillis TSI, Osborn J, Wilkins K, Mitchell S, et al. Predictive validity of critical thinking skills for initial clinical dental hygiene performance. *J Dent Educ.* 2003; 67(11):1180-1192.
3. Blake TK. Journaling: An active learning technique. *Int J Nurs Educ Scholarship.* 2005; 2(1):1-13.
4. Daroszewski EB, Kinser AG, Lloyd SL. Online, directed journaling in Community Health Advanced Practice Nursing clinical education. *J Nurs Educ.* 2004; 43:175-180.
5. Hancock P. Reflective practice using a learning journal. *Nurs Standard.* 1999; 13(17):37-40.
6. Davies E. Reflective practice: A focus for caring. *J Nurs Educ.* 1995; 34:167-174.
7. Cohen J, Welch L. Web journaling: Using informational technology to teach reflective practice. *Nurs Leadership Forum.* 2002; 6:108-112.
8. Paul RW, Heaslip P. Critical thinking and intuitive nursing practice. *J Adv Nurs.* 1995; 22:40-47.
9. Kok J, Chabeli MM. Reflective journal writing: How it promotes reflective thinking in clinical education: A students' perspective. *Curationis.* 2002; 25(3):35-42.
10. Kalischuk RG, Thorpe K. Thinking Creatively: From nursing education to practice. *J Cont Educ Nurs.* 2002; 33:155-163.
11. Keselyak NT, Simmer-Beck M, Bray KK, Gadbury-Amyot CC. Evaluation of an academic service-learning course on special needs patients for dental hygiene students: A qualitative study. *J Dent Ed.* 2007; 71(3):378-392.
12. Gadbury-Amyot CC, Simmer-Beck M, McCuniff M, Williams KB. Using a multifaceted approach including community-based service-learning to enrich formal ethics instruction in a dental school setting. *J Dent Ed.* 2006; 70(6):652-661.
13. Bouldin AS, Holmes ER., Fortenberry ML. "Blogging" about course concepts: Using technology for reflective journaling in a communications class. *Am J Pharm Educ.* 2006; 70(4):1-8.
14. Merton RK, Reader GG, Kendall PL. The student-physician: Introductory studies in the sociology of medical education, 1st ed. Cambridge (MA): Harvard University Press; 1957.
15. Hammer DP. Professional attitudes and behaviours: The "A's and B's" of professionalism. *Am J of Pharm Educ.* 2000; 64(4):455-464.
16. Martindale T, Wiley DA. Using weblogs in scholarship and teaching. *Tech Trends.* 2005; 49(2):55-61.