

“Will my introduction of motivational interviewing techniques and dry brushing lead to behaviour change in trying a new toothbrush technique, thus improving patients’ oral health?”

Stephanie McKinnell, RDH, BSc

O’Hehir University - Class 3C-15

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Abstract:

Objective: The goal of this action research project was to discover if implementing motivational interviewing techniques, and the introduction of dry brushing would lead to behaviour changes, improved oral hygiene practices and better oral health.

Method: Open-ended questions, guiding communication, and the introduction of dry brushing were implemented with 10 subjects. Follow-up phone calls or emails were conducted 7-10 days after their hygiene appointments.

Results: The majority of the participants tried dry brushing daily for the 7-10 day test period. These patients plan on continuing dry brushing as part of their daily routines.

Conclusion: By using motivational interviewing techniques, the patients' interests were determined and they appeared to be more receptive about trying something new.

These techniques proved to be quite successful and should be considered by all dental health professionals in order to improve patients' oral health.

Introduction:

Over 10 years ago, I decided I wanted to work in a health care profession. Exactly 10 years ago, I began a dental hygiene program, after completing the mandatory year of prerequisite courses. I had always loved going to the dentist as a child, and found human anatomy and physiology fascinating. After narrowing down my options to nursing and dental hygiene, I decided I could see myself in a private practice setting, working collaboratively, yet also independently, as a dental hygienist. I wanted to promote health, educate people, and make a difference in their lives. Throughout the O’Hehir University (OHU) degree completion program and the associated readings, class discussions and resulting reflective approach to my work, I have realized that I do not always achieve great results in terms of getting patients to improve their oral health. With this, I have decided that I need to improve my approach with clients, and test out different methods. These changes will hopefully cause an improvement in the oral health and general health of each patient.

Throughout the course, I have been inspired by the book: Health Behavior Change in the Dental Practice, by Christopher A. Ramseier and Jean E. Suvan; specifically the Motivational Interviewing and O.A.R.S. techniques. My burning question is regarding what I can do differently to get patients motivated to take their oral health seriously. I want to guide them in making necessary changes to improve their oral health, and perhaps their overall health. I have also been discussing dry brushing with many clients since starting this program. With the feedback I have received so far, I wanted to incorporate this into my action research project as well. If I come up with some great open-ended questions, I can lead patients into “placing the onus on

themselves”, as Trisha O’Hehir, the co-founder of O’Hehir University and my instructor, has said, in terms of making decisions about their own oral health. I am thinking that a good measure to evaluate the effectiveness of these methods would be to ask a series of follow-up questions, to determine if the new approach seemed to help them realize the importance of their own commitment to their oral health. If this approach is successful, the impact on patients would be that their oral disease and infection levels would decrease, causing an improvement in their oral health. They would be more compliant in continuing their home oral care routines. They would be more motivated to follow future recommendations for hygiene intervals, treatments, and possible other health care-related suggestions, such as following a healthier diet, or quitting smoking. This would help earn the trust of these patients and would help the practice to receive positive feedback and likely future referrals as well.

Background/Research:

Gingivitis and periodontal disease are unfortunately common health concerns worldwide. A study from 2010 stated that 94% of American adults had gingivitis (Sambunjak, 2012). With the current aging population, the statistics may continue to increase, as another study found that in the UK, 85% of adults over the age of 65 exhibited periodontal destruction (Renz, 2008). There is extensive research displaying the strong interrelationship of oral health and systemic health, as the original bacterial infection triggers an inflammatory response in the body. This inflammation communicates with other organs, and areas of the body, which can lead to a correlation of systemic diseases, namely cardiovascular disease, type II diabetes, and preterm birth (Ross, 2010). These are serious health issues, which I believe are catalysts for dental hygienists to help prevent future issues, as well as treat existing ones.

Based on my personal clinical experience, I find that most adult clients have some level of subgingival and supragingival calculus. Dental calculus is defined as calcified dental plaque, with viable dental plaque covering the mineralized deposits (White, 1997). The dental plaque consists of a biofilm matrix, which allows the plaque to adhere like cement to various surfaces. It includes bacterial microorganisms, host compounds from saliva, and proteins (MacFarlane, 1989). Therefore, it is a crucial component of each patient's oral health prevention program to remove plaque and calculus on a regular basis. Dental hygienists have been around in North America for decades, yet we do not seem to be improving the oral health statuses of our patients. Alas, it cannot be completely up to us, as health care practitioners, to solely be responsible for our patients' oral health; despite our tendency to want to fix everything

by telling clients what to do to improve their situations. This is also known as the “righting reflex” (Ramseier, 2010). Our patients need to take responsibility for the state of their oral health, subsequent systemic health, and realize that “failure to maintain good oral hygiene can lead to treatment failure in the longer term” (Renz, 2008). The treatment we provide can be viewed as an adjunct to effective oral self-care (Renz, 2008). As health promoters, dental hygienists need to help guide their clients to discover their motivation for changing habits, and becoming healthier individuals. Since it appears that the traditional methods of lecturing repeatedly lack success in initiating behaviour change, it needs to be determined how to change approaches, and ourselves, in order to become more effective in influencing patient behaviours (Renz, 2008).

I felt that following up with each patient, with a series of specific questions, would be an accurate way to evaluate the effectiveness of using motivational interviewing and the O.A.R.S. techniques. Especially since behaviour, and/or behaviour change are the “most direct measure[s] of adherence”, (Renz et al, 2008). In addition, at these patients’ future dental hygiene appointments, I will be able to observe if any improvements in plaque, calculus, and inflammation have occurred. By using guiding communication, motivational interviewing, and O.A.R.S., I was able to assess what my patients were ready and interested in discussing that particular day. I was also able to determine whether patients were interested in learning a “secret” or “new trick” to improve their oral health. Capturing each patient’s interest is key to becoming successful in their understanding of the knowledge we are giving them, and will result in increased knowledge retention (Pollino, 2014).

Toothbrushing is one of the most effective methods of removing and controlling dental plaque levels, yet due to the high prevalence of gingivitis, periodontal disease, and decay, we know that too often toothbrushing is inadequately performed, especially in regards to the time spent brushing the lingual surfaces (Serrano, 2015). I treat multiple patients who could improve upon their toothbrushing techniques, which is why I decided to incorporate the introduction of dry brushing into my action research project. I felt that the benefits of including this would be multifactorial; namely reducing clients' calculus formation and inflammation levels. This was also used as a measurable tool to see if patients were responding well to the motivational interviewing techniques used.

Dry brushing is an excellent method for patients to truly feel what it is like to have clean feeling teeth and gums after using their toothbrush. One key factor that I express to patients, is to begin brushing the lingual surfaces first, mostly the mandibular lingual surfaces. In certain cases, where there is increased plaque and calculus on the maxillary lingual surfaces as well, I will encouraged patients to brush all of the "insides" first.

Methodology:

I selected 10 patients to participate in my action research project, 8 of whom I have treated repeatedly over the years, 2 of whom are family members who I do not see in-office. These family members have previously mentioned that they “hate the scraping” when they see their hygienist, which indicated to me that they probably could benefit from some changes in their oral hygiene routine. I selected patients who seem to consistently have moderate amounts of calculus and/or plaque on the lower lingual surfaces, even if they have an increased hygiene interval. Through our class discussions and readings, especially the book, Health Behavior Change in the Dental Practice, I learned that if I change my course of action with patients, by implementing a more guiding style of communication, motivational interviewing and O.A.R.S. techniques, I can hope to achieve behaviour change.

With implementing a guiding style of communication, I would be able to work collaboratively with each patient in helping them “identify his or her own goals and how he or she might best achieve them.” (Ramseier, 2010). Motivational interviewing is defined as “a client-centered, directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence.” (Ramseier, 2010) The O.A.R.S. technique is defined as “open-ended questions, affirmations, reflective listening, and summarizing” (Ramseier, 2010). These provided the foundation for the questions I asked each potential candidate for my action research. These included: “How do you feel about all of the scaling that I have to do at each appointment?”, “Do you find it to be sensitive or irritating?”, “Tell me about your current oral hygiene home care routine.”,

“How do you feel about having to come in every 3 months for hygiene appointments?”, and “I have a trick/know a secret that I can show you if you’re interested in having less build-up and inflammation/gum disease by your next appointment.” These questions can be used in various scenarios at future appointments as well.

The last statement was a good segue to introduce and discuss dry brushing. In the past, I discussed dry brushing when patients would ask me what the best kind of toothpaste was. Unless the patient had specific concerns, such as xerostomia or a high risk of tooth decay, I would say that the brand or type of toothpaste really did not matter in preventing plaque or calculus build up. I would explain that they could technically use a toothbrush without toothpaste and that it was the friction of the bristles against the gumline that removes the sticky plaque from the surfaces in our mouths. When we discussed Trisha O’Hehir’s book, The Toothbrush Secret, I felt this was a technique I should immediately begin discussing more often with patients. Dry brushing was explained to each patient.

- 1) Begin with a dry toothbrush, manual or electric, without water or toothpaste.
- 2) Brush along the gumline of the inner surfaces/tongue side of the lower teeth for 1 minute, or until your teeth and gums feel clean to your tongue/there is no “fuzzy slipper feeling”.
- 3) Add toothpaste to the toothbrush and brush all other surfaces for 1-2 minutes.
- 4) The benefits of dry brushing were discussed. I explained that the ingredients in toothpaste temporarily numb the tongue and gums, and the bubbles toothpaste create make it difficult to tell if the bristles are reaching the gumline and if the bristles

have effectively displaced the sticky plaque. I would then ask each patient if they had any questions regarding our discussions.

Informed, signed consent for participation and allowing follow-up contact, was obtained from each patient, as well as a signed permission form from the dentist for whom I work. An example of the consent form is shown below. I purposefully asked each patient to sign the consent forms after our discussions, as I did not want the knowledge of participation in an action research project to influence their initial answers and responses.

Informed Consent

I (patient's name) voluntarily agree to participate in the Action Research Project conducted by Stephanie McKinnell, RDH as part of their bachelor degree completion program. I understand my name and personal information will be kept confidential.

Signature:

Name:

Date:

Follow-up phone calls or emails were made 7-10 days after each patients' appointment. After exchanging pleasantries, I asked the same follow-up questions.

This was the "script" that I followed:

Hi _____,

Hope you are doing well! I am following up with you on your dental hygiene appointment last week. At that appointment, we discussed trying dry brushing of the "inside" surfaces first, for 1 minute or until it feels clean, prior to brushing with toothpaste for 1-2 minutes. Since that appointment:

How often did you dry brush?

How different do your teeth and gums feel after dry brushing, compared to before?

Do you feel as though you will continue to use the dry brushing technique, why or why not?

There are no right or wrong answers, I am collecting information for my degree completion action research project and I really appreciate your participation.

Thanks again,

Stephanie McKinnell

Gathering and Interpreting Data:

Initially I was thinking too broadly about my action research question, and thinking in a more traditional, scientific, and quantitative research mindset. I knew I wanted to incorporate the motivational interviewing skills I had learned. I also knew I wanted to include dry brushing as well. I thought that some good ways to achieve validation would be to disclose each client, take intraoral photos, and record plaque scores, then have the patients come back for follow-ups, re-disclose, take new photos, etc. I felt that this would provide concrete evidence to each patient that the new techniques were off to a great start, and that this would motivate them further to continue their new habit. Upon discussions amongst my OHU instructors and peers, it was decided that this was unlikely to be achieved in the given time period, as well as not fully necessary. After further brainstorming, research, discussions, and input from my instructors and peers, I was able to narrow down my action research question.

I was excited to begin testing out these new concepts on my clients. Of course, since so many patients have trouble accessing the lingual surfaces of their mandibular teeth, it was easy for me to find potential subjects. I felt as though I could easily try the techniques with 20 patients, thus having a solid number to compare results. However, due to major changes at my 4-day per week office, I decided to leave that practice. This vastly limited the patient pool from which I could select potential participants. I still had my Friday office, so I aimed for 15 or so patients. When this number proved to be too many in the given amount of time for our assignment, I resorted to two family members who I do not treat. Often, they talk about how they “hate the scraping” or that they “hate the ultrasonic” during their hygiene appointments. This was an indication to me that

they could benefit from some motivational interviewing, and being introduced to dry brushing.

I had one patient who was the perfect candidate for my research. When he was in recently for his 3-month hygiene appointment, his body language was telling me to hurry up and get his scaling over with. I felt it was the perfect opportunity to ask him some open-ended questions. Unfortunately, he did not respond the way I had hoped and he told me he was “actually okay with everything”. Initially I was disappointed that he was not open-minded to my questions, or the trick I so desperately wanted to show him (there’s that old righting reflex kicking in!). I then realized that this patient was simply not ready to think about making changes to his oral hygiene routines, or in the mindset of improving his oral health. Hopefully I can continue to try motivational interviewing and O.A.R.S. techniques with this patient at his future visits, and he will eventually be ready to make a change.

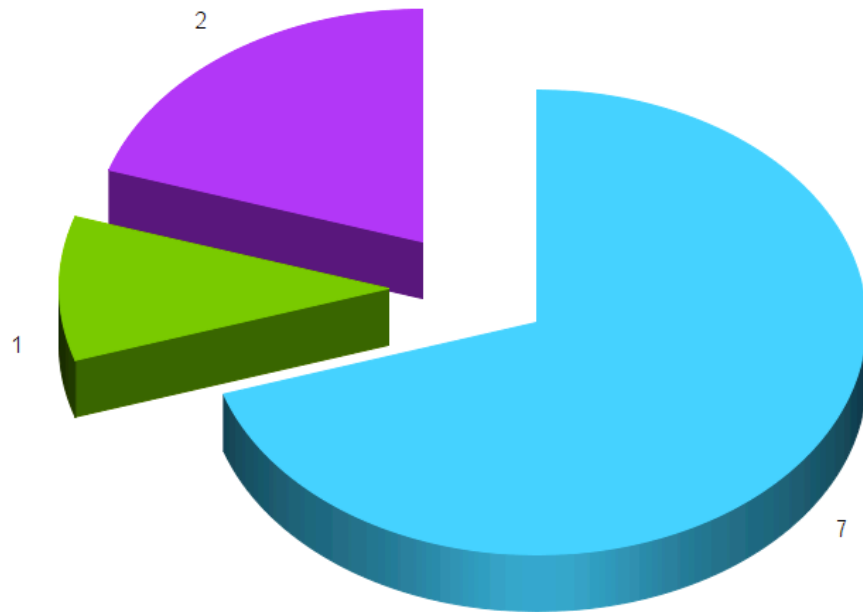
As previously stated in the Methodology Section, I selected potential patients based on the presence of supragingival calculus on the lingual of the lower anteriors. All but the two family members, who I do not treat, consistently have some amount of supragingival calculus each time I see them. Most of these subjects also have mild to moderate amounts of inflammation and bleeding at each of their hygiene appointments as well. Clearly my traditional methods of trying to educate patients on their oral and systemic health were not working. It was time for me to change my approach and to implement new strategies in order to improve my patients’, and family members’, oral health and overall health.

I followed up with most of the patients 1 week after their previous hygiene appointment, some were followed up with after 10 days. Mostly these were conducted by a phone call, however 4 of the 10 subjects were contacted via email due to their personal preference. I proceeded with the same script and questions when following up either by phone or email. Of the email follow-ups, most patients responded the same day or the day after the email was sent.

Main Findings/Results:

Most of the participants tried the dry brushing technique at least one time per day since their hygiene appointment with me. This was great news, as I was not sure what to expect, seeing that many of these patients had not responded to previous advice and education. I was very hopeful that I would see good results, based on previous action research from past OHU graduates. Their willingness to at least try the new technique was more evidence that what needed to change was my delivery, approach, and communication. With that being said, one participant only tried dry brushing once in the 7 days after being introduced to this technique. However, during our follow-up phone call, he was so excited to tell me that he had been flossing each night since seeing me, as well as using his electric toothbrush daily. He said he even began using his Waterpik daily. How could I be disappointed with those results? This showed me that something in the way I pursued his motivation, and the way we discussed his oral hygiene, worked to propel him into making major oral health changes. The results after following up with the participants are displayed on the graph below:

- Patients who did dry brush 1x/day in 7-10 day time period
- Patients who tried dry brushing only once in 7-10 day time period
- Patients who tried dry brushing 3-4 times in 7-10 day time period



As displayed on the above pie chart, I did not achieve 100% perfect compliance from the patients in my action research project. I feel that it is in our nature, as dental hygienists, to hope for 100% compliance, yet this is also unrealistic. Patients have to be ready for change. Truthfully, I was impressed that 70% of the participants tried dry brushing each day. In addition, each of these clients plan on continuing to use dry brushing as part of their daily oral hygiene routines. Listed below are each patient's individual responses to my follow-up questions. I found each unique response to be interesting in its own way and I wanted to include them all. I feel that other dental hygienists can relate these responses to their own clients' attitudes and reactions as well.

1) Patient #1: How often did you dry brush? “I have done it 3 times in a week since the appointment.”

How different do your teeth and gums feel after dry brushing, compared to before? “They feel a bit different. They did bleed the first time I tried this method. So I am much more sensitive than before doing it.”

Do you feel as though you will continue to use the dry brushing technique, why or why not? “I will try to continue using the technique. I don't know how consistent I will be once school starts again and I am in a rush in the AM.”

2) Patient #2: How often did you dry brush? “Yes, I have dry brushed once per day.”

How different do your teeth and gums feel after dry brushing, compared to before? “It does feel good and I hope it makes a difference for my cleanings.”

Do you feel as though you will continue to use the dry brushing technique, why or why not? “Yes, I will continue since it feels good and in hopes of it making a difference for my cleanings.”

3) Patient #3: How often did you dry brush? “Not daily, probably 4 times in the week, but I have been trying it believe it or not!”

How different do your teeth and gums feel after dry brushing, compared to before? “It feels a bit weird but my teeth and gums feel good afterwards.”

Do you feel as though you will continue to use the dry brushing technique, why or why not? “I will keep trying to remember to make it part of my daily routine.”

4) Patient #4: How often did you dry brush? “Daily.”

How different do your teeth and gums feel after dry brushing, compared to before? “They felt good, cleaner.”

Do you feel as though you will continue to use the dry brushing technique, why or why not? “Will continue.”

5) Patient #5: How often did you dry brush? “Every day since my appointment with you.”

How different do your teeth and gums feel after dry brushing, compared to before? “They felt a lot cleaner. When you put on the paste, it seems to glide over. With the dry brushing, it creates more friction, which makes them feel cleaner.”

Do you feel as though you will continue to use the dry brushing technique, why or why not? “Yes! I feel as though I can’t negotiate with the health of my gums due to past tooth loss from gum disease. I need to do anything that will give me an advantage.”

6) Patient #6: How often did you dry brush? “Just once.”

How different do your teeth and gums feel after dry brushing, compared to before? “It felt dry.”

Do you feel as though you will continue to use the dry brushing technique, why or why not? “I will not continue. But I have been flossing every day since I have seen you, along with using the Waterpik each night, and the electric toothbrush daily.”

7) Patient #7: How often did you dry brush? “Once per day.”

How different do your teeth and gums feel after dry brushing, compared to before? “Tooth surface feels cleaner, smoother, unable to notice a gum difference (maybe cleans plaque better?).”

Do you feel as though you will continue to use the dry brushing technique, why or why not? “Will continue to dry brush once per day because it seems like teeth are cleaner and feel better (and because our dental hygienist daughter says it is good for us haha). Note: dry brushing should not be the first brush after you wake up!!!”

8) Patient #8: How often did you dry brush? “Once per day.”

How different do your teeth and gums feel after dry brushing, compared to before? “Tooth surface feels cleaner and smoother.”

Do you feel as though you will continue to use the dry brushing technique, why or why not? “Will continue to dry brush once per day because it seems like teeth are cleaner and feel better (and because our dental hygienist daughter says it is good for us haha).”

9) Patient #9: How often did you dry brush? “Once per day, dry brushing is now part of my regular brushing.”

How different do your teeth and gums feel after dry brushing, compared to before? “Everything feels fine/good. Since I just had my hygiene appointment, I think it will take a little longer to notice the effects of dry brushing as my teeth still feel “smooth”.

Or, perhaps it is because I have been dry brushing. I'm sure I will notice it more as I continue with the dry brushing."

Do you feel as though you will continue to use the dry brushing technique, why or why not? "I will definitely continue with dry brushing. I feel that based on your suggestions and advice it is better than brushing entirely with toothpaste. It makes sense that toothpaste can hinder the effectiveness of the toothbrush bristles."

10) Patient #10: How often did you dry brush? "Once per day."

How different do your teeth and gums feel after dry brushing, compared to before? "Things feel smoother, it feels like there is less tartar building up and I am due for my hygiene appointment next month. My breath is way better as well."

Do you feel as though you will continue to use the dry brushing technique, why or why not? "I will because it is better for my oral health."

When conducting the follow-up questions, all of my patients seemed genuinely happy to hear from me, and to continue their participation by providing answers and feedback. I used further O.A.R.S. techniques throughout the phone calls and emails by using reflective listening, affirming practices, and by summarizing what was said, in what now feels like an effortless way. I hope that I made these patients feel good about the efforts they were making in order to become healthier.

Based on the findings of my action research project, the motivational interviewing, and O.A.R.S. techniques led to considerable behavioural changes in the great majority of my subjects. I feel as though these types of questions were refreshing for the patients, and allowed them to open up and be heard, instead of listening to the same old lecture they have heard over and over. I was pleasantly surprised that so many patients were willing to try a new “trick” or “secret” with dry brushing, after we were able to discuss and determine what their motivation was. Even more so, that so many participants were dedicated to sticking with something new, and plan on continuing with dry brushing. With the clients who did not accomplish daily success with dry brushing, two of the three plan on making it part of their daily routine. I am very interested to see how each of these subjects are doing with the dry brushing at their 3, 4, or 6 month hygiene appointments. Due to the positive feedback, I am definitely going to continue using all of these MI techniques, and will introduce dry brushing to those clients who could benefit from it. I am hopeful for more continued success! I feel more confident in my motivational interviewing skills in that if for some reason, patients slip up, as it is human nature to do from time to time, I am well-equipped with successful tools to accomplish good results again and again. I am also better prepared to adapt and change my approach as needed in each individual situation.

Business Aspect:

In applying motivational interviewing techniques into my every day practice, I will be able to continue to discover what patients want, and if they are ready for change. This will open up the discussion for introducing new methods to try. Initially, these will improve clients' oral health conditions by reducing plaque and bacteria levels, as well as inflammation, and disease. Subsequently, these patients will prevent potential future systemic health problems. These strategies will cause them to feel more in control of their health. This will lead patients to be happier and feel more satisfied with their hygiene appointments. This will increase their trust, and confidence with me, and the dentists I work with. With this, their loyalty will increase or remain strong, which will maximize the likelihood of these clients to respond well to hygiene recommendations, such as an increased hygiene interval, or a referral to a periodontist. If the dentist makes recommendations for restorative, orthodontic, or esthetic treatments, patients will be more likely to respond positively, versus feeling as though they are being pressured into unnecessary treatments. With these positive acknowledgements of recommended treatments, production for the dental practice will increase. In addition, this will decrease the chances of unhappy patients potentially making complaints to regulatory bodies of dental hygienists or dentists, or in more extreme cases, preventing clients from suing the health care provider.

One of the most valuable business advantages that the methods explored in my action research project will bring is word-of-mouth advertising by happy, healthy, satisfied, trusting, and loyal patients. Having a good reputation in the community in

which we work is invaluable, and will definitely increase production by bringing in more new patients. With all of the recent changes in my career, I have been thinking about alternative practice settings; perhaps getting involved in community health, possibly teaching one day, and even potentially opening up an independent dental hygiene practice with 2-3 dental hygienists. If, and hopefully when, we explore the latter, all of the aforementioned business advantages will be beneficial in an independent dental hygiene practice. In the event that I become involved with a dental hygiene program, I would definitely want to encourage dental hygiene instructors, dental hygiene students, and dentists to be open-minded in utilizing motivational interviewing strategies in their day-to-day practice, and even in their daily lives. These skills would also be relevant if one day I became involved in speaking engagements or consulting for other dental practices. I would share my knowledge of these methods as they are effective, beneficial, profitable, and most certainly worthwhile.

Conclusion:

I am thankful for the experience of conducting my own action research project. I found the experience to be thought-provoking, challenging, and overall very positive. I am very appreciative for the discussions with my instructor, mentor, and classmates that helped to streamline my action research question. The entire degree completion program through OHU has helped me to realize that the strategies, and techniques, which I had been doing for years, have not been successful. The prevalence of oral diseases, and subsequent correlations to many systemic diseases, is unfortunately getting worse. Therefore, we know that the techniques we have all been taught in traditional dental hygiene programs need to change. I thought by explaining and showing my clients periodontal charts, diagrams, and techniques that I was communicating well, and educating them on why they needed to make changes. Throughout this program, I realized that what needed to change was my perspective in order to become more efficient and successful. After completing my action research project, and reflecting on the results, I am more confident in the new skills I have learned. I will be able to continue to use these strategies throughout my career for continued success, and hopefully can inspire other dental hygienists to do the same.

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