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## Service-learning and reflection in dental hygiene education

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Service-Learning and Reflection in Dental Hygiene Education

A Thesis

Presented in Partial Fulfillment of the Requirements for the

Degree of Masters of Science

in

Dental Hygiene

in the

College of Graduate Studies

Eastern Washington University

by

Tiffany L. Finesilver

August 2013

Major Professor: Lisa Bilich

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# SERVICE-LEARNING AND REFLECTION IN DH ED

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**Abstract**

Service-Learning (SL) is widely used in education today. Little is known about the use of SL pedagogy on dental hygiene students. SL in dental hygiene is an ideal teaching medium and use frequently; however, few studies have specifically studied if it is being done effectively. This study aimed to increase the knowledge available about SL in dental hygiene educational facilities and to discover if SL was being used appropriately in dental hygiene education. In order to accomplish this, the researcher first identified current definitions that educators have for SL classes and projects. Then, the SL programs/projects were evaluated for best practices. The goal was to create an environment in which positive growth and change can occur in dental hygiene education.

The research was conducted by sending out a survey questionnaire to all dental hygiene program directors in the United States. The questionnaires were then sent to appropriate full-time faculty with experience in service-learning. This study generated a total of 94 responses. Email and SurveyMonkey® were the primary modes of communication and administration of the questionnaire.

Results indicate that dental hygiene programs are performing better than average in conducting service-learning courses and reflection in dental hygiene education.

### **Acknowledgements**

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Lastly, I would like to thank my family and friends, especially my mom and dad (Eric and Lin Eilmes), my husband (Ryan Finesilver), and my beautiful daughter (Brooklyn Finesilver) for their undying love and support, boundless sacrifices, and unwavering faith during this time.



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**List of Abbreviations**

ADEA- American Dental Education Association

ADHA- American Dental Hygiene Association

CODA- Commission on Dental Accreditation

CT- Critical thinking

EWU- Eastern Washington University

IRB- Institutional Review Board

SL- Service-learning

## **Introduction**

### **Introduction to the Research Question**

Service-Learning (SL) is an organized learning experience that combines coursework and classroom objectives with community service. Reflection in SL is a central component. When reflection is utilized adequately and effectively, and SL is conducted according to literature standards, reflection provides multiple benefits to the student, institution, and community (Bringle & Hatcher, 1996; Goldberg, Richburg, & Wood, 2006; Bringle & Hatcher, 2009).

SL has grown in popularity in higher education and its use has spread across the nation (Lasater & Nielsen, 2009, Bringle & Hatcher, 2009, Keselyak, Simmer-Beck, Bray, & Gadbury-Amyot, 2007). There are, however, few studies that demonstrate if SL is being utilized effectively in reaching student learning outcomes. Even though many universities and programs utilize some form of SL, it is unclear if their efforts are being maximized (Chupp & Joseph, 2010). In fact, a growing body of literature points out that SL, if not conducted properly, can be counterproductive and even reinforce negative stereotypes (Jones, 2002). Without student reflection and integration of knowledge, the long-term learning and positive effects of SL will be minimized. Therefore, as research progresses in this area, it is imperative that a closer look be taken at the use and impact of SL in education and, specifically, dental hygiene education (Chupp & Joseph, 2010).

### **Background of the study.**

SL has grown prominently in use in the United States within the last 10 years and continues to be a topic of great interest in the educational community (Butin, 2006). Developments and changes such as Healthy People 2020, the

National Call to Action to Promote Oral Health and Oral Health in America, have mentioned that reaching underserved communities as a way to better the health of Americans is an essential task (U.S. Department of Health and Human Services, 2000; U.S. Department of Health and Human Services, 2003; U.S. Department of Health and Human Services, 2012). One of the main goals of healthcare reform is to increase access to care. As a result of this, there needs to be oral healthcare professionals who are willing to work in a community setting and/or be familiar with it. SL is an evidence-based way to accomplish this goal by familiarizing dental hygiene students with the community setting and by giving them the opportunity to build positive experiences in those settings. Having dental hygienists who are both educated in this area and willing to provide these services, has the potential to increase access to care.

Commonly, in dental hygiene education, clinical experiences both on and off campus are used to provide real-life experiences to the students. Typically, these off-site rotations meet most SL criterion. If reflection is not used adequately or effectively, the resulting educative experiences will most likely have less positive impact (Chupp & Joseph, 2010).

This research is based on a survey of the use of SL and reflection in dental hygiene education. The first chapter introduces the background and context of the study, state the problem and significance of the study, discuss the methodology used, and describe any delimitations that affected this study.



**Statement of the Problem**

SL is a frequently practiced andragogy/pedagogy in dental hygiene education. When applied effectively, research supports the positive influence and usefulness of SL in higher education (Lautar & Miller, 2007). Critical components of SL include community service combined with academic coursework and reflective exercise (Bringle & Hatcher, 1996; Bringle & Hatcher, 1999; Dubinsky, 2006; Lautar & Miller, 2007; McEachern, 2006; Sipe, 2001). Reflection, a component of critical thinking, helps students make the link between their academic learning and civic engagement (Sipe, 2001). The reflective component of SL makes it unique from volunteerism and community service and is the key to the effectiveness of SL (Lautar & Miller, 2007; McEachern, 2006).

However, there remains ambiguity both in the literature and in the practice of SL. There is little agreement on what SL is and how it should be conducted (Chupp & Joseph, 2010). There is no universally accepted definition for SL in dental hygiene academia, yet health disciplines, including dental hygiene, ranked fourth of the top ten disciplines for integrating SL into their curriculums (Lautar & Miller, 2007). In dentistry, the research lists numerous benefits of SL including personal and professional development: increased reasoning and critical thinking skills; an increase in overall knowledge and clinical skills; and higher ethical reasoning, values, and attitudes. Research acknowledges that SL is frequently confused with other activities such as “volunteerism, internships, field education, clinical rotation and community service” (Bringle & Hatcher, 1996; Chupp & Joseph, 2010; Lautar & Miller, 2007, (p. 3); Seifer, 2002). In addition, the definition of reflection and use of reflection is subject to debate and confusion. The literature also

suggests that reflection is underused or that its use is poorly documented in SL practice even though it is considered the standard of quality in SL pedagogy (Mezirow, 1990; Schön, 1987; Wallace, 1996; Eyer, 2002).

### **Significance of the Study**

The potential benefits of studying the use of SL in dental hygiene education are abundant. If students are not prepared to meet the needs of the public, then this could have a negative impact on the oral health of the community. Dental hygienists are critical in reaching out and informing the public regarding their oral health. SL can prepare dental hygienists to meet this need. In addition, the need for community dental care is growing, and the demand for increased access to dental care is rising (U.S. Department of Health and Human Services, 2000; U.S. Department of Health and Human Services, 2003; U.S. Department of Health and Human Services, 2012). The adequate preparation of dental hygienists will ensure that they are ready to meet the needs of the community. Because SL is one of the ways that dental hygiene students are prepared for community dental care, the proper execution of this pedagogy is vital.

In dental hygiene scholarship, there has been limited research regarding SL in general and the use of reflection in SL specifically. It was the goal of this study to determine how SL activities were being utilized in dental hygiene and if reflection is practiced by the students and faculty. The study found areas of improvement and new opportunities for change in dental and dental hygiene education. In addition, based on these findings, recommendations are made to help dental hygiene programs maximize the benefits that can be achieved through SL.

## **Overview of the Methodology**

This research study was a non-experimental descriptive survey sent to all available dental hygiene program directors of certificate, associate, and baccalaureate dental hygiene programs in the United States. The questionnaire was developed by the researcher and includes primarily quantitative components. Analysis was completed using primarily measures of central tendency.

## **Definition of Key Terms and Operational Definitions**

**Critical thinking** (CT) was defined through a Delphi study of 46 experts and the American Philosophical Association:

We understand critical thinking to be purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as the explanation of the evidential, conceptual, methodical, criteriological, or contextual considerations upon which that judgment was based (Facione, 1990, p. 2).

**Experiential learning** is best described by Kolb (1984). In his book, he describes experiential learning as “the process whereby knowledge is created through the transformation of experience” (p. 41).

**Reflection** is a part of SL and is defined by Dewey (1933) as “an active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusion to which it tends” (p. 9). It is generally recognized that reflection is an essential component of the SL pedagogy; however, Eyler (2002) noted that this greatly depends on the quality of the reflection taking place.

Hatcher and Bringle (1996) defined **SL** as a

credit-bearing educational experience in which students participate in an organized service activity that meets identified community needs and reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility (p. 222).

### **Summary**

In conclusion, this study reports the use of SL and reflection in dental hygiene education. This study added to the existing body of research regarding SL in dental hygiene education and the use of reflection in SL. The importance of conducting this study is underlined by the limited knowledge regarding SL in dental hygiene education. Study results may encourage positive change in dental and dental hygiene education by maximizing the benefits received through existing or new SL activities. If SL is implemented according to literature best practices, the advantage that students receive from completing these SL activities is more beneficial.

## **Review of the Literature**

### **Overview of Research**

The focus of this research is to further investigate SL and the role of reflection in SL in dental hygiene. Research on SL in general has been extensive. SL has been applied in the health care fields, but it is evident that additional research is needed in incorporating reflection into SL practice. There is currently inadequate research that discusses the use of reflection in SL in dental hygiene education.

It is well known among educators and throughout academia that SL is an effective learning tool (Brown, Heaton, & Wall, 2007; Lasater & Nielsen, 2009, Bringle & Hatcher, 2009, Keselyak et al., 2007). This is especially true of the health professions. Students in the health professions benefit from SL, a type of experiential learning (Brown et al., 2007). The goal of this research is to determine how SL is defined in dental hygiene education and if reflection is an aspect of the SL.

This chapter is a literature review relating to the focus of the research. A description and definition of SL, as well as literature relevant to the research, will be discussed in greater detail. Following this, a presentation of the problem, as gathered from the research, is given. Finally, a summary relating the literature to the focus of study is presented.

### **Related or Theoretical Frameworks and Supporting Research**

#### **Background of SL and experiential learning theory.**

SL is a type of experiential learning first described by Dewey in the early 1900s, but theoretical foundations of experiential learning were laid centuries

before that (Bailey, Carpenter, & Harrington, 2002; Eyster, 2009). In fact, the essence of experiential learning theory can be traced as far back as 450 B.C. “Tell me and I will forget. Show me and I may remember, involve me and I will understand” (Confucius, 450 B.C.). This quote expresses the notion that involvement in learning or experience is the key to understanding. Reflecting on practice is a central component of experiential learning theory (Boud, Keogh, & Walker, 1985; Boyd & Fales, 1983; Kolb, 1984; Wallace, 1996). Two of the most influential writers on experiential learning, to date, are John Dewey (Sipe, 2001) and David A. Kolb (Felten, Gilchrist, & Darby, 2006; Kolb, Boyatzis, & Mainemelis, 2001).

### **Experiential learning theorists.**

#### *Dewey.*

Kolb (1984) praised Dewey as the “most influential educational theorist of the 20<sup>th</sup> century” (p. 5). Dewey’s *Experience and Education*, was one of his most renowned writings, and later Kolb would use it to support his own theories (Kolb, 1984). Dewey believed that education and democracy were closely linked, meaning that a good education should benefit both the society and the individual student, both in the long and short term.

Dewey is also acknowledged for establishing the concept that reflection is an integral part of learning (Dyment, J. E., & O’Connell, T. S., 2011). In fact, his definition of reflection as “an active, persistent, and careful consideration of any belief or supposed form of knowledge in light

of the grounds that support it and the further conclusion to which it tends” (p. 118) is a seminal part of experiential learning theory today (Dewey, 1933; Dymont & O’Connell, 2011; Welch & James, 2007). In addition, his writings on reflection greatly influence modern SL (Felten, Gilchrist, & Darby, 2006). Since the inception of this idea, there has been much debate concerning how reflection actually occurs and many have attempted to simplify the process into a framework or model (Dymont & O’Connell, 2011).

Although the most notable theorists of experiential learning theory were Dewey and Kolb, some of Kolb’s work can be traced to other theorists. Among these were Kurt Lewin and Jean Piaget. Lewin’s contribution was the “cycle of action” which was the predecessor to Kolb’s Learning Cycle (Kolb, 1984; Lewin, 1951). Piaget also contributed an important final piece to Kolb’s Cycle. Piaget found that developmental processes were not separate from the experiences that created them. To Kolb, this would become his foundation for the basic learning processes of adults (Kolb, 1984).

### ***Kolb.***

David A. Kolb may have supplied some of the most well-known contributions to experiential learning theory and the practice of SL (Felten, Gilchrist, & Darby, 2006). Kolb developed his theories based on the works of Dewey, Lewin, and Piaget (Kolb, Boyatzis, & Mainemelis, 2001; Kolb, 1984). In fact, Dewey and Kolb both viewed learning as

something that was holistic and lifelong (Felten, Gilchrist, & Darby, 2006). Kolb defined learning as a “process whereby knowledge is created through the transformation of experience”(Kolb, 1984, p. 41).

Kolb described experiential learning as having six key characteristics.

1. Learning is best conceived as a process, not in terms of outcomes.
2. Learning is a continuous process grounded in experience.
3. The process of learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world.
4. Learning is a holistic process of adaptation to the world.
5. Learning involves transactions between the person and the environment.
6. Learning is the process of creating knowledge (Kolb, 1984).

Kolb is probably best known for his experiential learning cycle (Eyler, 2009; Kolb, Boyatzis, & Mainemelis, 2001). This learning cycle is an integral part of Kolb’s experiential learning theory and describes how learning occurs (Kolb, 1984). According to Kolb, learning is cyclical and happens in four stages. Students may begin at any stage in the learning cycle but will follow in sequence once they have started. The four stages are as follows:

1. Concrete experience (CE),



2. Reflective observation (RO),
3. Abstract conceptualization (AC),
4. Active Experimentation (AE)(Kolb, 1984).

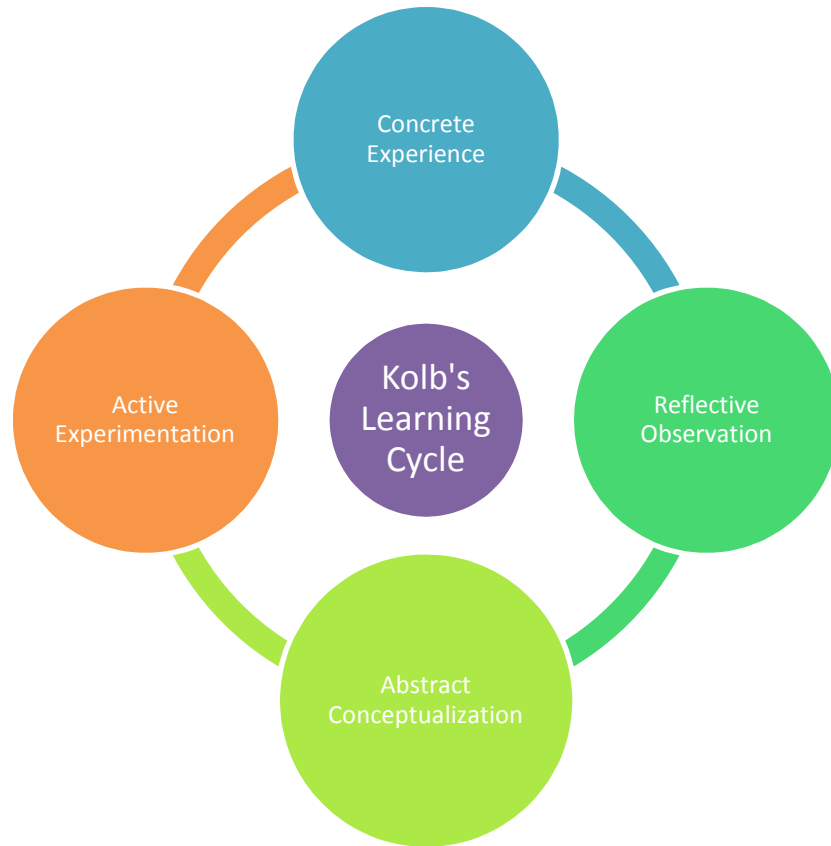


Figure 1. A visual depiction of Kolb's learning cycle.

Concrete experience occurs when the student is actively experiencing something, whether it is lab work or field work. Then, the student actively reflects back on the learning experience. This is followed by a conceptualization of a theory or model based on the reflection of the experience. Finally, the student plans to test this theory or model or plan for a future experience. If these four steps are completed, Kolb theorized that experiential learning will occur. He does note, however, that because learning is cyclical in nature, that the starting point will vary with each

student depending on his or her particular learning style (Kolb, 1984). This learning cycle is the foundation of SL pedagogy.

In summary, experiential education is getting a closer look in education today. This is especially true in higher education where SL has become a popular type of experiential learning. The theorists discussed above are of landmark importance to experiential learning theory and, therefore, their works are intrinsically and fundamentally connected to SL practice and theory.

### **Current issues.**

A recent call to reform dental education to better meet the needs of the public has become more urgent in recent years and is the basis for the widespread use of the SL pedagogy (Hood, 2009). According to Davis et al. (2007), key areas in dental education were identified as needing improvement. These included, but were not limited to, graduating dentists that were more civically conscious, community minded, and culturally sensitive, in addition to becoming community leaders and improving access to care (Davis et al., 2007; Pyle et al., 2000, Commission on Dental Accreditation, 2010). SL is the most commonly suggested solution for dealing with these issues in dental education (Hood, 2009).

In the spring of 2003, the U.S. Department of Health and Human Services issued a National Call to Action to Promote Oral Health under the leadership of The Office of the Surgeon General (U.S. Department of Health and Human Services, 2003). This document listed five actions that support the Call to Action's vision and goals. The five actions recognize the need to prevent oral

disease and support oral and general health by removing barriers that inhibit access to care (U.S. Department of Health and Human Services, 2003). The Call to Action specifically suggests *health professionals* and *community leaders*. This applies to the profession of dental hygiene, dental and dental hygiene education. In many ways, SL can be the solution to both the community and higher education in answering the Call to Action (U.S. Department of Health and Human Services, 2003).

The Call to Action is not the only agenda that can benefit from the use of SL. Healthy People 2020 (the Oral Health section), like its predecessor, Healthy People 2010, has as its primary goal to prevent and control “oral and craniofacial diseases, conditions, and injuries, and improve access to preventive services and dental care” (U.S. Department of Health and Human Services, 2012, p. 1). Of interest is this problem of increasing access to dental services and care. According to Prentice (2007) and Astin & Sax (1998), SL can foster civic engagement and civic responsibility in students who participate in this type of learning experience (Astin & Sax, 1998; Prentice, 2007).

### **Service-Learning.**

#### ***Introduction.***

SL in its most elemental form is combining community service and classroom teaching as a part of the school’s curriculum. To accomplish this, however, the emphasis on structured reflection and guidance during the learning process needs to be recognized (Dewey, 1933). If reflection is completed effectively, SL benefits both the community partner and the

student (Keselyak, Simmer-Beck, Bray,& Gadbury-Amyot, 2007). It is also important to remember that SL differs from other types of experiential learning such as clinical experiences, practical, and internships. The major differences are the reciprocal relationship that benefits both the community and students and that SL strongly emphasizes reflection (Jacoby, 1996; Nativio, 2001). This is often a point of confusion and misunderstanding.

For SL to be effective, it must be structured and balanced in a classroom setting where there are specific objectives and planned activities. Links and connections should be apparent among the SL experience, the coursework, and the overall goals of the class. In addition, SL needs to provide a useful service to the community. This need is identified by the community partners. Also, SL students should be provided with adequate time and occasions for reflection and critical thinking (Sipe, 2001).

***Benefits.***

Jacoby (1996) recommended that SL include four elements:(a) be experiential, (b) have structured opportunities for learning, (c) incorporate reflection, and (d) support the concept of reciprocity between the students and the community partners (Jacoby, 1996). Similarly, a 2007 study by Keselyak et al. recommended that successful SL should exhibit four elements: preparation, action, evaluation, and reflection. Reflection is considered to be, however, the most critical component of the SL

experience (Keselyak et al., 2007; Sipe, 2001; Jacoby, 1996, Nativio, 2001; Boden, Cook, Lasker-Scott, Moore, & Shelton, 2007; Welch & James, 2007).

SL is recognized as having both academic and personal benefits. For this reason, its use has become more commonplace in higher education (McClam, Diambra, Burton, Fuss, & Fudge, 2008; Novak, Markey, & Allen, 2007). A survey of 324 colleges and universities found that 82% offered courses involving SL (McClam et al., 2008). SL combines student educational experiences and fosters a connection to the community. The importance of fostering a connection to the community for the purpose of maintaining a democratic society has been written about since 1835 (Waldstein& Reiher, 2001). For this reason, many disciplines can utilize SL in their curriculum.

Completing a SL course has multiple benefits to the student including a sense of civic responsibility, skill improvement including increased academic achievement and performance on assessments and examinations, counseling skills, and professional role socialization (Reising, D. L., Allen, P. N., & Hall, S. G., 2006). Sociocultural awareness (Marchel, 2004), improved personal and social skills, and an enhanced appreciation and commitment to learning and school were other listed benefits (Furco& Root, 2010; Bringle, Hatcher,& Muthiah, 2004; Keselyak, et al., 2007; Sipe, 2001).

SL benefits the community by resulting in positive health changes and permanent behavior change. It is important to remember, however, that an essential component of participating in SL experiences is to *learn from* the service and community experience(s) rather than to *learn about* them (Fiddler & Marienau, 2008).

### ***Challenges.***

Although SL can be challenging to both faculty and students, research has shown that it can also be highly rewarding (Reising, Allen, & Hall, 2006). Despite this, however, Abes, Jackson, and Jones (2002) revealed factors that motivate and deter faculty use of SL in the classroom. Student learning outcomes provided one of the biggest motivators for faculty with regards to SL. Increased understanding of course material was especially encouraging. In other words, faculty who could see positive learning outcomes through the use of SL were more likely to use it. Major deterrents were a lack of evidence that learning outcomes were being met, a lack of logistical and faculty support, and a poor understanding of how to utilize SL in a course (Abes et al., 2002). Faculty struggled with a time commitment component, as well as having the necessary resources in completing adequate SL and reflection (McEachern, 2006). Faculty resistance was also evident. This may have been due to costs, student characteristics such as lack of motivation or readiness, time, and the need to cover too much in too little time (Heckert, 2010; Staib, 2003). Institutional support, motivated and creative faculty and students, strong

community partnerships, and reevaluation with ongoing development are central needs that must be addressed before SL implementation (Bailey, Carpenter, & Harrington, 2002; Jacoby, 1996; Nativio, 2001).

Student-perceived drawbacks to SL included extended time commitments and feelings of lack of preparedness. Lack of preparedness was noted because students felt that course content on the topic was not presented prior to going to the sites (Reising et al., 2006).

### *The use of SL in the literature.*

SL has been used successfully in health professions such as medicine, pharmacy, occupational and physical therapy, nursing, and dentistry. Many of the findings from the studies done in these and other fields offer important lessons learned. These findings reinforce the benefits of using SL in the curriculum and emphasize the importance of appropriate implementation (Austin, Gregory, & Chiu, 2008; Barner, 2000; Bazyk, Glorioso, Gordon, Haines, & Percacianite 2010; Borges & Hartung, 2007; Brosky, Deprey, Hopp, & Maher, 2006; Brown, Heaton, & Wall, 2007; Brush, Markert, & Lazarus, 2006; Cene, Peek, Jacobs, & Horowitz, 2010; Flinn, Teaford, Kloos, Clark, & Szucs, 2009; Galantino, House, Olsen, Fayter, & Frank, 2006; Jarosinski & Heinrich, 2010; Lohman & Aitken, 2003; Schumann, Moxley, & Vanderwill, 2004).

### *Higher education.*

To date, little is known about the impact SL has on the community partners (Blouin & Perry, 2009). One study, however,

concludes that community partners view the service provided positively. SL changed their views of the students, themselves, and their sense of hope for social change. This positive outcome was seen when the service was reciprocal in nature and did not seem that one group was stooping to help the other (Arlach, Sanchez, & Feuer, 2009). For this reason, higher education can utilize SL in their curriculum.

*Medical and related fields.*

Although the use of SL in medical schools has been irregular, evidence reveals that SL benefits the medical field (Borges & Hartung, 2007; Packer, Carnell, Tomcho, & Scott, 2010). Even short-term SL appears to be effective. This can range from five to 10-12 days in length and is helpful because a short duration reduces any major curricular interruption. Studies also show a high level of satisfaction and participation in volunteer work after graduation when students participate in SL activities. This was emphasized in a 2010 study by Packer et al. 53 third year medical students participated in a four-day SL rotation. Of the 53 students, 90% felt that the goal of increasing their sense of professional commitment was realized (Packer et al., 2010).

In pharmacy, SL has been shown to be a pedagogy that can achieve relevant learning in the curriculum and preferred learning outcomes with the students (Kearney, 2008). This was illustrated



by  $N=190$  first-year pharmacy students that completed a 14-week SL rotation. In fact, another study  $N=33$  pharmacy students has shown that SL may ready students to deal with community health care and tackle inequalities in the health care system (Brown et al., 2007). SL also allows for students to participate and learn from experiences they normally wouldn't get to partake of in a traditional educational setting (Galantino et al., 2005).

Research in nursing emphasizes the need for and the importance of critical thinking and reflection (Staib, 2003; Scheffer & Rubenfeld, 2000; Wallace, 1996; Price, 2004). In fact, Staib (2003) noted that the National League for Nursing Accrediting Commission (NLNAC) requires graduates of nursing programs to be able to demonstrate reflection, critical thinking, and problem-solving skills. This accrediting body views critical thinking as a core competency; this is important to consider in dental hygiene education (Staib, 2003).

#### *SL and dental education.*

Community-based programs and SL are becoming more and more commonplace in dental education (DeCastro, Bolger, & Feldman, 2005; Yoder, 2006). This is because dental education requires a certain degree of experiential learning in clinical work (Yoder, 2006). The American Dental Education Association Commission on Change and Innovation in Dental Education

(ADEA CCI) acknowledges the need for change in dental education. This is to aid underserved populations who lack access to care and to combat rising costs. To address these needs, ADEA CCI recommends that two principles be used. There should be a focus on self-directed and lifelong learning in dental education that fosters a concern and respect for others. In addition, scientific discovery and the integration of scientific knowledge in the form of providing evidence-based oral health care should be a primary component. SL in dental and dental hygiene education may be a way of utilizing these principles (Pyle et al., 2000).

There have been many calls to “reform dental education to better serve the public, and SL is one of the most often recommended methods to help meet this goal” (p. 454). This is why more attention has been given to more experiential or active learning approaches as of late. Of particular interest, Hood (2009) referenced The Macy Study, a three-year study of panels of dental professionals that examined issues with dental education finances. This study concluded that the use of SL in dental schools may be one of the most profitable strategies used to advance both financial and educational sustainability (Hood, 2009).

As these SL programs proliferate, concerns about the effectiveness of a community-based program versus traditional curricula have surfaced. However, DeCastro et al., (2005) have

shown that community-based programs are at least as effective as traditional curricula if not more. “Integrating SL into dental and dental hygiene curricula will foster graduates who are better prepared to work effectively among diverse populations and to function dynamically in the health policy arena” (Yoder, 2006, p. 115).

DeCastro et al. (2005) in a retrospective study also compared graduates of community-based curricula versus graduates of traditional dental curricula. The goal was to determine if community-based programs could train students to carry out standard dental procedures as competently as traditional dental schools. Performance measurements were evaluated for  $n=475$  students of traditional curricula and  $n=50$  students in the community-based program. The conclusions drawn from the study determined that community-based programs could be at least as successful as traditional dental education programs in providing students with reliable clinical skills. Community-based students also showed significantly higher clinical productivity of up to 80% more than traditional students. In addition, on-time graduation rates increased (DeCastro et al., 2005).

In a 2007 study, fourth-year dental students participated in community-based clinical education and provided services in their dental school clinic. This study reveals the activities of ( $n=102$ ) the

graduating class of 2006 at the Ohio State University College of Dentistry that participated in a grant program known as the OHIO Project. The dental students spent approximately 41.9 days in community-based clinical education and the rest of their time in the dental school clinic. During the community portion of the experience, the students treated 11,808 patients and completed 26,882 procedures. During their 93 clinic days, the same students treated 19,344 patients and completed 28,680 procedures. In summary, the study found that fourth-year dental students were able to generate as much revenue and complete as many clinical procedures in the community setting as they were able to complete at the dental school in half the time because of competencies gained during community-based clinical rotations. Another benefit was being able to treat a patient population that was much more diverse. Feedback from the students showed that they felt more skilled and confident as a result of participating in the community-based clinical experiences upon returning to the school clinic (Bean et al., 2007).

Dentists that participated in community-based clinical experiences in school were also more likely to be comfortable in treating underserved populations. Dental students participated in two five-week community-based experiences. Alumni between the years of 1992 and 2002 for a total of  $N=745$  were contacted and

asked to rate their comfort levels of caring for 12 underserved populations using a Likert-type scale. Over 50% responded that the community-based experiences provided a greater value in preparing them to treat at least seven of the twelve underserved populations. Overall, dentists appreciated the unique experiences of the community-based rotations and perceived valued in it (McQuistan, Kuthy, Heller, Qian, & Riniker, 2008).

In 1994, the Community-Oriented Dental Education Program (CODE) was launched by the University of Medicine and Dentistry of New Jersey. This program provided senior dental students with the opportunity to work in a community-based clinic providing dental services. A 2003 survey of random graduates of the traditional curriculum  $n=110$  compared to graduates of CODE  $n=55$  was completed with a return rate of 66.9%. The findings suggested that CODE participants were more likely to support the idea of community-based learning and were more confident in their clinical preparation. However, this study did not find that there were any changes in attitude regarding community service or an increased tendency to provide care in underserved communities or to accept Medicaid (DeCastro, Matheson, Panagakos, Stewart, & Feldman, 2003). As Healthy People 2020 suggests, and as the need for increased access to care rises, community-based learning

will become more significant (U.S. Department of Health and Human Services, 2012).

*SL and dental hygiene.*

Preparing dental hygiene students to perform competently in the real world can be a difficult task. Schools and educators must work together to ensure that students have both the knowledge and skills needed to succeed in their careers. To accomplish this, many dental hygiene schools look to strategies outside their programs to educate their students. This usually includes either private dental offices or, more commonly, public health facilities. These community-based rotations give students a better idea of what dental hygiene practice is like. It also helps the students to prepare for situations that are outside the controlled environment of a school clinic (Butters & Vaught, 1999).

A study of  $N=104$  baccalaureate-level dental hygiene students completing a two-week clinical rotation during a four-year time frame found that SL is an effective strategy to be used in increasing students' knowledge of underserved populations, ethical patient care, and cultural diversity. Researchers used mixed methodology analysis and thematic analysis of the students' coursework, which included a survey and daily journal (Aston-Brown, Branson, Gadbury-Amyot, & Bray, 2009). Aston-Brown et

al., (2007) also determined that SL might be an ideal pedagogy to be used in exposing students to the public health arena.

SL, an extramural education program, as it's described in a 1999 study, has shown to enhance students' perceptions of clinical competence. Dental hygiene students ( $N=151$ ) were asked to rate perceived levels of competence in 19 dimensions of hygiene practice. These ratings were done before and after a four-week extramural clinical rotation. Increased perceptions of competence were statistically significant using a paired samples t-test in 6 of 19 dimensions (Butters & Vaught, 1999).

A 2009 study by Aston-Brown et al., suggested that SL may help increase student awareness of "underserved populations, cultural diversity, and ethical patient care" (Aston-Brown, et al., 2009, p. 358). In addition, other studies suggest that SL is helpful in other important ways as well. SL provides students with better synthesis and retention of the subject matter, increases the ability of students to utilize critical thinking skills, and provides the students with the opportunity to experience and handle current social and professional issues (Keselyak et al., 2007).

Twenty-three dental hygiene students at eight community sites, in a 2006 study, provided care to six groups of people having varied special needs. The study suggests that SL can be used to increase exposure to diverse groups of people and allows for

deeper learning, increased awareness, and critical thinking (Keselyak et al., 2007).

The Commission on Dental Accreditation (CODA), as a part of the American Dental Association (ADA), requires that dental hygiene programs maintain an active alliance with the community. Standard 1-7 of the Accreditation Standards for Dental Hygiene Education Programs, specifically states; “There must be an active liaison mechanism between the program and the dental and allied dental professions in the community” (p. 13). “Clinical experience” (p. 22) is also required as an adjunct to the work that is done in the classroom. In addition, in standards 2-12, 2-19, and 2-25, the exposure to community oral health, the competent treatment of diverse groups of people, as well as the ability to effectively and appropriately communicate with patients from different ethnic and cultural backgrounds, are listed as required milestones for students to reach. The importance of being able to provide evidence-based care in a changing healthcare environment is deemed essential (Commission on Dental Accreditation, 2010). SL activities can provide the necessary experience required of dental hygiene students.

The American Dental Hygienists’ Association (ADHA) Code of Ethics also requires a community partnership. The Preamble states that dental hygiene professionals will be



committed to public service and the advancement of oral health. Justice and fairness is a core value listed in the Code of Ethics, and it maintains that all people should have access to oral healthcare and that there should be a fair and equitable distribution of the associated resources. To clients, the Code of Ethics promises to serve all people equally and to promote their health and well-being. To the dental hygiene profession, the Code of Ethics pledges to increase public knowledge and understanding of oral health and to “promote a framework for professional education that develops dental hygiene competencies to meet the oral and overall health needs of the public” (p. 33). To the community and society, the Code of Ethics agrees to support access to care for all citizens (American Dental Hygienists' Association, 2010).

*How to implement SL in dental education.*

Many dental and dental hygiene programs currently use some form of community engagement in their curricula. It is necessary, however, to remember that the effectiveness of community rotations in SL depends on utilizing key elements of SL (Hood, 2009). Current research shows that effective SL should contain the following components: objectives, pre-assignment research and preparation, guided reflection, and ongoing evaluation and improvement (Yoder, 2006).

A popular framework used in dental education was proposed by Karen Yoder in 2006. This framework describes ten components that comprise true SL and is of critical importance to the definition of SL in this research. The use of this framework is intended to help dental educators distinguish SL from the spectrum of other types of volunteerism and community service.

SL experiences:

1. Must incorporate an academic link.
2. Should involve sustained community partnerships.
3. Need to come with SL objectives.
4. Need to provide students with broad preparation.
5. Should be sustained for an adequate length of time.
6. Should be reciprocal.
7. Must include guided reflection as a central component.
8. Need to incorporate community engagement.
9. Should involve a component of ongoing evaluation and improvement.
10. Should provide opportunities for community engaged scholarship (p. 116-121).

First and foremost, SL must incorporate an academic link by being a structured course or competency, based academic experience. Second, the community

partnerships need to be sustained. Third, the experience needs to come with SL objectives so that students understand what they will be doing and how it relates to their learning. Fourth, students need to be provided with broad preparation. This may include pre-assignment research regarding the institution or agency they will serve as well as an investigation of the groups of people they will come in contact with. Fifth, the service should be sustained for an adequate length of time. While there is not a minimum amount of time noted, adequate time should be given to both the SL itself and the associated preparation. Some advocates of SL recommend at least 20 hours of service in a single program to achieve “minimum competency” (p. 119). This should separate SL from other types of community activities such as presentations and health fairs (Yoder, 2006). Sixth, learning should be reciprocal in that students should come to find that they can rely on teachers and experts outside of the classroom environment for “authoritative information” (p. 119). Seventh, guided reflection must be used and is, in fact, a central component of SL. Not only does it help students develop personally and professionally, but it also helps

them make the connection between academic coursework and their experiences (Yoder, 2006).

A recommended form of reflection in SL includes journaling, including web-based journal entries such as blogs, followed by a guided group discussion. A popular format for journaling in SL is a "what, so what, now what format." This format was developed from Kolb's experiential learning cycle (Kolb, 1984; Yoder, 2006; Goldberg et al., 2006). In addition, using a variety of other types of reflection exercises is helpful to meet the needs of all the students. These exercises could include critical incidents, portfolios, self-evaluation essays, professional articles, case studies, books, government documents, and letters (Yoder, 2006).

Eighth, SL needs to incorporate community engagement by working in cooperation with community groups that help foster cultural awareness and advocate for health policy issues. Ninth, SL should involve a component of ongoing evaluation and improvement. It is important to evaluate students' learning and write objectives that are quantifiable. This allows the instructor to see that learning has occurred and that the methods used were effective. Tenth and finally, SL should provide opportunities for

community engaged scholarship by creating a mutually advantageous relationship with the community members that may lead to additional research and service. The author also concludes by saying that SL and dental education are well-suited to one another (Yoder, 2006).

### **Reflection.**

#### *Critical thinking.*

Critical thinking is a component of reflection and although critical thinking is not the focus of this research, a brief mention is merited. Since the inception of research about critical thinking pedagogy, scholars in the literature have struggled to define, teach, and evaluate it (L. D. Boyd, 2002; Craft, 2005; Staib, 2003). This struggle stems from the need to clarify the somewhat vague definition of critical thinking as well as its role with reflection (Wallace, 1996). Schön (1987) proposed that reflection is a precursor to fostering critical thinking skills, while Boud, Keogh, and Walker (1985) and Jarvis (1992) revealed the benefits that reflective practice can have on the development of critical thinking skills for students; critical thinking transforming theoretical knowledge into practical knowledge (Craft, 2005; Epstein, 2011).

Most educators and researchers would agree that critical thinking is an essential component in the health care professions and of critical importance in developing a reflective practitioner (Bell et al., 2002; Craft, 2005; Scheffer & Rubinfeld, 2000; Twibell, Ryan, & Hermiz, 2005).

Price (2004) stated that reflection should become a transferable skill that is used in practice and that the skill of reflection should be combined with critical thinking. This should be taught in clinical settings (Twibell et al., 2005). Until recently, a link between critical thinking and reflection was unclear. Wetmore, Boyd, Bowen, & Pattillo, (2010), found that an improvement in levels of reflection may be related to an increase in critical thinking and that enhancements in critical thinking increases reflective ability as well.

### ***Introduction to reflection.***

The definition of reflection is currently and has been prone to confusion (Mezirow, 1990; Schön, 1987; Wallace, 1996). In fact, Rogers (2001) found that 15 different terms were used to describe the reflective process and that the term *reflection* was used as a noun, verb, adjective, process, and an outcome. Dewey (1933) noted that reflection and CT were closely related (Dewey, 1933). Wetmore et al (2010) found that “core cognitive skills for critical thinking may be related to elements of reflection” (p. 1348).

### ***Reflective theorists.***

Because of the strong association between reflection and SL, reflection needs to be described in detail. John Dewey was one of the first education theorists to write about reflective thinking in 1933 and since then this pedagogy has gained support (Craft, 2005; Dewey, 1933; Fakude & Bruce, 2003).

Schön (1987) is responsible for establishing the concept of reflection-in-action, which is a “cornerstone process of journaling” (King & LaRocco, 2006, p. 2). In addition, his contributions and descriptions of “the reflective practitioner,” have been especially useful in the medical and dental fields for everyday practice (Craft, 2005; Ruth-Sahd, 2003). Schön's approach indicates that professional learning can be facilitated by reflection and influences current actions by restructuring future actions (Ash & Clayton, 2004). Schön (1987) argued that reflection occurs in one of two different ways: reflection-on-action and reflection-in-action. Schön (1987) defined reflection-on-action as looking and thinking back on an experience. This can alter future practice of practitioners by making them aware of what they do not know (Craft, 2005). Schön contends that reflection-in-action may have more positive impact by having more connections to present actions. He defined it as “thinking that serves to reshape what we are doing while we are doing it” (p. 26). This is a primary concept used in journaling (King & LaRocco, 2006; Schön, 1987; Terrion & Phillion, 2008). He also asserted that reflection can be taught and learned (Fakude & Bruce, 2003).

Eraut (1994) extended Schön's definition to include a third reflective practice known as reflection-for-action. The “for” here denotes that the learner defines his or her aspirations and purposes for future action. Reflection also includes a component of self-assessment in which

students identify the extent to which they are meeting standards and criteria (Boud, 1999).

### ***Reflection and SL.***

A key component to the success of SL is reflection, reciprocity, and structure (Yoder, 2006). In fact, reflection is the most critical component of SL (Boden, Cook, Lasker-Scott, Moore, & Shelton, 2007; Welch & James, 2007). The objective of reflection in SL is to assist students in understanding and articulating the learning that occurs during a service experience. The end result should be that both the service and the learning are enhanced (Ash, S. L., & Clayton, P. H., 2004). Dewey (1938) additionally points out that a student being exposed to an experience is not always equivalent to learning or retention.

A study completed by Hatcher and Bringle (1997) indicated reflection is the link between service and learning and between the concrete and abstract. Structured reflection allows students a safe place to change perceptions in a way that will alter their future practice (Boden et al., 2007). Courses that included structured reflection, increased hours of service, and increased incorporation of SL into the course showed a correlation between positive attitudes regarding service-work and personal responsibility and an increased affinity for post-college community involvement (Fenzel & Peyrot, 2005; Hatcher et al., 2004).

Reflection allows students to both connect what they learned in class to their learning experience, and forecast how they will use this



experience in their careers in the future (Boden et al., 2007; Welch & James, 2007). This is of particular interest to SL in dentistry and dental hygiene because reflection must become a transferable skill. For this to occur, dental hygienists need to learn how to combine reflection and CT and learn to use it in practice (Duffy, 2008; Price, 2004).

Unfortunately, if reflection in SL is done inadequately or inaccurately, the learning that occurs may be “haphazard, accidental, and superficial” (Stanton, 1991, p. 185). This denotes the particular importance of completing reflection thoroughly. When it is done appropriately and more rigorously, learning outcomes are thereby improved (Ash & Clayton, 2004). In a study completed in 2010, dental students  $N=121$  at the University of British Columbia reflected on their SL projects before, during, and after the project. Using thematic analysis, these reflective activities were shown to enhance students’ appreciation of the SL experience (Brondani, 2010).

### ***Journaling.***

The most widely accepted method shown in the literature for completing reflection is through the use of reflective journal writing or SL logs (Bailey et al., 2002; Bringle & Hatcher, 1999; Carrington & Selva, 2010; Dymont & O’Connell, 2011; Fakude & Bruce, 2003; Jacoby, 1996). It is also a commonly used practice in the implementation of SL (Welch & James, 2007). In nursing, reflective journaling or reflective writing has been a valuable tool and is seen as a positive way to encourage CT and

reflection in nursing students (Craft, 2005; Daroszewski, Kinser, & Lloyd, 2004; Fakude & Bruce, 2003; Lasater & Nielsen, 2009).

The literature mentions several ways that reflection is most commonly completed. These include, but are not limited to, journaling, group discussions, and portfolios (Anderson & Robins, 2006; Klenowski, Askew, & Carnell, 2006; Scott, 2010; Collier & Driscoll, 1999; Daroszewski et al., 2004; Dymont & O'Connell, 2011). Specifically, reflective journaling can be completed in a traditional booklet, online blogging, email (King & LaRocco, 2006), and Learning Management System discussion groups (Dymont & O'Connell, 2011).

Journaling benefits both faculty members and the students. It allows the instructor to provide feedback, which aids in reflection, while helping students build the necessary reasoning skills needed in practice (Bazyk et al., 2010). This additionally helps students make connections between what is being learned in class and their actual practice (Dymont & O'Connell, 2011). Journaling is supported in dental hygiene literature promoting reflection and CT (Gwozdek, Klausner, & Kerschbaum, 2009; Hanson & Alexander, 2010).

Despite the undisputed importance of reflection, students and instructors find the process to be difficult. Students struggle with how to reflect appropriately, while instructors find the assessment of student entries challenging (Welch & James, 2007). In fact, a study by Dymont and O'Connell (2011) revealed that there is "little to no consistency in the

research community around the mechanisms and process of assessing levels of reflection in student journals” (p. 81) and that the quality of reflection varied substantially. In addition, studies have shown that if students are not given structure and the appropriate education regarding effective reflective journaling, then the goal of critical reflection may be falling short (Dyment & O'Connell, 2011).

Reflective journaling incorporates electronic forms of journaling such as blogging and online discussion groups. Research supports the use of electronic journaling over traditional forms because of improved levels of reflection (Daroszewski et al., 2004; Deng & Yuen Allan, 2009; Gwozdek, Klausner, & Kerschbaum, 2009; Halic, Lee, Paulus, & Spence, 2010; Hanson & Alexander, 2010; Wetmore et al., 2010). Using electronic forms of journaling may help overcome some of the obstacles that prevent the implementation of journaling. No additional resources are required and these electronic methods allow students the opportunity to ask questions, clarify concepts, and collaborate with others (King & LaRocco, 2006; McEachern, 2006; Mills, 2001).

Many studies would argue that the potential for reflection in online journaling exceeds that of traditional journaling. This is especially true in terms of availability, ease of use, cost effectiveness, and time sensitivity (Deng & Yuen Allan, 2009; King & LaRocco, 2006). Additionally, online journaling allows for peer interaction and collaborative learning and the feedback and comments provided can promote a deeper reflection and

critical thinking that cannot be found with traditional journal entries alone (Bringle & Hatcher, 1999; Chretien, Faselis, & Goldman, 2008; Deng & Yuen Allan, 2009; Mills, 2001; Yang, 2009). With this type of journaling, students also have continuous daily access to their journals, instructors can provide timely feedback (King & LaRocco, 2006), and students perceive an increased sense of community, collaboration, and reflection (Halic et al., 2010).

It is also important to note, however, that varying forms of reflection when used together can provide an even greater benefit. Journaling is considered “ongoing reflection,” or formative assessment, and a final paper or presentation would be considered “summative reflection,” or assessment (Ash & Clayton, 2004). Using these together would be more valuable than one by itself. Reflection in class is another way to incorporate this idea into practice (Hatcher et al., 2004). Bringle and Hatcher (1999) describe ways that can be used to enhance reflection in SL classrooms. These include experiential research papers, case studies, directed readings, and class presentations.

#### ***Other reflective activities.***

##### *Group discussions.*

Group discussions are also an important method that can be utilized with the methods listed above. The instructor in this particular method plays the role of a “facilitator.” This inherently makes the evaluation of student contributions difficult. It is a

method ideally used with other reflective activities (Collier & Driscoll, 1999), but it has been shown to further increase self-reflection and analysis (Daroszewski et al., 2004). In addition, group discussions can take place in forums beyond the classroom such as email, blogs, or Learning Management Systems (Dyment & O'Connell, 2011).

#### *Portfolios.*

The use of portfolios is another method that effectively uses learning through writing and is positively related to reflection (Anderson & Robins, 2006; Klenowski et al., 2006; Scott, 2010). It allows for students to learn at different rates and experience individualized learning activities. The use of the World Wide Web can make portfolio use even easier to implement (Anderson, J., & Robins, J., 2006). These are also known as e-portfolios (Scott, 2010). Feedback and ongoing discussion from the facilitator are important components to portfolio use (Klenowski, V., Askew, S., & Carnell, E., 2006).

#### *Case studies.*

Case studies are used by the students to evaluate an ethical dilemma they may have encountered during their SL rotation and assess it from alternate points of view. Case studies are especially useful as platforms for group discussion and can lead to the

clarification of values and decision-making processes (Bringle & Hatcher, 1999).

*Research papers.*

Experiential research papers help students identify problems by helping them reflect and analyze the situation in a methodical way. It may also be used to help students with future recommendations when encountering the specific dilemma again (Bringle & Hatcher, 1999).

***Guided reflection.***

One of the most beneficial ways to practice reflection is through guided reflective practice. This method can be applied as an adjunct to journaling. Other terms for this are *mentored journaling* or *directed journaling*. Researchers report that guided reflection helps develop critical thinking and reflection as well as refines higher-order thinking skills. This can be used in conjunction with journaling and the advantages of using guided reflection and journaling together have been reported (Daroszewski et al., 2004, Wetmore et al., 2010).

Instructors and students struggle with the process of reflection and find that the process is uncomfortable (Duffy, 2008). Guided reflection is widely supported and can address some of the issues surrounding the quality completion of reflective activities (Welch & James, 2007). It provides even better reflection than unaided reflection alone. It helps student reflectors “uncover relevant issues” (p. 334) and utilizes the

reflection process in the most beneficial way (Duffy, 2008). Guided reflection has also been found to be useful in SL (Ash & Clayton, 2004) and allows the instructor to assist students through the reflection process. Guiding questions used particularly before and after exposure to the SL experience is an example of a guided reflective practice (Dunlap, 2006; Keselyak et al., 2007).

Duffy (2008) provided four practical steps to facilitating guided reflection. They are "the right guide, reflective framework, ready for what may unfold, and reflect on reflection." The "right guide" is the facilitator who provides expert support and guidance. In addition, this person needs to uphold ethical principles and remain trustworthy. Utilizing a "reflective framework" can make the process easier by providing students with a template. "Ready for what may unfold" indicates that students should remain open-minded to seeing what learning may come out of their reflection. Finally, reflecting on the process of reflection is important in helping students reform assumptions and determines how to alter future practice. It is important to remember, however, that despite best efforts, not all students will become critical reflectors (Duffy, 2008).

### **Problem as Developed from Theories and Research**

It is clearly apparent that SL has many uses in higher education and specifically in dental and dental hygiene education. In fact, it is a frequently used and viable pedagogy to help dental and dental hygiene students reach competency in ethical clinical practice in a community oral health setting (Lautar & Miller, 2007). Because SL is so liberally

implemented, it is important to insure that it is being done appropriately so that the students are achieving the maximum benefit.

SL may not be reaching its full potential. This research study focused on the following barriers. The definition of SL is prone to confusion and it is not often distinguished from other types of volunteerism (Lautar & Miller, 2007). The same is true for reflection in that its use may be inadequate even though it is the key to successful SL. The definition of reflection is also vague and its use imprecise in the literature (Mezirow, 1990; Schön, 1987; Wallace, 1996). Based on these problems, this research endeavors to discover if SL and reflection are being used appropriately in dental and dental hygiene education and to offer suggestions on increasing the clarity of this pedagogy.

According to Lautar and Miller (2007), SL can be easily mistaken for other types of activities that include internships, volunteerism, community service, clinical rotation, and field education. While many of these activities are types of experiential education, they may not be fundamentally considered SL. Many times the emphasis may be on either service or learning but typically not both as is the case with SL. The primary objectives of SL are a combination of structured community service, specific classroom objectives, and an emphasis on reflection. The reflective component is what makes the distinction between other types of activities and helps students make the leap from service to learning (Bringle & Hatcher, 2009; Butin, 2006; Chupp & Joseph, 2010; Goldberg, McCormick, Richburg, & Wood, 2006; Lautar & Miller, 2007).

In dentistry specifically, numerous benefits have been observed with the use of SL and health fields are fourth out of the ten most likely fields to use SL, in their curriculum. Because of this, it is important to clarify the use of SL in dental and dental



hygiene education by establishing a more “universally clear definition” of SL for its use in Accreditation Standards for Dental Hygiene Education Programs (Chupp & Joseph, 2010; Goldberg et al., 2006; Lautar & Miller, 2007). In fact, Lautar and Miller (2007) urge for SL and its associated definitions to be included in the Accreditation Standards for Dental Hygiene Education Programs. This would include standardizing and defining reflection as well (Butin, 2006). Because it is evident that this is a need, are efforts to create universal definitions or an understanding of SL best practices being seen? These were questions this research hoped to answer.

### **Summary**

It is evident that SL has a multitude of uses in education and specifically dentistry and dental hygiene. It is also clear that SL and reflection have lately become increasingly important and necessary because movements within our healthcare fields and government are calling for an increase in access to dental care. SL in dental and dental hygiene education can help increase civic awareness in students and expose them to the community dental experience. This, in turn, can help resolve some of the issues that are being faced in dentistry today. Because of the extensive use of SL and reflection in higher education and in dental education, it is necessary to determine if the use of this pedagogy is reaching its highest potential.

## **Methodology**

### **Design**

#### **Overview of the Study.**

The purpose of this study is to determine if SL and reflection is being conducted adequately and appropriately in dental hygiene education. This study is a non-experimental descriptive survey using SurveyMonkey® and email. The sample consists of a convenience sampling of directors of dental hygiene programs in the United States.

The research method and design was a non-experimental descriptive survey research (Coughlan, 2009). This research design was beneficial due to the large number of baccalaureate, associate, and certificate dental hygiene program directors. Currently, there are 342 dental hygiene programs nationwide. Survey research, especially online, has the ability to remove barriers such as restraints of time and geography as well as reduction in overall costs when compared to other research methods (Coughlan, 2009; Daley, McDermott, McCormack Brown, & Kittleson, 2003; Granello & Wheaton, 2004; Kelley, Clark, Brown, & Sitzia, 2003; Simsek & Veiga, 2000; Stewart, 2003; Umbach, 2005). In addition, online surveys can collect large amounts of data in a short amount of time which results in information that is more likely to be generalizable (Kelley et al., 2003), and problems that relate to paper surveys can be eliminated such as inconvenience and reduced time requirements (Daley et al., 2003).

This survey was an online survey and consisted of a combination of quantitative and qualitative questions. Research has shown that the internet can be a valuable tool in survey research (Stewart, 2003) and survey research is one of the most popular and common methodologies used in research generally and in the health sciences specifically (Chambers & Licari, 2009; Granello & Wheaton, 2004; Kelley et al., 2003; Porter, 2004; Simsek & Veiga, 2000). The integration of the internet into survey research has, for the most part, improved the data collection process by reducing errors (Simsek, Z., & Veiga, J. F., 2000).

The survey was given first to dental hygiene program directors for convenience. The directors were then asked to pass along the survey to appropriate faculty. This is called snowball sampling. Some open-ended or qualitative questions were used in the survey as well as demographics. Initial piloting, was used to highlight potential problems and minimize error. It was also used as a baseline or point of reference.

### **Problem or research questions.**

With the lack of clarity presented in the literature regarding SL and reflection, are the benefits touted by SL advocates reaching their full potential in dental hygiene education? Or, is it possible that SL has been under-defined, over-generalized, and misused in dental hygiene academia?

To begin to answer the above questions, the following research questions address the perceived definition of SL, the use of reflection, and the intended effects of SL in dental hygiene education, and are presented below:

- Is the definition of SL used by the institution evidence-based?

- What SL activities are currently being practiced?
- What goals do the dental hygiene programs and educators have for their students with regards to the SL activities?
- What specific evaluation methods are being used to assess if SL outcomes are being met?
- How specifically is reflection being used to ensure that learning goals are being met?

**Variables.**

This study focused on the impact of reflection on SL. Therefore, the independent variable was reflection and the dependent variable was SL. It is possible that extraneous or confounding variables may have also affected this study. These can be divided into two groups: participant variables and situational variables.

Participant variables that may have affected this study include but are not limited to age, sex, educational and personal backgrounds, energy, mood, level of interest or excitement in the project, level of knowledge regarding SL and reflection, level of knowledge with regard to the use of the internet, email, and SurveyMonkey®, general typing, writing, and comprehension skills. The collection of demographics helped control some but not all of the variables listed. Because the sample consisted of program directors and faculty members, and this particular demographic has computer and email access, the use of email was not an issue. This study was also limited by the number of responses acquired.

Situational variables that could have affected this study included, but were not limited to, adequate time to complete the survey, server speed and loading, a functional link, access to a computer, and adequate function of the email and survey provider.

### **Description of Setting**

Every dental hygiene program in the United States with a listed email on the ADHA website was included, which increased the generalizability of the results. There were three types of dental hygiene programs that were included in this study: baccalaureate programs, associate programs, and certificate programs. Results may have been affected by the greater number of Associate programs than baccalaureate or certificate programs.

This study was conducted within the context of the internet, specifically email and SurveyMonkey®. Demographics were taken in this study at the beginning of the survey to reduce dropout rates (Granello & Wheaton, 2004). A survey link was provided and, for the purposes of this study, it was given to participants via email.

Data was analyzed via SPSS (Statistical Product and Service Solutions). The ease of this process aided in efficient data analysis and the reduced errors that may have occurred during the transcription of collected data (Coughlan, 2009; Daley et al., 2003; Granello & Wheaton, 2004; Simsek & Veiga, 2000; Stewart, 2003).

Of particular importance was the enhanced security and privacy of using SurveyMonkey®. All data was kept private and confidential and was owned by the researcher alone. Data are never used by SurveyMonkey® for any personal reason. A state of the art security infrastructure is in place to ensure data safety and the availability

of the network. This includes an enhanced Secure Sockets Layer (SSL) encryption package. Additionally, SurveyMonkey® is the only provider of U.S. federal section 508-certified surveys. This means that people with disabilities can use SurveyMonkey® and it is American Disabilities Act-friendly. These SurveyMonkey® features helped protect the participants of this study.

## **Sample**

### **Human subjects protection.**

Anonymity was protected through using a non-identifiable survey (Kelley et al., 2003). Informed consent was gathered from the participants taking the survey. The data was kept on a password-protected computer that was viewed only by the researcher and the statistician.

The researcher implemented the following four guidelines to insure that the subjects were not exposed to any physical or psychological distress or loss of privacy:

1. The Institutional Review Board (IRB) at Eastern Washington University (EWU) approved the study.
2. A cover letter was written and given to participants detailing the scope and requirements of the study.
3. The rights and protections of each participant were fully explained.
4. Informed consent was obtained via the participant clicking on the link to take the survey.
5. Participants were made aware of the voluntary nature of the survey.

The researcher endeavored to respect participants' right to privacy, and an agreement of confidentiality was provided to each participant. In an effort to protect this agreement, each participant was given nondisclosure documents before the commencement of the study. Clicking on the link to access the survey on SurveyMonkey® was considered informed consent in this study. Access to SurveyMonkey® was restricted to participants in the study. Statistical analysis occurred at the completion of the study. Subjects were not named or identified in any areas that allowed public access. No data files that could reconstruct names, addresses, or other personal information were kept by the researcher. All data files were kept in a personal computer owned by the researcher that was password protected. The password was known by the researcher alone. There were no files in printed form kept at the researcher's residence or any other location. At the completion of the study and after the data had been analyzed and recorded completely, all files, both electronic and print, were destroyed. Electronic files were permanently deleted from the hard drive, and any other back-up devices.

In addition and prior to the commencement of the survey, participants were informed and retained the right to refuse to participate in the study or in any part of the study. A time limit of eight weeks total was given to limit the time required for participation. Sources state that survey completion can occur in as little as two to three days or up to two weeks (Granello & Wheaton, 2004, Kelley et al., 2003). Truell (2003) says that 85-89% can be gathered in the first week. Eight weeks was chosen because of the additional time needed for snowball sampling. In addition, multiple contacts and reminders were used to garner more

responses. This is one of the most successful and widely used methods for reducing survey non-response (Kelley et al., 2003; Porter, 2004). In this particular study, two reminders, as is allotted by the Institutional Review Board (IRB), were used. One was given at the second-week mark and another at the four-week mark.

Before the study commenced, all steps to obtain informed consent and to protect the rights of human subjects were taken. An email containing information regarding the content of this study and the request of informed consent was given. Each participant who responded to this request was by so doing giving his or her informed consent to be included in the study. In addition, the researcher followed the Code of Ethics as described by the American Dental Hygienist's Association (ADHA) for scientific investigation (American Dental Hygienists' Association, 2010). Eastern Washington University's (EWU) IRB was additionally responsible for approving this study.

#### **Sample source.**

All the listed directors of dental hygiene programs throughout the United States (US) with viable emails were recruited to participate in this study as this was a nationwide study. This was limited somewhat by the available email addresses listed. Some had requests not to be contacted. Several schools had a single director, so duplicate emails were not used. Overall, 319 directors had viable emails. Directors were then asked to forward the survey to appropriate full-time faculty members. Simple random sampling was not appropriate in this case because of the large scale (Kelley et al., 2003). This study included baccalaureate, associate, and certificate dental hygiene programs.



The source of directors of US dental hygiene programs was obtained through the American Dental Hygienists' Association (ADHA). A list of program director contact information can be found through the contact information on the ADHA's website. The availability of this information is subject to change. These program directors were contacted by email and sent a link to complete the survey.

**Criteria for sample selection.**

The sample selected was directors of dental hygiene programs in the United States from baccalaureate, associate, and certificate degree programs. This also included the full-time faculty members that were recruited using snowball sampling. Demographics of this population were asked to further clarify the scope of this study.

**Sampling plan.**

In order to produce valid and reliable results, directors and full-time faculty from baccalaureate, associate, and certificate degree dental hygiene programs throughout the United States were used. Dental hygiene program directors were contacted through an email list derived from the ADHA website. Full-time faculty members were also recruited through the use of snowball sampling for inclusion in the study. Every respondent and all accessible programs were used to increase the validity and statistical significance of the study.

**Sampling size.**

The sample was taken from all baccalaureate, associate, and certificate dental hygiene programs in the United States. At the time, the number of dental hygiene programs was 342. This list was obtained through the ADHA website.

Duplicate emails and requests not to be contacted reduced the number of available program directors to 319. The program directors then sent the information to the appropriate full-time faculty. On average, there are three to eight full-time faculty for each program. This would mean that the sample size could range from 1026 to 2736. This number, however, is based on the number of potential responses, not on the projected number of responses.

## **Data Collection**

### **Methods.**

The data collection methodology used was a non-experimental online survey questionnaire. Demographics were collected. In addition, convenience and snowball sampling were used. Convenience sampling was used initially to select the preliminary sample of program directors. Using this data collection methodology decreased costs and provided greater ease with regard to generating a sample of respondents. Snowball sampling was also utilized by asking directors to forward a copy of the survey to all appropriate full-time faculty members. This helped increase the total sample size, as well as provided a means of comparison (program directors versus faculty members) with regard to the data collected.

### **Instruments.**

The primary data collection tool was SurveyMonkey®. Data collection instruments were designed by the researcher and statistician with templates being provided by SurveyMonkey®. The tool, designed by the researcher, was pilot tested.

The survey questionnaire was the data collection instrument and was designed to utilize a mixed methodology with quantitative and qualitative questions. It was developed with the help of a statistician, but did not follow a specific style or type of survey.

Initially, a pilot study was conducted in order to provide a real-world test of the survey questionnaire in advance of the full study. Next, a series of questions were included in the survey focusing upon the definition of SL used by the institution, including the extent to which SL is connected to students' coursework, learning objectives, and their service experiences. The following set of questions focused upon SL activities currently being practiced within the respondents' institution. These questions focused on the characteristics of the SL activities being conducted. The goals which were focused upon with regard to students were also considered, with additional questions asking respondents about the goals for their students with regard to SL activities. Furthermore, respondents were asked about the evaluation methods used to assess whether SL outcomes were met, and the extent to which reflection is incorporated in SL activities. The following set of questions focused upon the definition of guided reflection and the extent to which guided reflection was incorporated within the institution. These questions were chosen based on current literature that described a lack of universal definitions of SL and reflection and the possible misuse of SL and reflection in academia. Following this, a series of demographic questions were included in the survey in order to better describe the sample of respondents.

**Reliability and validity.**

Issues of validity, including internal and external validity, are discussed within the discussion chapter of this study. Reliability analyses were not conducted as no scale measures were included within the survey questionnaire used for this study.

Pilot testing was conducted on the final version of the questionnaire to ensure that the study is completed in the appropriate manner and that the data received reflected the goals the researcher had for the study. All necessary changes were made after the completion of the pilot testing. The pilot test was run on full-time faculty of the Eastern Washington University Dental Hygiene Program in Spokane, Washington, thesis committee members, and full-time faculty members from three degree completion programs in Washington; 1) Clark College, 2) Pierce College, and 3) Lake Washington Institute of Technology. Four responses were received during the two-week period in which the study was piloted. Invaluable feedback regarding questionnaire wording, question structure, and clarification was received during this time. Based on pilot study responses, appropriate changes were made and two questions were added to enhance the study.

**Procedure.**

Data was collected electronically through SurveyMonkey®. Initially, however, participants were contacted through email. The initial email provided respondents with details regarding the study and asked them for their participation in the survey questionnaire. Following an eight week period of time, the data

collection process concluded on the SurveyMonkey® website. An initial administration of the survey was provided to all willing participants, with follow-up reminders at intervals following the initial administration of the survey. These follow-up reminders were utilized to help increase the sample size by encouraging participants who initially expressed interest via the email to complete the survey. The initial administrations of the survey, as well as the follow-up reminders, were sent to participants via email through the use of the SurveyMonkey® website. Once the data collection process was completed, the data was downloaded to Excel® and SPSS from the SurveyMonkey® website for the purposes of descriptive statistical analysis.

### **Statistical Analysis**

The research questions included in this study are descriptive, requiring descriptive analysis as opposed to inferential statistical tests. Therefore, the analyses conducted for this study focused on descriptive statistics. Specifically, a series of frequency tables were constructed to describe the distribution of all categorical measures included in the survey. These frequency tables incorporated the number as well as the percentage of responses given by participants with regard to all response categories of the measures focused upon. Frequency tables described categorical measures, which included the sample sizes and percentages associated with each category of response. For continuous measures, the mean, median, standard deviation and variance were used as well as minimum and maximum scores in order to describe these measures. Medians and interquartile range were also used for categorical measures in order to describe the central tendency (average) and variability (variance) of these items. The descriptive analyses conducted

served to comprehensively explore the research questions included. To describe the relationship between variables a chi-square analysis and Spearman's correlation was conducted.

A population of 342 dental hygiene schools which have an average of three to eight full-time staff per school produces an expected population size of 1881 respondents, along with a minimum projected population size of 1026 and a maximum projected population size of 2736 respondents. Assuming an expected population size of 1881, a margin of error of 10%, and a confidence level of 95%, this produces a recommended sample size of 92 respondents or more. Assuming the minimum expected population size of 1026 respondents, a sample size of 88 respondents or greater would be recommended. Finally, with the maximum projected population size of 2736 respondents, the minimum suggested sample size would consist of 93 respondents in total. Based on the results of these analyses, a sample size of at least approximately 90 respondents was targeted in this study. This study generated a total of 94 respondents.

### **Summary**

For the purposes of this study, the survey method was used through SurveyMonkey®. SurveyMonkey® more tightly controlled and organized the responses and respondents. This research consisted of a single survey including demographics. The researcher limited open-ended questions and the researcher designed the instruments used. Descriptive statistics were utilized to fully explore the research questions included in this study.

## Results

### Introduction

This chapter presents and discusses the results of the analyses conducted for this study. As this study was descriptive, the focus was on descriptive results as opposed to conducting inferential statistical tests. This chapter will focus upon the presentation of frequency tables for the categorical variables included in the study as well as measures of central tendency and variability with respect to all continuous measures. To compare variables, a chi-square analysis and Spearman's correlation was also used. Initially, descriptive statistics relating to the demographic items included in this study will be presented. This will be followed by a section summarizing the results of the survey items themselves, followed finally by a summary.

### Description of Sample

The following table focuses upon respondent gender. As shown, nearly 96% (n=90) of the sample were found to be female, while only approximately 3% (n=3) of respondents were male.

Table 1

#### *Gender*

<u>Response</u>	<u>n</u>	<u>%</u>
Female	90	95.7
Male	3	3.2
<u>Missing</u>	<u>1</u>	<u>1.1</u>
Total	94	100

The summary of the descriptive statistics with regard to respondent age are in Table 2. As shown, the mean age of respondents in this data set were slightly above 54 (n=54.44) years of age, with a standard deviation of approximately nine years. The youngest respondent was found to be 32 years of age, with the oldest respondent being 99 years of age.

Table 2

*Age*

<u>Measure</u>	<u>Mean</u>	<u>Median</u>	<u>Std. Dev.</u>	<u>Var.</u>	<u>Min.</u>	<u>Max.</u>	<u>IQR</u>
Respondent Age	54.44	55.00	9.29	86.29	32	99	48.50, 59

With regard to respondent race, the vast majority of the sample, over 87% (n=82), were found to be white. Slightly over 6% (n=6) of individuals were found to be of Hispanic or Latino origin, with slightly above 3% (n=3) of respondents being black. Finally, slightly more than 2% (n= 2) of the sample were found to be of mixed race.

Table 3

*Race*

<u>Response</u>	<u>n</u>	<u>%</u>
Black	3	3.2
Hispanic/Latino	6	6.4
White	82	87.2
Mixed	2	2.1
<u>Missing</u>	<u>1</u>	<u>1.1</u>
Total	94	100



With respect to the current role in which respondents worked, close to 60% (n=56) of the sample consisted of full-time faculty, with nearly 47% (n=44) indicating that they are program directors. Fourteen percent (n=13) of respondents stated that their current role was that of clinic lead, with slightly over 5% (n=5) indicating that they are full-time clinical instructors.

Table 4

*Current Role*

<u>Response</u>	<u>n</u>	<u>%</u>
Full-Time Faculty	56	59.6
Full-Time Clinical Instructor	5	5.3
Clinic Lead	13	13.8
<u>Program Director</u>	<u>44</u>	<u>46.8</u>
Total	118	125.5

With regard to academic rank, approximately 21% (n=20) to 25% (n=23) of individuals responded with each of the following categories: assistant professor, associate professor, full/tenured professor, and missing/other. Additionally, close to 9% (n=8) of respondents indicated that they were non-tenure-track instructors.

Table 5

*Academic Rank*

<u>Response</u>	<u>n</u>	<u>%</u>
Assistant Professor	21	22.3
Associate Professor	20	21.3
Full/Tenured Professor	22	23.4

Non-Tenure-Track Instructor	8	8.5
<u>Missing/Other</u>	<u>23</u>	<u>24.5</u>
Total	94	100

With respect to respondent level of education, the vast majority of the sample, nearly 79% (n=74) of respondents, were found to have a master's degree, while close to 13% (n=12) of individuals were found have a bachelors. Additionally, slightly over 7% (n=7) of respondents had a doctorate, while only a single respondent did not provide a response to this question.

Initially, a Spearman's correlation was conducted between level of education and whether the universities' service learning definition corresponded with that provided by the survey. This analysis did not indicate a significant association,  $\rho(91) = -.118, p = .262$ . Next, a second correlational analysis was conducted between level of education and whether guided reflection is a component of each service-learning experience when implementing service-learning in the respondents' program. This analysis also failed to indicate a significant association between these two measures,  $\rho(91) = -.057, p = .586$ .

Following this, an additional correlation was conducted between whether the respondent had previous training in reflective learning and level of education. Again, no significant association between these measures was indicated,  $\rho(86) = .151, p = .160$ . The final correlation conducted focused upon the association between whether respondents had previous education in service learning and level of education. Again, significance was not indicated in this analysis,  $\rho(90) = .193, p = .065$ .

Table 6

*Level of Education*

<u>Response</u>	<u>n</u>	<u>%</u>
Bachelor's Degree	12	12.8
Master's Degree	74	78.7
Doctorate	7	7.4
<u>Missing/Other</u>	<u>1</u>	<u>1.1</u>
Total	94	100

Descriptive statistics were also calculated on the degrees offered by the respondents' programs. Slightly over 75% (n=71) of individuals indicated that an AA/AS degree was offered, while close to 32% (n=30) indicated that a bachelor of science was offered. Additionally, slightly over 4% (n=4) of respondents indicated that their program offered a certificate.

Table 7

*Degree Offered*

<u>Response</u>	<u>n</u>	<u>%</u>
Certificate	4	4.3
AA/AS	71	75.5
<u>Bachelor of Science</u>	<u>30</u>	<u>31.9</u>
Total	105	111.7

Initially, three separate chi-square analyses were conducted between degree offered and whether the universities' service learning definition corresponded with that provided by the survey. The first chi-square analysis conducted focused upon the

association between an Associate's degree being offered and the correspondence of the service learning definitions. This analysis failed to indicate a significant association,  $\chi^2 (2) = .779, p = .861$ , Fisher's exact test  $p = .772$ ; Cramer's  $V = .091, p = .861$ . The next chi-square analysis focused upon the association between a Bachelor's of Science being offered and definition correspondence. This analysis failed to indicate that a significant association was present,  $\chi^2 (2) = 1.709, p = .508$ ; Fisher's exact test  $p = .742$ ; Cramer's  $V = .135, p = .508$ . The final analysis focused upon the association between a certificate being offered and the correspondence between these two definitions. This analysis did in fact indicate a significant association between these measures on the basis of Fisher's exact test,  $\chi^2 (2) = 8.255, p = .066$ , Fisher's exact test  $p = .035$ ; Cramer's  $V = .296, p = .066$ . Among cases in which the definition did not correspond, 66.7% of cases did not offer a certificate, with the remaining 33.3% offering a certificate. Among cases where the definition *did* correspond, nearly the entire sample, 97.6%, offered either a bachelor's degree or an associate's degree, with the remaining 2.4% having a certificate program. Finally, among cases in which the definition was found to *partially correspond*, 87.5% offered either a bachelor's degree or an associate's degree, with the remaining 12.5% offering a certificate.

Next, the following set of analyses also focused on degree offered, with the outcome of interest consisting of whether guided reflection is a component of each service-learning experience when implementing service-learning in the respondents' program. These analyses also utilized chi-square analyses in order to determine whether significant associations were present between these measures. First, the initial analysis conducted consisted of the association between whether the program offers an

Associate's degree and the use of guided reflection. This analysis found no significant association between these two measures,  $\chi^2(2) = 1.059, p = .617$ ; Fisher's exact test  $p = .522$ ; Cramer's  $V = .106, p = .617$ . Next, the following analysis focused upon the association between whether the respondent's program offers a Bachelor's degree and the use of guided reflection. This analysis also failed to indicate a significant association being present,  $\chi^2(2) = .308, p = .933$ ; Fisher's exact test  $p = .818$ ; Cramer's  $V = .057, p = .933$ . The third set of analyses conducted analyzed the association between whether or not a certificate was offered and the use of guided reflection. In this analysis, no significant association was indicated between these two items,  $\chi^2(2) = 8.154, p = .059$ ; Fisher's exact test  $p = .084$ ; Cramer's  $V = .295, p = .059$ .

Following this, an additional set of analyses was conducted between whether the respondent had previous training in reflective learning and the type of degree offered. Initially, all cases that were coded "unsure" were recorded as missing so that only responses of "yes" or "no" were included in these analyses. First, the analyses conducted between whether programs offered an Associate's degree and previous training in reflective learning failed to indicate a significant association,  $\chi^2(1) = .809, p = .509$ ; Fisher's exact test  $p = .509$ ; Cramer's  $V = .096, p = .509$ . Next, the analyses conducted between whether a Bachelor's degree was offered and having been trained in reflective learning also failed to indicate a significant association between these measures,  $\chi^2(1) = 2.980, p = .135$ ; Fisher's exact test  $p = .135$ ; Cramer's  $V = .184, p = .135$ . The final set of analyses, focusing upon whether a certificate program is offered, also failed to indicate a significant association with previous training in reflective learning,  $\chi^2(1) = .479, p = 1.000$ ; Fisher's exact test  $p = .457$ ; Cramer's  $V = .074, p = 1.000$ .

The final set of analyses focused upon whether respondents had previous education in service learning. In these analyses, responses of “unsure” with respect to previous education in service learning were first recorded as missing so that only responses of “yes” or “no” were included in these analyses. First, the analyses conducted between previous education in service learning and whether an Associate’s degree was offered failed to achieve statistical significance,  $\chi^2(1) = .936, p = .417$ ; Fisher’s exact test  $p = .417$ ; Cramer’s  $V = .101, p = .417$ . Next, the analyses conducted between whether a Bachelor’s was offered and previous education in service learning also indicated no significant association being present,  $\chi^2(1) = 1.551, p = .227$ ; Fisher’s exact test  $p = .227$ ; Cramer’s  $V = .130, p = .227$ . Finally, the analyses conducted between previous education in service learning and whether the program offered a certificate also failed to achieve statistical significance,  $\chi^2(1) = 4.506, p = .067$ ; Fisher’s exact test  $p = .067$ ; Cramer’s  $V = .221, p = .067$ .

### **Statistical Analysis**

This current section will focus upon the questions included within the survey questionnaire that was provided to respondents. First, the following table summarizes the descriptive statistics conducted on whether the respondent’s university definition of SL corresponds with the definition provided within the study. As shown, over 88% (n=83) of this sample indicated that the university’s definition of SL does correspond with the definition provided, with only slightly above 3% (n=3) indicating that it did not. Slightly over 8% (n=8) of respondents stated that there was partial correspondence between the two definitions.

Table 8

*University's Definition Corresponds*

<u>Response</u>	<u>n</u>	<u>%</u>
No	3	3.2
Partially	8	8.5
<u>Yes</u>	<u>83</u>	<u>88.3</u>
Total	94	100

The following table summarizes the courses listed which implement SL. The greatest number of responses consisted of community/public health courses, of which over 91% (n=86) of respondents indicated implement SL. Following this, slightly over 70% (n=66) responded with clinical, slightly over 41% (n=39) responded with other programs, while close to 30% (n=28) responded with dental hygiene/dental sciences courses. Next, between 16% (n=15) and 17% (n=16) of respondents each responded that preventive dentistry courses, capstone courses, and practicums implement SL. All other possible response categories each implemented SL less than 10% of the time.

Table 9

*Courses Implement SL*

<u>Response</u>	<u>n</u>	<u>%</u>
Clinical	66	70.2
Dental Hygiene/Dental Sciences	28	29.8
Basic Sciences	1	1.1
Preventive Dentistry	16	17.0
Radiology	1	1.1
Community/Public Health	86	91.5
Pain Management	3	3.2
Research	6	6.4
Periodontology	3	3.2
Ethics	9	9.6
Capstone	15	16.0
Practicums	15	16.0
<u>Other</u>	<u>39</u>	<u>41.5</u>
Total	288	306.6



Figure 2 presents a visual illustration of these percentages.

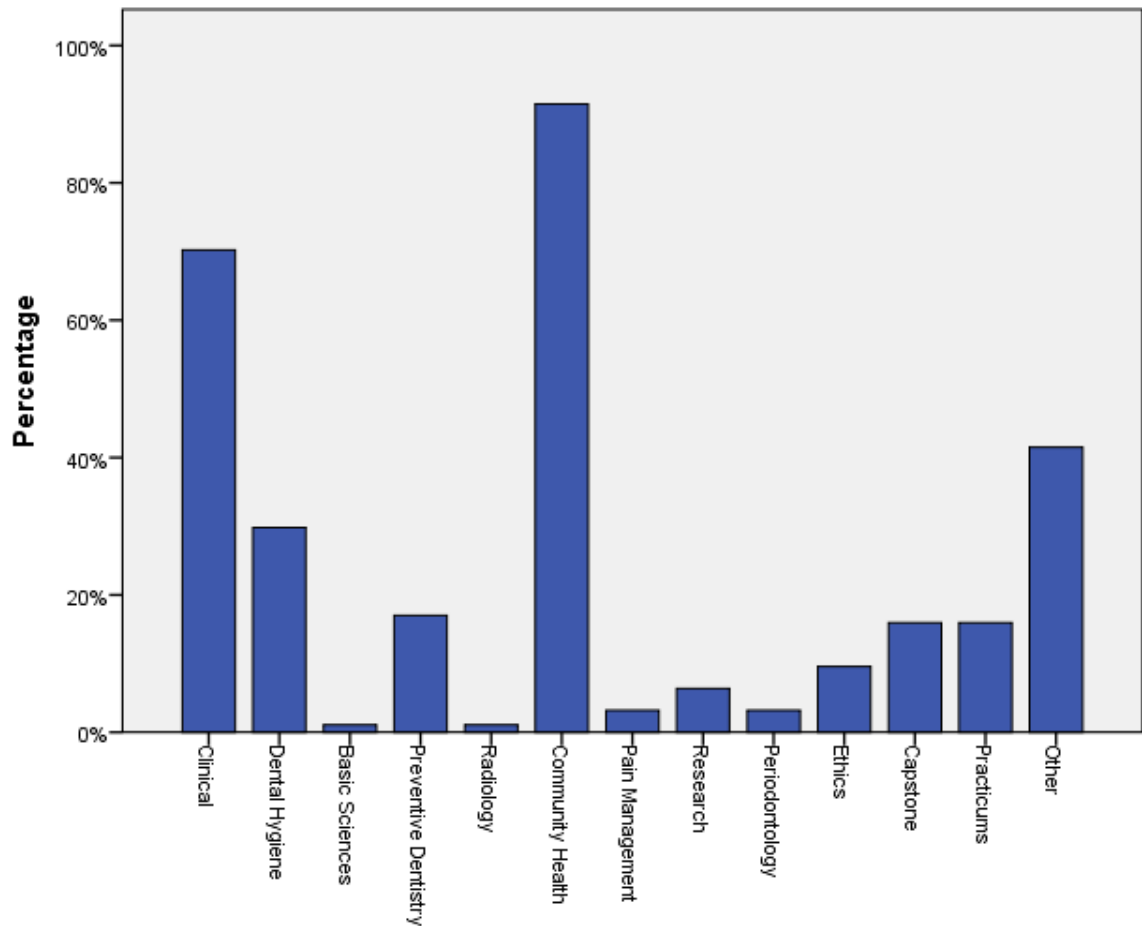


Figure 2: Courses implement SL.

With regard to whether SL was connected to students' coursework, respondents indicated that this was the case slightly over 86% (n=81) of the time, with individuals stating this was not the case slightly over 2% (n=2) of the time. In close to 11% (n=10) of cases, individuals stated that SL was only occasionally connected to coursework. Only a single respondent did not respond with a valid answer to this question.

Table 10

*SL Connected to Coursework*

<u>Response</u>	<u>n</u>	<u>%</u>
No	2	2.1
Occasionally	10	10.6
Yes	81	86.2
<u>Missing</u>	<u>1</u>	<u>1.1</u>
Total	94	100

The following table summarizes descriptive statistics conducted on whether, in the respondent's dental hygiene program, there are specific learning objectives or course goals related to SL. This was found to be the case 84% (n=79) of the time, with close to 12% (n=11) of respondents indicating that this was not the case. Slightly above 4% (n=4) of respondents stated that there are occasionally specific learning objectives or course goals related to SL in their dental hygiene program.

Table 11

*Specific Learning Objectives/ Course Goals*

<u>Response</u>	<u>n</u>	<u>%</u>
No	11	11.7
Occasionally	4	4.3
<u>Yes</u>	<u>79</u>	<u>84.0</u>
Total	94	100

With regard to whether guided reflection was included as a component of SL, this was found to occur slightly over 73% (n=69) of the time, while this was not found to be

the case in close to 10% (n=9) of cases. Respondents indicated that guided reflection was occasionally a component of SL 17% (n=16) of the time.

Table 12

*Guided Reflection a Component of SL*

<u>Response</u>	<u>n</u>	<u>%</u>
No	9	9.6
Occasionally	16	17.0
Yes	69	73.4
Total	94	100

Respondents were also asked whether SL activities involve volunteer work. This was found to be the case in nearly 80% (n=75) of cases, while this was not found to be the case in slightly over 18% (n=17) of cases. In total, two respondents were found to not provide a valid response to this question.

Table 13

*SL Activities Involve Volunteer Work*

<u>Response</u>	<u>n</u>	<u>%</u>
No	17	18.1
Yes	75	79.8
Missing	2	2.1
Total	94	100

In the question connected to whether SL involves other activities, 83% (n=78) of respondents indicated that it did not, while 16% (n=15) of respondents stated that it did

involve other activities. Only a single respondent failed to provide a valid response to this question.

Table 14

*SL Involves Other Activities*

<u>Response</u>	<u>n</u>	<u>%</u>
No	78	83.0
Yes	15	16.0
<u>Missing</u>	<u>1</u>	<u>1.1</u>
Total	94	100

With respect to goals respondents had for their students regarding SL activities, all items asked about were rank-ordered by individuals with 1 representing the top goal, and 14 representing the lowest priority goal. As these variables were continuous, measures of central tendency and variability were conducted, with these results being summarized in the following table. As shown, respondents indicated that fostering a connection to the community was most important, followed by a sense of civic responsibility and community benefits. The least important goal consisted of skill improvement, followed by an enhanced appreciation and commitment to learning and school, and followed next by increased appreciation for the discipline of dental hygiene.

Table 15

*Goals for Students with Regard to SL Activities*

<u>Measure</u>	<u>Mean</u>	<u>Median</u>	<u>Std. Dev.</u>	<u>Var.</u>	<u>Min.</u>	<u>Max.</u>	<u>IQR</u>
Fostering Connection	3.94	3.00	2.52	6.36	1	12	[2, 5]
Civic Responsibility	4.33	4.00	3.02	9.11	1	14	[2, 6]
Community Benefits	4.87	4.00	2.97	8.82	1	13	[2, 6.25]
Sociocultural Awareness	5.05	5.00	3.12	9.75	1	13	[2, 7]
Exposing Students	5.53	5.00	3.65	3.35	1	14	[2, 8]
Academic Benefits	7.87	8.00	4.39	19.23	1	14	[4, 13]
Communication Skills	8.10	8.00	2.55	6.52	1	14	[6, 10]
Personal Benefits	8.13	8.00	3.89	15.10	1	14	[5, 11]
Hands-on Experience	8.72	10.00	4.13	17.02	1	14	[5, 13]
Personal Social Skills	9.07	9.00	2.65	7.02	1	14	[7.75, 11]
Academic Achievement	9.19	10.00	3.52	12.39	1	14	[7, 12]
Appreciation of Discipline	9.54	10.50	4.12	16.96	1	14	[6.75, 13]
Appreciation Learning	9.93	10.00	3.26	10.63	1	14	[8, 12]
<u>Skill Improvement</u>	<u>10.72</u>	<u>12.00</u>	<u>3.05</u>	<u>9.28</u>	<u>2</u>	<u>14</u>	<u>[9.75, 13]</u>

Notes: IQR stands for interquartile range

Figure 3 presents a visual illustration of these mean scores.

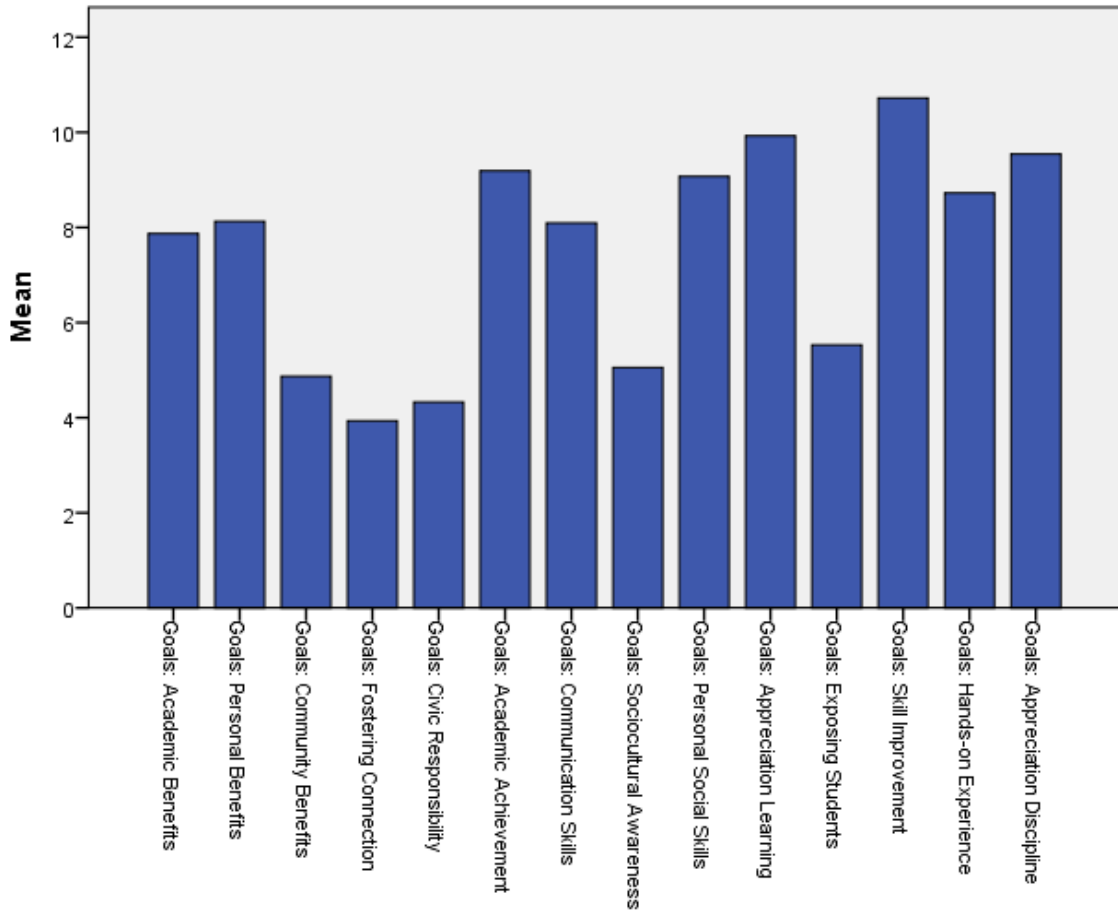


Figure 3: Goals for students with regards to SL activities.

Table 16 summarizes responses given to the set of questions focusing on the definition of guided reflection. Specifically, these questions asked whether a specific set of activities were included as reflective activities as part of the SL course in which their students were a part of. First, with regard to journaling, slightly over 71% (n=67) of respondents indicated that journaling was a component of their course, while slightly over 72% (n=68) stated that reflection was a component of the assignment. Additionally, 66% (n=62) of respondents indicated that the instructor provides specific guided questions in order to promote student reflection.

Concerning self-assessment, slightly over 86% (n=81) of respondents indicated that this was a component of their course, while 84% (n=79) indicated that reflection was a component of the assignment. In total, slightly over 74% (n=70) of respondents stated that specific guided questions are provided in order to promote student reflection. Out of this sample, close to 63% (n=59) of individuals included writing assignments, with 66% (n=62) stating that reflection was a component of the assignment, and slightly over 54% (n=51) indicating that specific guided questions are provided. When referring to case studies, slightly over 23% (n=22) of respondents incorporated these assignments, with slightly over 20% (n=19) indicating that reflection was a component of the assignment. Additionally, slightly over 18% (n=17) also incorporated specific guided questions.

Respondents were also asked whether guiding questions are used to aid in the reflective process during SL projects or endeavors, with 84% (n=79) of respondents indicating that this was the case. In total, close to 81% (n=76) of respondents stated that reflection was a component of the assignment, with slightly over 56% (n=53) indicating that specific guided questions were also used. Next, with regard to portfolios, slightly over 37% (n=35) of respondents indicated that portfolios were included in their course, with slightly above 35% (n=33) indicating that reflection was a component of the assignment. Furthermore, slightly over 25% (n=24) indicated that specific guided questions were also included.

In total, slightly above 24% (n=23) of respondents indicated that blogs or online-journaling were incorporated in their class, while close to 27% (n=25) stated that reflection was a component of the assignment. Slightly over 24% (n=23) of individuals also indicated that specific guided questions were included. It was found that close to

30% (n=28) of respondents had incorporated a research proposal within their class, with slightly over 21% (n=20) indicating that reflection was a component of the assignment, and the same percentage indicating that specific guided questions were included. With respect to directed readings, close to 48% (n=45) of the sample had incorporated this into their class, with close to 28% (n=26) indicating that reflection was a component of the assignment. Furthermore, close to 27% (n=25) of respondents stated that specific guided questions were included.

Respondents were also asked about whether a class presentation was assigned within the class, with slightly over 68% (n=64) indicating that this was the case. Close to 64% (n=60) of respondents indicated that reflection was a component of the assignment, while 50% (n=47) indicated that specific guided questions were included. Slightly over 52% (n=49) of respondents indicated that a self-assessment paper was assigned within their class, with slightly over 55% (n=52) indicating that reflection was a component of the assignment. Additionally, close to 47% (n=44) of respondents stated that specific guided questions were included. Finally, close to 79% (n=74) of respondents indicated that the instructor provides feedback to the assignments, with close to 40% (n=37) indicating that reflection was a component of the assignment. Slightly over 18% (n=17) of respondents indicated that specific guided questions were included in the assignment.



Table 16

*Guided Reflection Definition*

Response	Yes		No		N/A	
	n	%	n	%	n	%
Journaling	67	71.3	25	26.6	2	2.1
Part of the Assignment	68	72.3	3	3.2	23	24.5
Specific Guided Qs	62	66.0	14	14.9	18	19.1
Self-Assessment	81	86.2	12	12.8	1	1.1
Part of the Assignment	79	84.0	4	4.3	11	11.7
Specific Guided Qs	70	74.5	11	11.7	13	13.8
Writing	59	62.8	34	36.2	1	1.1
Part of the Assignment	62	66.0	5	5.3	27	28.7
Specific Guided Qs	51	54.3	12	12.8	31	33.0
Case Studies	22	23.4	71	75.5	1	1.1
Part of the Assignment	19	20.2	11	11.7	64	68.1
Specific Guided Qs	17	18.1	9	9.6	68	72.3
Guiding Questions	79	84.0	15	16.0	0	0.0
Part of the Assignment	76	80.9	17	18.1	1	1.1
Specific Guided Qs	53	56.4	13	13.8	28	29.8
Portfolios	35	37.2	59	62.8	0	0.0
Part of the Assignment	33	35.1	5	5.3	56	59.6
Specific Guided Qs	24	25.5	12	12.8	58	61.7
Blogs	23	24.5	71	75.5	0	0.0

Part of the Assignment	25	26.6	4	4.3	65	69.1
Specific Guided Qs	23	24.5	6	6.4	65	69.1
Research Paper	28	29.8	65	69.1	1	1.1
Part of the Assignment	20	21.3	14	14.9	60	63.8
Specific Guided Qs	20	21.3	5	5.3	69	73.4
Directed Readings	45	47.9	48	51.1	1	1.1
Part of the Assignment	26	27.7	21	22.3	47	50.0
Specific Guided Qs	25	26.6	10	10.6	59	62.8
Class Presentation	64	68.1	30	31.9	0	0.0
Part of the Assignment	60	63.8	7	7.4	27	28.7
Specific Guided Qs	47	50.0	14	14.9	33	35.1
Self-Assess. Paper	49	52.1	43	45.7	2	2.1
Part of the Assignment	52	55.3	3	3.2	39	41.5
Specific Guided Qs	44	46.8	11	11.7	39	41.5
Reflective	74	78.7	20	21.3	0	0.0
Part of the Assignment	37	39.4	34	36.2	23	24.5
Specific Guided Qs	17	18.1	75	79.8	2	2.1
Total	1,636	1,740.7	813	865	935	994.7

The following table summarizes respondents with respect to whether or not they have had education in reflective learning. Close to 77% (n=72) of individuals indicated that this was the case, with 17% (n=16) of respondents stating that they did not have education in reflective learning. Six respondents in total did not have valid data for this measure.

Table 17

*Education in Reflective Learning*

<u>Response</u>	<u>n</u>	<u>%</u>
No	16	17.0
Yes	72	76.6
<u>Missing</u>	<u>6</u>	<u>6.4</u>
Total	94	100

Respondents were also asked about the nature of their educative experiences in reflective learning. In total, slightly over 51% (n=48) of respondents indicated that they had taken part in a professional development class, with close to 40% (n=37) indicating that they had participated in the workshop. Slightly above 22% (n=21) of individuals had taken part in the CE course, with slightly over 21% (n=20) presenting with an alternate educative experience. Finally, 17% (n=16) of respondents provided the response of “not applicable”.

Table 18

*Educative Experiences in Reflective Learning*

<u>Response</u>	<u>n</u>	<u>%</u>
Workshop	37	39.4
CE Course	21	22.3
Prof. Dev. Class	48	51.1
N/A	16	17.0
<u>Other</u>	<u>20</u>	<u>21.3</u>
Total	142	151.1

With respect to whether respondents felt that education on conducting reflection is helpful, slightly over 73% (n=69) did not provide a valid response to this question, while of those that did, the vast majority of respondents indicated that this type of education *is* helpful.

Table 19

*Education on Conducting Reflection Helpful*

<u>Response</u>	<u>n</u>	<u>%</u>
Yes	23	24.5
No	1	1.1
N/A	69	73.4
<u>Missing</u>	<u>1</u>	<u>1.1</u>
Total	94	100

Next, slightly over 70% (n=66) of respondents indicated that they had education in SL, while close to 28% (n=26) indicated that they did not. Only two respondents did not provide a valid answer for this question.

Table 20

*Education in SL*

<u>Response</u>	<u>n</u>	<u>%</u>
Yes	66	70.2
No	26	27.7
<u>Missing</u>	<u>2</u>	<u>2.2</u>
Total	94	100

With regard to the nature of the educative experience in SL, close to 47% (n=44) of respondents indicated that they had taken the professional development class, while slightly over 37% (n=35) indicated that they had participated in the workshop. Close to 27% (n=25) of respondents replied with “not applicable”, while close to 25% (n=23) stated that they had taken part in the CE course. Finally, close to 14% (n=13) of respondents indicated an alternate educative experience with respect to SL.

Table 21

*Educative Experience in SL*

<u>Response</u>	<u>n</u>	<u>%</u>
Workshop	35	37.2
CE Course	23	24.5
Dev. Class	44	46.8
N/A	25	26.6
<u>Other</u>	<u>13</u>	<u>13.8</u>
Total	140	148.9

Finally, with regard to whether respondents felt that education in SL was helpful, 67% (n=63) of respondents did not provide a valid answer to this question, though among those that did provide a valid response, the vast majority of respondents indicated that education in SL *is* helpful.

Table 22

*Education in SL Helpful*

<u>Response</u>	<u>n</u>	<u>%</u>
Yes	28	29.8
No	2	2.1
N/A	63	67.0
<u>Missing</u>	<u>1</u>	<u>1.1</u>
Total	94	100

**Summary**

In summary, the analyses conducted for this study aimed to explore the following research questions:

- Is the definition of SL used by the institution evidence-based?
- What SL activities are currently being practiced?
- What goals do the dental hygiene programs and educators have for their students with regards to the SL activities?
- What specific evaluation methods are being used to assess if SL outcomes are being met?
- How specifically is reflection being used to ensure that learning goals are being met?

In exploring these research questions, the definition of SL used by institutions were found to be evidence-based in the vast majority of cases, while common SL activities were found to consist of journaling, self-assessment, writing, guiding questions, class presentations, self-assessment papers, and instructor feedback. With respect to goals

for students, the most common goal consisted of fostering a connection to the community, followed by a sense of civic responsibility and community benefits. Additionally, guided reflection was found to be used in the vast majority of cases, with volunteer work being used very frequently.

## Discussion

### Summary of Major Findings

SL is a frequently practiced andragogy and pedagogy in dental and dental hygiene education. When applied effectively, SL is a useful when used correctly with a component of reflection (Lautar & Miller, 2007; McEachern, 2006). There remains uncertainty, however, both in the literature, and in actual practice of SL and reflection. There is little agreement on what SL and/or reflection is and how it should be conducted and/or defined (Chupp & Joseph, 2010).

This study was a non-experimental descriptive survey research. The tool used in this study was a questionnaire designed by the researcher and given to dental hygiene program directors through email and a link to SurveyMonkey®. All dental hygiene program directors in the United States with accessible emails listed on the ADHA website were used in this study as a convenience sample. This included programs that offered baccalaureate degrees, associate degrees and certificates. Program directors were then asked to forward the survey link and information to appropriate full-time faculty with a background in the use of SL. The study lasted eight weeks in total. Analysis used in this study was descriptive and reported as measures of central tendency.

Significant findings in this study are as follows. Over 88% (n=83) of the sample indicated that the institutional definition of SL is evidence-based and corresponded with the definition provided in this study. In cases where the university definition *did* correspond with the definition provided in the study 97.6% of the responses were from



schools offering either a bachelor's degree or associate degree. In cases where the university definition *partially* corresponded, 87.5% of the responses were from schools offering either a bachelor's degree or an associate degree. The greatest number of courses of which over 91% (n=86) implemented SL were community/ public health courses. This was closely followed by 70% (n=66) implementing SL in clinical courses. In slightly over 86% (n=81) of the time, SL was linked to student's coursework. Specific learning objectives or course goals were connected to SL 84% (n=79) of the time. Seventy-three percent (n=69) of the time guided reflection was incorporated as a component of SL. Volunteer work was included in SL activities 80% (n=75) of the time.

The top three goals respondents indicated were as follows: 1.) fostering a connection to the community, 2.) a sense of civic responsibility, and 3.) community benefits. This is with regards to goals that instructors have for their students with respect to benefits gained from SL endeavors. The least important benefit was shown to be skill improvement.

The top two reflective aids used by respondents during SL activities were journaling and self-assessment respectively. Eighty-four percent (n=79) of respondents indicated that guiding questions were used to aid in the reflective process and 81% (n=76) said reflection was a part of the assignments. In close to 77% (n=72) of cases, respondents stated that they had received education in reflective learning. Of the respondents that answered the question, a vast majority agreed that an education in reflective learning was helpful. In slightly over 70% (n=66) of cases respondents had received education in SL. Of the respondents that answered the question, a vast majority found an education in SL to be helpful.

## **Discussion**

### **Significance.**

Overall the findings presented in the previous chapter, were more optimistic than were presented in the literature. In most reported cases, SL and reflection were being utilized according to evidence-based definitions in dental hygiene programs. Results indicated that in cases where the university definition did correspond with the evidence-based definition provided, 96.7% offered either a bachelor's degree or an associate degree. While the results were positive, it is difficult to ascertain with certainty the factors that contributed to this occurrence. While it is possible that the landscape of SL and reflection is changing for the better, it is still necessary to look closely at the need for universal definitions and standards amongst dental hygiene programs.

The findings of the current study were based on the hypothesis that service-learning and reflection may be underutilized or used incorrectly in dental hygiene education. The findings suggest a more positive portrait of the dental hygiene education landscape. In addition, each component by itself, both service-learning and reflection were used in ways that were evidence-based and current. This is possibly related to the fact that dental hygiene education has accreditation standards that include educational methodology. It does, appear however, that programs offering a certificate were less likely to use a definition of service-learning that was evidence-based.

To find guided reflection to be substantially used in dental hygiene education and also for the definition of service-learning used by the institutions to be closely related to literature definitions, were unexpected. There was also no significant association between the type of degree offered by programs and the use of guided reflection. The use of guided reflection techniques appears to be universal. Guided reflection still needs to be defined so that dental and dental hygiene programs can implement it correctly.

The finding of this study still finds a universal definition of SL and reflection lacking in dental hygiene education. The lack of universal definitions and standards for SL and reflection leave both vulnerable to interpretation, misuse, and misunderstanding. Unfortunately, with the routine use of SL and reflection in dental hygiene education, even a small amount of uncertainty can have lingering negative effects. With an increased emphasis on providing community dental care and conquering access to care issues, the researcher is convinced that clarification regarding the use of SL and reflection in dental hygiene education is necessary. A misuse of SL and reflection can have a negative impact on students. It is imperative that best practices and the highest standards are used. The potential of volunteerism being confused with SL is a real possibility.

### **Relationship to previous research.**

Previous studies have indicated that there is inadequate research discussing reflection in dental hygiene education despite the popularity of SL in higher education and dental hygiene specifically. There is also limited research on

the necessity for reflection and even guided reflection in successful SL endeavors, and that confusion exists regarding how to conduct and define SL and reflection appropriately. (See, for example, Keselyak et al., 2007; Sipe, 2001; Jacoby, 1996, Nativio, 2001; Boden, Cook, Lasker-Scott, Moore, & Shelton, 2007; Welch & James, 2007; DeCastro, Bolger, & Feldman, 2005; Yoder, 2006; Mezirow, 1990; Schön, 1987; Wallace, 1996; Rogers, 2001; Dymont, J. E., & O'Connell, T. S., 2011; Lautar & Miller, 2007; Duffy, 2008). In addition, prior research has made it clear that a lack of effective and correct reflective exercise, may reinforce negative stereotypes and cause any learning to be “haphazard, accidental, and superficial” (Stanton, 1991, p. 185; Ash & Clayton, 2004).

The present study reveals a more optimistic view in regards to how service-learning is being conducted in dental hygiene programs in the U.S. Over 88% of the sample indicated that their university definition of SL corresponded to an evidence-based definition provided. This indicates that the majority of instructors feel that the inclusion of a reflective component in SL endeavors is important. Eighty-six percent of the time SL activities were connected to student's coursework. This is a recommended component of SL (Yoder, 2006). Adequate reflection is currently thought to be enhanced with the use of guided reflection (Duffy, 2008). According to respondents, guided reflection was found to occur slightly over 73% (n=69) of the time. This would indicate an understanding of how to conduct adequate reflection. A significant association between the use of guided reflection and the type of degree offered by dental hygiene programs or the level of respondent education was not found.

A common reflective exercise is through journaling. This is an evidence-based and effective way to increase reflective capabilities in students (Bailey et al., 2002; Bringle & Hatcher, 1999; Carrington & Selva, 2010; Dymont & O'Connell, 2011; Fakude & Bruce, 2003; Jacoby, 1996). The use of journals was evident in 71% of the sample's answers, indicating that programs were trying to use best practices according to literature (Bailey et al., 2002; Bringle & Hatcher, 1999; Carrington & Selva, 2010; Dymont & O'Connell, 2011; Fakude & Bruce, 2003; Jacoby, 1996).

The present study indicates that with regards to utilizing evidence-based reflective practice and technique, that dental hygiene programs are performing above average as based on the prior research. This is evidenced by the fact that guided reflection was included as a component of SL slightly over 73% (n=69) of the time; slightly over 71% (n=67) of respondents incorporated journaling with a vast majority indicating reflection and guided reflection were an element of this assignment; self-assessment was utilized in slightly over 86% (n=81) of SL courses, with the vast majority indicating that reflection and specific guided questions being used as a part of this assignment; 63% (n=59) also indicated providing writing assignments with reflective components; 84% (n=79) of respondents indicated that at some point in the SL experience specific guiding questions were used to facilitate learning; case studies, portfolios, and online journaling/blogging were also employed, in slightly over 23% (n=22), slightly over 37% (n=35) and slightly over 24% (n=23) of the time respectively; research papers, directed readings, class presentations, and self-assessment papers were

additionally used in close to 30% (n=28), close to 48% (n=45), slightly over 68% (n=64), and slightly over 52% (n=49) of the time respectively.

Additionally, close to 77% (n=72) of individuals indicated having received an education in reflection. Based on the information provided, it would appear as though dental hygiene programs are using reflection adequately and on findings based on research, that multiple modes of reflection are being employed, and that an education in reflection is being received. This again may be related to the CODA standard 3-7 stating that dental hygiene faculty must receive educational methodology. In dental education the accreditation standards do not include educational methodology. All of these findings are more optimistic than ones presented in the literature. There was no significant association between type of degree offered by the dental hygiene program or level of respondent education and whether or not they received an education in reflection.

Finally, 77% (n=72) of respondents indicated that they received education in reflection and 70% (n=66) indicated having received an education in SL. In both cases, the majority of the sample has an understanding of SL and reflection and how to use it in the classroom. It appears, based on the findings of this study, that a majority of instructors teaching SL and reflection have a background in SL and reflection. Most of the educative experiences in both SL and reflection come from professional development classes or workshops. Instructors in dental hygiene education, are therefore, better equipped to instruct their students and use service-learning and reflection effectively. Additionally, there was no significant

association between type of degree offered by institutions or level of education of respondents and whether or not they received an education in SL.

Previous studies have also indicated a necessity for increased access to care and graduating dentists and dental hygienists who are culturally sensitive, civically conscious, and community minded. Community-based programs such as SL are therefore becoming more common in dental education in order to address this need. There is still a need to find best practices to keep dentists and dental hygienists in areas with reduced access to care after attending community-based programs. Because of this proliferation of community-based programs it is important to determine if the use of SL is being maximized in dental and dental hygiene programs. (Davis et al., 2007; Pyle et al., 2000, Commission on Dental Accreditation, 2010; DeCastro, Bolger, & Feldman, 2005; Yoder, 2006.)

Based on findings of the present study, it appears that dental hygiene programs are performing above the average in implementing service-learning and reflection in their curriculums. In addition, the top three goals instructors had for students with regards to service-learning projects were the following: 1.) fostering a connection to the community, 2.) gaining a sense of civic responsibility, and 3). providing benefits to the community. These goals are in line with goals set forth by Healthy People 2020, the ADHA, CODA accreditation standards, and other government health programs, in graduating students that have an active link to and experience with the community and addressing access to care issues (U.S. Department of Health and Human Services, 2003; U.S. Department of Health and Human Services, 2012; Hood, 2009; Commission on Dental Accreditation,

2010). In addition, the greatest number of responses, with regard to what types of courses are offering SL, over 91% (n=86) of respondents indicated community/public health courses, followed by slightly over 70% (n=66) responding with clinical, slightly over 41% (n=39) responded with other programs, while close to 30% (n=28) responded with dental hygiene/dental sciences courses. This again, addresses governmental goals, dental hygiene educative goals, and community goals (U.S. Department of Health and Human Services, 2003; U.S. Department of Health and Human Services, 2012; Hood, 2009).

Prior studies indicate that there is inadequate research discussing the reflective component of service-learning in dental hygiene education. Reflection is, the most important part of the SL experience (Keselyak et al., 2007; Sipe, 2001; Jacoby, 1996, Nativio, 2001; Boden, Cook, Lasker-Scott, Moore, & Shelton, 2007; Welch & James, 2007). Research has also suggested that students and instructors struggle with reflection implementation and may not be gaining the benefits frequently seen with reflection. The concern with regards to inadequate reflection stems from the effect this may have on the SL experience in diminishing its positive effects. The most widely accepted, frequently researched, and typically used for of reflection is through the use of reflective journals, although the use of multiple types of reflection is recommended to gain the optimal benefit. In addition, guided reflection has been suggested in enhancing reflective efforts. (See, for example, Mezirow, 1990; Schön, 1987; Wallace, 1996; Rogers, 2001; Boden, Cook, Lasker-Scott, Moore, & Shelton, 2007; Welch &



James, 2007; Ash & Clayton, 2004; Bailey et al., 2002; Bringle & Hatcher, 1999; Carrington & Selva, 2010; Dymont & O'Connell, 2011; Fakude & Bruce, 2003; Jacoby, 1996; Dymont and O'Connell, 2011; Duffy, 2008; Lautar & Miller, 2007.)

### **Assumptions.**

The current study was based on the assumptions that use of service-learning and reflection in dental hygiene education would be inadequate and poorly understood. This is based on current research findings (Keselyak et al., 2007; Sipe, 2001; Jacoby, 1996, Nativio, 2001; Boden, Cook, Lasker-Scott, Moore, & Shelton, 2007; Welch & James, 2007; DeCastro, Bolger, & Feldman, 2005; Yoder, 2006; Mezirow, 1990; Schön, 1987; Wallace, 1996; Rogers, 2001; Dymont, J. E., & O'Connell, T. S., 2011; Lautar & Miller, 2007; Duffy, 2008). It was also assumed that as a result of the lack of comprehension, that students may not be gaining the optimal and desired outcomes of completing service-learning projects. In addition, while a majority of programs responded that they were using reflection during service-learning endeavors, there were still some that were not or did not utilize reflection.

It was also assumed that the responses gathered in this survey would be representative of the instructors using SL and reflection in their classrooms. While the majority of respondents, almost 60% (n=56), were full-time faculty, a fairly large group of program directors responded as well. Forty-seven percent (n=44) of program directors responded to the survey. Additionally, there was some cross-over in roles performed by the sample that participated in the survey. Some respondents had multiple roles. For instance, a clinic lead may have also been a

full-time clinical instructor. It is difficult to say with certainty what the precise number of each role responded to the survey and whether or not this was representative of the instructors using SL and reflection in the classroom or if they were the most qualified to answer the questions provided.

### **Explanations of unanticipated findings.**

Many of the findings were somewhat unanticipated because of the assumptions based on the literature review. It was primarily unanticipated to find that guided reflection was a common tool used during reflective exercise. This is a relatively new component of reflection. Because previous research indicated a minimal understanding of reflection in general, it was an unexpected to find a current and research based approach to the use of reflection in the classroom. This may have resulted from a lack of research in dental hygiene with regards to service-learning and reflection. An evidence-based definition and how to implement guided reflection is still needed.

Another unpredicted finding was the finding that over 88% (n=83) indicated that their university definition of SL corresponded with the research-based definition provided. Based on research findings, this was not expected to be the case. This may be a result of the general wording "correspond" used in the question. An exact definition utilizing all the components of SL would have been more ideal and precise. Finally, slightly above 24% (n=23) of respondents indicated that blogs or online- journaling were incorporated in their class. This was unanticipated based on the number of universities that use an online discussion board and other types of Learning Management Systems. This

discrepancy may be due to a misunderstanding of the question on what a blog/online journal is and what it would consist of or be related to. This may be another area for future research.

### **Implications.**

While implications cannot be given with absolute certainty based on a single piece of research, the current study and other research would suggest the following:

- SL and reflection must be used together.
- Guided reflection should be used in conjunction with other reflective exercise.
- The definition of SL and reflection still have a need for clarification and universal definitions in dental hygiene education.
- It would be prudent to educate all faculty dealing with and using SL in the classroom with regards to SL and reflection use.
- In addition, it will be up to the individual university, accreditation standards, and the ADHA to insure that best practices in SL and reflection in dental hygiene education are used.

This research may have broader implications in dental education. SL and reflection are commonly used in dental education and more research is needed to determine the quality of SL implementation. Additionally, universal definitions, and guidelines for best practices need to be seen in dental accreditation.

### **Limitations**

Limitations exist based on the core of the research process in survey research. This study provided data based on a small segment of time. Some unanticipated variables that would normally be detected in longitudinal studies may be missed in descriptive survey research (Coughlan, 2009). There are a few other variables the researcher was not able to completely eliminate. Unintentional influence or bias of the survey questions, clarity of the survey questions, and impartial wording may have affected the study. In addition, the background and experiences of the subjects, as well as limited time or even failure to respond, may affect the questionnaire process, results, and quality. It may be prudent to observe at this time, which based on the demographics collected, other limitations were noted. These are as follows: nearly 96% (n=90) of the sample population were found to be female while only 3% (n=3) were found to be male, with regard to respondent race over 87% (n=82) were found to be white with only 6% (n=6) being of Latino/Hispanic origin, slightly over 3% (n=3) being black, and 2% (n=2) being of mixed race, with regard to education a majority of nearly 79% (n=74) had their Master's degree, while close to 13% (n=12) were found to have a Bachelor's degree, and 7% (n=7) of respondents had a doctorate. These demographics reflect the reality of dental hygiene.

It is possible with the higher percentage of responses coming from respondents with a Master's degree, that the sample had a better understanding of or more education in the use of SL and reflection. This may skew the results more favorably. Finally, slightly over 75% (n=71) of individuals indicated that an AA/AS degree was offered, while close to 32% (n=30) indicated that a bachelor of science was offered and slightly over 4% (n=4) of respondents indicated that their program offered a certificate. These

statistics may skew results based on type of program offered, level of education, race, and gender. More research would be necessary to determine this.

As was expected, the researcher did encounter difficulty in obtaining a high response rate. This has become more prevalent in recent years and can affect the generalizability of the study (Kelley et al., 2003; Porter, 2004) . Based on calculations provided, this research, however, was able to maintain the appropriate number of responses needed for generalizability. According to Coughlan (2009) and Umbach (2004), many universities have set up filters to block "spamming" and "mass emailing." This particular problem was encountered in the beginning. Several of the emails listed for program directors made available through the ADHA, came back with a "Do Not Contact" automatic reply and some emails were not listed at all.

The researcher utilized all available resources to limit the effect of these limitations on the study. Pilot testing was used to reduce bias and written errors, to correct mistakes in format and to create a time-limit. Multiple contacts were established to overcome non-response.

Other areas of bias that occurred were as follows: a single respondent indicated that they were 99 years of age which is a probable error; there were some minor challenges with the ranking question with regards to goals that instructors have for their students; out of the 94 submitted and completed questionnaires, four emails were received regarding difficulty using the ranking question. The platform used re-ordered the answers instantly and some respondents found this difficult to use and/ or follow. Finally, between 70-74% (n=66-70) of respondents failed to adequately answer the questions regarding whether or not they found education received in reflection and service-learning

to be helpful. This was due to the fact that a group of respondents had not received education in reflection and service-learning and thereby could not answer the follow-up question.

This study may have also been limited by the responses gathered in this survey. The target populations, full-time faculty directly related to implementing SL, were responsible for 60% (n=56) of the answers in survey. However, a fairly large group of program directors responded as well. Forty-seven percent (n=44) of program directors responded to the survey. Additionally, there was some cross-over in roles performed by the sample that participated in the survey. Some respondents had multiple roles. For instance, a clinic lead may have also been a full-time clinical instructor. It is difficult to ascertain if the sample was representative of faculty members dealing directly with SL because of this discrepancy. Possible reasons for a large number of program directors answering the survey may have been misunderstanding of the email or not reading through the email and the request to forward to the most qualified faculty, feelings of responsibility to complete the survey, and concern over faculty non response.

### **Recommendations**

In conjunction with prior research and based on current findings, there are three recommendations that shouldn't be overlooked. First and foremost, there is still a need to provide dental hygiene programs with universal definitions for and training in the use of service-learning and reflection. This is based on the large number of programs using service-learning in their curriculum. This researcher proposes that the following definition of SL be used. Service-learning is a balanced and dynamic educational experience that 1.) is course-based and credit-bearing, 2.) is an organized and structured

community-service experience that meets community, institutional, and student needs, and 3) utilizes varying types of reflection, including guided reflection, throughout the entire service-learning experience.

Secondly, there is a need to provide program directors with guidelines for best practices and the monitoring of the implementation and use of this important and frequently used pedagogy. The ideal location for universal definitions and monitoring the use of best practices in dental and dental hygiene programs would be to include service-learning and reflection in accreditation standards.

Finally, professors using reflection and SL in their classrooms should be provided with the appropriate training and support needed to execute these practices optimally.

**Proposed framework for the use of SL.**

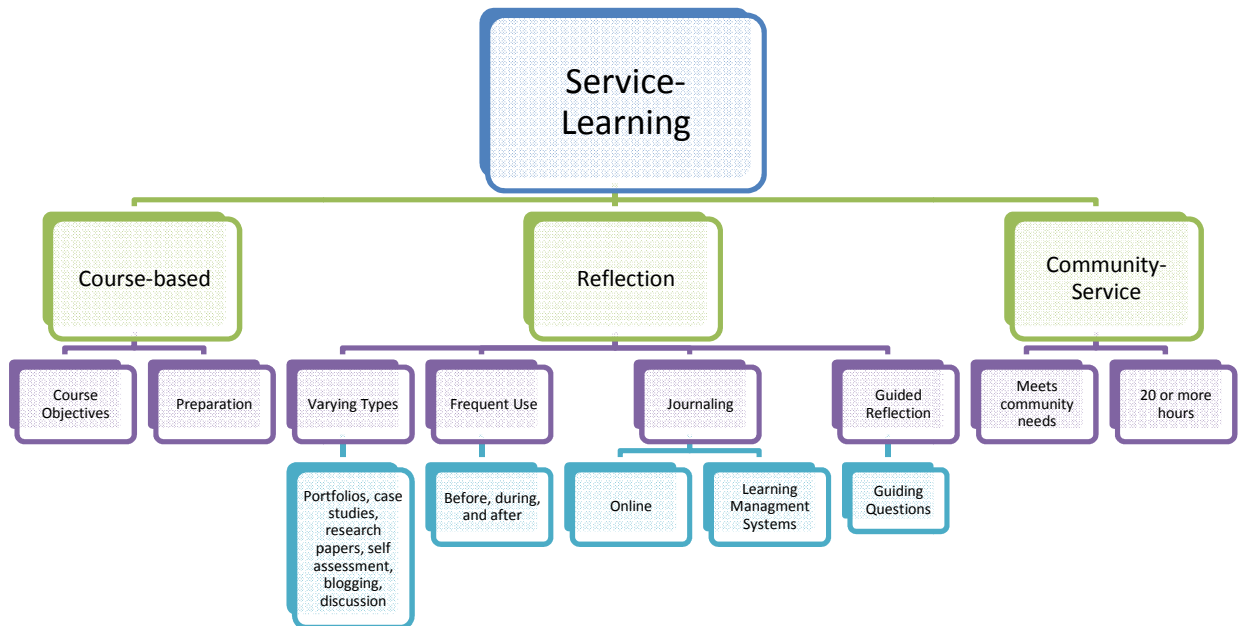


Figure 4: Proposed framework for SL.

Figure 4 details the basic components of implementing service-learning. For clarification, several categories will be explained. Preparation refers to preparing students prior to a service-learning experience, for example, studying varying cultures, completing research regarding the facility, reading about pertinent topics, etc. As a part of service-learning reflection is the most critical component of the service-learning process and must be used as the hub of the experience to encourage deep and critical reflection. Reflection should also be used frequently at the beginning, during, and after a SL experience. The goal should be to create a reflective dental hygiene practitioner who can use reflection to explore and alter future decision making processes. For example, how will what the students' learned affect their future practice? The service-learning experience must also be sustained for an adequate length of time. A 20-hour minimum is recommended. The use of reflection and the recommended 20 hours or more of service, distinguishes SL from other types of volunteerism. Additionally, journaling is considered to be a best practice in SL reflection. Journaling online has even more benefits than traditional journaling as is supported by the literature. It is therefore recommended that online journaling, discussion boards, and blogging be used in SL as a form of reflection. This can be especially useful in conjunction with Learning Management System discussion boards.

Finally, guided reflection and guiding questions are considered to be another best practice in reflection and as such should be a central component of reflective practice in SL. The instructor needs to become a facilitator and use



questions to guide students into critical reflection. Examples of appropriate guiding questions are as follows: How can your experience help you in the future? What could you have done differently? What did you learn from the experience that will change how you practice?

### **Suggestions for Additional Research**

There are several opportunities for research in this particularly unexplored area. For instance, how many dental hygiene programs in total are using service-learning? Also, 80% (n=75) of respondents indicated that volunteer work was a component of their SL projects. While SL does typically feature a form of community-service, research has indicated that SL is commonly confused with volunteerism, internships, clinical rotation, and field education (Bringle & Hatcher, 2009; Butin, 2006; Chupp & Joseph, 2010; Goldberg, McCormick, Richburg, & Wood, 2006; Lautar & Miller, 2007). The reflective component is what makes SL unique. So is the volunteer work noted in the present research combined with adequate amounts of reflection? On that same note, how often is reflection being used throughout the SL experience? Is it mostly at the end or is it integrated all the way throughout the process. How is the quality of reflection being analyzed? Also, approximately 16% (n=15) of respondents indicated that other activities were used in their SL projects. What exactly did these entail? Do they follow the best practices of SL guidelines provided in the Literature Review Chapter? Also was the length of time used considered adequate for SL projects? Was this projection evidence-based?

Additionally, research needs to be conducted in dental education as well. Is it possible that dental hygiene educators may have a better understanding of service-

learning and reflection because of the accreditation requirement regarding the inclusion of educational methodology? How well are dental programs implementing SL? What are the broader implications of how service-learning and reflection are being used in dental education?

### **Conclusions**

The goal of this research was to determine if service learning and reflection were being conducted accurately in dental hygiene education for the benefit of the students, the community, and higher education. Previous research would indicate that an understanding of service-learning and reflection is superficial and that this may lead to a reduction in positive outcomes usually seen through the use of this pedagogy. Current research would reveal that in dental hygiene education, the majority of respondents have an evidence-based comprehension of how to use service-learning and reflection in the classroom. This research, however, has also clarified the need for a universal definition of service-learning and reflection and a way to ensure that best practices in implementing service-learning is being followed. A good place to begin to provide guidelines for use and definitions for SL and reflection would be for CODA to provide universal definitions and standards for SL and reflection in dental hygiene education. Future research regarding SL and reflection in dental hygiene education specifically is a necessity in and will help to add to the information needed to make important decisions in dental hygiene programs and curricula.

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## Appendix A

### Survey Questionnaire

#### *Introduction*

My name is Tiffany Finesilver and I am a graduate student at Eastern Washington University in Spokane, Washington. I'm currently working on my Master's of Science in Dental Hygiene degree. As a part of my thesis, I am conducting a study on service-learning and reflection in dental hygiene education.

The questionnaire will take approximately 20 minutes to complete. It consists primarily of yes/no questions, some open-ended questions, and comment areas. Below is a summary of my research.

Service-learning is a frequently used pedagogy in dental hygiene education. When implemented correctly, research supports its positive influence and usefulness in education (Lautar & Miller, 2007). Critical components of service-learning include community service combined with academic coursework and reflective exercise (Bringle & Hatcher, 1996; Bringle & Hatcher, 1999; Dubinsky, 2006; Lautar & Miller, 2007; McEachern, 2006; Sipe, 2001). Reflection, a component of critical thinking, helps students make the link between their academic learning and civic engagement (Sipe, 2001). The reflective component of service-learning makes it unique from volunteerism and community service and is the key to the effectiveness of service-learning (Lautar & Miller, 2007; McEachern, 2006).

Please feel free to contact me with any questions and comments that you may have. Please note this survey has been approved by Eastern Washington University's (EWU) Internal Review Board (IRB) and by taking this survey you consent to be in this study. Participation is voluntary. Your name and your affiliated institution will not be identified. If you have any concerns about your rights as a participant in this research you may contact Ruth Galm, Human Protections Administrator, Office of Grant and Research Development, (509) 359-7971/6567. If you have any additional questions or comments please contact my thesis chair Lisa Bilich at lbilich@ewu.edu or myself at tfinesilver@eagles.ewu.edu.

#### *Service-Learning: the Definition of Service Learning Used by the Institution*

#### *Service Learning Definition*

Hatcher and Bringle (1997) defined service learning as a type of experiential education in which students participate in service in the community and reflect on their involvement in such a way as to gain further understanding of course content and of the discipline and its relationship to social needs and an enhanced sense of civic responsibility.

1A) Does your university's definition of service learning correspond with the definition presented above?

\_\_\_\_\_ Yes      \_\_\_\_\_ No      \_\_\_\_\_ Unsure

2A) If no, how does the definition of service learning used by your institution differ from the definition presented above?

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3A) In your program, what type of courses implement service-learning as an assignment?

\_\_\_\_\_ Clinical, If yes, first\_\_\_\_, second\_\_\_\_, or third\_\_\_\_year?

\_\_\_\_\_ Dental Hygiene-Specific Courses/Dental Sciences

\_\_\_\_\_ Basic Sciences

\_\_\_\_\_ Preventive Dentistry

\_\_\_\_\_ Radiology

\_\_\_\_\_ Community/Public Health

\_\_\_\_\_ Pain Management

\_\_\_\_\_ Research

\_\_\_\_\_ Periodontology

\_\_\_\_\_ Ethics

\_\_\_\_\_ Capstone

\_\_\_\_\_ Practicums

\_\_\_\_\_ Other, Please specify: \_\_\_\_\_

4A) In your institution is service-learning connected to students' coursework?

\_\_\_\_\_ Yes      \_\_\_\_\_ No      \_\_\_\_\_ Occasionally

5A) In your dental hygiene program, are there specific learning objectives or course goals related to service-learning?

\_\_\_\_\_ Yes      \_\_\_\_\_ No      \_\_\_\_\_ Occasionally

6A) How long is a typical service-learning project in your program?

\_\_\_\_\_ Weeks    AND    \_\_\_\_\_ Days

7A) When implementing service-learning in your program is guided reflection a component of each service-learning experience?

\_\_\_\_\_ Yes      \_\_\_\_\_ No      \_\_\_\_\_ Occasionally

7B) If NO, is guided reflection a component in some of the service-learning experience(s)?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

*Guided Reflection Definition*

Guided reflection is a reflective practice that involves the instructor as the facilitator/guide and the student as the reflector. As the facilitator, the instructor guides the student's reflection to increase the quality of their reflection and thereby the benefit of the practice. Guiding questions are typically used.

8A) Does service-learning used by your program provide opportunities for community-engaged scholarship?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

*Service-Learning: Service-Learning Activities Currently Being Practiced*

1) What service learning projects were implemented in your program curriculum over the past three years (please list below)?

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2) Do service-learning activities in your program involve volunteer work?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

If yes, please list all volunteer work done below:

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3) Do service-learning activities in your program involve any other activities not included in questions 1 and 2 above?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

If yes, please list all additional service-learning activities below:

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*Goals for Students with Regard to Service-Learning Activities*

1) Please indicate which of the following are goals you have for your students with regard to service-learning activities (Please rank the top 5, using 1 as the top goal, 2 as the next highest goal, and so on):

- \_\_\_\_\_ A) Academic benefits
- \_\_\_\_\_ B) Personal benefits
- \_\_\_\_\_ C) Community benefits
- \_\_\_\_\_ D) Fostering a connection to the community
- \_\_\_\_\_ E) A sense of civic responsibility
- \_\_\_\_\_ F) Increased academic achievement and performance
- \_\_\_\_\_ G) Improved communication skills
- \_\_\_\_\_ H) Improved socio-cultural awareness
- \_\_\_\_\_ I) Improved personal and social skills
- \_\_\_\_\_ J) An enhanced appreciation and commitment to learning and school
- \_\_\_\_\_ K) Exposing students to the public health arena
- \_\_\_\_\_ L) Skill improvement
- \_\_\_\_\_ M) Hands-on experience
- \_\_\_\_\_ N) Increased appreciation for the discipline of dental hygiene

2) Please list any additional goals for your students not listed above with regard to service learning activities:

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*Evaluation Methods Being Used to Assess If Service-Learning Outcomes Are Being Met*

*Reflection Definition*

Reflection is a part of service-learning and is defined by Hatcher and Bringle (1997) as “the intentional consideration of an experience in light of particular learning objectives.”

*Guided Reflection Definition*

Guided reflection is a reflective practice that involves the instructor as the facilitator/guide and the student as the reflector. As the facilitator, the instructor guides the student’s reflection to increase the quality of their reflection and thereby the benefit of the practice. Guiding questions are typically used.

*The following questions are to determine what types of reflective activities are a part of the service-learning course your students are a part of.*

1) Journaling

\_\_\_\_\_ Yes      \_\_\_\_\_ No

Is reflection part of the assignment (please see above definition)?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

If yes, does the instructor provide specific guided questions to promote student reflection?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

2) Self-assessment

\_\_\_\_\_ Yes      \_\_\_\_\_ No

Is reflection part of the assignment?      \_\_\_\_\_ Yes      \_\_\_\_\_ No

If yes, does the instructor provide specific guided questions to promote student reflection?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

3) Writing a paper

\_\_\_\_\_ Yes      \_\_\_\_\_ No

Is reflection part of the assignment?      \_\_\_\_\_ Yes      \_\_\_\_\_ No

If yes, does the instructor provide specific guided questions to promote student reflection?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

4) Case studies

\_\_\_\_\_ Yes      \_\_\_\_\_ No

Is reflection part of the assignment?:      \_\_\_\_\_ Yes      \_\_\_\_\_ No

If yes, does the instructor provide specific guided questions to promote student reflection?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

5) Are guiding questions used to aid in the reflective process during service-learning projects or endeavors?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

6) Discussion groups in class

\_\_\_\_\_ Yes      \_\_\_\_\_ No

Is reflection part of the assignment?      \_\_\_\_\_ Yes      \_\_\_\_\_ No

If yes, does the instructor provide specific guided questions to promote student reflection?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

## 7) Portfolios

\_\_\_\_\_ Yes      \_\_\_\_\_ No

Is reflection part of the assignment?      \_\_\_\_\_ Yes      \_\_\_\_\_ No

If yes, does the instructor provide specific guided questions to promote student reflection?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

## 8) Blogs/Online journaling

\_\_\_\_\_ Yes      \_\_\_\_\_ No

Is reflection part of the assignment?      \_\_\_\_\_ Yes      \_\_\_\_\_ No

If yes, does the instructor provide specific guided questions to promote student reflection?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

## 9) Research paper

\_\_\_\_\_ Yes      \_\_\_\_\_ No

Is reflection part of the assignment?      \_\_\_\_\_ Yes      \_\_\_\_\_ No

If yes, does the instructor provide specific guided questions to promote student reflection?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

## 10) Directed readings

\_\_\_\_\_ Yes      \_\_\_\_\_ No

Is reflection part of the assignment?      \_\_\_\_\_ Yes      \_\_\_\_\_ No

If yes, does the instructor provide specific guided questions to promote student reflection?



\_\_\_\_\_ Yes      \_\_\_\_\_ No

11) Class presentation

\_\_\_\_\_ Yes      \_\_\_\_\_ No

Is reflection part of the assignment?      \_\_\_\_\_ Yes      \_\_\_\_\_ No

If yes, does the instructor provide specific guided questions to promote student reflection?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

12) Self-Assessment Paper

\_\_\_\_\_ Yes      \_\_\_\_\_ No

Is reflection part of the assignment?      \_\_\_\_\_ Yes      \_\_\_\_\_ No

13) Does the instructor provide feedback for reflective assignments?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

If yes, does the instructor provide specific guided questions to promote student reflection?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

14) Other:

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*Is Reflection Being Used to Ensure That Learning Goals Are Being Met?*

1) Is reflection being used in your program to ensure that learning goals are being met in any ways that were NOT listed above?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

2) Comments/Discuss:

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*Demographics*

1) What is your gender?      \_\_\_\_\_ Male      \_\_\_\_\_ Female

2) What is your age?

3) What is your race?

\_\_\_\_\_ White

\_\_\_\_\_ Black

\_\_\_\_\_ Hispanic/Latino

\_\_\_\_\_ Asian/Pacific Islander

\_\_\_\_\_ Native American/Alaskan Native

\_\_\_\_\_ Other

4A) What is your current role?

\_\_\_\_\_ Full-time Faculty

\_\_\_\_\_ Full-time Clinical Instructor

\_\_\_\_\_ Clinic Lead

If yes, for first\_\_\_\_, second\_\_\_\_, or third\_\_\_\_ year students?

\_\_\_\_\_ Program Director

4B) What is your current academic rank?

\_\_\_\_\_ Associate Professor

\_\_\_\_\_ Assistant Professor

\_\_\_\_\_ Full/Tenured Professor

\_\_\_\_\_ Non Tenure Track Instructor

\_\_\_\_\_ Other: Please describe: \_\_\_\_\_

4C) What is your highest level of education?

\_\_\_\_\_ Certificate

\_\_\_\_\_ Associate Degree

\_\_\_\_\_ Bachelor's Degree

\_\_\_\_\_ Master's Degree

\_\_\_\_\_ Doctorate

\_\_\_\_\_ Other: Please describe: \_\_\_\_\_

5) What type of degree does your program offer?

\_\_\_\_\_ Bachelor of Science

\_\_\_\_\_ Associate of Applied Science/ Associate of Science

\_\_\_\_\_ Certificate

6A) Have you received education in reflective learning?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

If yes, what types of educative experiences did you participate in?

\_\_\_\_\_ Workshop

\_\_\_\_\_ CE Course

\_\_\_\_\_ Professional development class

\_\_\_\_\_ Other: Please describe: \_\_\_\_\_

If no, would you have found education regarding how to conduct reflection in the classroom helpful?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

6B) Have you received education in service-learning?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

If yes, what types of educative experiences did you participate in?

\_\_\_\_\_ Workshop

\_\_\_\_\_ CE Course

\_\_\_\_\_ Professional development class

\_\_\_\_\_ Other: Please describe: \_\_\_\_\_

If no, would you have found education regarding how to conduct service-learning helpful?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

## Appendix B

## Cover Letter

Dear \_\_\_\_\_, (Program Director's Name)

My name is Tiffany Finesilver and I am a student at Eastern Washington University in Spokane, Washington. I'm currently working on my Master's of Science in Dental Hygiene.

I am writing to invite you to participate in an exciting survey opportunity. As a part of my thesis, I am conducting a study on service-learning and reflection in dental hygiene education and am asking for your help. Will you please forward this email to any full-time faculty members that have experience in service-learning projects?

The questionnaire will be on SurveyMonkey® and will take approximately 20 minutes to complete. It will consist of yes/no questions, open-ended questions, and comment areas.

Below is a summary of my research:

Service-learning is an often utilized pedagogy in dental hygiene education. When applied correctly, research supports its positive influence and usefulness in education. Critical components of service-learning includes community service combined with academic coursework and reflective exercise. Reflection, a component of critical thinking, helps students make the link between their academic learning and civic engagement. The reflective component of service-learning is the key to service-learning's effectiveness and is what makes it unique from volunteerism and community service.

You should see a link at the end of this email. Please note that by clicking on the link you will be giving informed consent to participate in the study and will begin the study at that time. The link will take you directly to SurveyMonkey® for the commencement of the survey questionnaire.

I would like to personally thank you in advance for the time, energy, and thoughtfulness that you will be putting into this survey. I hope to reward your efforts with a well-written and precisely conducted study that will be worthy of publishing. Your answers are greatly appreciated. If you would like the results of this study, you can contact me and I will send them to you at the completion of the study.

Please feel free to contact me with any questions and comments that you may have.

Once again, thank you for your participation and thorough answers.

Tiffany Finesilver, RDH, BS, MSDH candidate  
Email: tfinesilver@eagles.ewu.edu

## Appendix C

## Reminder Letter

Survey participants,

I just want to thank you again in advance for completing this survey.

If you haven't already, please take the time to fill out the survey. Your responses will be greatly appreciated.

The following is a summary of my research.

Service-learning is an often utilized pedagogy in dental hygiene education. When applied correctly, research supports its positive influence and usefulness in education. Critical components of service-learning includes community service combined with academic coursework and reflective exercise. Reflection, a component of critical thinking, helps students make the link between their academic learning and civic engagement. The reflective component of service-learning is the key to service-learning's effectiveness and is what makes it unique from volunteerism and community service.

For your convenience another link has been provided at the end of this email.

Clicking on it will take you directly to the survey and by doing so will be considered informed consent. Taking this survey is voluntary.

Please remember that the last day to take this survey is (date). The survey will take you approximately 20 minutes and is primarily yes/no questions, some open-ended questions, and a few comment areas.

Thanks again for your time, energy, and thoughtful answers!

Tiffany Finesilver  
Email: tfinesilver@eagles.ewu.edu

Appendix D

Thank You Letter

Dear survey participants,

I am deeply appreciative of the time, thoughtfulness, and energy that you put into completing this survey. Your careful responses made my research worthwhile and helped to increase the knowledge in dental hygiene and education regarding service-learning and reflection. In addition, your cooperation was personally useful in helping me to finish my thesis and receive my master's degree in dental hygiene.

Thank you again!

Sincerely,

Tiffany Finesilver

## Vita

**Tiffany Finesilver, RDH, BSDH, MSDH**  
**1210 W. Valewood Ct., Spokane, WA, 99218**  
**United States Citizen**

**Undergraduate Education:**

Eastern Washington University, 2007  
 Bachelor of Science in Dental Hygiene

**Graduate Education:**

Eastern Washington University, 2013  
 Master of Science in Dental Hygiene

**Licensure:**

Washington Dental Hygiene, Washington Board of Dental Examiners, 2007-present

**Certification:**

Washington Registered Dental Hygienist including expanded functions such as local anesthesia, nitrous oxide delivery, pit and fissure sealants, and restorative placement and finishing.

**Work Experience:**

**Dr. Anibal Lopez, Spokane, WA** 2/1/2013 — 8/18/2013

*Full-Time Dental Hygienist*

- Provided general dental hygiene care including prophies, debridements, scaling and root planing, radiographs, fluoride application, and hygiene counseling
- Participated in a rigorous dental hygiene recare and periodontal program

**Cascade Dental Care, Spokane, WA** 2008 — 2011

*Full-Time Dental Hygienist*

- Provided general dental hygiene care including prophies, debridements, scaling and root planing, radiographs, fluoride application, and hygiene counseling
- Participated in a rigorous dental hygiene recare and periodontal program

**Eastern Washington University Dental Hygiene Program, Spokane, WA** 2008 — 2009



*Part-Time Clinical Instructor*

- Worked with and taught 2<sup>nd</sup> and 3<sup>rd</sup> year dental hygiene students in their clinical practice

**MacKay Dentistry, Spokane Valley, WA**

2007 — 2008

*Part-Time Dental Hygienist*

- Helped establish a patient base for this new practice
- Formally launched and created a functioning dental hygiene recare program
- Provided general dental hygiene care including prophies, debridements, scaling and root planing, radiographs, fluoride application, and hygiene counseling
- Provided care to a varied population including Medicaid/Medicare, ABCD dental program, and other state programs

**Kathrine Olson, DDS, Spokane Valley, WA**

2007

*Part-Time Dental Hygienist*

- Provided general dental hygiene care including prophies, debridements, scaling and root planing, radiographs, fluoride application, and hygiene counseling

**Scott with Dental Contacts, Spokane, WA**

2007 — 2008

*Dental Hygienist*

- Provided specialty and general dental hygiene care at periodontic, prosthodontic, pedodontic, and general dental practices
- Became familiarized with a variety of dental softwares, digital x-ray units, intraoral cameras, and other specialized dental instruments

**Professional Organizations (and Committees of these):**

American Dental Hygienist's Association (ADHA), 2004- present

**Publications:**

Thesis submitted for publication, "Service-Learning and Reflection in Dental Hygiene Education," 2013