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COMMUNITY COLLEGE AND UNIVERSITY INTERPROFESSIONAL COLLABORATION: STUDENT CENTERED PARTNERSHIP BETWEEN NUTRITION AND DENTAL HYGIENE FACULTY

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Amyriad of opportunities exist for interprofessional education (IPE) collaboration among the institutions of higher education in the Commonwealth of Virginia. Interprofessional education occurs any time students from two

Students learn to recognize through IPE that they can assimilate knowledge linking nutrition and dentistry to understand the whole individual; further, they learn to work with other health care professionals. The blend of registered dietitian nutritionists and dental hygienists presenting topics such as childhood obesity and early childhood dental caries illustrates a model approach to help prevent national healthcare problems.

or more disciplines learn together with the goal of understanding different perspectives on healthcare delivery to achieve positive health outcomes for those seeking medical care (World Health Organization, 2010). Effectively managed and regularly evaluated, such arrangements positively impact students, faculty and the community. Within the Commonwealth of Virginia, IPE efforts are underway in dental, medicine and health professions education programs as evidenced by a quick scan of program websites. The need for expanding IPE has increased, as the complexity of knowledge and skills required to understand today's diverse population has grown. Competencies should be developed based on key aspects of IPE that include co-

creating learning experiences, taking learning out of the traditional classroom, integrating individuals from different professions and teamwork (Interprofessional Education Collaborative, 2011). For example, students learn to recognize through IPE that they can assimilate knowledge linking nutrition and dentistry to understand the whole individual; further, they learn to work with other health care professionals. The blend of registered dietitian nutritionists (RDNs) and dental hygienists presenting topics such as childhood obesity and early childhood dental caries illustrates a model approach to help prevent national healthcare problems as discussed by Evans, Cashman, Page, & Garr (2011).

Alfano (2012) stated the health care delivery system is positioned for significant change in the future. The driving force for this change is economics. Many existing factors will need re-examination and innovation. Among these issues are the interface of expanded intraprofessional and interprofessional cooperation among dental professionals, nurses and other allied health professionals in

search of improved oral and general health of the public. These concerns will change the preparation of tomorrow's practitioners. One innovative setting to consider when securing a variety of multidisciplinary partnerships and experiences for health professions education is the community college. Educational partnerships between dentistry and dietetics are well established because of the synergistic relationship between oral health and nutrition. In a 2013 position, the Academy of Nutrition and Dietetics recognized that oral health and nutrition are integral components of overall health. Creating innovative cross-disciplinary curriculum among dietetics, medicine and dentistry is essential to contemporary healthcare education (Decker, 2004). The multifaceted oral-systemic link requires that health care professionals provide baseline information and referrals as part of comprehensive patient care (Academy of Nutrition and Dietetics, 2013).

Within the Tidewater Community College (TCC) Division of Health Professions (DHP), faculty teaching child development, nutrition, dietetics, and personal and community health integrate concepts of oral health promotion and disease prevention into course offerings. In 2010, an initial Old Dominion University (ODU) School of Dental Hygiene contact afforded TCC DHP faculty the opportunity to serve as mentors for dental hygiene graduate student interns. The opportunity for interprofessional curriculum enrichment between the two institutions was then conceived. Beginning with the formal design of graduate student teaching competencies and course outlines, a variety of on-going opportunities emerged for both institutions to collaborate on an array of beneficial activities. This partnership provided occasions for dental hygiene graduate students to work with RDNs and to satisfy certain advanced degree course requirements such as classroom presentations and teaching internships.

TCC faculty teaching child nutrition, medical nutrition therapy, and life cycle nutrition were able to host ODU graduate students who presented didactic information related to nutrition and oral health. Additionally, prior to her full time appointment, the lead community college professor worked cooperatively as a clinician with high-risk populations and dental professionals in primary care, psychiatry, and public health. These experiences enabled this professor to integrate real-life practice examples (i.e., eating disorders, diabetes, and early childhood caries) that graduate students could use to demonstrate successful dental/dietetics collaborations promoting oral health.

Initially, dental hygiene graduate students interacted with a TCC faculty mentor to review goals, objectives and course requirements. All work met with the review of the ODU graduate program director. In subsequent visits to the community college, graduate students assembled with various TCC student groups to elicit ideas and develop ways to engage the learners. The TCC mentor shaped and contributed to the presentations by providing on-site student evaluations and mentorship experiences designed by ODU faculty (Figures 1-4).

OLD DOMINION UNIVERSITY
SCHOOL OF DENTAL HYGIENE

Figure 1
Student Teaching Evaluation Form (Sample)

Name _____				
Title of Presentation _____				
INSTRUCTIONAL SET	Effective	Needs Improvement	Ineffective	Not done
Introduced Content Area	3	2	1	0
Clearly Stated Objectives	3	2	1	0
Established Knowledge Base	3	2	1	0
Related Utility of Information	3	2	1	0
CONTENT/BODY				
Organized	3	2	1	0
Knowledgeable/Did Not Read From Notes	3	2	1	0
CLOSURE				
Related Back to Objectives	3	2	1	0
Provided a Sense of Accomplishment	3	2	1	0
TEACHER TACTICS				
Provided Feedback and Reinforcement	3	2	1	0
Questioning Techniques/ Student Involvement	3	2	1	0
Conveyed Enthusiasm/Humor	3	2	1	0
Use of Media/Visual Aids	3	2	1	0
VERBAL AND NONVERBAL BEHAVIORS				
Enunciation/Volume/Tone	3	2	1	0
Unnecessary Words "Uh, so, ah, Um, OK" etc.	3	2	1	0
Eye Contact/Facial Expressions	3	2	1	0
Movement/Gestures	3	2	1	0
Pace/Use of Wait Time	3	2	1	0
Total	_____/51 = _____			
Strengths of presentation: _____				
Suggestions for Improvement: _____				

Figure 2

INTERNSHIP FACILITATOR EVALUATION FORM

DIRECTIONS: The facilitator will evaluate the intern using the following criteria:

CRITERIA	S	NI	U
1. Knowledge: To what extent does the intern maintain a satisfactory level of knowledge pertaining to material covered in course?			
2. Self-Direction: To what extent does the intern exhibit autonomy and self-direction when performing designed tasks			
3. Assignments: To what extent does the intern perform assignments at a satisfactory level?			
4. Attendance: To what extent does the intern maintain satisfactory attendance performance in regard to tardiness and meeting regularly for assigned tasks and classes?			
5. Quality of Work: To what extent does the intern perform successful activities and maintain appropriate interpersonal relations with the instructor, staff and students?			
6. Adaptability: To what extent does that intern adapt to new situations?			
7. Dependability: To what extent does the intern perform functions independently, without close supervision?			
8. Policies/Safety: To what extent does the intern work in a safe manner and observe policies and procedures?			

COMMENTS:

 Instructor's Signature Date Intern's Signature Date

Figure 3

INTERNSHIP EVALUATION FORM

DIRECTIONS: The intern will complete the following questions by circling that response which best indicates your answer. All comments will be welcomed and greatly appreciated.

(5-strongly agree, 4-agree, 3-neutral, 2-disagree, 1-strongly disagree)

- | | | | | | |
|--|-------------------|----------|------------|-------------|----------------------|
| 1. Planning and advanced preparation was managed effectively. | 5 | 4 | 3 | 2 | 1 |
| 2. Objectives/goals of the internship were met. | 5 | 4 | 3 | 2 | 1 |
| 3. Activities were relevant and important in meeting objectives of the internship. | 5 | 4 | 3 | 2 | 1 |
| 4. Concern was shown toward the questions and opinions of others. | 5 | 4 | 3 | 2 | 1 |
| 5. The facilitator demonstrated ability as a decision maker and manager. | 5 | 4 | 3 | 2 | 1 |
| 6. The facilitator demonstrated ability to ask and respond to questions. | 5 | 4 | 3 | 2 | 1 |
| 7. How would you rate the overall value of this internship? (Please circle) | 5. Strongly agree | 4. Agree | 3. Neutral | 2. Disagree | 1. Strongly disagree |
| 8. Suggestions for improving this internship experience: | | | | | |

Student signature _____ Date _____

Figure 4

INTERNSHIP EXPERIENCE REPORT OUTLINE (SAMPLE)

I. Position Information

- A. Position Title
- B. Your complete name and local address (in city of internship if applicable)
- C. Complete name of host organization, address, and phone
- D. Name of unit or department to which you are assigned
- E. Name of the organization's cooperative coordinator
- F. Name and title of your host supervisor (include address, phone and email for each contact _____ person)

II. Nature of Work Setting

- A. What are the objectives and guidelines for your current position?
- B. Why does this position exist and what is it preparing to do?
- C. How has your employer helped you to understand the purpose of your position?

III. Duties and Responsibilities

- A. Give a chronological account of your major activities on the job. Be sure to include any special projects that you worked on, training sessions you attended, etc., as well as everyday activities.
- B. Indicate what responsibilities you anticipate being assigned prior to the completion of the term (check with your supervisor).

IV. Cooperation, Coordination, and Supervision

- A. Briefly describe or diagram the organizational structure of your firm or agency.
- B. How does your department fit with other operations of the organization?
- C. Describe the nature of supervision you have received.
- D. How have you contributed to good working relationships with your fellow employees and your supervisor?
- E. Describe instances when you have gained concerning human relations in the workplace.
- F. Give examples of ways in which you cooperated with others to obtain mutual objectives.

Student signature _____ Date _____

To fulfill course requirements, graduate students presented didactic lectures, video recorded each presentation, and completed a self-assessment of the experience. Graduate students developed comprehensive lesson plans and accompanying slide presentations, critical thinking activities, and final exam test questions. Over the eight to ten week interval between initial contact and actual presentations, close contact with both ODU/TCC mentors enabled ODU graduate students to develop and present their work to diverse audiences.

In addition to designing evaluation instruments, ODU faculty shaped the learning experience by designing guidelines and competencies, coordinating legal affiliation documents, and overseeing student placement. After the initial ODU/TCC faculty face-to-face encounter, the mentors exchanged subsequent information electronically. Old Dominion University graduate students visited the community college approximately four times during the semester with an average exchange of nine emails for content review by TCC/ODU faculty.

During the first academic year of this partnership, approximately 240 TCC students from the health professions and other programs learned the basics of oral health and the impact of oral diseases on systemic wellbeing. For example, child development students learned recommendations concerning the prevention of Early Childhood Caries (ECC). Students who viewed the slides associated with ECC reported a substantial increase in their understanding of this pediatric condition. Health elective students and medical dietetics transfer students engaged in lively question and answer sessions related to the health risks of oral piercings and smoking. Education majors could explain a variety of ways that dental disease might affect the self-esteem and learning potential of children in a school setting. All students learned of the association between periodontal disease, nutrition and maternal health.

By the end of the 2010 – 2011 academic year, TCC served as the site for ten guest lectures presented by ODU graduate students. Under the guidance of TCC’s dietetics professor, this two-year institution served as an educational practice site for four graduate students and one teaching intern. Two additional ODU graduate students collaborated with the dietetics professor at a community program reaching sixty members of the Virginia Medical Assistants’ Association during the group’s spring conference. Through the observation of a community service presentation entitled, “Pediatric Nutrition and Oral Health,” these two graduate students gained useful knowledge of hands-on instructional methodologies useful for practicing paraprofessionals. The ODU oral health exhibit displayed during this conference served to reinforce seminar objectives while acting as a colorful and engaging highlight of the event. Along with an outcome of an excellent learning experience for students, faculty from both institutions benefitted. Through this interprofessional collaboration, both academic institutions’ faculty gained a greater understanding of the scope of each other’s programs and the diversity of the student populations. For those dental hygiene and health professions educators in similar settings who wish to replicate this successful endeavor, the roadmap for implementation and evaluation follows:

- Arrange a joint meeting of interested individuals (i.e., graduate program director, faculty, deans, and administrators)
- Exchange course objectives, syllabi, catalogs, brochures, admission packets, etc. Include all information that will benefit guest lecturers, interns, student learners, faculty, etc.
- Develop mutually beneficial competencies with aligned evaluation tools
- Tour the collaborating institution
- Review each institution’s policy on memoranda of understanding (MOU) prior to accepting or placing students
- Set deadlines in advance for placing and meeting with students
- Sign learning objective contracts for graduate students and interns

- Orient students in advance explaining rooms, equipment, learning levels, etc.
- Provide evaluation instruments for students and mentors
- Review timetable for students and faculty
- Evaluate strengths and challenges continuously to improve outcomes and make changes as necessary
- Integrate guest lecture questions into community college student exams/collect data on responses
- Closely monitor student work by way of face-to-face and email encounters
- Provide rapid turnaround of all contacts to enhance student learning
- Keep administrators informed of all events, and disseminate information of all partnership activities at the end of each academic year
- Design curriculum development grants that are faculty driven
- Continue the dialog on ways to cultivate and grow the partnership
- Consider publishing results

A well-administered collaboration, such as the one described here, takes cooperation and communication among students, faculty, and administrators. Details are important; however, positive learning outcomes are worth the effort. Barriers for other institutions might include some of the following: time constraints of the faculty, limited funds for curriculum development grants, and a lack of cross-institutional awareness of IPE opportunities. However, as faculty build portfolios for evaluations, they may collaborate with administrators to find creative ways to replicate partnerships like this. Through the sharing and expansion of this knowledge, students and educators can enhance the quality of oral health for people in many ways.

Institutional, student, faculty, and community benefits from the ODU/TCC IPE partnership are evident in a variety of ways (see Figure 5). In 2013, TCC and ODU developed a “Tooth Fair” event held on the TCC Virginia Beach campus. Dental exhibits, career materials and counseling, blood pressure screenings, and child nutrition activities played key roles within the daylong event that was open to both the college- and general communities. This service-learning event helped dental students achieve their goals of civic engagement and increased learning while simultaneously addressing a real community need. This event served as an excellent example of service-learning in dental education by responding to a need as outlined by Hood in 2009. These efforts continue in 2015 with plans developing for a four-hour, statewide skills-based seminar entitled, “Healthy Smiles for Mothers and Young Children: The Link between Nutrition and Oral Health.” Sponsored by an ODU service-learning grant, this endeavor involves faculty and students from both campuses and area health professionals focusing on nutrition and oral health. ODU and TCC

faculty work face-to-face and electronically to facilitate the development of this student driven oral health session. Sixteen ODU Health Professions students, consisting of four IPE teams (Dental Hygiene, Nursing, Public Health, and Environmental Health), will conduct seminars focusing on the oral health of pregnant women, infants, and young children. Statewide participants in this seminar will return to their communities with basic oral hygiene skills and educational resources designed for immediate use.

Figure 5
PARTNERSHIP BENEFITS

	TCC	ODU
Students	<ul style="list-style-type: none"> _ Exposure to other health care professionals _ Guest lectures _ Curriculum enrichment _ Career and transfer counseling opportunities _ ODU dental clinic referrals 	<ul style="list-style-type: none"> _ Exposure to other health care professionals _ Graduate student placements _ Service learning opportunities _ Curriculum enrichment _ IP mentorship _ Community engagement
Faculty	<ul style="list-style-type: none"> _ IPE collaborations _ Increased awareness of university partnerships _ Extra institutional collaborations _ Dissemination of information via publications and presentations _ Service learning grant opportunities _ Access to daycare personnel serving at-risk populations _ Research projects 	<ul style="list-style-type: none"> _ IPE collaborations _ Increased awareness of community college partnerships _ Participation in nutritional community outreach activities _ Dissemination of information via publications and presentations _ Service learning grant opportunities _ Expanded internship sites _ Access to daycare personnel serving at-risk populations _ Research projects
Community	<ul style="list-style-type: none"> _ Dental/nutrition collaborations with area agencies and public schools _ IP Statewide conference participation (nursing, public health, dental, medical) _ Access to IP health care providers _ Development of cost-effective IP educational/community partnerships _ Access to local IP health fairs 	<ul style="list-style-type: none"> _ Dental/nutrition collaborations with area agencies and public schools _ IP Statewide conference participation (dental, public health, medical) _ Access to daycare personnel serving at-risk populations _ Access to IP health care providers _ Development of cost-effective IP educational/community partnerships _ Access to local IP health fairs

With the partnership now in its fifth year of implementation, a variety of other activities has taken place. Old Dominion University's dental hygiene faculty have collaborated with TCC's Chesapeake Campus, expanding career and preventive dental information to faculty and administrators of the then newly opened Science and Medicine Academy of the Chesapeake Public Schools. Additionally, an ODU faculty member supported the efforts of a TCC science student in a capstone course presentation featuring dental careers and pediatric oral health. Further, TCC's childcare workforce development initiative opened the doors to ODU dental services delivery to at-risk parents and children enrolled in area preschool programs, thus providing dental clinic clients for student practice sites. All of these activities were possible due to the IPE focus of ODU and TCC faculty involved.

Seasoned faculty from both institutions were integral to the success and expansion of IPE efforts. To provide IPE across institutions, these educators draw upon established community connections and collegial partnerships. All students and professionals involved have a deep appreciation for one another's profession with a common goal of improving the oral health of young children, a critical problem in our region. Access to oral health care was the most frequently identified problem among participants in a survey commissioned by the Sentara Health Foundation (2004). Because of TCC's strong emphasis on oral health and nutrition in a variety of curricula, (i.e., nursing, culinary arts, science, child care, education, medical assistant and physical therapy assistant), the decision to integrate the education of ODU dental hygiene graduate students and undergraduate community college students proved to be an excellent partnership between the two institutions. Tidewater Community College's fulltime dietetics professor coordinated all student placements and the work of four adjunct faculty members.

While not every community college employs a full-time RDN who teaches the breadth and scope of courses described here, these types of activities are replicable using nursing or other allied health programs to incorporate IPE into the curriculum. A further advantage of the community college practice site allows an employed graduate student the scheduling flexibility of night or weekend presentations and internship opportunities. Social, economic and historic forces are making collaborative projects such as this one more relevant than ever before. These agreements take on new importance helping dental hygiene graduate students make the transition from training settings to professional life. Educating future dental hygienists, RDNs, and all health professionals requires integrating a myriad of health disciplines and academic settings. The result of this IPE partnership will strengthen academics and expand the student's opportunity to learn to practice collaboratively, as we educate the next generation of health care professionals for the overall well-being of the public.

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