

Fetal Alcohol Spectrum Disorder: A Case Study and Global Perspective on Foundations of Inter-professional and Clinical Education

Teresa Dodd-Butera^{1,2*}, Carolyn Shaputnic³, Kim McDonald⁴, Phan Van Tinh⁵, Đỗ Nhật Phương⁵, Nguyễn Văn Trung⁶, Nguyễn Thị Ngọc Ngoan⁶, Marilyn Stoner¹ and Mark Agars⁷

¹Department of Nursing, College of Natural Sciences, California State University, 5500 University Parkway, San Bernardino, CA 92407, USA

²Center for Health Equity, 5500 University Parkway, San Bernardino, CA 92407 and 37500 Cook Street, Palm Desert, CA 92211, USA

³University of California, San Diego; Institute for Fetal Alcohol Spectrum Disorders Discovery; Department of Pediatrics; Division of Dysmorphology-Teratology; 9500 Gilman Dr., Mail Code 0828; San Diego, CA 92093-0828, USA

⁴California State University, San Bernardino; Institute for Child Development and Family Relations; 5500 University Parkway, San Bernardino, CA 92407, USA

⁵TVU School of Medicine and Pharmacy, Tra Vinh University (TVU), Tra Vinh, Vietnam

⁶TVU Department of Nursing, Tra Vinh University (TVU), Tra Vinh, Vietnam

⁷California State University, San Bernardino; Institute for Child Development and Family Relations; 5500 University Parkway, San Bernardino, CA 92407, USA

Abstract

Fetal alcohol spectrum disorders (FASDs) may involve a combination of lifelong and complex behavioral effects, physical defects, and learning disabilities, in a person who was exposed to alcohol before birth. Emerging digital tools coupled with a keen awareness of the need for global cooperation, offer the potential for academic and clinical collaboration on subjects such as FASD, forging healthcare partnerships, and inter-professional education among diverse partners around the world. This article on Fetal Alcohol Spectrum Disorders (FASD) describes a successful inter-professional partnership and clinical educational program between health care faculty, students, and community members; and extends the reach between two US institutions representing nursing, medicine, and family and child development; and a university in Vietnam, representing nursing, medicine, and pharmacy. An educational face-to-face and virtual presentation on FASD was conducted at a US institution, utilizing a synchronous interactive presentation on site at CSUSB; with virtual interaction occurring with colleagues from other campuses in the USA, and global partners in Vietnam. The interdisciplinary and international event included over 200 attendees from multiple sites, and provided continuing professional education units; The Department of Nursing, the Center for Health Equity, and the Institute for Child Development. The educational program led to a presentation at a regional nursing science meeting in the United States, and a tool for implications for FASD education across the lifespan. Access to FASD and other health education topics has far-reaching clinical, preventative, and inter-professional educational benefits, with equity and access provided using a blended webinar approach.

Introduction

Alcohol use, which is culturally and socially acceptable in many parts of the world, creates a burden of disease, social challenges, and economic consequences for societies [1]. Exposure to alcohol during pregnancy is the #1 preventable causes of intellectual and developmental disabilities [2]. Fetal alcohol spectrum disorders (FASDs) may involve a combination of lifelong and complex behavioral effects, physical defects, and learning disabilities, in a person who was exposed to alcohol before birth [3]. Depending on the amount and timing of alcohol exposure to the in utero environment, infant growth and neurologic deficiencies may occur, with or without a characteristic pattern of facial features [4,5].

Emerging digital tools coupled with a keen awareness of the need for global cooperation, offer the potential for academic and clinical collaboration on subjects such as FASD, forging healthcare partnerships, and inter-professional education among diverse partners around the world. Distance learning may involve a wide range of technologies, and does not exclude the use of traditional lecture and learning processes [6]. Further, use of educational technology was of benefit to both teacher and learner, and found to improve digital literacy throughout an academic population [7,8]. Thus, with emerging technology and global educational opportunities, partnering institutions should consider the tools available for optimizing cognitive learning [9] and implementing educational methodology

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and modules for issues of clinical and scientific relevance [10].

This article on Fetal Alcohol Spectrum Disorders (FASD) describes a successful inter-professional partnership and clinical educational program between health care faculty, students, and community members; and extends the reach between two US institutions representing nursing, medicine, and family and child development; and a university in Vietnam, representing nursing, medicine, and pharmacy Table 1. Faculty at the three universities identified a common interest in exploring the development of a mutually beneficial educational program to promote maternal child health. The specific public health issue of interest was maternal consumption of alcohol during pregnancy which may result in one or more conditions, known as Fetal Alcohol Spectrum Disorders (FASD). The case study describes an innovative educational program of evidence-based practice that incorporated

Corresponding Author: Dr. Teresa Dodd-Butera, Department of Nursing, College of Natural Sciences, California State University, 5500 University Parkway, San Bernardino, CA 92407, USA; E-mail: tdbutera@csusb.edu

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technology- mediated communication and an interdisciplinary collaboration within a Pan Pacific academic partnership.

- August 2011: Delegation from Health Ministry of Vietnam visited Calif. State Univ. San Bernardino (CSUSB).
 - November 2012: CSUSB Nursing faculty visit various universities in Vietnam.
 - December 2013: Memorandum of Understanding (MOU) between CSUSB and Tra Vinh University (TVU).
 - November 2014: ‘Getting to Know You’ and brainstorming ideas webinar held.
 - December 2014: CSUSB Dept. of Nursing, the Institute of Child Development and Family Relations; and the Univ. of Calif. San Diego (UCSD) Dept. of Pediatrics and Institute for Fetal Alcohol Spectrum Disorders collaborate for FASD presentation
 - February 2015: Live presentation at CSU San Bernardino campus; and simultaneous broadcast to Palm Desert campus and TVU partners with Skype communication capabilities for questions from Vietnam, and filming for later asynchronous viewing.
 - March/April 2015: CSUSB Faculty visit TVU for face-to-face session with faculty and students in Medicine, Nursing and Pharmacy regarding FASD and other healthcare and education topics.
 - June 2015: Preceptor partnership with U.S. Schools for Medicine and Nursing.
 - November 2016: Ongoing plans for future interdisciplinary global health conference.
- Table 1: History and Timeline.

Methods

An educational face-to-face and virtual presentation on FASD was conducted at a US institution, utilizing a synchronous interactive presentation on site at CSUSB; with virtual interaction occurring with colleagues from other campuses in the USA, and global partners in Vietnam Table 2. Communication was first done through telephone and electronic mail over a period of a few months, as indicated in the timeline. Once the program objectives were clarified, a lecture presentation was delivered via voice over internet protocol (VOIP) from California to Vietnam Figure-1. This innovative program brought faculty from California State University, San Bernardino (CSUSB), the University of California San Diego (UCSD) Department of Pediatrics Division of Dysmorphology and Teratology, along with Tra Vinh University (TVU) in Vietnam together in February 2015. The presentation was free of charge to Tra Vinh University and was sponsored by contributions from the individual departments of CSUSB and UCSD. Faculty provided time and expertise to conduct the presentation; and the ICDFR sponsored the resources for the event. The presentation was recorded and made available for future use [11]. Future asynchronous viewing was secured as the event was recorded for dissemination in future classroom events, at the discretion of participating faculty. Another face-to-face and follow-up discussion (between both faculty and students representatives at participating institutions) took place on a later visit to Vietnam.

Theoretical Frameworks

Two theoretical frameworks were used to structure the educational program and development of the interdisciplinary partnership between the three universities Table 3. First, Pender’s well known health promotion model (HPM) was an excellent fit for the diverse cultures, disciplines, and healthcare systems. Despite differences, they all share a focus on promoting healthy behavior which can lead to positive outcomes. Pender’s HPM [12] includes the assumption that individuals can regulate their own behavior and those families, peers, and health care providers are important

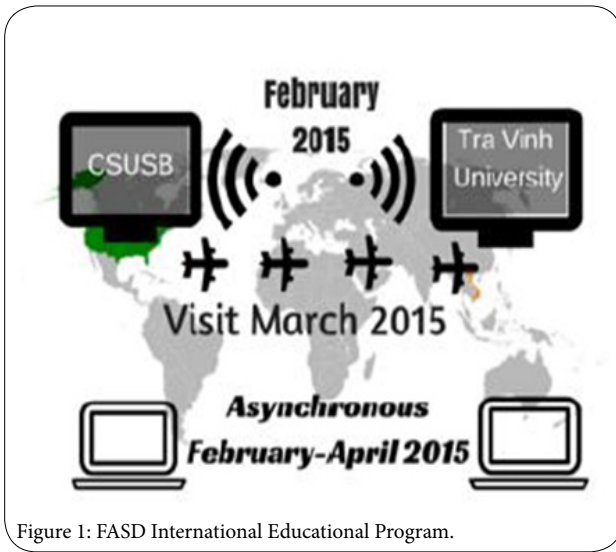


Figure 1: FASD International Educational Program.

Topic	Stakeholders
Alcohol Use in the United States	Health Professionals, Families
Epidemiology and Prevention of FASD	Health Professionals
Description and Diagnosis of FASD	Health Professional , Families
Neurobehavioral Components	Health Professionals, Child Development Specialists, Families
School Issues	Educational Professionals, Child Development Specialists, Families
Parent Perspectives, Stigma	Health Professionals, Educational Professionals, Child Development Specialists, Families, Children, Youth
Research Efforts	All Practitioners and Scientists
Services Offered / Resources	All Practitioners, Policies and Programs, Funding and Strategic Planning Efforts

Table 2: Content of Presentation on FASD.

sources of interpersonal influence and outcomes. The theory behind the HPM is that you have personal experiences that affect your actions. The three main foci include: individual experiences, behavior-specific knowledge and affect, and behavioral outcomes – with health-promoting behavior as the ideal outcome [12].

The second model, Siemans’ Connectivism Learning Theory for the Digital Age [13] was used to specifically guide the flow of information about FASD and digital knowing across both countries. Specifically, “Connectivism” guided the team to follow the flow of knowledge about FASD research, health promotion, and population health to co-create an exciting new opportunity for shared teaching and learning. Sieman’s Principles include learning as a : process of connections, diversity of opinions, function which may reside in non-human appliances, critical capacity for knowledge, nurturing experience that should be continuously facilitated; function of currency and accuracy, decision-making process; and focus on the evolving information climate [14-17].

<p>Nursing Theory: Pender's Health Promotion Model</p>	<p>Digital Educational Theory: Sieman's Connectivism</p>
<p>“Health-promoting behavior is the endpoint or action outcome directed toward attaining a positive health outcome such as optimal well-being, personal fulfillment, and productive living.” Three focus areas in Pender's HPM: 1. Individual characteristics and experiences 2. Behavior-specific cognitions and affect 3. Behavioral outcomes</p> <p>Thirteen theoretical statement are: 1. Prior behavior and inherited and acquired characteristics influence beliefs, affect, and enactment of health-promoting behavior. 2. Persons commit to engaging in behaviors from which they anticipate deriving personally valued benefits. 3. Perceived barriers can constrain commitment to action, a mediator of behavior as well as actual behavior. 4. Perceived competence or self-efficacy to execute a given behavior increases the likelihood of commitment to action and actual performance of the behavior. 5. Greater perceived self-efficacy results in fewer perceived barriers to a specific health behavior. 6. Positive affect toward a behavior results in greater perceived self-efficacy, which can in turn, result in increased positive affect. 7. When positive emotions or affect are associated with a behavior, the probability of commitment and action is increased. 8. Persons are more likely to commit to and engage in health-promoting behaviors when significant others model the behavior, expect the behavior to occur, and provide assistance and support to enable the behavior. 9. Families, peers, and health care providers are important sources of interpersonal influence that can increase or decrease commitment to and engagement in health-promoting behavior. 10. Situational influences in the external environment can increase or decrease commitment to or participation in health-promoting behavior. 11. The greater the commitments to a specific plan of action, the more likely health-promoting behaviors are to be maintained over time. 12. Commitment to a plan of action is less likely to result in the desired behavior when competing demands over which persons have little control require immediate attention. 13. Persons can modify cognitions, affect, and the interpersonal and physical environment to create incentives for health actions.</p>	<p>“Connectivism presents a model of learning that acknowledges the tectonic shifts in society where learning is no longer an internal, individualistic activity. How people work and function is altered when new tools are utilized.” Principles of Connectivism: <ul style="list-style-type: none"> ■ Learning and knowledge rests in diversity of opinions. ■ Learning is a process of connecting specialized nodes or information sources. ■ Learning may reside in non-human appliances. ■ Capacity to know more is more critical than what is currently known ■ Nurturing and maintaining connections is needed to facilitate continual learning. ■ Ability to see connections between fields, ideas, and concepts is a core skill. ■ Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities. ■ Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. ■ While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision. </p>
<p>- Pender, N. (2011). The health promotion model manual. Retrieved from http://deepbluelib.umich.edu/bitstream/2027.42/85350/1/heal and http://www.nursing-theory.org/theories-and-models/pender-health-promotion-model.php</p>	<p>Siemens G. (2005) Connectivism: A Learning Theory for the Digital Age, <i>International Journal of Instructional Technology and Distance</i></p>

Table-3: Theoretical Foundations

Stage of Life	Considerations
<p>PREVENTION Women in reproductive years</p>	<p>Women in the reproductive years who might be pregnant or planning a pregnancy should avoid alcohol. If you are pregnant and drinking – Stop - seek help if you can't stop drinking on your own. Be truthful with your healthcare provider so you can get the help you and your baby need.</p>
<p>EDUCATION Breast Feeding</p>	<p>Exposure to alcohol while breastfeeding does not cause FASD, but can interfere with a child's normal growth and development</p>
<p>RECOGNITION & INTERVENTION Birth – Adolescence</p>	<p>FASD can exhibit effects throughout childhood and have lifelong consequences. Early and effective help offers the best options to children who were exposed to alcohol during pregnancy. Seek out health advice, early diagnosis, and treatment from your healthcare provider.</p>
<p>SUPPORT Seniors and families</p>	<p>Family members drinking around a pregnant woman cannot cause FASD (including the father), but behaviors that support and encourage women to abstain from alcohol during pregnancy are most helpful.</p>
	<p>Assist pregnant women who cannot stop drinking by seeking help, alerting the healthcare provider, and offering support.</p>

Table 4: Issues of FASD and Alcohol Exposure.

Description of Resulting Change

The interdisciplinary and international event included over 200 attendees from multiple sites, and provided continuing professional education units. The use of the FASD lecture and webinar was the second in a series with Tra Vinh University, Vietnam, which then launched the ongoing educational and research exchange now in existence between these international universities. Further, the partnership with UCSD resulted in preceptor opportunities for graduate nursing students and faculty [18-20]. The event richly enhanced the CSUSB intra-campus collaboration between the Department of Nursing, the Center for Health Equity, and the Institute for Child Development. The educational program led to a presentation at a regional nursing science meeting in the United States, and a tool for implications for FASD education across the lifespan (Table 4).

Implications of the Project

Access to FASD and other health education topics has far-reaching clinical, preventative, and inter-professional educational benefits, with equity and access provided using a blended webinar approach. Due to the access of the internet and SKYPE tools, partners from countries with emerging programs can participate without necessarily incurring the costs of travel, and availing equitable and easy access to resources.

This initial presentation was a meaningful first step that significantly assisted all team members connect digitally, personally, emotionally and cognitively for the purpose of understanding how to change health behaviors of pregnant women who may be consuming alcohol. The opportunities for global interactions and public health need to be continually explored for nurses, physicians, children, and families.

Conclusion

All partners recommend a continuation of developing the partnership at deeper levels to expand the complexity, length and frequency of webinars that are financially self-supporting. We also recommend that nurse educator graduate students, clinicians, and students and practitioners in related health disciplines in California and Vietnam assume a greater role in developing the expanding collaborative efforts between disciplines, institutions, and global partners. A traditional Vietnamese proverb is: "A good beginning is half the battle," which is reflected in this initial clinical and global educational project.

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Competing Interests

The authors declare that they have no competing interests.

References

1. World Health Organization (WHO) (2014) Global status report on alcohol and health-2014. Geneva, Switzerland: World Health Organization.
2. Williams JF, Smith VC, the Committee on Substance Abuse (2015) Fetal Alcohol Spectrum Disorders; Clinical Report. *Pediatrics* 136: 1395-1406.

3. CDC Facts About FASD.
4. Mattson SN, Crocker N, Nguyen TT (2011) Fetal alcohol spectrum disorders: neuropsychological and behavioral features. *Neuropsychol Rev* 21: 81-101.
5. May PA, Baete A, Russo J, Elliott AJ, Blankenship J, et al. (2014) Prevalence and characteristics of fetal alcohol spectrum disorders. *Pediatr* 134: 855-866.
6. Masic I (2008) E-learning as new method of medical education. *Acta Inform Med* 16: 102-117.
7. Bhardwaj A, Nagandla K, Swe KM, Abas AB (2015) Academic Staff Perspectives Towards Adoption of E-learning at Melaka Manipal Medical College: Has E-learning Redefined our Teaching Model? *Kathmandu Univ Med J (KUMJ)* 13: 12-18.
8. Masic I, Pandza H, Kulasin I, Masic Z, Valjevac S (2009) Tele-education as method of medical education. *Med Arh* 63: 350-353.
9. Rolim de Holanda V, Bezerra Pinheiro AK, Carvalho Fernandes AF, Rolim de Holanda E, de Souza MA, et al. (2013) Analysis of the national scientific production on the utilization of digital technologies for nurses' education. *Rev Eletr Enf* 15(4):1068-1077.
10. Cogo P, Rubim Pedro EN, Schell da Silva APS, Valli GP, Specht AM (2011) Digital technologies in nursing undergraduate courses: methodological possibilities by faculty. *Rev Eletr Enf* 13: 657-664.
11. FASD presentation.
12. Nola Pender - Nursing Theorist.
13. Siemans G (2005) Connectivism: A Learning Theory for the Digital Age, *Int J Instruct Tech Distance Learn* 2.
14. Broudo M, Walsh C (2002) MEDICOL: online learning in medicine and dentistry. *Acad Med* 77: 926-927.
15. Christodoulou E, Kalokairinou A (2015) Net Generation's Learning Styles in Nursing Education. *Stud Health Technol Inform* 213: 119-121.
16. From the Association of Departments of Family Medicine (2015) Interprofessional education: a webinar featuring case examples. *Ann Fam Med* 13: 90-91.
17. Devlin AM, McGee-Lennon M, O'Donnell CA, Bouamrane MM, Agbakoba R, et al. (2016) Delivering Digital Health and Well-Being at Scale: Lessons Learned during the Implementation of the Dallas Program in the United Kingdom. *J Am Med Inform Assoc* 23: 48-59.
18. Feldman HS, Jones KL, Lindsay S, Slymen D, Klonoff-Cohen H, et al. (2012) Prenatal alcohol exposure patterns and alcohol-related birth defects and growth deficiencies: a prospective study. *Alcohol Clin Exp Res* 36: 670-676.
19. Jones KL, Hoyme HE, Robinson LK, Del Campo M, Manning MA, et al. (2010) Fetal alcohol spectrum disorders: Extending the range of structural defects. *Am J Med Genet A* 152: 2731-2735.
20. Sood B, Delaney-Black V, Covington C, Nordstrom-Klee B, Ager J, et al. (2001) Prenatal alcohol exposure and childhood behavior at age 6 to 7 years: I. dose-response effect. *Pediatrics* 108: E34.