INSTRUCTOR INFLUENCE ON SELF-EFFICACY IN WOMEN WITH GESTATIONAL DIABETES MELLITUS

Dissertation

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Abstract

Gestational diabetes mellitus (GDM) develops during pregnancy with national occurrence rates of approximately 7.5% of pregnant women or about 88% of all cases of diabetes in pregnancy (Buchanan & Xiang, 2005). Adverse outcomes associated with GDM create higher medical costs for prenatal care, labor and delivery of baby, and extended postpartum recovery. Education, using experiential learning, for proper self-care practices of meal management and blood sugar monitoring is a vital component of GDM treatment. Successful diabetes education programs depend on building self-efficacy to better perform self-care practices. Selection of pregnant women with GDM occurred during a five month period of time in three southeast Idaho locations, which resulted in 12 participants. The 18-item Diabetes Self-Efficacy Scale (DSES) developed by Hurley & Shea (1992) was used, with three additional question added to assess teacher influence and number of visits for diabetes education. The 21 question survey was used to explore participant's general self-efficacy to perform diabetes self-care practices and to gather comments regarding diabetes educator influence on GDM learning. Although no significance was shown among responses, an increasing trend occurred in certainty of perceived ability to perform diabetes self-care practices in all areas except exercise. The two descriptive questions to describe instructor influence provided valuable narrative to inform practitioners about their influence on their client's GDM education.

Keywords: gestational diabetes mellitus, experiential learning, self-efficacy

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Chapter 1

Introduction

Diabetes is one of the leading health complications in pregnancy. Women can have one of three types of diabetes during pregnancy: gestational diabetes mellitus (GDM), Type 2 diabetes, and Type 1 diabetes.

The origin of Type I diabetes is unknown, but suspected to be caused by a virus which destroys the insulin producing beta cells in the pancreas (Brown, 2011). A woman who has Type 1 diabetes and becomes pregnant should continue to take insulin daily and be more closely monitored during gestation.

Type 2 and GDM are part of the same disease process, namely insulin resistance. Insulin resistance occurs when the cells are no longer sensitive to blood sugar lowering effects of insulin, which can be caused by the accumulation of fat cells known as adipose tissue. The incidence for both insulin resistance and Type 2 diabetes is increased in obese persons. Adverse outcomes associated with GDM create higher medical costs for prenatal care, labor and delivery of baby, and extended postpartum recovery. The present study will not include pregnant women with Type 1 or Type II diabetes.

GDM develops during pregnancy with national occurrence rates of approximately 7.5% of pregnant women or about 88% of all cases of diabetes in pregnancy (Buchanan & Xiang, 2005). Treatment of GDM involves self-management through diet modifications, blood sugar checks, and exercise. Sometimes insulin injections are necessary to control the blood sugar. Self-management as a key element of GDM treatment creates an opportunity

for well-planned instruction techniques. Education is also fraught with possible challenges for both the client and practitioner regarding compliance, motivation and follow-up care.

The following are possible effects to mothers diagnosed with GDM: cesarean delivery to prevent shoulder dystocia, increased risk of preeclampsia during pregnancy, increased risk of Type 2 diabetes, hypertension, obesity later in life, and increased risk for gestational diabetes in subsequent pregnancy. Additional effects to the pregnant woman's baby may include a stillbirth, spontaneous abortion, congenital anomalies, macrosomia (>10 lb. or >4500 g birth weight), neonatal hypoglycemia, death, increased risk of insulin resistance, type 2 diabetes, high blood pressure, obesity later in life, jaundice, and hypocalcemia (Brown, 2011).

Insulin resistance brought into pregnancy may be exacerbated by the same hormone, namely progesterone, which is elevated as a result of pregnancy; insulin resistance also causes elevation in blood sugar values while fasting and post prandial (after a meal). The insulin resistance does not allow the glucose to move into the cell for use as energy. Blood glucose in a pregnant woman with GDM bathes the fetus in glucose and creates many health risks in both the mother and baby. The hormones released by the placenta may be one of the influences on insulin sensitivity, which is why blood sugars in the mother return to normal after delivery of the baby and placenta (Buchanan & Xiang, 2005).

Behavioral Risk Factor Surveillance System (BRFSS) recorded 16,000 pregnancies in Idaho with a 3% diagnosis of GDM in 2010 (Diabetes Alliance of Idaho, 2014). Idaho Medicaid records provide a glimpse into the incidence of GDM during a ten year period:

> From January of 1995 through September of 2005, 87,546 pregnancies occurred according to Idaho Medicaid records and 4,639 (5.3%) were

complicated by GDM. The incidence of GDM increased over the past 10 years. The incidence may be increasing due to the epidemics of obesity and metabolic syndrome. Also, in 2000 the ADA lowered blood glucose values diagnostic of GDM. Screening has changed little over the past 10 years and is unlikely to account for the increase in incidence (Department of Public Health, 2013).

Background of the Problem

Most women with GDM will develop Type 2 diabetes. For this reason, it is imperative to understand best practices to educate them on the importance of dietary and lifestyle management while pregnant, as well as how to prevent Type 2 diabetes later in life.

Education of meal management and blood sugar monitoring is a vital component of GDM management. Due to the higher incidence of obesity in the United States and specifically in Idaho, the risk of developing GDM during pregnancy has increased. The health effects of GDM on the mother and her baby have long term consequences (Department of Public Health, 2013). The recommended routine screening of all pregnant women and resulting prescription by their healthcare provider for quality GDM education is important for the continued health of the mother and her baby. The influence of the diabetes educator in this type of learning environment would appear to be extremely important on the successful management of GDM.

Also, we know that good instructor influence, whether inside or outside the classroom, as described in many studies, has the following teacher and classroom components: strong work ethic, caring disposition (Helm, 2007), leadership, teacher peer

influence (Supovits, Sirnides, & May, 2010), praise, physical organization of the classroom, design of teaching expectations, use of positive systems to reinforce appropriate behavior, pace of instruction (Sutherland, Lewis-Palmer, Stichter, & Morgan, 2008), and the pre-eminence of teaching (Zepke, 2011).

Good instruction is predicated on how effectively the teaching is received. In the case of teaching management of GDM, measuring the success of an education program lies in how empowered the student feels to use the learned information to make a behavioral change. How to measure feelings of empowerment is often linked to self-efficacy or how a person feels capable of completing a skill or task. It is an effective measurement of ability to prove understanding and confidence (Bandura A. , 1994).

Set the problem

Diabetes is one of the leading complications in pregnancy. Pregnant women with gestational diabetes mellitus are presented with the potential for new life and the realization their health and their baby's health may be in jeopardy. The group of women, when properly diagnosed, should be educated in life style changes such as diet modification, improvement in physical activity to help manage weight, and possibly the use of medication. When followed correctly, these measures should help insure the delivery of a healthy baby and a healthy mother.

Purpose statement

The purpose of this descriptive study is to examine participants' perceptions of instructor influence on participants' self-efficacy and gestational diabetes knowledge and practice.

Research sub problems

1. What is gestational diabetes mellitus (GDM)?
2. What is self-efficacy?
3. What is an adult learner?
4. What is experiential learning?
5. How does instructor influence effect learning?

Statistical sub problems

1. What difference exists by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about routine?
2. What difference exists by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about self treatment?
3. What difference exists by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about diet?
4. What difference exists by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about exercise?
5. What difference exists by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about certainty?

Hypotheses:

1. H1: No difference exists by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about routine?
2. H2: No difference exists by instructor contact (number of times meeting with participant) on participants' gestational diabetes about self treatment?

3. H3: No difference exists by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about diet?
4. H4: No difference exists by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about exercise?
5. H5: No difference exits by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about certainty?

Assumptions

The following assumptions apply to this study:

1. The subjects have the ability to respond accurately to the questions included on the form.
2. Subjects' responses were their own responses and were not influenced by others.
3. The Hurley instrument (1990) is a valid and reliable tool for measuring self-efficacy in persons with diabetes.

Limitations

The study is limited by the following:

1. Personal researcher bias of how education should proceed, who is permitted to survey, and when and where the inquiry is conducted. The fact that the researcher is a registered dietitian may create bias.
2. The design and analysis could have errors that limit the accuracy of the data.
3. The nature of self-reporting is inherently flawed by the participant's biases.
4. The instrument used may be misunderstood by the participants.
5. The sample is limited to women in southeastern Idaho who have GDM.

6. A set amount of time to gather the data may create restrictions on who is sampled and what type of analysis is chosen.

Delimitations

The study is delimited by the following:

1. The study will be conducted in Southeastern Idaho among English speaking patients.
2. In an effort to focus on one type of diabetes, women with other types of diabetes will not be studied, only those who developed GDM during pregnancy.
3. The study will use the Hurley self-efficacy tool. It has been deemed valid through rigorous testing (Hurley, 1990; Rapley, Passmore, & Phillips, 2003).

Terminology

The following terms will be used and defined within the context of the study.

Certainty: "free from doubt or reservation; confident, sure" (Dictionary.com, 2014).

Confidence: "belief in oneself and one's powers or abilities" (Dictionary.com, 2014).

Diabetes: "There are three major types of diabetes mellitus: type 1, type 2 and gestational. All types of diabetes are characterized by abnormally high blood glucose levels, or fasting levels of 126 mg/dL or higher" (Brown, 2011, p. 77).

Shoulder dystocia: "Blockage or difficulty of delivery due to obstruction of the birth canal by the infant's shoulders" (Brown, 2011, p. 101).

Gestational diabetes mellitus: "that in which onset or recognition of impaired glucose tolerance occurs during pregnancy" (Dorland's pocket medical dictionary, 1982).

Insulin resistance: "A condition in which cells 'resist' the action of insulin in facilitating the passage of glucose into cells" (Brown, 2011, pp. G-5).

Metabolic syndrome: "A constellation of metabolic abnormalities that increase the risk of type 2 diabetes, heart disease, and other disorders. It is characterized by insulin resistance, abdominal obesity, high blood pressure and triglyceride levels, low levels of HDL cholesterol, and impaired glucose tolerance. Also called Syndrome X and insulin-resistance syndrome" (Brown, 2011, pp. G-6).

Self-efficacy: "Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine how people feel, think, motivate themselves and behave" (Bandura A. , 1994, p. 71).

Significance

Patients with GDM are typically diagnosed around their 24th week of gestation during a usual screening called the Glucose Tolerance Test (GTT). Typical medical management of the condition involves following a specific diet that modifies the level of carbohydrates in the mother's diet, safe physical exercise, and possible medication to maintain normal ranges of glucose in the blood. Usually the patient is referred to a diabetes educator for a nutrition consultation. In the proposed research geographical area, most of the diabetes educators are registered nurses or registered dietitians who have specialized in diabetes education and are typically associated with a hospital or medical clinic. Typically the education occurs one-on-one with the client.

Once a patient has had GDM, her chances are two in three that it will return in future pregnancies. Among those women who have had GDM, they are more than seven times as likely to develop Type 2 diabetes as women who did not have diabetes in pregnancy (n.a., 2013). For these reasons it is imperative to educate women with GDM on the importance of dietary and lifestyle management while pregnant and prevention of possible permanent diabetes later on. Assessing the women's self-efficacy and how instructor influence affected their education can provide valuable descriptive data regarding GDM education.

With the increase in GDM in the state of Idaho, providing women with a voice to describe the effect of teacher influence is imperative. Diabetes research focuses on the best educational processes but does not ask the women about the effect of the teaching. The intent of this research is to gather descriptive data from women with GDM to describe the diabetes instructor influence on their educational experience to manage GDM.

Chapter 2

Review of Literature

The purpose of this descriptive study is to examine participants' perceptions of instructor influence on participants' self-efficacy and gestational diabetes mellitus (GDM) knowledge and practice. The review focuses on studies and reviews about adult learning, efficacy theory, experiential learning, gestational diabetes, and instructor influence. Instructor influence on a students' self-efficacy has been researched by Helm (2007) and reported to have a tremendous influence on how a student feels about their abilities "to do" a specific task.

Adult Learning

Our current educational system is centered on the traditional teaching method of "pedagogy." In the pedagogical model, the teacher has full responsibility for making decisions about what will be learned, how it will be learned, when it will be learned, and if the material has been learned. Pedagogy, or teacher-directed instruction, places the student in a submissive role requiring obedience to the teacher's instructions. It is based on the assumption that learners need to know only what the teacher teaches them. The result is a teaching and learning situation that actively promotes dependency on the instructor (Knowles M. , 1984).

An alternative or division of pedagogy is the teaching of adults, called Andragogy. Both pedagogy and andragogy have their merits and application in different learning environments. Andragogy, as a system of ideas, concepts, and approaches to adult learning, was introduced to adult educators in the United States by Malcolm Knowles and gained

attention in 1968. The andragogical model, as conceived by Knowles, is predicated on four basic assumptions about learners, all of which have some relationship to our notions about a learner's ability, need, and desire to take responsibility for learning:

1. Their self-concept moves from dependency to independency or self-directedness.
2. They accumulate a reservoir of experiences that can be used as a basis on which to build learning.
3. Their readiness to learn becomes increasingly associated with the developmental tasks of social roles.
4. Their time and curricular perspectives change from postponed with the developmental tasks of social roles (Knowles, Holton III, & Swanson, 1998, pp. 39-40).

Adult learners are not a certain age, but are more serious learners who seek knowledge that goes beyond cognitive skills. The learner takes the information and incorporates it into their social context. L. Dee Fink (2003) has created his version of taxonomy of significant learning in adults: foundational knowledge, application, integration, human dimension, caring and learning how to learn. Benjamin Bloom's (Fink L. D., 2003, p. 29) taxonomy includes six item cognitive components: evaluation, synthesis, analysis, application, comprehension and knowledge. The present study will explore this significant learning in adult persons with GDM by assessing their general self-efficacy and self-efficacy associated with GDM education.

A prominent adult educator by the name of Kidd (1973) once remarked that adult learning is a field of enormous complexity that contains more paradox than consensus, and yet health educators frequently state that they want students and colleagues—and often patients and clients—to be "adult learners." Adult learning is not an age-related concept. The

desire is to have learners, regardless of their age, take responsibility for their learning and become empowered to apply or adapt their knowledge and skills to solve problems. All of these qualities are widely considered to be indicative of the adult learner (Brookfield, 1984). The sample group for this study was adult women diagnosed with GDM. The task of becoming proficient at learning and practicing good diabetes management certainly requires responsibility for one's education.

A review by Murad, Coto-Yglesisa, Varkey, Prokpy & Murad analyzed 59 students and 8011 learners (2010). Results indicated that self directed learning was associated with a moderate increase in the knowledge domain, a trivial and non-statistically significant increase in the skills domain and a non-significant increase in the attitudes domain. Work by Pintrich and others encourages moving from teacher control of education to student control of their own education (Svinicki, 2010). The proposed study will assess the ability or self-efficacy of persons to practice the knowledge learned and moves toward more independent self care of their diabetes.

Efficacy Theory

As stated earlier, Albert Bandura was the pioneer who developed the social cognitive theory (SCT). The theory paved the way for his later cognitive theory of human functioning (1993). Bandura's next work was the ambitious text, *Social Learning Theory* (1997). The theory surpassed the previous social learning theories by other authors because he went beyond what happens to persons in our environment to how people organize and structure their behaviors. "Social" refers to how one relates to others in the environment. "Cognitive" represents how conscious thoughts are organized, what motivates us and the affect we

contribute. Bandura's text, *Self-Efficacy*, provides the basis for the theory of self-efficacy (1994), which is the underpinning construct for the present study.

Self-efficacy.

In an effort to further explain behavior, Bandura expanded his theory of self-efficacy. The theory purports that self-efficacy is "…shaped by mastery experience, vicarious experience, verbal persuasion, and physiological and affective responses", as cited by Paul (2005, p. 239). Sharma & Romas quote Bandura: "Social cognitive theory identifies four ways in which self-efficacy can be developed: 1. Mastery experience, 2. Social modeling, vicarious experience 3. Improving physical and emotional states, physiological states, 4. Verbal persuasion, social persuasion" (2008). When each of these four components is reviewed, the connection with experiential learning (EL) is demonstrated through the students in their EL courses when experiencing a "mastery experience." "Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine how people feel, think, motivate themselves and behave" (1994, p. 71).

Frank Pajares taught educational psychology in the Division of Educational Studies at Emory University in Atlanta, Georgia from 1994-2009 until his death January 14, 2009 (Helm, 2007). Pajares' life work revolved mostly around research on self-efficacy and he expanded on Bandura's writings and qualified the notion of self-efficacy to include terms such as:

> self-efficacy, task specific self-concept, self-concept of ability, expectancies, expectancy beliefs, expectancy for success, performance expectancies, perceptions of

> competence, perceptions of task difficulty, self-perception of ability, ability perceptions, perceived ability, perceived competence, self-appraisals of ability, perceived control, subjective competence, and, the ever useful, confidence (Pajares, 2003).

Pajares' list provides some opportunity to find common links to help improve learning among women with GDM.

Self-efficacy theory, particularly Bandura's writings, is not without detractors. Williams (2010) argues that Bandura's self-efficacy model be corrected to allow for outcome expectations which have a causal effect on self scoring. In this example, causal effect implies that by expecting to score high on a self-efficacy test, the student will score themselves higher when completing the assessment. Knowing this possible limitation would help to guide the selection of a validated GDM related self-efficacy assessment tool. Among the articles reviewed, development of an instrument specific for the clinical area of practice has been recommended.

Self-efficacy and learning.

Bandura, Svinivki and others have published research encouraging the development of topic specific self-efficacy tools to assess motivation to learn (Bandura & Locke, 2003; Svinicki, 2010). Ip, Tang & Goggins (2009) used three self-efficacy tools to assess women's ability to cope with childbirth after being educated on coping techniques. Chen & Pajares described the nature and scope of knowledge as epistemology and the importance of it in learning. "Epistemological beliefs mediated the influence of implicit theories of ability on achievement, goal orientations, and self-efficacy" (2010, pp. 75-87).

Presenting the client with the opportunity to construct her own education is what Svinicki (2010) suggested. The self-pace and self-selection of content, as mentioned by Murad et al. (2010) is effective when educating clients in the health field. Bandura and Locke's (2003) research encourages self-efficacy and personal goal setting to enhance motivation and personal attainment.

The teaching, learning and lifestyle changes will be more effective if self-efficacy is assessed. Reeb, Folger, Langsner, Ryan, Crouse (2010, p. 460) explain "self-efficacy largely determines the degree of initiation and persistence of coping behavior, and it appears to play a major role in mediating corrective changes in both performance proficiency and emotional regulation during performance." Self-efficacy research has revealed that specific assessment tools can and should be developed for each particular group (Ip, Tang, & Goggins, 2009).

In a brief research report in *Contemporary Educational Psychology*, Pajares and Valiante explored middle school age children's self-efficacy beliefs regarding writing. The authors felt that "the beliefs that students develop about their academic capabilities play a critical role in their success in school" (Pajares & Valiente, 1999), which implies students construct their knowledge based on what they think and how the world manifests itself in a school or social settings.

Self-efficacy and healthcare.

Ip et al. (2009) conducted a single-blind randomized controlled trial of a self-efficacy enhancing educational program (SEEP) which involved two 90-minute sessions on helping Chinese first-time pregnant women's perceived self-efficacy for childbirth and coping abilities during labor. These professors in Hong Kong showed that using Bandura's self-

efficacy theory model had a positive effect on coping strategies. Another quantitative study in the UK, using Bandura's models of self-efficacy, used the Illness Perception Questionnaire (IPQ), the Self-Care Activities Scale by Toobert and Glasgow and the scale to rate confidence with diet compliance by Senecal, Nouwen and White (Nouwen, Law, Hussain, McGovern, & Napier, 2009). The last study addressed all three areas of interest in the present study: the illness of GDM, diet modification necessary for proper GDM management, and the potential for self-care of GDM.

A study of 58 community-residing women ages 54-83 years, who had heart conditions, was conducted to test improvement of dietary compliance, attitudes, morale, and self-efficacy. A randomized control group design used three day food records and questionnaires to assess morale and the efficacy construct of "ability to choose health foods." The author indicated that tailored nutrition programs empowered older women in regard to their nutritional health, improved morale, and self-efficacy (Francis, 2009).

Sigurardottir (2005), accessing the search engines of ProQuest, PsycINFO and Medline from 1995 to 2002, conducted a search using 'self-care' or 'self-management' coexisting with diabetes and 'self-efficacy'. The search was limited to the English language and adults with Type 1 diabetes. The review revealed that the main components for diabetes education clarify how knowledge, physical skills, and emotional factors as well as self-efficacy influence self-care, which again affects metabolic (lab work) control. Flexible self-care indicates high levels of self-care when patients are able to care for and manage the disease in a responsible and flexible way and which does not affect their life extensively. Self-efficacy is a strong predictor of flexible self-care and affects metabolic control through increased perceived ability to conduct self-care. If self-efficacy is the goal, then a specific

type of learning might be better to affect self-efficacy. One of those types of learning is experiential.

Experiential Learning

Experiential learning is defined by Kolb as involving a cognitive component which is demonstrated in a lived experience (1984). Connecting a theory with experiential learning often includes applying phenomenon to our actual lived experience (Fox, 2008). After learning a concept, student application of knowledge in their environment provides opportunities to practice new insights. Once the student has a social experience using this new knowledge, they can improve self-efficacy and motivation to repeat the new skill (O'Connell & Smith, 2005).

Kolb's experiential learning theory (KELT) includes the theory, a graphical model and a Learning Styles Inventory (LSI), which is an assessment (1984). The process must involve repeated adaptations in an environment. For example, clients learn the basics of planning a meal, then go into a kitchen and prepare the meal. If a process fails, the clients review, revise and relive the experience.

Another example of experiential learning is "education that occurs as a direct participation in the events of life" (Houle, 1980). The direct participation is critical for development in a particular field. A great deal of research on experiential learning is centered on "learning from primary experience or learning through sense experiences and tended to exclude the idea of secondary experience entirely" (Jarvis, 1995, p. 75). Primary experience is expanded on by the categorization of experiential learning into four 'villages' (Jarvis, 1995):

> *Village One* is concerned particularly with assessing and accrediting learning from life and work experience…
>
> *Village Two* focuses on experiential learning as a basis for bringing change in the structures… of post-school education…
>
> *Village Three* emphasizes experiential learning as a basis for group consciousness rising…
>
> *Village Four* is concerned about personal growth and self-awareness (Jarvis, 1995).

What is experience? Certainly the essence of events in our daily life builds upon our experience. Fox, an experiential educator, provided definitions to consider:

> 1. The action of putting to the test—to make experience of; to make trial of.
>
> 2. A tentative procedure to ascertain or illustrate some truth.
>
> 3. The actual observation of facts or events, considered as a source of knowledge.
>
> 4. A state of condition viewed subjectively; an event by which one is affected.
>
> 5. Events that have taken place within the knowledge of an individual, community, society, etc.
>
> 6. Knowledge resulting from actual observation or from what one has undergone. (Fox, 2008, p. 43).

Due to the fact diabetes education involves experientially based learning through practice of meal planning, and blood sugar checks, this study will explore the connection between the daily experiential self-care tasks of diabetes management and self-efficacy to perform those practices.

Experiential Learning and education.

The goal of the adult educator might be to create an atmosphere which promotes individual thinking and growth. Growth is attained through experience. According to Dewey, all education comes from experience (1938, p. 13). In education, there is a need for hands-on experiences or experiential learning. Experiential learning involves a "direct encounter with phenomena being studied rather than merely thinking about the encounter or only considering the possibility of doing something about it" (Brookfield, 1984).

An example of research within a university was conducted at the University of Dayton in Dayton, Ohio. In a physiology course, the instructor was having a hard time convincing students that the information learned in the class was applicable to real life experiences. To counteract this notion, he developed a "'Special Topics: Experiential learning' exercise as part of the physiology course curriculum" (Krane, 2005, p. 208). The exercise consisted of a learning activity outside of the classroom. Students observed the interaction of a health practitioner with a patient to view "physiology in action" (2005, p. 208). The results were very positive and out of 270 students over the course of four years only one to two students/semester expressed disappointment. A student comment emphasized the deep learning which students need through these experiences; "this exercise was the highlight of the physiology lab for me because it drove home the reason that it was so important to understand physiology and how each system relates" (2005, p. 208).

Primary grade schools are also sites for research on experiential learning. In a public school, 508 students in sixth grade science class were assessed to determine beliefs and motivations for achievement when considering gender and race/ethnicity in relation to social theory. Path analysis was used to reveal that "an incremental view of ability had direct and

indirect effects on adaptive motivational factors, whereas fixed entity views had direct and indirect effects on maladaptive factors" (Chen & Pajares, 2010, p. 75). Green and Ballard (2010-2011) studied The Professional Development School's innovative design for teachers to be strengthened by application of experiential and adult learning theory. Other alternative learning experiences such as a practicum for counselors assessed self-efficacy of counseling students in demonstrating the basic listening sequence. They found that applying adult learning and experiential learning activities was critical to improving application of knowledge in skill training and therefore increasing student self-efficacy. A 2010 review by Murad, Coto-Yglesisa, Varkey, Prokpy & Murad analyzed 59 studies and 8011 learners. Results indicated that self directed learning (SDL) was associated with a moderate increase in the knowledge domain, a trivial and non-statistically significant increase in the skills domain and a non-significant increase in the attitudes domain. As cited in Svinichi (2010, p. 73), work by Paul Pintrich and others encourage moving from teacher control of education to student control of their own education.

The notion that a person could direct their own learning that results in better outcomes influenced the development of many models of self-directed learning and related tools for self-assessment. A quantitative study among college students testing the effectiveness of the 25-item Personal Responsibility Orientation of Self-Direction in Learning Scale (PRO-SDLS), which was developed by Brockett & Hiemstra (1991), along with the teacher learner transaction (TLC) and the learner characteristic (LC) tools were reviewed. L.M. Guglielmino's Self-Directed Learning Readiness Scale (SDRLS) was also utilized when assessing study subjects readiness for learning (Stockdale & Brockett, 2011). Congruent, criterion, convergent, and incremental validities were evaluated. The SCRLS and

PRO-SDLS assessments were compared with professor's rating of respondents' level of self-direction. The PRO-SDLS factor initiative was highly correlated with the professor's own assessment of the student self-direction. "Most scale authors rely on the relationship between age, GPA, educational attainment and a student's self-reported level of self-direction" (2011, p. 174). Because professor or medical practitioner's own assessment of self-direction of their students and clients could be subjective and inexperienced, a validated assessment tool may be of benefit to formally evaluate self-efficacy. If or when to implement self-assessment tools remains the decision of researchers exploring self-direction assessment. For this study, a validated self-efficacy tool specifically designed for use in patients who have GDM diabetes was used.

Experiential learning and self-efficacy.

Evidence that experiential learning can improve self-efficacy has been well researched. Beauchamp, Rhodes, Kreutzer & Rupert (2011) describe a study conducted with students who ran a race. The results illustrated that students who were "experientially-primed" with more running experience reported significantly higher levels of self-efficacy and desires to participate in physical activity compared to the students who were more "genetically-primed," in good physical condition. Those persons in career and technical education programs require experiential learning for their hands-on trades (Clark, Threeton, & Ewing, 2010). This section represents a sampling of the extensive research on GDM and experiential learning effect to build self-efficacy.

Gestational Diabetes

Buchanan & Xiang (2005) reported each classification of diabetes, namely Type I, Type II and gestational diabetes mellitus, can and should guide clinical care, which involved education of the professional staff and of the clients. In short, instead of treating each patient with GDM with the same educational approach for management, each client should be categorized so that their care is specialized.

Gestational diabetes and self-efficacy.

Linking self-efficacy assessment with gestational diabetes mellitus (GDM) education is best explained through the lens of mastering the applied learning experience of diabetes education. The process of how self-efficacy is developed is described by Bandura in the following ways: mastery experience, social modeling/vicarious experience, improving physical and emotional states/physiological states, and verbal/social persuasion, as cited in Sharma & Romas (2008). The mastery experience is linked to experiential learning because this method of learning enables the person to succeed by continuing to perform a challenging desired behavior, such as blood glucose monitoring for a woman with GDM. By experiencing performance mastery, the student will experience the strongest effect on self-efficacy. The second area of development is social modeling and vicarious experience. For example, the diabetes instructor will demonstrate how to test blood sugar. The application to the GD client by seeing other similar clients performing a successful blood sugar test allows the modeling of the desired behavior. Third, improving physical, emotional and physiological states of a person develops self-efficacy by insuring the person is relaxed and rested before practicing a new skill or action. This step helps to reduce stress while building positive

reinforcement for a skill learned, such as planning a one day GDM diet menu. To better achieve this step, scheduling GDM instruction on a different day of the diagnosis would be beneficial. Step four involves the use of verbal and social persuasion to build self-efficacy. Phrases such as “you can do it,” “you are doing a great job,” or “it gets easier with practice” help to build self confidence and encourage long-term behavior change.

A quantitative study in the United Kingdom (UK) used Bandura’s models of self-efficacy. Researchers used the Illness Perception Questionnaire (IPQ), the Self-Care Activities Scale by Toobert and Glasgow (1994) and the Scale to rate confidence with diet compliance by Senecal, Nouwen and White (2000). The researchers were professors or healthcare providers in the UK. This research supports Bandura’s literature and associates diet, diabetes and self care (Nouwen, Law, Hussain, McGovern, & Napier, 2009).

Instructor Influence

Instructor influence, whether inside or outside the classroom, as described in many studies, should have the following: strong work ethic, caring disposition (Helm, 2007), leadership, teacher peer influence (Supovits, Sirnides, & May, 2010), praise, physical organization of the classroom, design of teaching expectations, use of positive systems to reinforce appropriate behavior, pace of instruction (Sutherland, Lewis-Palmer, Stichter, & Morgan, 2008) and the pre-eminence of teaching (Zepke, 2011). It, therefore, follows that good instructor influence has a direct effect on quality education and, possibly, on self-efficacy to carry through on an educational plan.

Instructor influence and the environment.

Kek & Huijser (2011) conducted a study in Malaysia to answer the questions, "What are the characteristics of learning environments that may influence related outcomes, such as intellectual capacity, well-being and lifelong learning capacity of students? In short, how do learning environments influence student learning and outcomes?" Multivariate analysis was used when considering the learning environments, family environments, approaches to learning, and approaches to teaching. Both the university and classroom learning environments are used to establish relationships between student learning, learning environments and outcomes (Kek & Huijser, 2011). The results showed a strong relationship between classroom environment, where "deep approaches to learning" were presented, with the student developing deep levels of learning (2011, p. 203). These findings are particularly exciting for the diabetes educator who intends to influence the client to acquire meaningful education and impact overall health.

Instructor-student relationship.

The importance of teacher–student relationships is well established among educators and administrators. These researchers studied the wellbeing of teachers starting from the Transactional Model of Stress and Coping of Lazarus. Based on theories on interpersonal relationships, it is postulated that teachers have a basic need for relatedness with the students in their class (Spilt, Koomen, & Thijs, 2011). Sutherland et al (2008) reported that the "classroom contexts" refer to the learning that occurs in a particular setting and includes the environment. The "opportunity to respond" (OTR) can influence the student's behavior. The teacher behavior as it relates to student behavior is closely connected and has an ongoing

reciprocal influence on both parties. Relating to instructional variables, praise was a key factor of influence, along with physical organization of the classroom, design of teaching expectations, use of positive systems to reinforce appropriate behavior, pace of instruction, and frequent teacher movement around the classroom. The implications for education are profound and support the notion that the physical as well as emotional environment in an educational setting is important for overall success in learning situations.

Hallinan (2008) conducted a study with sixth, eighth and 10th- grade students in public and Catholic schools in Chicago, and found that students who perceived their teachers cared about them, respected them, and praised them were more apt to like school than those who did not, but the teachers' expectations for students' had negligible effect on whether students liked school. Helm (2007) reviewed a few studies in a school setting that identified key elements to teacher disposition and student performance. The review emphasized the significance of teacher disposition to the self-esteem and academic performance of students. Social status and wealth are said to positively affect the school performance of students. In addition to this, teachers who are dedicated to their work and possess the right disposition can also influence students' academic performance. Helm cited studies which proved the influence of teacher disposition on the positive development of self-esteem and academic achievement in students. The characteristics that define efficient teachers were mentioned, including proper teaching license, strong work ethic and caring disposition (Helm, 2007). Licensing is determined by state regulated medical boards and credentialing organizations. Work ethic is typically covered in the Code of Ethics that professionals are expected to adhere to for accreditation. However, in what way are educators assessed or held accountable for their caring disposition? Helm's research provides opportunity for educators in all fields

to further explore their own ability to bring about best practices for education growth and improvement in self-esteem of their students. Through use of open-ended questions on the self-efficacy survey proposed for use in the present study, instructor influence on self-efficacy in women with GDM will be assessed.

Instructor influence in education.

Zepke (2011) found that teachers and quality teaching influence how well students engage in learning in post-compulsory education. Zepke investigated how learning environments influence student engagement in diverse tertiary settings in Aotearoa, New Zealand. Results demonstrated that teaching and teachers were more important than motivation and external influences in supporting student engagement. Zepke's findings maintain the position that teacher influence is critical and supports the purpose of the present study: to determine instructor influence on the self-efficacy with clients who have GDM.

Summary

This related review of literature covered (a) adult learning, (b) self-efficacy theory, (c) experiential learning, (d) gestational diabetes mellitus education, and (e) instructor influence during GDM education. The reviewed literature supports the purpose of this study: to examine instructor influence on participants' self-efficacy and gestational diabetes knowledge and practice. Better insight of the instructor's influence and participant's level of self-efficacy may provide ideas for improved diabetes education practices.

Chapter III presents the methodology for this descriptive study. Descriptions will include reasoning for the chosen research design, selection of participants, sampling strategies, data collection methods, and interpretation of the collected data.

Chapter 3

Introduction

The purpose of this descriptive study is to examine perceptions of instructor influence on participants' self-efficacy and gestational diabetes knowledge and practice.

This chapter is organized in eight sections: (a) procedures, (b) selection of participants, (c) data collection, (d) protecting participants, (e) instrumentation, (f) research design, (g) data analysis, and (h) summary.

Procedures

The Diabetes Self-efficacy Scale (Rapley, Passmore, & Phillips, 2003) was administered as a paper survey which was handed out to patients at research sites by the diabetes educators or researcher. Subjects were selected from two clinics in Southeastern Idaho, namely a privately owned diabetes center and a hospital based clinic. The survey process took about 5-10 minutes. Subjects who participated were entered into a drawing for a $50 gift card.

Participants

Participants were English speaking women, age 18 years and older, who had GDM diagnosed during their pregnancy. Rocky Mountain Diabetes and Osteoporosis Center, Eastern Idaho Regional Medical Center (EIRMC) Diabetes Education Center and qualifying women in the St. Anthony Idaho Stake of the Church of Jesus Christ of Latter-day Saints were sites where data were collected. A stake is a group of 8-10 wards, which are comprised of 300-500 church members living near the same geographical area.

Protecting Participants

All subjects were informed about the study process in writing. . International Research Board (IRB) approval was granted September 11, 2013 from University of Idaho, #13-218. A separate EIRMC IRB approval was obtained January 13, 2014, #543019-2, both studies ending February 7, 2014. Study subjects were given a written consent prior to completing the survey. All surveys and consent forms were kept securely locked and confidential. The University of Idaho Institutional Review Board (IRB) approval was granted #13-218 (Appendix A). All participants' information is kept securely locked, and confidential.

Instrumentation

The 18 item Diabetes Self-Efficacy Scale (DSES) (Hurley & Shea, 1992) was used with permission. The DSES assessed patient self-efficacy associated with the five subscales: routines, self-treat, certainty, diet, exercise (see Chapter 3). Two additional questions, number 19 and 20, were added to measure instructor influence during GDM education (Appendix B) and were expected to express self-efficacy in relation to instructor influence. One question, number 21, was added to record number of visits for diabetes education and was expected to compare self-efficacy to perform a diabetes care practice with number of visits for education. The additional questions were:

19. "To what extent do you believe your diabetes instructor positively influenced your ability to manage your diabetes (to maintain proper blood sugar control, understand gestational diabetes, etc.)?" This would assess the

instructor influence on basic gestational diabetes management concepts understood by the participant.

20. "To what extent do you believe your diabetes instructor positively influenced your actual daily practice of diabetes self management (blood sugar testing, meal management, etc.)?" This would assess instructor influence on participant's daily self-care diabetes practices.

21. How many visits to this office have you had with the diabetes educator or doctor to learn how to manage your gestational diabetes? (1-10+)

Participants completed each question using the following Likert-scale: 1=strongly agree; 2=moderately agree; 3=slightly agree, 4=slightly disagree; 5=moderately disagree; 6=strongly disagree, with higher scores equating with higher efficacy potential. The GSE scale has been rigorously tested for validity and reliability (Hurley, 1990; Hurley & Shea, 1992; Rapley, Passmore, & Phillips, 2003).

Hurley (1990) developed a diabetes scale to assess self-care ability in patients with diabetes. As a registered nurse, Hurley then created an Insulin Management Diabetes Self-efficacy Scale (IMDSES). The first version 25-item scale did not demonstrate consistent findings. Hurley then developed a second version six-point, 28-item scale for insulin treated adults. Hurley partnered with another registered nurse and researcher, Shea, to publish other articles about the incidence of self-efficacy to enhance diabetes self-care (Hurley & Shea, 1992).

The DSES measures the patient's self efficacy related to five subscales: routines, self-treat, certainty, diet, exercise. Following are the subscales with corresponding survey questions:

1. Routines: 1. I can carry out practically all of the self-care activities in my daily diabetes routine. 2. I am confident in my ability to manage my diabetes. 17. I can fit my diabetes self-treatment routine into my usual lifestyle. 18. I think I'll be able to follow my diabetes plan even when my daily routine changes.
2. Self-treat: 12. I can figure out when to call my doctor about problems with my feet. 13. I can recognize when my blood sugar is too high. 14. When I feel sick, I can test my blood more than I routinely do. 15. I can do what was recommended to prevent low blood sugar reactions. 16. I can figure out what self-treatment to administer when my blood sugar gets higher than it should be.
3. Certainty: 3. I feel unsure about having to use what I know about diabetes self-treatment every day. 4. I don't think I can follow my diabetes routine every single day. 7. I'm not sure I'll be able to stay on my diabetic diet when the people around me don't know that I have diabetes. 8. I'm not sure I'll be able to follow my diabetic diet every day.
4. Diet: 5.I can stay on my diabetic diet when I eat in familiar places away from home (such as a friend's house). 6. I can stay on my diabetic diet when I eat in unfamiliar places. 9. When I go to parties, I can follow my diet plan.
5. Exercise: 10. I can exercise several times a week. 11. I can't exercise unless I feel like exercising.

Rapley (2003) reported reliability scales for the DSES instrument. The results are included in Table 1.

Table 1. Cronbach's reliability analysis of the Diabetes Self-efficacy Scale (DSES) subscales for Rapley study

Subscales	To	T3	T9
Diet (3 items)	0.76	0.78	0.78
Self-treat (5 items)	0.72	0.69	0.73
Routines (4 items)	0.75	0.78	0.79
Certainty (4 items)	0.72	0.70	0.75
Exercise (2 items)	0.61	0.58	0.55
Total Scale	0.82	0.84	0.84

The 18-item DSES scale at To (N=226); T3 (N=194) and T9 (N=181).

Data Analysis

This was a descriptive study. The descriptive data were analyzed, summarized and then compared with results from related studies. Trochim and Donnelly (2008) describe a non-randomized study as having no randomization assignment to a group, any control group and non-experimental selection of study participants. Rigorous data collecting occurred among all interested patients with GDM.

This study used one wave of measurement in each group of study participants. The independent variable was the diabetes education. The dependent variable was the DSES scores. Results of participants' self-efficacy scores were compared with their perceived ability to perform a diabetes self-care behavior and instructor influence in relation to number of visits for GDM education.

Chapter 4: Results, Discussion, and Implications of GDM study

Purpose Statement

The purpose of this descriptive study was to examine participants' perceptions of instructor influence on participants' self-efficacy and gestational diabetes mellitus (GDM) knowledge and practice.

Participants were 12 women diagnosed with gestational diabetes. Four women visited a diabetes educator one time; six women visited the educator six times, one visited three times, and one visited four times. All women completed the diabetes survey, which had five different subsections: routines (Cronbach Alpha =.76), self-treatment (Cronbach Alpha = .18), diet (Cronbach Alpha =.84), certainty (Cronbach Alpha = .50) and exercise (Cronbach Alpha =.-26). Because there were so few people and only two questions on exercise, the Cronbach Alpha could not be interpreted.. Exercise as a fifth section was not reported because the level of self-efficacy increased and then decreased across the reporting time. Ranges of possible scores for each quantitative subsection, with mean scores and standard deviations for the current study are listed in Table 3. Information on three descriptive questions follows discussion of statistical hypotheses.

Statistical Hypotheses Routine

1. No difference exists by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about routine.

No significant difference was found by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about routine $\underline{F}$ (3, 11) = .556, $\underline{p}$ = .659.

Statistical Hypotheses Self-treatment

2. No difference exists by instructor contact (number of times meeting with participant) on participants' gestational diabetes about self-treatment.

No significant difference was found by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about self-treatment F (3, 11) = .462, p = .717.

Statistical Hypotheses Diet

3. No difference exists by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about diet?

No significant difference was found by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about diet F (3, 11) = .328, p = .806.

Statistical Hypotheses Exercise

4. No difference exists by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about exercise?

No significant difference was found by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about exercise F (3, 11) = .463, p = .716.

Statistical Hypotheses Certainty

5. No difference exits by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about certainty?

No significant difference was found by instructor contact (number of times meeting with participant) on participants' gestational diabetes knowledge about certainty F (3, 11) = .990, p = .445.

Discussion of findings.

The purpose of this descriptive study was to examine participants' perceptions of instructor influence on participants' self-efficacy and gestational diabetes mellitus (GDM) knowledge and practice. The modified 18-item DSES, with three additional descriptive questions developed for this study was used to collect data of pregnant women with GDM at three sites in a southeast Idaho area.

No significance was found in all five hypotheses, which is probably attributed to a small end size of 12 subjects. Even with no significance, there may be meaning in the results by interpreting the process in relation to theory, current literature, and practical application.

Hypothesis one, examining patient gestational diabetes knowledge of routine was not supported by the results. However, the results showed a mean self-efficacy score regarding routine of 15.75 at the first visit with a 17 mean at the fourth visit. This demonstrates a trend in self-efficacy improvement with the number of GDM education visits and related positive comments regarding certified diabetes educator influence on clients' self-care practices.

The importance of practicing proper diabetes self-care behaviors has been widely researched and the adherence to prescribed routines makes a positive difference in diabetes management (Sigurardottir, 2005; Jahanlou & Karami, 2011; Kaiser, Razurel, & Jeannot, 2013). The significance of routine in diabetes self-care practices such as foot care (McCleary-Jones, 2011), and regular exercise (Barakat, Pelaez, Lopez, Lucia, & Ruiz, 2013;

Zavorsky & Longo, 2011) as it relates to self-efficacy (Hurley, 1990; Hurley & Shea, 1992; Rapley, Passmore, & Phillips, 2003) clearly illustrates the connection between adherence to routine diabetes self-care practices and improved diabetes management. Also, in considering the literature in relation to patient responses, the open-ended questions supported self-efficacy when performing diabetes management self-care routines. Here are some examples of participants responses from the current study:

- "She helped me to feel confident & comfortable with what I need to do to manage my diabetes. I was given good instructions on things I can do to help."
- "Only saw one time but helped with food choices and gave me blood sugar tester."
- "She was positive, nonjudgmental. I don't feel bad about my routines so I'm more likely to follow instruction."
- She gave me good ideas of things I am do daily to help w/my blood sugar & made sure I understood everything that I should be doing."

Hypothesis two, assessing instructor contact (number of times meeting with participant) on participants' gestational diabetes about self-treatment, was not supported. At their first visit, participants' self-efficacy score was 25 and 29 by the fourth visit. Another trend appears to exist in improved knowledge of self treatment. This is important since diabetes education is, by its very nature, experiential learning based, as evidenced by the diabetes educator teaching a skill and the patient demonstrating that skill in the presence of the educator and many times throughout the day, i.e. blood sugar testing, or menu planning (Kaiser, Razurel, & Jeannot, 2013; Sigurardottir, 2005; Jahanlou & Karami, 2011). The daily

self-care practices of persons with diabetes represent a type of mastery experience, which are described as “the most influential source of self-efficacy, the value attached to an experience also seems to be crucial to what extent the specific experience and relevant task specific self-efficacy (TSSE) will influence GSE” (Laganger, Kraft, & Roysamb, 2000, p. 64) Self-efficacy and self-care practices have been studied in people with diabetes (Beckerie & Lavin, 2013; Rapley, Passmore, & Phillips, 2003) with results indicating positive effects of self-efficacy on reported abilities to perform diabetes care practices. Though we did not find significance in the present study, it appears that the GDM patients were increasing their knowledge of self-treatment.

Hypothesis three, the effect of instructor contact (number of times meeting with participant) on participants’ gestational diabetes knowledge about diet, was not supported. At first visit the patients’ diet self-efficacy mean score was 12.5 and 15 at the fourth visit, which also shows a trend toward improvement and some confidence about meal management prior to the survey. Typical education of GDM included two important variables common in research, namely diet and exercise, as can be seen in the literature review in Chapter 2, (Francis, 2009; Senecal et. al., 2000). By way of example, one of the core educational goals of certified diabetes educators is healthy management of diabetes symptoms utilizing nutrition, exercise and medical management (About NCBDE, 2014; Guidance for Becoming a Diabetes Educator/CDE, 2014). As illustrated, diabetes self-efficacy is multifaceted and the level or rate of change in confidence “to do” will vary according to various viewpoints.

Healthy meal management among patients with GDM has been shown to be influenced by familiarity with the foods on the suggested meal pattern, family and peer acceptance of food changes (Ahola & Groop, 2013), postitive social support (Depalma,

Hewlett, & Boydston, 2007) to name a few. The lack of significance in self-efficacy concerning following a diabetes meal plan may be due to the amount of information provided at one education session, concern about the health of themselves and their baby, a literacy deficit or many other reasons. As a result of consistency being identifed as a key component to a quality nutrition diabetes education (Morrison, Collins, & Lowe, 2011), use of evidence-based gestational diabetes practice guidelines and nutritional recommendations are imperative.

At the same time, it is worth noting the open-ended question responses expressed in the self-efficacy survey reported impact in management and ability to follow a diabetic meal plan. Sample comments include, “what foods I eat and how often I eat them and proportion sizes and checking my blood sugar after every meal”, “gave me the tools to choose & eat healthy”, and “made it easier and helped me with my supervisor at work to fit-in testing and meals”.

Hypothesis four, the effect of instructor contact on participant’s knowledge of exercise, was not supported. Exercise self-efficacy mean scores were 7, 8.5, 10, and 7 at first through fourth visits. Although evaluating the diabetes education curriculum was not in the scope of this study, it is possible that the benefits of exercise during pregnancy in relation to diabetes health had not been discussed at the visit evaluated by this study. However, the slight increase in self-efficacy scores regarding exercise practice comparing the first through third visits may show that exercise confidence increased. The possible low score of seven at the fourth visit could be explained by the decreased ability to exercise safely as the pregnancy advanced. Another explanation may be the low numbers of questions, only two,

were asked about exercise on the survey and that the time for significant change in confidence unique to this behavior could have passed.

Research supports the importance of physical activity for a healthy lifestyle. Self-efficacy, social support, and perceived barriers were studied among 509 patients at medical facilities in southwestern Nigeria (Adeniyi, Idowu, Ogwumike, & Adeniyi, 2012). The odds of having low physical activity were highest in those with low social support for Type 2 Diabetes (p. 113). “Physical exercise is feasible for diabetic pregnant women and contributes to better glycemic control and to a decrease in adverse perinatal outcomes” (da Silva Jr., Borges, Agra, Pontes, & Alves, 2013, p. 1). When reviewing current literature, a similar DSES tool measured exercise self-efficacy as one of the weakest self-care areas (Rapley, et. al., 2003, p. 295) and two other studies did not report reliability scores for the exercise subscale (Hurley, 1990; Hurley & Shea, 1992). Among 121 pregnant women in designated Netherland midwifery practices, overweight or obese women who were at risk for GDM were randomly assigned to either a control or intervention group where exercise would be implemented. “The exercise intervention performed over the second and third trimester of pregnancy had no effects on fasting blood glucose, insulin sensitivity, and birth weight, most probably because of low compliance” (Oostdam, et al., 2012). A study by Barakat, Pelaez, Lopez, Lucia and Ruiz (2013) reported opposite results, with decreased rate of macrosomia among babies, less cesarean birth rate and 12% lower weights among those in the intervention group, who had moderate intensity and aerobic exercise 50-55 minutes per week.

In summary, it is worth noting that from personal clinical experience with behavior change, among the general population changing exercise behaviors is one of the most

difficult lifestyle modifications. Increasing the confidence to exercise safely in pregnancy is important and consideration for future studies should include adding open-ended exercise questions, such as to the survey for patients with GDM.

In considering the above results of hypotheses three and four, we must remember that pregnant women with GDM are presented with the potential for new life and the realization that their health and that of their baby may be in jeopardy. Women with GDM, when properly diagnosed, should be educated in life style changes such as diet modification, improving physical activity to help manage weight, and even possibly the use of medication to improve blood sugar levels. When followed correctly, these measures should help to insure the delivery of a healthy baby and a subsequent healthy mother.

Hypothesis five assessing certainty was not supported. However, the DSES scores of the patients were 17.75 at the initial visit with an increase to 22 at the fourth visit. Self-efficacy, also known as self-confidence or certainty (Pajares F. , 2003), has been demonstrated to be an important component to guide lifelong learning among students. The topic of self-efficacy is of interest while researching the learning experiences of women with GDM. Women with GDM need a very deep understanding of what they are learning to make a difference in their health and the health of their baby. “Self-efficacy proposes that individuals’ confidence in their ability to perform a task/behavior determines which behaviors they will engage in, how long they will persist, and how much effort they will expend to achieve their goals” (Hurley & Shea, 1992, p. 147). Those participants who perceive they have higher self-efficacy “are more likely to ask questions and seek information from the clinician” (DuBenske, Chih, Gustafson, Dinauer, & Cleary, 2010, p. S98). Self-efficacy assessment is a simple tool to determine confidence “to do” a specified

behavior related to diabetes self-care practices. Referring to their recent diabetes self-efficacy study, Beckerie and Lavin stated, “A strong sense of self-efficacy is necessary to master challenges inherent in these activities” (2013, p. 173). Therefore, the trend in increase of self-efficacy with each visit appears to be supported by the present research. By adding a pre and post test DSES assessment, further data would potentially demonstrate changes in participants’ self-efficacy regarding certainty.

Open Ended Response Questions

We also collected three responses to open-ended questions 19-21:

19. To what extent do you believe your diabetes instructor positively influenced your ability to manage your diabetes (to maintain proper blood sugar control, understand gestational diabetes, etc.?

20. To what extent do you believe your diabetes instructor positively influenced your actual daily practice of diabetes self management (blood sugar testing, meal management, understand gestational diabetes, etc.?”

21. How many visits to this office have you had with the diabetes educator or doctor to learn how to manage your gestational diabetes?

The purpose of Questions 19 and 20, as shown in Table 4.2, was to provide descriptive data to inform practitioners about their influence on the client’s GDM education and to provide a means for the study participants to “express meaning about some aspect of their lives” (Marshall & Rossman, 2011, p. 92). Sample patient responses included: “she taught me everything I need to know to keep my blood sugar under control,” “very clear instructions. Answered questions well. Available by phone, which is very comforting.” These

descriptive answers validate Kek & Huijser's (2011) research which emphasized deep learning occurring in supportive environments. Due to the serious nature of GDM and the risk of maintaining the pregnancy and avoiding diabetes later in life, women diagnosed with GDM who perceived the seriousness of their condition demonstrated higher levels of self-efficacy toward self-care practices (Ayele, Tesfa, Abebe, Tilahum, & Girma, 2012). These research studies, and others mentioned in the Chapter 2 Literature Review, along with the narrative statements by participants, support the importance of instructor influence on meaningful education in experiential learning settings, such as GDM education.

Question 20 read, "To what extent do you believe your diabetes instructor positively influenced your actual daily practice of diabetes self management (blood sugar testing, meal management, understand gestational diabetes, etc.?" A sample of patient responses include: "she was positive, nonjudgmental. I don't feel bad about my routines so I'm more likely to follow instruction." "made it easier and helped me with my supervisor at work to fit-in testing and meals." These comments by study participants about a "positive, nonjudgmental" and "helpful", instructor are significant to influence development of self-efficacy and have been mentioned in many studies (Helm, 2007; Supovits, Sirnides, & May, 2010; Sutherland, Lewis-Palmer, Stichter, & Morgan, 2008; Spilt, Koomen, & Thijs, 2011; Zepke, 2011). If the client with GDM diabetes (1) thinks she can learn about and care for her diabetic needs, and (2) believes she can actually perform those skills, the self-efficacy scores will then determine how well she actually succeeds. This puts much significance on the learning and teaching setting in which the client is in and to her level of self-efficacy.

Though it was not the original intent of this study to compare Question 19 with Question 20, there appears to be link or relationship of how the patient viewed the

instructors' influence in Question 19, and how the patient was able to carry through on the daily practice of self-care as asked in Question 20. In this instance, Question 19 asked how the instructor influenced their *ability* to manage diabetes, which is different but related to their actual *practice* of diabetes management in Question 20. Question 19 is assessing level of self-efficacy of ability, whereas Question 20 is assessing self-efficacy in the actual daily practice routines relating to diabetes management. Further studies should include a follow-up assessment to determine effectiveness of self-care diabetes behaviors to lower blood sugar, moderate weight gain and affect health of newborn baby.

Question 21, the number of visits to a healthcare provider for diabetes education, was asked to provide data to compare level of self-efficacy with the number of visits to receive GDM education. The participants completed surveys during the first through fourth visit to receive diabetes education. The number of visits to a health care provider and health benefits of those visits has been researched. Ayele et al. (2012) reported with fewer diabetes education visits the patients' perception of the seriousness of their health is decreased (2012). Availability of a CDE at time of visit to a primary care physician was part of timely treatment measures to improve treatment for diabetic patients and "reduced time in advancing therapy between visits" (Rickheim, Cashman, Ryan, & Richards, 2007, p. A67). A retrospective study with 64 Type II diabetes patients at medical clinics with a dietitian and diabetes educator in rural southern New South Wells found that 60% of patients had an improvement in hemoglobin A1C with more than four visits as compared to 38% improvement with less than four visits (Cusack, Asyo, Frost, O'Brien, & O'Kane, 2008). Considering that screening for GDM is recommended to be conducted between 24-28 weeks gestation (40 weeks is full gestation), the number of visits for GDM education may be

limited by the remaining weeks of the pregnancy. These are just a few reasons why number of visits to a diabetes educator is important to provide quality education. For future studies, the addition of a survey question about how far along the patient is in their pregnancy, or gestation, would provide additional perspective into the possible time for education to occur before a term delivery.

In summary, the findings appear to show a trend in certainty of perceived ability to perform diabetes self-care practices in all areas except exercise.

Discussion and Conclusion

The Methodology.

Unfortunately, the statistical data in this study was limited for various reasons including sample size and the data collection process. The small sample size of 12 participants during the two week to four month (different at each site) data gathering was influenced by the lack of diagnoses and interest in participating. One clinic diabetes education director (Sulik, 2014) explained that many pregnant women do not get screened for GDM. Among those being diagnosed, many do not come in for education because of time, money, convenience or interest (Infanti, et al., 2014). Because the survey process was voluntary, not all GDM patients participated. It is suggested to consider means of survey distribution, namely at time of appointment before meeting with educator, mailed to patients with self addressed stamped envelope included for return to confidential recipient, and by the researcher.

The data collection process was highly affected by various factors unforeseen in the preparation of the study. Factor one: no physician was attached to this study. Even though

this study was not collecting medical data, and even though IRB had been secured through the hosting research institution, securing access to collecting data from GDM subjects became problematic. For example, the hospital based clinic site asked which medical doctor was on my committee.

Factor two: early opposition to the survey questions by a certified diabetes educator. When seeking preliminary interest to participate in a private diabetes clinic, the lead diabetes educator expressed concern about questions used in the validated survey assessment, such as questions 5 and 6 which used the term “diabetic diet” because their clinic used the term “healthy eating plan”, question 12 as they do not suggest foot care and rephrasing questions 15 and 16 to use terms they are more familiar with.

Factor three: extensive IRB review at one clinic site. The requirement to have an additional hospital IRB review for the survey required four weeks of extra effort and time. It is standard procedure that all studies conducted in the hospital or any of their clinics apply for approval through their internal IRB review board that consisted of about ten people. The application and approval process utilized IRBnet electronic system, which necessitated the secretary to the committee enter all records.

Factor four: separate hospital IRB review was also delayed because the directors’ office was closed during the Christmas and New Year Holidays. Thus, the signature from director of the internal IRB board was required prior to starting the survey.

Graff (2013), as shown in Table 4.1, surveyed 22 Idaho certified diabetes educators (CDE) for their perception about potential barriers to accessing counseling or diabetes self-management education programs. These results provide consideration for the low number of possible clients to survey during the duration of the study.

Table 4.1 Perceived patient barriers

Percent of CDEs that "somewhat agree" or "strongly agree" with the following statements about patient barriers to accessing counseling or diabetes self-management education programs. (n=22)	
	Percent that somewhat agree or strongly agree
Patients with GDM find it hard to fit in appointments with CDEs, in addition to their prenatal care appointments.	36%
Patients cannot afford counseling with a CDE.	50%
Patients have difficulty accessing a CDE due to location of counseling services.	41%
Patients have difficulty accessing a CDE due to the appointment times offered.	36%
Patients do not understand the value or importance or counseling sessions with a CDE.	82%
Patients are not being referred to CDEs by their obstetrician or primary care provider.	55%

Patients with GDM have numerous life issues that complicate their ability to follow through with education, which we did not foresee in this present study.

The phenomenon is not unusual. Low participation was reported, 22% among possible women with GDM, in a European study (Infanti, et al., 2014). Those intervention designers suggested ways to improve participation by considering (1) what specifics influence participation, (2) "research designs that capitalize on motivational differences between participants, (3) alleviating concerns about long-term diabetes management" (p. 1). Without assessing the number of possible participants in the survey, cause and effect or correlation cannot be determined with the current study.

While it is true that the current study among women with GDM in selected southeast Idaho areas did not show significance among levels of self-efficacy with self-care practices,

the importance of self-efficacy assessment has been established. An increasing trend in each self-care practice occurred during the short duration of this study, excluding exercise. Healthy diabetes management is crucial to the mother-baby unit while the mother is pregnant and to the mother and baby individually upon delivery. Future studies should include the DSES instrument, as it is easy to administer and takes 5-10 minutes to complete and future studies should consider the issues listed about methodology and application.

GDM education and instructor influence.

The inclusion of open-ended survey questions provided a medium for the study participants to have a "voice" to describe the instructor influence on their experiential GDM education. As shown in Table 4.2, the responses were very supportive of the diabetes educator and the learning that occurred. The strength of these responses bring meaning to the self-efficacy scores by adding narrative comments about how the diabetes instructor positively influenced the students in management of diabetes and actual daily practice of self-care behaviors. Instructor influence has been shown to positively affect self-efficacy in students by increasing engagement in the learning environment (Zepke, 2011), showing a caring disposition (Helm, 2007), respecting and praising (Hallinan, 2008) and by creating "deep approaches to learning" (Kek & Huijser, 2011, p. 203), which is necessary when educating for GDM management.

Recorded responses can provide a companion to quantitative analysis to provide statements as another means of understanding the numbers. The fact that the surveys were anonymous and confidential provided another depth of safety for participants by knowing their responses would not be connected to themselves.

Implications.

The study provided the first evidence in Idaho of descriptive data regarding comments by GDM clients of the influence their diabetes instructor had on their self-efficacy. These results can be used to support self-efficacy themes for future application to develop a specific assessment for this population. By including self-efficacy assessment in a diabetes education program, educators can be better informed of their patients perceived ability "to do" diabetes self-care procedures and attain lifelong management of their healthy behaviors.

As a result of the study, the following recommendations for further research are suggested:

1. Consider having a physician on the committee, which would provide credibility to the study and possibly move the review process forward in a timelier manner.
2. Consider other diabetes education clinics. Although the two most well-known diabetes clinics in the upper Southeast Idaho area were chosen, a clinic in a more populated area of the state could have been selected.
3. Allow six to twelve months for data collection, which should provide a larger sample size to possibly prove significance.
4. Consider a study group within a larger population where the incidence of obesity and pregnancy is greater. Perhaps a larger population than 57, 899 (City population, 2014) in the Southeast Idaho study area would have a higher incidence of GDM.
5. Consider adding another open-ended question about exercise. Many pregnant women must limit exercise due to clinical reasons, such as pre-term labor or other

medically determined limitations. The additional information could provide the reasons why exercise was not a self-care practice the patients' reported confidence "to do".

6. Considering that no meaningful data was found about exercise, perhaps other forms of education might prove worthy with GDM patients. For example, future research may involve presenting pregnant women with the opportunity to construct their own education as Svinicki (2010) suggests. The self-pace and self-selection of content, as mentioned by Murad et al. (2010) is very effective when educating clients in the health field. Bandura and Locke's (2003) research encourages using self-efficacy and personal goals enhance motivation and personal attainment. By educating women with GDM about the benefits of medically approved physical activity or exercise during pregnancy, they can identify and commit to the type and amount of exercise that best meets their health parameters.

Concluding Statement

The purpose of this study was to first assess diabetes self-efficacy or the perceived ability to perform a diabetes self-care practice, and then explore the influence of diabetes experiential education upon the participants' confidence "to do" a diabetes care practice. Though significance was not found in this present study, literature informs us that education is imperative to managing GDM, and self-efficacy or the confidence to apply the education is an important part of successful or non successful adherence.

Chapter 5: Undergraduate Student Self-Efficacy In Experiential Learning Programs: a Group Study

Tom Anderson, Julie Buck, Cheryl Empey, and Jim Hopla

Introduction

We teach at a private, church sponsored university in the Northwest. As a group, our purpose was to research the value of experiential education for students who are taught andragogically and to measure self-efficacy through such a teaching platform.

The mission of our institution has four main elements and centers on student development and participation, as well as providing a learning atmosphere that facilitates individual growth. The first is to build testimonies of the restored Gospel of Jesus Christ and encourage living the Gospel's principles. The second is to provide a quality education for students of diverse interests and abilities. The third is to prepare students for lifelong learning, employment and their roles as citizens and parents. The last is to maintain a wholesome academic, cultural, social, and spiritual environment (Mission of Institution, 2008).

Our institution, with an undergraduate educational focus, uses the Learning Model: Prepare, Teach One Another, and Ponder/Prove, where students are involved and responsible for their own learning (Institution Learning Model, 2013). The model could be argued to be or at the very least include the tenets of experiential learning. Students are to be prepared, involved, engaged, reflective and able to prove their learning. Student preparedness, involvement, and engagement are also the tenets of teaching through an adragogist methodology. As previously mentioned, andragogy in the realm of education is known as

adult learning. Adult learners, as opposed to pedagogical learners, “are self-directed, their learning is performance-centered, and they pull heavily from their accumulated and ever increasing reservoir of experience” (Adler, 1998, pp. 43-44). Knowles, Holton, and Swanson (1998) state, a key element to adult learning is the person, not the subject matter. Learning involves change not only with the student i.e. the adult learner, but also with the ability “to do”. It enables the learner to change behavior “as a result of experience” (Haggard & Crow, 1963, p. 20).

Our three programs, Family & Consumer Sciences Education (FCS Ed), Health Science, and Recreation Management, in which we teach, specifically represent the mission of our institution and are the focus of this study. Our programs follow the experiential component of the institution’s Learning Model and are intended to build student self-efficacy through experiential learning courses.

We chose to examine student’s self-efficacy and their confidence “to do” using the General Self-Efficacy scale (GSE) developed by Schwarzer and Jerusalem (1995) as well as examine the relationship between student perceptions and student reported experiential learning opportunities.

Background of the Study

For hundreds of years the American university has been one of change. In the beginning it was viewed as a community of masters and students. Today the university is “a whole series of communities and activities held together by a common name, a common governing board, and related purposes” (Kerr C. , 2001, p. 1).

One of the general purposes of all university communities is effective teaching and learning of disciplinary knowledge. Disciplines vary depending on the mission of the institution (Christensen & Eyring, 2011). Some institutions are large and are centered on research with multiple disciplines to supporting their mission. Other institutions are less research focused and their mission is directed toward a greater teaching emphasis. In either case, teaching and learning are priorities for both undergraduates and graduate students. Because teaching and learning are so important, assessment of effectiveness of the process is continually evaluated (Advancing teaching-improving learning, 2014). However, the debate about effective assessment can be focused on different aspects of the teaching and learning process from how instructors present information to whether the teaching strategies used are effective within the community.

Interestingly, research on teaching and learning at the adult level is highly informed from the educating of children, which often is translated to the university or college setting. For example, in seventh century Europe, schools were created to prepare young boys for life in the priesthood (Kerr C. , 2001).

> Since the indoctrination of students in the beliefs, faith, and rituals of the church was the principle mission of these teachers, they developed a set of assumptions about learning and strategies for teaching that came to be labeled '*pedagogy*,' literally meaning 'the art and science of teaching children.' Pedagogy, or teacher-directed instruction, places the student in a submissive role requiring obedience to the teacher's instructions. It is based on the assumption that learners need to know only what the teacher teaches them. The result is a teaching and learning situation that

> actively promotes dependency on the instructor. The model of education persisted throughout the ages well into the twentieth century and has been the basis of organization for our educational system (Knowles, Holton III, & Swanson, 1998).

The process of teaching children is called pedagogy from the Greek pais, paidos: the upbringing of a child and -agogy – teaching (Adler, 1998). Generally pedagogical skills in the teaching of children have focused on teachers and subjects, where students play a secondary role. An example of this is the organization of traditional classrooms, from elementary school to institutions of higher education; rows and seats all centered on the instructor (Kerr C. , 2001).

Historically, educators have questioned if *pedagogy* was an apt term for teaching all adults. Though learning concepts may be closely related, how an adult comes to learning and relates to the teacher may be very different. Since pedagogy is the art and science of teaching children, what then would be the art and science of teaching adults?

Andragogy

Lindeman (1926) proposed the concept of *andragogy* and argued that this term is a better match of what actually occurs in adult learning, which centers on the student and their needs as well as interests. He built on the notion of andragogy and argued that education for adults should describe education as life and life as education (p. 9). Adult learning, thus would involve building or changing the person through life's experience.

If education is life, as noted by Lindeman (1926) and Knowles (1980), then life is also education. Often student learning, as defined by pedagogy, consists of vicarious substitution of the teachers' experience and knowledge for teaching application. However,

Lindeman argues that psychology teaches us as we learn through what we do, and therefore all genuine education should inspire us to keep doing and thinking together. Thus, according to Lindeman, experience is the adult learners living textbook (pp. 9-10), and all education comes from experience (Dewey, 1938). Lindeman as well as Knowles would argue that most adult learners are self-motivated and willing "to do", and experience assists in development of confidence in making change.

According to Knowles et al. (1998), adults therefore would and do learn differently than the adolescent or child. Typical pedagogical instruction aimed at children teaches to subject matter and not to the student. In contrast, adult learning or andragogy is more than acquisition of knowledge; it "emphasizes the person in whom the change occurs or is expected to occur. Learning is the act or process by which behavioral change, knowledge, skills, and attitudes are acquired" (Knowles et al. 1998, p. 11).

Lindeman (Lindeman, 1926) states that the andragogical model is predicated on four basic assumptions about learners, all of which have some relationship to our notions about a learner's ability, need, and desire to take responsibility for learning. The assumptions are:

1. Adults are motivated to learn as they experience needs and interests that learning will satisfy.
2. Adults' orientation to learning is life-centered.
3. Experience is the richest source for adults' learning.
4. Adults have a deep need to be self-directing (1926).

Individual differences among people increase with age (Knowles et al. 1998; Merriam, Caffarella, & Baumgartner, 2007). As individuals learn and grow the need to rely and use their experience in learning increases (Bower & Hollister, 1967; Cross, 1981; Iscoe & Stevenson, 1960; Smith, 1982; White, 1959; Bruner, 1961; Erickson, 1950; Erickson, 1959; Erickson, 1964; Getzels & Jackson, 1962). Experience, therefore, plays an important role in andragogy. According to Knowles et al. (1998) "the richest resources for learning reside in the adult learners themselves. Hence, the emphasis in adult education is on experiential techniques…to adults experience is who they are" (p. 66). Andragogy and its relationship with experiential learning are vital to this present group study, for our participants are adult learners who are taught experientially.

Experiential Learning

Andragogy methodologies often use experiential learning as one of the numerous teaching approaches focusing on experience (Knowles, 1980). The notion of experiential learning is not a new or revolutionary idea in education. In 1938, Dewey argued that all genuine education comes from experience and the best classroom teaching utilized hands on experience (Dewey, 1938). Forty years later, Kolb (1984) stated experiential learning is the process whereby knowledge is created through the transformation of experience. Experience is the central role in the learning process (Kolb, Boyatzis, & Mainemelis, 1999, p. 2) and as Morrison and Branter's (1992) research found, experiential learning accounts for over 70% of individual development. Experiential learning has steadily gained popularity and acceptance in higher education and "serves as a valuable resource for learning and teaching" (Kolb & Kolb, 2006).

According to Kolb (1984) and Smith (2011), there are four basic elements to experiential learning: concrete experience, observation and reflection, abstract conceptualization and active experimentation. First, concrete experience, the student must be actively involved in the experience. Second, observation and reflection, they must be able to reflect on the experience. Third, abstract conceptualization, the student must be able to analyze and conceptualize the experience. Fourth, active experimentation, they must have the problem-solving skill to use the new ideas gained from the experience.

O'Connell and Smith (2005) argued that after learning a concept, student application of knowledge in their environment provides an opportunity to practice a new insight. Once the student has used this new knowledge in a social setting, they can improve confidence and are more motivated to repeat the new skill.

Experiential Learning and Self-Efficacy

The rewards of experiential learning come in several forms. Ewert and Garvey (2007) state the outcomes of experiential learning include personal growth, moral, group, and leadership development. For this present study, we focused on collecting data from only one element of Ewert and Garvey's list of experiential learning outcomes: personal growth. Personal growth was chosen because of its innate relationship to self-efficacy. Both personal growth and self-efficacy are measures of understanding individual self-confidence (Bandura, 1982; 1986; 1991; 1994). Our choice was based on the academic need to measure success (Christensen & Eyring, 2011) of our hands-on courses. Our institution has an innovative mission of developing personal growth and career readiness.

Personal growth is characterized by changes in self-concept, self-esteem, personal motivation, and confidence. As Bandura (1986) so aptly noted in his ground breaking work in *Social Cognitive Theory* (SCT), confidence is a key component in one's belief and ability to perform a learned task, which is also known as self-efficacy. Self-efficacy simply refers to a judgment a student makes about his or her ability to accomplish a specific future task (Bandura, 1982).

The judgment of being able to accomplish a task appears to affect many activities. Beauchamp, Rhodes, Kreutzer, and Rupert (2011) described a study conducted with students who ran a race. They illustrated through their results that students who were "experientially-primed" with more running experience reported significantly higher levels of self-efficacy and desire to participate in physical activity compared to the students who were more "genetically-primed" in good physical condition (2011, p. 12).

Self-Efficacy and the Social Cognitive Theory

Albert Bandura's 1963 *social learning theory* described three important influences on learning: imitation, reinforcement patterns, and self-control (Bandura & Walters, 1963). In 1986, Bandura renamed the social learning theory, *social cognitive theory* (SCT) by adding the construct of *Self-Efficacy*. SCT (Bandura, 1986) has a core set of determinants through which knowledge and information is transferred into practice. The theory has nine constructs (Bandura, 2004) which support the application to andragogical learning. The nine constructs are:

- Knowledge-learning facts and gaining insights related to an action, idea, object, person, or situation.

- Outcome Expectancies-anticipation of the probable outcomes that would ensue as a result of engaging in the behavior under discussion
- Outcome Expectations-value a person places on the probable outcomes that result from performing a behavior.
- Situations Perception-how one perceives and interprets the environment around oneself.
- Environment-physical or social circumstances or conditions that surround a person
- Self-Efficacy-confidence in one's ability to pursue a behavior
- Self-Efficacy to Overcoming Impediments-the confidence that a person has in overcoming barriers while performing a given behavior.
- Goal Setting or Self Control- setting goals and developing plans to accomplish chosen behaviors.
- Emotional Coping- techniques employed by a person to control the emotional and physiological states associated with acquisition of a new behavior (p. 144).

Though all components of this model are important, one major component, self-efficacy (Bandura, 1977; 1982; 1986; 1994; 1997), is often studied to learn about confidence and applied to academics (Schunk, 1991; 1996), career development (Betz, 2006; Betz & Hackett, 1981; Betz, Klein, & Taylor, 1996; Betz & Schifano, 2000; Lent, 2005; Lent, Brown, & Hackett, 1994), and health (Bandura, 1991; Bandura, Reese, & Adams, 1982;

Bandura, Taylor, Williams, Mefford, & Barchas, 1985). Self-regulated learning has been effectively applied to education in addition to the preceding topics (Cleary & Zimmerman, 2004; Zimmerman, 2000).

Bandura (1997) described self-efficacy as the "belief in one's capabilities to organize and execute the courses of action required to produce given attainment" (Bandura, 1997, p. 3). Harrison & McGuire (2008) state that self-efficacy is one's perception of his/her ability to perform a specific activity. The main idea supporting self-efficacy is the perception of one's belief in one's own ability "to do". Self-efficacy beliefs determine how one feels, thinks, behaves and even what motivates. There are four ways self-efficacy is developed:

1. Mastery Experience-enabling the person to succeed in attainable but increasingly challenging performances of desired behaviors. The experience of performance mastery is the strongest influence on self-efficacy belief.
2. Social Modeling, Vicarious Experience-Showing the person that others like themselves can do it, which should include detailed demonstrations of the small steps taken in the attainment of a complex objective.
3. Improving Physical and Emotional States, Physiological States-Making sure people are well-rested and relaxed before attempting a new behavior, which can include efforts to reduce stress and depression while building positive emotions—as when "fear" is re-labeled as "excitement."
4. Verbal Persuasion, Social Persuasion- Telling the person that he or she can do it. Strong encouragement can boost confidence enough to induce the first efforts toward behavior change (Bandura, 1997, p. 79).

We believe our institution's learning platform is highly effective in providing experiences which develop self-efficacy. As a student centered institution, social modeling through group work, student internships and student lead discussions provide opportunities to demonstrate mastery experience.

Set the Problem

Currently our students are expected to meet not only program expectations but in two of our programs, students must meet credential expectations. Thus, our undergraduate students are facing challenges in the areas of program confidence and degree expectations. These challenges often result in student dropout, student professional attrition, and lack of degree application. Research shows individuals with high levels of self-efficacy are more confident in their ability to perform a certain task, or accomplish a difficult challenge (Bandura, 1994; Caulkins, White, & Russell, 2006; Cervone & Peake, 1986; Hechavarria, Renko, & Matthews, 2011).

Our institution's Learning Model includes experiential learning. The more we can study and investigate undergraduate students and their confidence to succeed, the more we can effect changes and improve programming. Understanding the relationship between experientially taught courses and the value the students receive from taking these courses will bring further understanding about the learning experience, for both the student and for us the educators.

Considering the above, the present study should help answer the question regarding the relationship between student perceptions of professional preparation and experientially taught courses. It will also help to measure general self-efficacy.

Purpose Statement

The purpose of this descriptive study was to examine general self-efficacy and the relationship between student perceptions of professional preparation and student reported experiential learning opportunities across three university program areas.

Hypothesis

No relationship exists between student perceptions of professional preparation and student reported experiential learning opportunities across three university programs area.

Significance of Study

One of our programs, FCS Ed, lies in the field of Career and Technical Education. In general, a connection exists between experiential learning and self-efficacy in Career and Technical Education (CTE) programs. These programs have traditionally required experiential learning modes for their hands-on trades and rely heavily on experience (Clark, Threeton, & Ewing, 2010). In FCS Ed, a (CTE) course of study, educators are advised to build students' self-efficacy. Measuring whether FCS Education actually does so would be beneficial in supporting the future of the program within the mission of the institution. In addition, if we find that self-efficacy improves we know that our students are being well served.

The connection to experiential learning and self-efficacy within the field of recreation is also evident (Ewert, 1989; Webb, 1999). Recreation Management programs tend to support experiential learning methods. However, an investigation into the correlations

between self-efficacy and programs typically associated with experiential learning, such as Recreation Management, would be of benefit to the students and faculty within the program and administration.

Confidence “to do” developed through experiential learning is important for students to apply the seven core competencies (McKenzie, Neiger, & Thackaray, 2013) in Health Science. Students after graduation are highly successful in the field if they know how “to do” rather than just know. The Health Educator Job Analysis, which describes the practice and scope of Health Science states, “Baccalaureate programs in health education should prepare health education graduates to *perform* all seven of the health education responsibilities” (National Commission for Health Education Credentialing, 2010, p. 5). Thus if our program in Health Science does improve self-efficacy, we know we have served the students well and prepared them for the profession.

Our institution of higher education appears to be different in the way it models and describes higher education. In 1997, President David A. Bednar challenged the faculty in his first all-employee meeting after becoming president to ponder about how we think and to set goals so high that we cannot imagine reaching the results through our existing processes (Worrell, n.d.). Building on this philosophy, President Kim B. Clark, the current president of BYU-Idaho, introduced three imperatives in his inaugural address which outlined this vision.

1. Raise substantially the quality of every aspect of the experience our students have.
2. Make a BYU-Idaho education available to many more [students].
3. Lower the relative cost of education (Clark K. B., Innagural Address, 2005).

What makes BYU-Idaho different is the way the imperatives are implemented. The first is the use of the student centered Learning Model. The Learning Model includes three

principles: (1) preparing to learn, (2) teaching one another, and (3) pondering and proving one's learning (Institution Learning Model, 2013). The Learning Model involves "instructors becoming responsible for duel competency, mastery of both the subject matter and the art of conveying it for maximum student learning" (Christensen & Eyring, 2011, p. 259). Clarke followed a similar teaching method from C. Roland Christensen during his days at the Harvard Business School. Christensen argued:

> Great teaching not only engages students but makes them partners with the instructor in the learning process. That partnership requires a teaching and learning 'contract' running both between instructor and student and also among the students themselves. The contract includes the course syllabus, with its assignments and grading standards, but goes much further. It embodies the expectation that students and instructors will come to class prepared to teach one another in an environment of mutual trust and respect (Christensen & Eyring, 2011, pp. 258-259).

The partnership demonstrates effectively the use of andragogy as explained by Knowles et al. (1998) when he argued that the student is an active participant rather than a passive recipient.

The second way is in the introduction of "Foundations;" a new approach to general education (GE) classes. The Foundations program is designed to train students as "well prepared active classroom learners, and they would expect to be challenged accordingly in non-Foundations courses as they progressed toward graduation" (Christensen & Eyring, 2011, p. 264).

The third way addresses the quality outside of the classroom, which includes the university honor code or rules and regulations for conduct around campus. It is not only the

responsibility of the individual to follow the rules but it is the responsibility of each person to help each other honor the standards (Brigham Young University-Idaho , 2013).

The fourth way involves sacrifice on the part of the faculty. Faculty teaches three semesters or "tracks" per year and participates in rotation of Foundations teaching. Christensen and Eyring (2011) state:

> The sacrifice of working year-round for the sake of creating a third semester truly equivalent in quality to the other two was permanent. So was supporting the university's decision to raise average class sizes. Though the Learning Model and the carefully designed Foundations courses allowed this to occur without negative impact on the student learning experience, it increased the faculty's burden in grading and student advising. Defying tradition required more than just innovation; it also required working harder (p. 273).

Our programs follow the above model. It is anticipated that our students would increase their ability "to do".

Procedures

The effect of experiential education on self-efficacy in undergraduate students enrolled in the three programs; health science, FCS Ed., and recreation management was measured using the General Self-Efficacy Scale (GSE) developed by Schwarzer & Jerusalem (1995) (See Appendix C)[1]. We first wanted to know how our students performed on a general self-efficacy scale. We then wanted to know how the university students perceived the knowledge and value of their program in accomplishing their experiential courses.

[1] Scott Bergstrom stated reciprocal approval to conduct study at BYU – Idaho.

We emailed all registered students in the three different program areas of: Family and Consumer Science, Health Sciences, and Recreation, and invited them to participate in the student assessment. The e-mail invitation included a hot-link to the Qualtrics (2002) site at our institution. Our Qualtrics tool included the GSE scale (see Appendix C) and our six questions of experiential learning plus some general demographic information. The University of Idaho Institutional Review Board approved the study Exempt certification for IRB project #13-145 (see Appendix E) [1]. Once student consent was granted, the participant was able to complete the instrument. Upon completion the student no longer had access to the instrument. Every two weeks following the initial distribution, a reminder e-mail was sent to only those who had not yet completed the assessment. The instrument was open for six weeks.

Participants

Participants were undergraduate students from a private church sponsored university in the northwest majoring in three programs of study, FCS Ed, Recreation Management, and Health Sciences. A convenience sample was taken of 561 students from the three programs with 13% from FCS Ed, 17% from Recreation Management, 61% from Health Science and with 9% unusable. Of the final sample, 19% freshman, 23% sophomore, 24% junior, and 33% senior level students completed the assessment. Final participants included 311 students (n= 69 males and 242 females).

Protection of Subjects

All participants were 18 years old or older. Protection of participants was assured through the University of Idaho IRB process (see Appendix E for IRB number). Students were informed of their rights and gave their consent.

Instrument

Our study used the General Self-Efficacy scale (GSE) developed by Ralf Schwarzer (Schwarzer & Jerusalem, 1995; Rimm & Jerusalem, 1999). The 10-item general self-efficacy Likert type scale defines one's perceived self-efficacy. The possible range of scores for the GSE is 10-40 with 40 being the highest score possible. The participants answered each question using the following scale of: 1=not at all true, 2=barely true, 3=moderately true and 4=exactly true. Ajzen argues one should not essentially be interested in individual's actions on specific occasions, but rather focus on such phenomena as "regularities in behavior, consistent patterns of action, and response tendencies (as cited in Laganger, Kraft, & Roysamb, 2000, p. 54). Studies show the GSE has high reliability, stability, and construct validity (Laganger et al., 2000; Schwarzer, Mueller, & Greenglass, 1999). The scale has been used in numerous research projects, where it typically yielded internal consistencies between 0.75 to 0.91 (Schwarzer et al., 1999). A letter of permission can be found in the appendix (see Appendix D).

The instrument gathered three sets of data: demographics, GSE scores, and student perceptions. Participant demographics gathered basic information such as: major, gender, and year in school.

In addition to the GSE scale, we designed six additional questions to assess student perceptions in regards to experiential courses and/or experiences. Five questions assessed values and perceptions regarding experiential learning. We anticipated these five questions would inform us about the relationship between experiential learning and perceptions of professional preparation. A sixth question was added to assess the frequency of experiential application. The six Likert-type additional questions were:

1. To what extent do your experiential courses help you feel confident in preparing a lesson? 1=Great, Much=2, Some=3, Little=4, None=5.
2. To what extent do the experiential courses prepare you to design or apply the concepts you have learned? 1=Great, Much=2, Some=3, Little=4, None=5.
3. To what extent do you value your program? 1=Great, Much=2, Some=3, Little=4, None=5.
4. To what extent do you believe experiential learning improves your knowledge to perform in your profession? 1=Great, Much=2, Some=3, Little=4, None=5
5. To what extent do you value your hands-on learning in your courses? 1=Great, Much=2, Some=3, Little=4, None=5
6. How many times in the last month did you apply hands-on practice? (Never, Less than once a month, Once a month, 2-3 times a month, Once a week, 2-3 times a week, Daily).

Scores for the first five experiential learning self-efficacy results were then compared to the number of times the students reported experiential learning application.

Data and Analysis

The study used descriptive assessment methods. All data were analyzed using descriptive statistics and Pearson Correlation techniques in SPSS version 19.0. Five hundred and sixty-one students (561) agreed to participate in the study. Of the 561 students, 327 students met the criteria of currently being enrolled in Family & Consumer Sciences, Health Sciences, or Recreation. All data were then screened for incomplete information and answers. Those who did not answer both assessments were removed from the data set (16 assessments were removed) for a final sample size of 311.

Results

The purpose of this descriptive study was to examine general self-efficacy and the relationship between student perceptions of professional preparation and student reported experiential learning opportunities across three university program areas.

Measure of general self-efficacy.

The participants were 311 freshman, sophomore, junior, and senior level students (n=69 males and 242 females) in three program areas within one university. For General Self-Efficacy the participants scored 34.16 ± 3.66. Possible ranges of scores runs between 10 and 40.

Statistical hypothesis of relationships.

No relationship exists between student perceptions of professional preparation and student reported experiential learning opportunities across three university programs areas.

A significant moderate positive relationship was found between student perceptions about their program preparation and students reported experiential learning opportunities across three university program areas r=.336, p=.0001, r^2=.11, n=311. Mean personal perceptions about their knowledge and preparation in their programs=21.76±2.9; mean reported experiences= 4.87 ± 1.66. Program experiences account for approximately 11% of the variability in program self-efficacy. Approximately 89% of the variability in personal perceptions about preparation in their programs is unaccounted for in this equation.

Discussion

Our study set out to first to examine general self-efficacy and then the relationship between student perceptions of professional preparation and student reported experiential learning opportunities across three university program areas. In order to address this relationship we hypothesized the following: no relationship exists between student perceptions of professional preparation and student reported experiential learning opportunities across three university programs area.

The institution's mission, (Mission of Institution, 2008) and the Learning Model (Institutional Learning Model, 2013) center on student development and participation. It also provides a learning atmosphere which facilitates individual growth. The purpose of the courses within our programs is to build students' confidence to perform through experiential learning opportunities.

In our study, generally, we found self-efficacy is quite high when students enroll in their major program courses of FCS Ed, Recreation, and Health Science. The scale we used has a high of 40. Our students scored a 34.16 ± 3.66. In a seminal study examining the

psychometric properties of the GSE Scale, 25 samples were taken, each from a different country with a total of 19,120 participants (Knowles M. , 1980). The mean score for general self-efficacy was 29.55 ± 5.32. The highest values were found for the Costa Ricans and Danes, 33.19 and 32.87 respectively (no standard deviations reported). A mean score of 34.16 ± 3.66 is 4.61 points higher than the mean score of all samples combined and 0.97 points higher than Costa Rica's general self-efficacy score of 33.19 (no standard deviations reported) (Scholz et al., 2002).

As researchers and professional practitioners, this has significant meaning to us. Since self-efficacy is a measure of one's perception of the confidence and ability "to do", we believe that perhaps students self-select these programs because they have confidence they can meet the rigors of the program and also the mission of the university. It would appear students choose one of the three programs because they were confident they could be successful in accomplishing the specific degree. The confidence appears to stay at a high level throughout their time at the university.

The potential reasons why our general self-efficacy scores are higher may be because our university students on average are older; many have completed a church mission prior to attendance, and a high percentage of the population are defined as no longer emerging adult, but adults. Our students are enrolled in a private, religious institution in which 62.8% of them have served an 18-24 month missions, nationally and abroad (Wylie, 2014). As part of this mission, the students have no contact with family and friends beyond mail. They are responsible for their own financial resources and make decisions based on their own independence. Of the 15,584 students enrolled in the fall 2013 semester, 26.5% of them are married (Institutional Fact Sheet, 2013). A study conducted by Arnett (1998) concludes the

top two criteria for transition into adulthood, these criteria are, *accepting responsibility for one's self* and *making independent decisions*. Using these two measures for determining ones' transition into adulthood, an argument can be made that a large number of the students at our university are adults and not emerging adults. Thus an andragogical, experience centered approach would be appropriate.

The student GSE scores maintain approximately the same level throughout their four year program of study. The correlation informs us that our programs and the way the programs are taught are not eroding our student's confidence "to do" their academic experiences, rather our programs keep our student self-efficacy at a high level where they can be successful and accomplish their degrees.

Our university has been identified as an innovative university (Christensen & Eyring, 2011). One of the missions of our institution is for students to be involved in experiential learning. We wondered how students perceived the knowledge and value of their program in accomplishing their experiential courses. The five additional questions informed us there was a positive relationship between the general self-efficacy and program outcomes.

The five additional questions examined the relationship between the experientially based courses and the confidence the participants have as a result. According to the literature (Ewert, 1989; Webb, 1999) there is a connection between experiential learning and self-efficacy; for this purpose we wanted to examine three experientially taught programs and self-efficacy.

The first two questions addressed the confidence the participants had to use the knowledge they learned from their experientially taught course, while questions three and five addressed the value placed on the program and the hands-on learning in the courses.

Question four addressed experiential learning as a way to improve their knowledge to perform in their different professions.

In analyzing these questions in relation to the number of times the students reported experiential learning, we discovered there also appears to be a moderately strong relationship in what they perceive is their ability to know and perform the program requirements. A moderately strong relationship means there is a correlation between the student perceptions about their program preparation and student reported experiential learning opportunities. In other words, the students believe their experiential learning was of value to their professional preparation.

As professors in these programs this informs us our programs are building students' confidence to teach program content, confidence to apply attained knowledge, and confidence to perform in their future profession. We therefore reject our hypotheses: no relationship exists between student perceptions of professional preparation and student reported experiential learning opportunities across three university programs area, because there is a relationship between student perception of preparation and experiential learning opportunities.

In summary, we learned the students entered the programs with a high level of self-efficacy. We also found the rigors of higher education in three specific baccalaureate programs did not diminish student self-efficacy. We have stated potential reasons for this such as life experiences including age, missionary experience and marriage. We also argue university innovation as a key factor such as (1) a student centered university, (2) beliefs in extraordinary possibilities in ordinary people, (3) experientially focused learning model, (4)

inspired inquiry and innovation, and (5) the understanding of the learning and teaching process (Christensen & Eyring, 2011; Institution Learning Model, 2013).

Implications for Future Research

We originally believed that our programs, because of their intention and teaching methodology, would build self-efficacy. Our results did not necessarily find such, but our results did provide a descriptive view of our students, our programs, and student perceptions about their experiential learning experience. Our students and university are unique and different and the difference has meaning for future research. These findings have several implications for both planning curriculum to include experiential learning and assessing self-efficacy, mainly for the purpose of enriching the teaching and learning experience within undergraduate universities.

Educators new to experiential learning may question the academic value of this type of educational practice. Our research demonstrates our students come to us with high levels of self-efficacy and our educational programs do not degrade or improve the high level of self-efficacy of students as they travel through an experiential learning environment in Family and Consumer Sciences Education (FCS Ed.), Health Science and Recreation Management courses. The connection between experiential learning and self-efficacy is not new (Dewey, 1938; Knowles, Holton, Swanson 2012; Bandura, 1994). Experience is the very medium to demonstrate our level of learning. Self-efficacy, the confidence “to do” a behavior, is paramount to life-long learning. Fink (2003) describes this learning as “indirect or vicarious ‘doing’ experiences” (p. 109), which may include group work, case studies, simulations or role-playing to name a few. Experiential learning provides the medium to

engage in activities within the classroom without risks inherent in a real situation. These experiences help to build and maintain self-efficacy among freshman through senior students at our innovative university.

Our students are uniquely different and because they are, the results cannot be applied to other programs. However, the use of experiential learning techniques used at BYU – Idaho, such as group work, case studies, internships, and externships must be considered additions to effective curriculum planning. Educators and program planners can benefit from adding self-efficacy assessment into their evaluation of students in their programs. The knowledge can lead to better implementation of learning experiences to build and maintain self-efficacy levels among all ranks of undergraduate students. The GSE scale, with the six additional questions that we developed, should be used by other curriculum researchers in experiential programs to determine experiential learning self-efficacy.

Limitations of the Current Study

Because our institution is religious focused, based, and directed, there are limitations in applying the results to the greater secular world. Our students are older and many of them have had life changing adult experiences. Over 25 percent of the student population in fall semester 2013 were married (Institutional Fact Sheet, 2013). Enrollment statistics from fall semester 2013 reveal 6415 students (41%) had spent 18 – 24 months serving a proselyting mission for the Church of Jesus Christ of Latter-Day Saints (Wylie, 2014). These individuals often learn a new language and culture while living thousands of miles from home. They must be articulate, focused, and directed in their mission. They also are completely independent and success or failure is in their own hands, which sort of event is a maturing

experience intellectually, morally, and spiritually. Thus many of our students come to university as mature adults and their self-efficacy scores support the power of their life experiences.

At the same time, our institution's Learning Model is unique and innovative. Christensen and Eyring (2011) wrote a national best seller contrasting BYU – Idaho with Harvard. These unique differences are contrasted through the use of a DNA metaphor. Other institutions often pattern themselves after Harvard for its sustainability and quality of education. In 2000 BYU-Idaho administration made distinct changes to their DNA by announcing that it would no longer follow a traditional higher educational model. It was to become a four-year university and serve only undergraduates using a year-round track system designed to serve as many students as possible. The "ordinary student" was to receive a "first-class education" (Christensen & Eyring, 2011, p. 27). Along with this announcement came the elimination of all intercollegiate athletic programs and faculty tenure tracks. Emphasis was placed on the scholarship of teaching and learning. The institution's goal was to offer a high quality education to more students at a decreased tuition cost. These drastic changes were seen as "genetic engineering". Christensen and Erying recognized that "some may doubt" the use of such a unique place as a model for other institutions (p. 28). We disagree. We don't doubt because we have been a part of the experience.

Another limitation of our study is that we evaluated only three programs in our university. We don't know if the self-efficacy levels would be the same throughout other programs; that is something that should be measured. We intuitively believe that the general missionary experience of our students would equate to higher levels of GSE, but research should measure whether this is true. Also, our six questions about perception should also be

used within the general university populations to see if our phenomenon in our programs also exists across the university.

Because of the limitations listed above, we also would welcome others to use our interpretation of the GSE with its six additional questions in more secular university programs. Would a general student, not in an intense 18-24 month religious mission experience, have the same level of GSE or would their scores mimic the earlier work of Schwarzer et al. (1999) and Laganger et al. (2000)?

Future Directions

Our innovative institution, with its experiential focus, might be further studied, especially considering the other constructs of Bandura's Social Cognitive Theory (1986). These might include: outcome expectations, knowledge, outcome expectancies, goal setting, and self-control. Morgan, (2014) conducted research on the "outcome expectancies" construct in relation to program and course outcomes. Outcomes are important to the students, programs, and the university.

BYU-Idaho's administration has placed an emphasis on Student Learning Outcomes and their connection with the mission statement; this too would be an important area for study. The Student Learning Outcomes give an increased understanding of what it means to "know," "do," and "become". Future research could focus on outcome expectancies in relation to self-efficacy to ferret out if our institution is supporting Student Learning Outcomes.

Given that we focused on one outcome of Experiential Learning, personal growth, (Ewert & Garvey, 2007) other outcomes could be studied to identify relationships between

experiential learning and general self-efficacy. Garvey (2007) states the outcomes of experiential learning include personal growth, moral, group, and leadership development. Since BYU-Idaho is a religious institution, moral and leadership growth in relation to self-efficacy would be an appropriate study. These outcomes are important to the Learning Model and mission of the University.

Chapter 6: White Paper

From inside an Innovative University: Connecting the Dots of Learning and Teaching

On Tuesday, June 20, 2000, the president of Ricks College, David A. Bednar, called together the college community for an important announcement from LDS Church President Gordon B. Hinckley. President Hinckley announced that Ricks College would henceforth become BYU-Idaho.

The announcement changed the future and direction of the university. The institution would emphasize undergraduate education, only award baccalaureate degrees, and faculty rank would not be part of the academic structure. BYU – Idaho would "operate year-round incorporating innovative calendaring and scheduling, intercollegiate athletics would no longer be a part of the university, and educational costs would be lowered to provide greater access to more students" (Christensen & Eyring, 2011, p. 228). Currently, over 15,500 students are enrolled at BYU – Idaho per semester with nearly 80 majors available (Brigham Young University-Idaho , 2013; Stevens, 2014).

The majors vary depending on the mission of the institution (Christensen & Eyring, 2011). Some institutions are large and research centered with a multitude of disciplines to support their mission. Other institutions are not as research focused and their mission is toward a greater teaching emphasis. Whichever is the case, teaching and learning is a central focus whether the student is a graduate student or an undergraduate student. Because teaching and learning is so important, assessment of effectiveness of the process is continually evaluated (Carnegie Foundation, 2014). However, the debate of effective assessment can be focused on different aspects of the teaching/learning process from how

instructors present information to whether the teaching strategies used are effective within the community.

In his first all-employee meeting as president of Ricks College, David A. Bednar, invited his colleagues to think about how we think and set goals so high that we cannot imagine reaching the results through our existing processes (Worrell, n.d). The aim is found in the unique BYU-Idaho Mission Statement and Student Learning Outcomes. Following that challenge, Henry B. Eyring stated the result of this rethinking as the graduates of BYU-Idaho will become:

> …natural leaders who know how to teach and how to learn. They will have the power to innovate and improve without requiring more of what money can buy. Those graduates of BYU – Idaho will become… legendary for their capacity to build the people around them and to add value wherever they serve (Eyring, 2001).

When BYU – Idaho made the decision to move toward an innovative model, it also had a duty to prepare the faculty to meet the mission and needs of the university. One of the needs was to improve the education of its faculty and offer additional professional development. It was at this juncture that the University of Idaho was solicited to provide terminal degrees to a cohort of local educators from southeast Idaho.

Our Study

In 2011, the cohort began its journey through the Ed.D program from the University of Idaho at its institution, BYU – Idaho. Four members of that cohort conducted an assessment of BYU – Idaho students from three experientially based programs; Family & Consumer Sciences Education (FCS Ed), Health Sciences, and Recreation Management. We,

as instructors of BYU –Idaho, wanted to first examine student self-efficacy and their confidence “to do” using a general self-efficacy scale (GSE) developed by Schwarzer and Jerusalem (1995), as well as examine the relationship between student perceptions and student reported experiential learning opportunities among freshman, sophomores, juniors, and seniors. Literature shows individuals with high levels of self-efficacy are more confident in their ability to perform a certain task, or accomplish a difficult challenge (Bandura, 1994; Caulkins, White, & Russell, 2006; Cervone & Peake, 1986; Hechavarria, Renko, & Matthews, 2011).

As a result of our assessment of 311 students we found self-efficacy is generally quite high when students enroll in their major program courses of FCS Ed, Recreation, and Health Science. The scale used has a high point of 40. The students scored a 34.16 ± 3.66 and when compared to others the result is quiet high (Scholz, Gutierrez-Dona, Sud, & Schwarzer, 2002). The data we gathered on general self-efficacy matched additional data that we collected in related research of GSE of our programs. In studies measuring the self-efficacy of business students and health science students, students scored a 33.34 ± 4.39 and 33.92 ± 3.66 respectively.

We learned that the students who entered our programs had a high level of self-efficacy. We also found the rigors of higher education in a baccalaureate program did not diminish student self-efficacy. We believe the potential reasons for these scores are due to age, missionary experience and maturity level of the students. We also argue university innovation as a key factor such as (1) a student centered university, (2) beliefs in extraordinary possibilities in ordinary people, (3) experientially focused learning model, (4)

inspired inquiry and innovation, and (5) the understanding of the learning and teaching process (Christensen & Eyring, 2011; Institution Learning Model, 2013).

The student GSE scores, though not longitudinal data appear to maintain approximately the same level throughout their four-year program of study. The correlation informs us that the programs and the way the programs are taught are not eroding student's confidence "to do" their academic experiences, rather the programs keep student self-efficacy at a high level where they apply as well as be able to perform competencies.

As a part of our global study of self-efficacy at BYU-Idaho, three of us further studied GSE in BYU-Idaho students and major programs. Our personal areas of study echo the notion that measuring self-efficacy in various forms will provide a perspective into the student's confidence "to do". In one of our related studies, we focused on self-efficacy of BYU-Idaho students. Research was conducted regarding the effect a three-day adventure program had on self-efficacy of 90 business students. Adventure programming is the deliberate use of adventurous experiences to create learning in individuals or groups, which result in positive change for society and communities (Miles & Priest, 1999). Pretest, posttest, and post posttest general self-efficacy scores were measured using the GSE scale developed by Schwarzer and Jerusalem (1995). Results showed a high self-efficacy score initially (33.34 ± 4.39), and subsequent increased score following the posttest (34.12 ± 3.47) and post posttest (35.54 ± 3.09), which shows that once again our business students' GSE is high. It also shows adventure programming should increase GSE scores of the business students as well. However, it was not shown adventure programs increase one's ability in selecting a business product, overcoming failure, or having a successful business.

A second study was designed to first examine general self-efficacy and then the relationship between the Health Science program goals and GSE. The study assessed 166 junior and senior students majoring in Health Science with 31 male and 135 females participating. Along with the mission of the institution and the Learning Model, the program's goals are centered on student development and active participation associated with the profession's seven core competencies (National Commission for Health Education Credentialing, 2010). The purpose of the program and its experiential based courses is to build students' confidence to perform through opportunities. The GSE assessment showed that self-efficacy is high for Health Science students in their junior and senior year. Out of a scale of 40, the students scored a 33.92±3.66. The second part of the study showed a significant relationship between Health Science students GSE scores and assessing/evaluating (r = .364), planning/implementing/administering (r = .382) and serving/communicating (r = .376) health education programs.

A third study examined the differences between freshman through senior FCS Ed. students on *personal teaching (PTE)* and *general teaching self-efficacy (GTE)*. Of the participants, 53 scored above average on their PTE. PTE mean scores were 11.37-12.74, which was a reverse scoring on a range from 6-30. The lower the number, the stronger ones positive perceptions, relative to teaching self-efficacy which translates into being high PTE score. GTE scores accounts for approximately 12.8% of the variability in one's personal teaching self-efficacy scores. The GTE mean scores were recorded as 16.8 to 20.25 on a 6-30 scale. They were average or above average scores. No significant change occurred as they proceeded from freshmen to seniors in their teacher preparation program but there were numerically differences in scores. Understanding these differences could be important to FCS

Ed. instructors, to the BYU-Idaho FCS Ed. program and to FCS Education in general. The FCS teacher with high self-efficacy is expected to have: (1) Greater commitment to teaching (2) greater levels of planning and organizing; (3) decreased teacher burnout; and (4) utilization of a wider variety of teaching materials (Garvis, Twigg, & Pendergast, 2011).

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As a cohort of educators, one of our personal studies was not focused on education at BYU-Idaho, however, the purpose of the study was about GSE and its results also informs us about the importance of education and we have included it. A Diabetes Self-efficacy scale (DSES) assessment was given to 12 women with gestational diabetes mellitus (GDM) in three Southeast Idaho locations. A trend occurred in which the participants' level of self-efficacy increased with more visits to the certified diabetes educator. The participants' positive descriptive comments indicated a correlation with the instructor influence on perceived self-confidence to perform diabetes self-care practices. The information demonstrates the importance of including self-efficacy assessment as part of a teaching program and asking for anonymous comments from participants to inform instructors of their influence with students.

General Comments

Our general study and each of our individual studies provides a lens to view the unique qualities found in students, how they see themselves, and their relationships with their instructors. Our studies inform us of the importance of education and the importance of life experiences in developing self-efficacy.

Because BYU-Idaho is a unique place and because our students are unique, what we have learned is not generalizable to other populations. But what we have learned is location and experience does affect a student's ability "to do". We have also learned an intended intervention appears to affect an increase in self-efficacy (the adventure program study). If we value GSE growth, more experiences like Adventure Education should occur for all of our students at BYU-Idaho.

We have also learned that our students have a high general self-efficacy – we cannot verify it is a result of the BYU-Idaho experience, but something in our student's past experiences raises their GSE above the norm and their experience at BYU-Idaho does not erode the level. We believe this phenomenon of raised GSE is tied to the choice of religious mission, age, marital status, and perhaps the nature of their religious beliefs. Our students in health education and FCS are immersed in experiential courses, which they value, and believe they are prepared to meet the goals of their programs and future professions. All of this is linked to the confidence "to do" as measured by GSE but is also linked to the experiential nature of what we do at BYU-Idaho.

There is much more that can be studied using GSE at BYU-Idaho. The group study related specifically to Health, Recreation and FCS, yet there are many other programs within BYU-Idaho which would benefit from a similar study. Are there certain programs currently at BYU – Idaho which score lower in GSE, or are the scores relatively the same throughout? If other programs do score lower, are there any relationships between low GSE scores and student GPA? The same could be asked of programs with the highest levels of GSE. Are there relationships between high levels of GSE and student GPA? Although valid and intriguing, these questions are out of the scope of our study.

BYU-Idaho has been identified as an innovative university (Christensen & Eyring, 2011) with a unique DNA. We have seen firsthand what Eyring stated about the graduates of BYU-Idaho as being “legendary.” Teaching and learning are not just acquisition of knowledge but transformation of the individual. The transformation comes from within and those students can become “legendary” as well as leaders who are loyal and committed “not to an institution, but to a cause, a value” (Eyring, 2001).

The results from our studies show that the mission of BYU-Idaho, the Learning Model, and Student Learning Outcomes are what make BYU – Idaho both a unique and innovative university. We as instructors, by applying the mission of the university, empower students with significant learning experiences. These experiences not only build individual self-efficacy but develop our students to be lifelong learners.

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Appendix A
IRB Approval, Julie Buck

University of Idaho

September 11, 2013

Office of Research Assurances
Institutional Review Board
875 Perimeter Drive, MS 3010
Moscow ID 83844-3010

Phone: 208-885-6162
Fax: 208-885-5752
irb@uidaho.edu

To: Sharon Stoll
Cc: Julie Buck

From: Traci Craig, PhD
Chair, University of Idaho Institutional Review Board
University Research Office
Moscow, ID 83844-3010

Title: 'Instructor Influence on Self-Efficacy in Women with Gestational Diabetes Mellitus'

Project: 13-218

Approved: 09/11/13
Expires: 09/10/14

On behalf of the Institutional Review Board at the University of Idaho, I am pleased to inform you that the protocol for the above-named research project is approved as offering no significant risk to human subjects.

This approval is valid for one year from the date of this memo. Should there be significant changes in the protocol for this project, it will be necessary for you to resubmit the protocol for review by the Committee.

Traci Craig

Traci Craig

Appendix B

Diabetes Self-efficacy scale

The survey asks you to rate your degree of confidence for being able to carry out your diabetes-related activities. **There is no right or wrong answer.** After reading each statement, circle the number that best expresses your belief.

		Strongly agree	Moderately agree	Slightly agree	Slightly disagree	Moderately disagree	Strongly disagree
1	I can carry out practically all of the self-care activities in my daily routine.	1	2	3	4	5	6
2	I am confident in my ability to manage my diabetes.	1	2	3	4	5	6
3	I feel unsure about having to use what I know about diabetes self-treatment every day.	1	2	3	4	5	6
4	I don’t think I can follow my diabetes routine every single day.	1	2	3	4	5	6

		Strongly agree	**Moderately agree**	**Slightly agree**	**Slightly disagree**	**Moderately disagree**	**Strongly disagree**
5	I can stay on my diabetic diet when I eat in familiar places away from home.	1	2	3	4	5	6
6	I can stay on my diabetic diet when I eat in unfamiliar places.	1	2	3	4	5	6
7	I'm not sure I'll be able to follow my diabetic diet when the people around me don't know that I have diabetes.	1	2	3	4	5	6
8	I'm not sure I'll be able to follow my diabetic diet every day.	1	2	3	4	5	6
9	When I go to parties, I can follow my	1	2	3	4	5	6

	diet plan.						
		Strongly agree	**Moderately agree**	**Slightly agree**	**Slightly disagree**	**Moderately disagree**	**Strongly disagree**
10	I can exercise several times a week.	1	2	3	4	5	6
11	I can't exercise unless I feel like exercising.	1	2	3	4	5	6
12	I can figure out when to call my doctor about problems with my feet.	1	2	3	4	5	6
13	I can recognize when my blood sugar is too high.	1	2	3	4	5	6
14	When I feel sick, I can test my blood more than I routinely do.	1	2	3	4	5	6

15	I can do what is recommended to prevent low blood sugar reactions.	1	2	3	4	5	6
16	I can figure out what self-treatment to administer when my blood sugar gets higher than it should be.	1	2	3	4	5	6
		Strongly agree	**Moderately agree**	**Slightly agree**	**Slightly disagree**	**Moderately disagree**	**Strongly disagree**
17	I can fit my diabetes self-treatment routine into my usual lifestyle.	1	2	3	4	5	6
18	I think I'll be able to follow my diabetes plan even when my daily routine changes.	1	2	3	4	5	6
19	To what extent do you believe your diabetes instructor positively influenced your ability to	1	2	3	4	5	6

	manage your diabetes (to maintain proper blood sugar control, understand gestational diabetes, etc.)?						
Write a few sentences to explain your answer above.							
20	To what extent do you believe your diabetes instructor negatively influenced your actual daily practice of diabetes self management (blood sugar testing, meal management, etc)?	1	2	3	4	5	6
Write a few sentences to explain your answer above.							
21. **How many visits to this office have you had with the diabetes educator or doctor to learn how to manage your gestational diabetes? ____. (1-10+)**							

Adapted from (Hurley & Shea, 1992) **with permission.**

Appendix C
Instrument: General Self-Efficacy Scale (GSE)

	Not at all True	Barely True	Moderately True	Exactly True
1. In my program, I can manage to solve difficult problems if I try hard enough.	1	2	3	4
2. If someone opposes me, I can find means and ways to get what I want.	1	2	3	4
3. It is easy for me to stick to my aims and accomplish my goals.	1	2	3	4
4. I am confident that I could deal efficiently with unexpected events.	1	2	3	4
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.	1	2	3	4

6. I can solve most problems if I invest the necessary effort.	1	2	3	4
7. I can remain calm when facing difficulties because I can rely on my coping abilities.	1	2	3	4
8. When I am confronted with a problem, I can usually find several solutions.	1	2	3	4
9. If I am in trouble, I can usually think of a solution.	1	2	3	4
10. I can usually handle whatever comes my way.	1	2	3	4

(Schwarzer R. , 2012)

Continued next page.

Assessment Questions Measuring Student Perceptions Regarding Experientially Taught Courses

The six assessment questions asked to determine student perceptions in regards to experiential courses and/or experiences (Group Study).

1. To what extent do your experiential courses help you feel confident in preparing a lesson? 1=Great, Much=2, Some=3, Little=4, None=5.
2. To what extent do the experiential courses prepare you to design or apply the concepts you have learned? 1=Great, Much=2, Some=3, Little=4, None=5.
3. To what extent do you value your program? 1=Great, Much=2, Some=3, Little=4, None=5.
4. To what extent do you believe experiential learning improves your knowledge to perform in your profession? 1=Great, Much=2, Some=3, Little=4, None=5
5. To what extent do you value your hands-on learning in your courses? 1=Great, Much=2, Some=3, Little=4, None=5
6. How many times in the last month did you apply hands-on practice? (Never, Less than once a month, Once a month, 2-3 times a month, Once a week, 2-3 times a week, Daily).

Table 2. Cronbach's reliability analysis of the Diabetes Self-efficacy Scale (DSES) subscales for the current study[1]

Subscales	T_o
Certainty (4 items)	.50
Diet (3 items)	.84
Self-treat (5 items)	.18
Routines (4 items)	.76
Exercise (2 items)	-.26

[1]The 18-item DSE scale at T_o (N=12).

Table 3. Diabetes Survey Subsection possible range of scores and descriptive statistics for the current study

Subsection	Subsection possible range of scores	Current study Mean	Current study sd	n
Routines				
1 visit	4-24	15.75	.63	4
2 visit		15.83	.83	6
3 visit		18.0		1
4 visit		17.0		1
Self-Treat				
1 visit	5-30	25.0	4.24	4
2 visit		25.16	2.78	6
3 visit		27.0		1
4 visit		29.0		1
Diet				
1 visit	3-18	12.5	4.43	4
2 visit		13.66	2.94	6
3 visit		16.0		1
4 visit		15.0		1
Exercise				
1 visit	2-16	7.0	2.44	4
2 visit		8.5	2.42	6
3 visit		10.0		1
4 visit		7.0		1
Certainty				
1 visit	4- 26	17.75	3.20	4
2 visit		18.0		6
3 visit		23.0		1
4 visit		22.0		1

Table 4.2

Questions 19 & 20 Open-ended Responses

Participant	Response
Q19. To what extent do you believe your diabetes instructor positively influenced your ability to manage your diabetes (to maintain proper blood sugar control, understand gestational diabetes, etc.?	
#1	She taught me everything I need to know to keep my blood sugar under control.
#2	Very clear instruction. Answered questions well. Available via phone for questions/concerns which is comforting.
#3	not answered
#4	She helped me to feel confident & comfortable with what I need to do to manage my diabetes. I was given good instructions on things I can do to help.
#5	I don't follow everything and yet my diabetes is managed.
#6	Answered questions & allowed me to call for help.
#7	Gave me diet ideas.
#8	She helped me with food ideas & giving insulin at work. She also showed me how to balance the carbs (carbohydrate).
#9	I had diabetes with my last pregnancy, so I was already knew how to count carbohydrates.
#10	Only saw one time but helped with food choices and gave me blood sugar tester.
#11	Helped to see that baby can still be healthy. Gave me meal ideas and cookbook.
#12	I think she did really well. Spent 2 1/2 hours. Used models, portion handouts.
Q20. To what extent do you believe your diabetes instructor positively influenced your actual daily practice of diabetes self management (blood sugar testing, meal management, etc.)?	
#1	What foods I eat and how often I eat them and proportion sizes and checking my blood sugar after every meal.
#2	She was positive, nonjudgmental. I don't feel bad about my routines so I'm more likely to follow instruction.
#3	Not answered.
#4	She gave me good ideas of things I can do daily to help w/my blood sugar & made sure I understood everything that I should be doing.
#5	Not answered.
#6	Helped me with insulin & food.
#7	Gave me the tools to choose & eat healthy.
#8	Made it easier and helped me with my supervisor at work to fit-in testing and meals.
#9	She was very positive.
#10	Not answered.
#11	Called me to get by sugars and helped with changing the insulin.
#12	At first I did really well, first few weeks. Once on my own, "ignorance is bliss". If I didn't check my blood sugar it couldn't be high.

Appendix D
Letter of Approval for GSE Scale Use

Fachbereich Erziehungs-
wissenschaft und Psychologie
- Gesundheitspsychologie -

Professor Dr. Ralf Schwarzer
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Permission granted

to use the General Self-Efficacy Scale for non-commercial reseach and development purposes. The scale may be shortened and/or modified to meet the particular requirements of the research context.

http://userpage.fu-berlin.de/~health/selfscal.htm

You may print an unlimited number of copies on paper for distribution to research participants. Or the scale may be used in online survey research if the user group is limited to certified users who enter the website with a password.

There is no permission to publish the scale in the Internet, or to print it in publications (except 1 sample item).

The source needs to be cited, the URL mentioned above as well as the book publication:

Schwarzer, R., & Jerusalem, M. **(1995)**. Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp.35-37). Windsor, UK: NFER-NELSON.

Professor Dr. Ralf Schwarzer
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Appendix E
IRB Approval, Tom Anderson, Julie Buck, Cheryl Empey, Jim Hopla

University of Idaho
Office of Research Assurances (ORA)
Institutional Review Board (IRB)
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June 3, 2013

To: Sharon Stoll
Cc: Julie Buck, Cheryl Empey, Tom Anderson, Jim Hopla

From: IRB, University of Idaho Institutional Review Board

Subject: Exempt Certification for IRB project number 13-145

Determination: June 3, 2013
Certified as Exempt under category 2 at 45 CFR 46.101(b)(2)
IRB project number 13-145: Experiential learning and self efficacy in undergraduate students

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This study may be conducted according to the protocol described in the Application without further review by the IRB. As specific instruments are developed, each should be forwarded to the ORA, in order to allow the IRB to maintain current records. Every effort should be made to ensure that the project is conducted in a manner consistent with the three fundamental principles identified in the Belmont Report: respect for persons; beneficence; and justice.

It is important to note that certification of exemption is NOT approval by the IRB. Do not include the statement that the UI IRB has reviewed and approved the study for human subject participation. Remove all statements of IRB Approval and IRB contact information from study materials that will be disseminated to participants. Instead please indicate, "The University of Idaho Institutional Review Board has Certified this project as Exempt."

Certification of exemption is not to be construed as authorization to recruit participants or conduct research in schools or other institutions, including on Native Reserved lands or within Native Institutions, which have their own policies that require approvals before Human Subjects Research Projects can begin. This authorization must be obtained from the appropriate Tribal Government (or equivalent) and/or Institutional Administration. This may include independent review by a tribal or institutional IRB or equivalent. It is the investigator's responsibility to obtain all such necessary approvals and provide copies of these approvals to ORA, in order to allow the IRB to maintain current records.

This certification is valid only for the study protocol as it was submitted to the ORA. Studies certified as Exempt are not subject to continuing review (this Certification does not expire). If any changes are made to the study protocol, you must submit the changes to the ORA for determination that the study remains Exempt before implementing the changes. The IRB Modification Request Form is available online at: http://www.uidaho.edu/ora/committees/irb/irbforms