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Nursing Professional Development Practitioner's Experience of Use of Instructional Design Industry Standards

Denise Renfro

California State University, Northern California Consortium Doctor of Nursing Practice

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**Nursing Professional Development Practitioner's Experience of Use
of Instructional Design Industry Standards**

Denise Renfro

A doctoral project completed in partial fulfillment of the requirements
for the degree of Doctor of Nursing Practice in the Valley Foundation
School of Nursing, San José State University

May 2023

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Dedication

To my husband, David, my children Kaitlyn and Joshua, I love you all so very much. Thank you for your support, encouragement, patience, and love. David, thank you for your strength, support and partnership, and your unwavering belief in me. I could not have done this without you. To my mom who always told me I could be whatever I wanted to be. All my love, always.

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Nursing Professional Development Practitioner's Experience of Use of Instructional Design

Industry Standards

Denise Renfro, MS, RN, NPD-BC

Doctor of Nursing Practice Program

The Valley Foundation School of Nursing

San José State University

May 5th, 2023

Abstract

Instructional design (ID) is a critical skill for nursing professional development practitioners (NPDs). Instructional design seeks to solve gaps in knowledge or skill by identifying both the educational issue and the outcomes by designing how to achieve the outcomes. There are complex and advanced instructional design needs for problem solving that requires an educational foundation in instructional design and experience. The purpose of the quality-improvement project was to assess the changes in NPD practitioners'/nurse educators' adaptation to industry standards for ID pre- and post-implementation of a standardized instructional design model. The Nurse Educator Self-Assessment in Measuring Learning survey was developed to capture NPDs' experience of use of ID industry standards for instructional designing before and after the implementation of a standardized instructional design model. This information would be helpful to improve future implementation and provide considerations for best use of resources, which includes NPD practitioners with ID experience, who could be supportive resources for novice instructional designers. In addition, this information could help with the planning of education and training to ID standards and the introduction to a new ID model and its implementation.

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Introduction

Problem Description

Nursing professional development (NPD) practitioners working in hospital settings are frequently navigating their work in a complex environment, facilitating staff nurses' learning, enhancing competence, and pursuing other professional development opportunities to improve patient outcomes. NPDs are challenged to design quality and effective education while demonstrating the impact of their training at the organizational level (Paramoure, 2014). Educational activities can be planned well in advance, but more often are required within a few hours of a training request. It is not unusual for a critical event to occur, requiring an immediate teaching response.

In times of fiscal constraints, nursing professional-development departments are vulnerable, and reduction in resources—whether it be human capital, department budget, or supplies—are considered (Miller, 2002; Paramoure, 2014; Smith & Knapp, 2019). Another challenge is that other healthcare leaders may find difficulty in understanding the purpose or functions of the nurse educator's practice. The inability to demonstrate organizational-level impact, cost savings, and alignment with operational leadership can lead to questions about what the nursing education department does, whether they are in touch with the rest of clinical operations, and what value the nursing professional-development department brings to the organization (Garrison & Beverage, 2018; Miller, 2002; Opperman et al., 2016a, 2016b; Paramoure, 2014).

Scope of the Problem

A nursing professional-development department at a large tertiary hospital in Northern California faces the following challenges: inconsistent use of a standardized instructional design

(ID) model, lack of standardized evaluation of training, lack of clearly assigned accountability for the specific aspects of the requested activity, and the inability to demonstrate organizational impact. When data from evaluations of education are provided, they support a reflective practice for NPDs, and the lack of this standardized data negatively impacts a nursing professional-development department (Johnson-Barlow & Lehnen, 2021; Paramoure, 2014).

Inconsistent use of an ID model results in the lack of a standardized approach for designing content and evaluation. This highlights the inability to demonstrate the outcome of training and the value of the nursing educators' efforts, or to ensure clarity of both individual and shared accountability of all stakeholders involved in the educational partnership (Turner, 2016, Paramoure, 2013). Currently, accountability among the NPD and nurse leadership results in role confusion and an inability to optimize the limited NPD workforce.

Literature Review

Critical Appraisal of the Evidence

A literature review was conducted using the following search terms and phrases: "instructional design," "instructional design and measurement," "measuring and evaluating learning," "measuring learning," "workplace training," "effectiveness of training," "relationship," "collaboration," "alignment," "trainers," "stakeholders," "return on investment," "return on investment in learning," "return on investment in measuring learning," and "return on investment and evaluation." In addition, "Benner's novice to expert," "nurse educator novice to expert," and "novice to expert clinical nurse educator in hospital setting" were other search terms used. The literature search used library databases such as Google Scholar, One Search, Cinahl Complete, Gale OneFile Educator Reference Complete, Gale Nursing & Allied Health, and PubMed. The types of literature obtained include narratives, a scoping review, a dissertation,

a meta-analysis, a systematic review, and an article on instructional-design software. Additional studies outside nursing with quantitative-study designs and qualitative literature focused on nursing.

Literature

Business and Learner Objects for Accountability

A foundational study by Miller (2013) highlights accountability, as organizations are economic entities that will evaluate each organizational component from a return-on-investment perspective. Her dissertation discusses the recent shift of training accountability to training professionals. The dissertation's purpose was to compare trainers' and non-trainer managers' perceptions of design intent and the organizational impact of the training. Miller discussed learner and organizational objectives, Kirkpatrick's model, and evaluation as evidence of objectives achieved in training. The study shared that training professionals know and understand business metrics, yet, cannot offer training results at the business or organizational level, which is not equivalent to a business knowledge gap of the training professional, but that of measurement of training at the organizational level. Miller writes that the training professional and non-trainer managers should identify training expectations reflecting organizational and learner improvement to show unity and movement towards accountability (Miller, 2002).

Spending on Training Corporate Versus Healthcare

The American Society for Training and Development's (ASTD) State of the Industry Report (2013) discusses what 475 organizations spent in 2012 for learning and development: approximately \$164.2 billion. The employee expenditure was stable at \$1,195 in 2012, according to the Association for Talent Development (2019). In 2021, total corporate training expenditure

was \$92.3 billion. Healthcare organizations spend \$602 compared to (non-healthcare?) \$1,296.00 per employee yearly (Miller, 2013).

Librarians and ID Models

This scoping review of 11,221 abstracts found 58 articles discussing systematic ID or an ID model to develop an instructional product. Academic libraries teach to increasingly diverse populations. They are interested in learning theories and ID models used by academic librarians. The scoping review found ID models to provide guidance and evaluation, yielding a consistent, high-quality instructional product. Instructional design may lend itself as a collaborative tool and demonstrate the value of librarians' work (Johnson-Barlow & Lehnen, 2021).

Training Sustainment

A meta-analysis of factors for successful sustainment by Hughes et al. (2020) discusses the commitment to education and training by all organizational leadership. It discusses how poor use of knowledge, skill, and ability (KSAs) may equal compromised safety and performance. Education and training are a serious commitment, as 52% to 92% of acquired learning could be lost within a year following training. In healthcare, the stakes are high, and organizations should not expect the transfer of training into practice, as a one-time event reinforcement is needed (Hughes et al., 2020).

In Göksu et al.'s (2017) content analysis of research trends in instructional design models, the researchers looked at 113 papers on ID. Table of ID models and variables were examined to determine how ID influences each variable (Göksu et al., 2017). One of the findings was that the analysis, design, development, implementation, evaluation (ADDIE) model was the most preferred.

Rationale

Gap In Practice

Despite evidence identifying the importance of the nursing professional-development department's need to demonstrate impact at the organizational level, measurement to show how training adds capability to the organization is lacking in many large tertiary hospitals. Though this gap in evaluation and impact is being addressed as a broad focus among NPD practitioners, the problem has not yet been resolved on a wide-scale approach (Allen et al., 2021, 2022; Fu et al., 2018; Garrison & Beverage, 2018; Opperman et al., n.d., 2016).

Specific Aims/Purpose

This project proposal aims to assess the changes in NPD practitioners' adaptation to industry standards for ID, as this NPD department further implements a standardized instructional design model. This effort will facilitate the measurement of learning in a nursing professional-development department, resulting in a standardized approach to evaluate educational outcomes and demonstrate a strong impact on operational goals, while aligning accountability that can lead to optimum clinical outcomes as set by the selected key performance metrics (KPMs). These KPMs are critical to ensure training addresses an organizational need.

Theoretical Framework

Measurable Instructional Design (MID) Model

The measurable instructional design (MID) model will serve as the theoretical framework for this quality-improvement project. The model's key elements are key performance metrics (KPM), job requirements, training objectives, instructional strategies, and mastery tests.

Integrated within the MID model are Kirkpatrick's levels of measurement two to four

(Paramoure, 2015). For the purpose of this quality-improvement project, the MID model (Figure 1) represents use of industry standards for instructional designing.

Figure 1

Measurable Instructional Design (MID) Model



Source: Paramoure (2015).

Key Elements of the Model

Key performance metric (KPM). A key performance metric is a metric that the training provided by an NPD Practitioner can directly influence. These key performance metrics address the training goals. A change in knowledge, skill, or attitude (KSA) changes the KPM (Paramoure, 2015).

Job Requirements. Job requirements (performance standards) identify training content and job-performance expectations for staff learners, and provide a measure of success for both the nurse educator and the manager. Examples of job requirements are policy, procedure, or standard operating procedure (SOP). The alignment of the nurse educator and the nurse manager comes from the job requirements, as do the means of measurement (KPMs). Alignment ensures the cost of training is spent on organizational needs for performance improvement, ultimately connecting design and organizational results (Paramoure, 2015). The next step of the MID model is relating the KMPs to the training goal and the measurable training objectives.

Measurable Objectives. Measurable objectives incorporate the required performance, conditions, and criteria for successful performance. The nurse educator can then begin the instructional design by focusing on the measurable objectives (Paramoure, 2015).

Accountability. The MID model promotes building a relationship with nurse managers and assigning accountability using the accountability matrix as the nurse educator and nurse manager progress through the MID model (Paramoure, 2015).

There are different points of accountability applied in the model, such as the pre-, post-, and transfer test (90 days post-education). A test result indicates who is accountable for that particular action of the MID model. For example, the KPMs are selected by both the nurse educator and the nurse manager. A pretest will be developed based on the KPMs. If pretest scores are high, knowledge is not an issue, and a new KPM should be considered by both the nurse educator and nurse manager who have accountability at this aspect of the model. A posttest score focuses on the nurse educator's instructional design and instruction, making the educator accountable (Paramoure, 2014, 2015).

Accountability for the posttest scores belong to the nurse manager. If posttest scores are low, this would mean something in the environment is not supportive of knowledge transfer. The nurse manager must address anything prohibiting knowledge, skill, and ability (KSA) transfer (Paramoure, 2014, 2015). According to Hughes et al. (2020), the transfer of training to the work environment and sustainment of success is based on work-environment support. Commitment and accountability on the staff learner, supervisor, and organizational leadership are essential. Clear accountability ensures the correct entity is addressing their phase of the evaluation/process (Paramoure, 2011).

Origin

One of the first models to tackle training measurement and impact was the Kirkpatrick model, with four levels of measurement. Phillips' return on investment (ROI) was the fifth and final level. Below are the five levels of measurement. The ASTD's premise is that training impacts knowledge, skills, or attitudes. The MID model pulls from these concepts: training measurement and impact, the goal of knowledge and skill acquisition, and the need to demonstrate the organizational impact. The model focuses on the design and facilitation of training (Paramoure, 2014).

- Reaction: The learner's perception about training.
- Learning: How much has the student increased knowledge and skill?
- Behavior change: Did training change the learner's behavior?
- Results: Did the organization change as a result of the training?
- ROI: Philips suggests ROI as the highest level of evaluation and linked business results to training.

Kirkpatrick's levels of measurement two to four are integrated as part of the MID model steps (see Table 1).

Assumptions

The MID model is structured to provide a road map for measurable instructional design, collaboration, accountability, and demonstrating organizational impact, in an effort to close the critical gap of evaluation that persists in the nursing education arena (Paramoure, 2014, 2015).

Table 1*Steps in Instructional Design and Points for Program Evaluation*

Steps in Instructional Design	Points to Evaluate Program
Identify the key performance metric to be impacted	Knowledge or skill gain in the classroom (Level 2)
Align job requirements to the program using standards	Application of new knowledge and skills on the job (Level 3)
Use training objectives that include conditions, criteria, and performance on the job	Changes to the organization (Level 4)
Tie mastery directly to objectives	
Use instructional strategies appropriate for knowledge and skills measurement	

Source: Paramoure (2015).

Applicability

Instructional-design models have evaluation integrated as part of their design at the end of the training. Still, current literature demonstrates that there isn't agreement among professionals in nursing education or the training industry on which model stands out. The consensus is that return on investment—demonstrating the addition of the capability to the organization—is crucial for all training professionals. While NPD practitioners can conduct an economic assessment and cost analysis, there remains a gap between demonstrating alignment with the organization's business goals, establishing accountability, and communicating value (Paramoure, 2015).

The MID model should close this gap with both business and learner objectives, integrating evaluation throughout the model, sharing responsibility for training, and assigning accountability of different impact points of the MID model. The KPMs are critical as they align the training to organizational needs. Mastery tests are not only cost-saving measures but provide data specific to the NPD practitioner or training professional. The MID model supports data-

driven decision-making. The MID model and the ID serve as a blueprint for transparent instruction, meeting the organization's and learner's needs. The applicability of the MID model goes beyond nursing professional development and addresses the question of what nursing professional development contributes to organizational goals. (Gosksu et al., 2017; Hughes et al., 2020; Miller 2002; Opperman et al., 2016; Paramoure, 2014).

Methods

Project Design

This quality-improvement project utilizes a quasi-experimental, pre- and post-study design to assess the experience of nurse educators' use of instructional design (ID) industry standards before and after implementation of the measurable instructional design (MID) model (Paramoure, 2014). This project will also assess changes in the nurse educator's adaptation to ID industry standards while implementing a standardized instructional design model. For the purposes of this quality-improvement project, nurse educators will be addressed as nursing professional development (NPD) practitioners.

Project Setting

The setting for this project is a nursing professional-development department at a large tertiary hospital in Northern California. The nursing professional-development department consists of 19 NPDs. This large tertiary hospital has greater than 500 beds providing medical and surgical services both inpatient and outpatient, in addition to other specialty health services. The age range for the patient population is adult care, 18 to >80 years old.

The nursing professional-development department provides education and training to approximately 1,800 front-line nursing staff. This department also offers interprofessional training for specific healthcare team needs, such as simulation on sepsis and rapid response

training. Other types of training provided to non-nursing team members include basic life support (BLS) and advanced cardiac life support (ACLS) classes.

Since the 2019 pandemic, interprofessional education and training programs have expanded to include environmental management services (EMS) and engineering, for personal protective equipment (PPE) donning and doffing education. This level of support continues through the pandemic recovery phase, although the department is seeing fewer requests.

Population & Sample

Participants

Participants for this quality-improvement project are the NPD practitioners at a large tertiary hospital. Six NPD practitioners were trained on the MID model and IMPACT System Software, system software platform Business Impact 2.0. The six NPD practitioners who completed the course were certified. This cohort of six would then become trainers for their department colleagues. This is the second cohort to be trained to use the MID model and IMPACT System Software, but the pandemic and following surges halted the efforts of this first group.

There are six NPD practitioners selected for the second cohort for MID model training with four assigned to nursing service specialties working directly with frontline staff. The remaining two NPD practitioners oversee various nursing programs that support the infrastructure for clinical operations.

The remaining 13 NPD practitioners are a mix of service-based NPD practitioners (working directly on the units with front-line nursing staff) and core NPD practitioners that oversee various nursing programs that support infrastructure for clinical operations. The level of participation for the remaining 13 NPD practitioners is limited to taking the pre- and post-survey

tests entitled Nurse Educator Self-Assessment in Measuring Learning (Appendix C). The completion of these surveys established a baseline of their experience in use of ID industry standards and serves as a comparison group. Although not a part of this project, this group of 13 NPD practitioners will later be trained on the MID model by the cohort of six NPD practitioners.

Sample

Convenience sampling was utilized for this quality-improvement project. The sample consisted of 19 NPD practitioners. The NPD practitioner's education levels are bachelors, masters, and doctorate. Years of experience as nurse educator vary from less than five years of experience to more than 20 years of experience. A few NPD practitioners are academically prepared as nurse educators with master's degrees in nursing education, while others have years of clinical experience as staff nurses or are registered nurse practitioners (RNPs) who are now in a teaching role. There are a few nurse educators who have taught in the academic setting.

Email Solicitation

An email was sent to the NPD practitioners inviting them to participate in a voluntary, anonymous online survey (Appendix A). The email contained a link to the survey, the purpose, time commitment, and the risks and benefits of participating in the project. This email communicated that taking the survey was voluntary and completing the survey was considered consent for participation. The email also included the survey instructions and provided the doctor of nursing practice (DNP) student contact information, as well as the university's clinical project advisor's contact information. I had ongoing access to the voluntary, anonymous survey instrument on Microsoft forms and the results that followed completion.

Data Collection

Demographic Data.

A voluntary, anonymous, online survey of six demographic questions was offered to capture descriptive statistics of the nursing education team (Appendix B). The questions were on years of experience as a nurse educator, years as a registered nurse, age, gender, ethnicity, and highest level of education attained.

Pre-Survey and Post-Survey

Each NPD practitioner was asked to complete a pre-survey—the Nurse Educator Self-Assessment in Measuring Learning—reflecting on current or past training before implementation of the MID model. After the MID model implementation and completion of designed course, each participant would take the Nurse Educator Self-Assessment in Measuring Learning as a post-survey reflecting on the education created with the MID model. Thirteen non-participating NPDs took the pre- and post-survey to serve as a baseline and to assess consistency in response and serve as a comparison for the six NPDs that are part of the quality-improvement project.

The Nurse Educator Self-Assessment in Measuring Learning is based on the MID model principles which, for the purpose of this quality-improvement project, represent the ID industry standards. The pre- and post-survey uses a 5-point Likert scale with 0 representing “Never” and 4 representing “Always,” and has 18 self-assessment outcome measures. There are four questions on what level of Kirkpatrick training was measured, one question on the 5th level of measurement—return on investment (ROI)—converting training results to monetary values and comparing to the cost of program. The remaining 14 questions were based on frequency of using a pre-, post-, and transfer test, comparing pre- and posttests, comparing posttest and transfer test, and comparing baseline and post key performance metrics as well as the frequency of using data

for the identification and correction of instructional design problems. In addition, the remaining 14 questions focused on identifying KPMs, working with leadership in KPM identification, sharing training plan and outcome data, and finally questions on clear accountability for the NPD and nurse leader (Paramoure, 2011, 2014).

The intent of the pre- and post-survey is to assess the NPD practitioner's experience of use of instructional-design industry standards. This questions whether an ID model was in use prior to the implementation of the standardized ID model, and whether there was a behavior change or adaptation after implementation and introduction to ID industry standards.

The pre-survey was offered on Microsoft forms. There were no costs or gifts for the participants, nor were there any risks to their job or profession if they chose not to take part or wished to stop the process at any point. Benefits to the participants are measurable instructional design for data-driven decision-making and the ability to impact at the organizational level by adding the capability to achieve organizational goals and being able to demonstrate the value of teaching activities.

Data Analysis

All pre-survey responses were collected in Microsoft forms and imported to an Excel spreadsheet for data entry into R statistical software for statistical computing. Descriptive statistics of the demographic survey data and correlational analysis using Pearson's correlation coefficient was used to assess the strength of the relationship between NPD experience and NPD level of education attainment to each of the 18 self-assessment outcome measures.

Procedures

Planning and Training

There was simultaneous preparation ongoing in the nursing professional-development department. The NPDs were resuming a 2020 nursing service initiative. As such, all NPD practitioners were asked to read a book and view a YouTube video about the MID model in preparation for future training and use of the MID model. The three remaining NPDs from the first cohort were invited to refresh on the MID model material and were also invited to begin use of the MID model and join the coaching classes with the second cohort.

For this quality-improvement project, the purpose was to assess the experience of the six NPD practitioners and their use of industry standards in regard to ID before and after the MID model, and/or changes in their adaptation to industry standards while implementing a standardized instructional-design model. These six NPD practitioners completed the same virtual training content that was completed by the first cohort in 2020. The virtual classes consisted of three eight-hour training days on the MID model and IMPACT system software. Prior to the virtual class, a pretest was taken on instructional design concepts. Supportive learning material included reading a short book (Paramoure, 2014), approximately 2.5 hours of reading, and watch a YouTube video on MID model concepts that was approximately 42 minutes long. Additional class material included Power Point handouts on the MID model concepts and other guides for reference when working with the MID model and the IMPACT system. Lecture, group work, and a practice activity of designing their next teaching event using the MID model and IMPACT system software was required. The training days culminated with a posttest. Individual or group coaching sessions were available if needed to help reinforce concepts. A few of the NPDs from both cohorts attended both individual coaching and group coaching.

Additional Requirements

IRB

This project was conducted as a quality improvement project, and therefore was not supervised by the institutional review board.

Risks

The risk for participation in the voluntary, anonymous pre-survey was minimal. The deidentified statistical analysis will be shared with operational leadership. There is no risk of any impact on the participants' employment based on the pre-survey results. Should any psychological distress be experienced, employee assistance program (EAP) is available, and the contact information was provided with the survey.

Benefits

There are no financial or employment benefits in this study; however, there is potential for an increase in knowledge and skill-level acquisition which could improve marketability for future roles, or improved job satisfaction.

Costs

There was zero cost for the subjects participating in this quality-improvement project.

Payment

There was no payment to subjects for any aspects of participation in this project.

Confidentiality

The demographic questions and the survey instruments are anonymous. Microsoft Forms was used for the demographic questions and survey instrument completion by the participants. I emailed a survey link to each participant with the solicitation email. Participants were asked to

select the last four numbers of a phone number that is unknown to me but one that they could recall easily for the post-survey, to assist with alignment of the pre- and posttest responses.

I was the only one with access to the survey and data in Microsoft Forms. Data from was exported from Microsoft Forms to Excel and was stored in a secured drive accessible only to myself. The drive is within a protected server. There were no participant identifiers.

Results

The convenience sample consisted of 19 NPD practitioners for this quality-improvement project. The datasets used for analysis was the Demographic Questionnaire and Pre-Survey, Nurse Educator Self-Assessment in Measuring Learning. The dataset was loaded within the R computing environment. There is a precautionary note in regard to the analysis, which will be discussed in the limitations section.

Demographic results

The Demographic Questionnaire response rate was 68% (N=13). The majority of the participants identified as female 92.3% (N=12), 7.69% (N=1) identified as male.

The participants are in the following age ranges: 25–32 years old, 15.3% (N=2); 35–44 years old, 23% (N=3); 45–54 years old, 23% (N=3); over 55 years old, 38.4% (N=5).

Ethnicity of the participants are White/Caucasian, 46.1% (N=6); Hispanic/Latino, zero; Black/African American, 15.3% (N=2); Native American/American Indian, 0%; Asian/Pacific Islander, 38.4% (N=5); Other, 0%.

Years as a Registered Nurse: 0–5 years, 0%; 6–11 years, 15.3% (N=2); 12–17 years, 30.7% (N=4); 18–23 years, 7.69% (N=1); 24–29 years, 15.3% (N=2); 30–35 years, 15.3% (N=2); 36 years or more, 15.3% (N=2).

Experience level, capturing the years of experience as a Nurse Educator/NPD practitioner, of the participants is as follows: 0–5 years, 38.4% (N=5); 6–11 years, 7.69% (N=1); 12–17 years, 30.7% (N=4); 18–23 years, 7.69% (N=1); 24–29 years, 0%; 30–35 years, 7.69% (N=1); 36 years or more, 7.69% (N=1); total 100% (N=13). See Table 2.

Table 2*Categorical Distribution of Experience*

<i>Variable category</i>	<i>Sample frequency</i>	<i>Sample percent</i>
0-5 years	5	38.462
6-11 years	1	7.692
12-17 years	4	30.769
18-23 years	1	7.692
24-29 years	0	0
30-35 years	1	7.692
36 years or more	1	7.692
Total	13	100

Education level of the participants—asking the highest level of educational attainment reached—is as follows: Less than High School (HS) Diploma, zero; HS or Equivalent, zero; bachelor's degree, 15.3% (N=2); master's degree, 46.1% (N=6); doctorate, 38.4% (N=5); total 100% (N=13). See Table 3.

Table 3*Categorical Distribution of Education Level*

<i>Variable category</i>	<i>Sample frequency</i>	<i>Sample percent</i>
Less than HS diploma	0	0
HS or equivalent	0	0
Bachelor's degree	2	15.385
Master's degree	6	46.154
Doctorate	5	38.462
Total	13	100

Descriptive Statistics of Pre-Survey Data

Descriptive Statistics

The pre-survey response rate was 68% (N=13). Provided are the output for the means, standard deviations, and interquartile ranges (minimum, 25th percentile, median, 75th percentile, and maximum) in Table 5.

Of note, because of the small sample size, there are omitted categories of many of these variables. For example, for highest level of educational attainment reached, respondents indicated holding either a bachelor's degree, master's degree, or doctorate, leaving responses of 0 in the possible answer categories of "less than HS diploma" and "HS or Equivalent," indicating that no survey respondents selected these two respective categories of educational attainment. Another example is the independent variable of experience level: no survey respondents marked 24–29 years of experience as a response on the scale.

Interpretation of Continuous Descriptive Statistics

Independent Variables:

Respondent years of experience ranged from (1) indicating 0–5 years to (7) indicating 36 years or more. The average years of experience was 2.8, indicating about a response of (3) indicating 12–17 years (SD=2.0).

Respondent years of education ranged from (3) a bachelor's degree to (5) indicating a doctorate degree. The average education was 4.2 indicating about a response of about (4) of a master's degree (SD=0.7).

Assessment Measures Outcome Variables

Note that the scale of these assessments is as follows: (1) Never, (2) Rarely, (3) Sometimes, (4) Often, (5) Always.

Table 4*Descriptive Statistics of Variables Treated as Continuous*

Variable	N	Mean	St. Dev.	Min	Pctl (25)	Median	Pctl (75)	Max
Years of experience as a Nurse Educator (Please select the best response)	13	2.8	2.0	1	1	3	3	7
What is the highest degree or level of school you have completed?	13	4.2	0.7	3	4	4	5	5
Measure training at the Kirkpatrick's level 1 Reaction (What a learner thinks and feels about training?)	13	4.1	0.9	2	4	4	5	5
Measure training at the Kirkpatrick's level 2 Learning (How much the learner increased knowledge and skill?)	13	3.8	1.0	2	3	4	5	5
Measure training at the Kirkpatrick's level 3 Behavior change (Did the learner's behavior change due to the training?)	13	2.8	1.4	1	2	3	4	5
Measure training at the Kirkpatrick's level 4 Results (Did the organization change due to the training?)	13	2.5	1.5	1	1	2	4	5
Convert the training results to monetary values and compare to cost of program?	13	2.2	1.3	1	1	2	3	5
Administer a pretest to assess baseline knowledge?	13	3.0	0.7	2	3	3	3	4
Administer a posttest to assess knowledge gained from the training?	13	3.5	1.0	2	3	4	4	5
Administer a transfer test to demonstrate knowledge retained and used in patient care?	13	2.5	1.5	1	1	2	4	5
Compare pretest and posttest to demonstrate knowledge gained from the training? (Kirkpatrick level 2 learning)	13	3.1	1.6	1	2	3	4	5
Compare posttest and transfer test to demonstrate knowledge gained from the training, retained and used in patient care? (Kirkpatrick level 3-behavior change)	13	2.4	1.6	1	1	2	4	5
Compare baseline key performance metric (KPMs) and post KPMs? (Kirkpatrick level 4-Results)	13	2.0	1.3	1	1	1	3	4
Use the data from the pre- and posttest scores to identify problems with the instructional design?	13	2.8	1.5	1	1	3	4	5
Identify key performance metrics (KPMs) prior to training?	13	3.3	1.4	1	2	4	4	5
Collaborate with Nurse Managers to Identify the key performance metric (KPMs)?	13	3.2	1.6	1	2	4	4	5
Share the training data with the Nurse Manager?	13	3.5	1.3	1	3	4	4	5
Before the MID model was implemented accountability for learning was clearly assigned to Nurse Educator?	13	3.5	1.2	1	3	3	4	5
Before the MID model was implemented accountability for learning was clearly assigned to Nurse Manager?	13	2.7	1.0	1	2	3	3	4

Responses to assessment measure (1): Measure training at the Kirkpatrick's level 1 Reaction (what a learner thinks and feels about training?). Ranged from 2 (rarely assessed) to 5 (always assessed) (M=4.1, SD=0.9).

Responses to assessment measure (2): Measure training at the Kirkpatrick's level 2 Learning (how much the learner increased knowledge and skill?). Ranged from 2 (rarely assessed) to 5 (always assessed) (M=3.8, SD=1).

Responses to assessment measure (3): Measure training at the Kirkpatrick's level 3 Behavior change (did the learner's behavior change due to the training?). Ranged from 1 (rarely assessed) to 5 (always assessed) (M=3.8, SD=1.4).

Responses to assessment measure (4): Measure training at the Kirkpatrick's level 4 Results (did the organization change due to the training?). Ranged from 1 (rarely assessed) to 5 (always assessed) (M=2.5, SD=1.5).

Responses to assessment measure (5): Convert the training results to monetary values and compare to cost of program? Ranged from 1 (rarely assessed) to 5 (always assessed) (M=2.2, SD=1.3).

Responses to assessment measure (6): Administer a pretest to assess baseline knowledge? Ranged from 2 (rarely assessed) to 4 (always assessed) (M=3.0, SD=0.7).

Responses to assessment measure (7): Administer a posttest to assess knowledge gained from the training? Ranged from 2 (rarely assessed) to 5 (always assessed) (M=3.5, SD=1.0).

Responses to assessment measure (8): Administer a transfer test to demonstrate knowledge retained and used in patient care? Ranged from (rarely assessed) to 5 (always assessed) (M=2.5, SD=1.5).

Responses to assessment measure (9): Compare pretest and posttest to demonstrate knowledge gained from the training? (Kirkpatrick level 2 learning). Ranged from 1 (rarely assessed) to 5 (always assessed) (M=3.1, SD=1.6).

Responses to assessment measure (10): Compare posttest and transfer test to demonstrate knowledge gained from the training, retained and used in patient care? (Kirkpatrick level 3 behavior change) ranged from 1 (rarely assessed) to 5 (always assessed) (M=2.4, SD=1.6).

Responses to assessment measure (11): Compare baseline key performance metric (KPMs) and post KPMs? (Kirkpatrick level 4—Results) ranged from 1 (rarely assessed) to 5 (always assessed) (M=2.0, SD=1.3).

Responses to assessment measure (12): Use the data from the pre- and posttest scores to identify problems with the instructional design? ranged from 1 (rarely assessed) to 5 (always assessed) (M=2.8, SD=1.5).

Responses to assessment measure (13): Identify key performance metrics (KPMs) prior to training? ranged from 1 (rarely assessed) to 5 (always assessed) (M=3.3, SD=1.4).

Responses to assessment measure (14): Collaborate with Nurse Managers to Identify the key performance metric (KPMs)? ranged from 1 (rarely assessed) to 5 (always assessed) (M=3.2, SD=1.6).

Responses to assessment measure (15): Share the training plan with the Nurse Manager? ranged from 1 (rarely assessed) to 5 (always assessed) (M=4.2, SD=1.6).

Responses to assessment measure (16): Share the training data with the Nurse Manager? ranged from 1 (rarely assessed) to 5 (always assessed) (M=3.5, SD=1.3).

Responses to assessment measure (17): Before the MID model was implemented accountability for learning was clearly assigned to Nurse Educator? ranged from 1 (rarely assessed) to 5 (always assessed) (M=3.5, SD=1.2).

Responses to assessment measure (18): Before the MID model was implemented accountability for learning was clearly assigned to Nurse Manager? ranged from 1 (rarely assessed) to 4 (always assessed) (M=2.7, SD=1.0).

Correlational Analysis of Survey Data

Correlational Analysis

The pre-survey response was 68% (N=13). Table 5 provides results of the correlational analysis. Each of the four columns of Table 5 indicates a correlation coefficient (Pearson's R correlation coefficient) or standard error, while the row indicates a given correlation with an assessment measure. Specifically, the column "Education Correlation" shows the correlation coefficient for a given assessment measure row. For example, the correlation -0.031 for the first row shows that there is a correlation of -0.031 between education level and level of self-assessment to the question, "Measure training at the Kirkpatrick's level 1 reaction, what a learner thinks and feels about training." This is evidence of no correlation between these two variables.

The column "Education Correlation SE" shows the standard error for the education correlation coefficient articulated in the previous column on the left. This is a measure of uncertainty around the correlation coefficient. While it is best practice to report these, note that each standard error is very large, indicating a lack of statistical power of a dataset of N=13 observations. This is fine, given the exploratory nature of the hypothesis testing in this analysis plan.

Table 5*Correlations Between Independent Variables & Assessment Measures*

Assessment Measure	Education Correlation	Education Correlation SE	Experience Correlation	Experience Correlation SE	Education Strength	Experience Strength
Measure training at the Kirkpatrick's level 1 Reaction (What a learner thinks and feels about training?)	-0.031	0.301	0.159	0.298	No Relationship	No Relationship
Measure training at the Kirkpatrick's level 2 Learning (How much the learner increased knowledge and skill?)	-0.296	0.288	0.324	0.285	Weak Relationship	Weak Relationship
Measure training at the Kirkpatrick's level 3 Behavior change (Did the learner's behavior change due to the training?)	-0.535	0.255	0.409	0.275	Moderate Relationship	Weak Relationship
Measure training at the Kirkpatrick's level 4 Results (Did the organization change due to the training?)	-0.585	0.244	0.450	0.269	Moderate Relationship	Weak Relationship
Convert the training results to monetary values and compare to cost of program?	-0.238	0.293	0.088	0.300	No Relationship	No Relationship
Administer a pretest to assess baseline knowledge?	-0.488	0.263	0.120	0.299	Weak Relationship	No Relationship
Administer a posttest to assess knowledge gained from the training?	-0.430	0.272	0.246	0.292	Weak Relationship	No Relationship
Administer a transfer test to demonstrate knowledge retained and used in patient care?	-0.524	0.257	0.486	0.263	Moderate Relationship	Weak Relationship
Compare pretest and posttest to demonstrate knowledge gained from the training? (Kirkpatrick level 2 learning)	-0.165	0.297	0.143	0.298	No Relationship	No Relationship
Compare posttest and transfer test to demonstrate knowledge gained from the training, retained and used in patient care? (Kirkpatrick level 3 -- behavior change)	-0.654	0.228	0.637	0.232	Moderate Relationship	Moderate Relationship

Assessment Measure	Education Correlation	Education Correlation SE	Experience Correlation	Experience Correlation SE	Education Strength	Experience Strength
Compare baseline key performance metric (KPMs) and post KPMs? (Kirkpatrick level 4 -- Results)	-0.534	0.255	0.526	0.256	Moderate Relationship	Moderate Relationship
Use the data from the pre and posttest scores to identify problems with the instructional design?	-0.495	0.262	0.601	0.241	Weak Relationship	Moderate Relationship
Identify key performance metrics (KPMs) prior to training?	-0.234	0.293	0.293	0.288	No Relationship	Weak Relationship
Collaborate with Nurse Managers to Identify the key performance metric (KPMs)?	-0.326	0.285	0.552	0.251	Weak Relationship	Moderate Relationship
Share the training plan with the Nurse Manager?	-0.422	0.273	0.121	0.299	Weak Relationship	No Relationship
Share the training data with the Nurse Manager?	-0.489	0.263	0.314	0.286	Weak Relationship	Weak Relationship
Before the MID model was implemented accountability for learning was clearly assigned to Nurse Educator?	-0.612	0.238	0.368	0.280	Moderate Relationship	Weak Relationship
Before the MID model was implemented accountability for learning was clearly assigned to Nurse Manager?	-0.343	0.283	0.291	0.288	Weak Relationship	Weak Relationship

The column “experience correlation” shows the correlation coefficient for a given assessment measure row. For example, the correlation 0.159 for the first row shows that there is a correlation of 0.159 between experience level and level of self-assessment to the question of “measure training at the Kirkpatrick’s level 1 reaction, what a learner thinks and feels about training.” This is evidence of a weak correlation between the two variables.

The column “experience correlation SE” shows the standard error for the experience correlation coefficient articulated in the previous column on the left. This is a measure of uncertainty around the correlation coefficient. Again, reporting is best practice but note that each standard error is very large, indicating a lack of statistical power of a dataset of N=13 observations. This is fine, given the exploratory nature of the hypothesis testing in this analysis plan.

The column “education strength” shows the strength of the correlation of the between Education and a given assessment measure as shown in the rows of the table.

The column “experience strength” shows the strength of the correlation of the between Experience and a given assessment measure as shown in the rows of the Table 5.

To evaluate the following correlations, the following convention with (r) indicating the absolute value of the Pearson’s correlation coefficient R:

- Correlation coefficient $(r) < 0.25$: no relationship
- Correlation coefficient $0.25 < (r) < 0.50$: weak relationship
- Correlation coefficient $0.50 < (r) < 0.75$: moderate relationship
- Correlation coefficient $(r) > 0.75$: strong relationship

In total, there are the following relationships between education attainment and assessment measures:

- 4 “no relationships”
- 8 “weak relationships”
- 6 “moderate relationships”
- 0 “strong relationships”

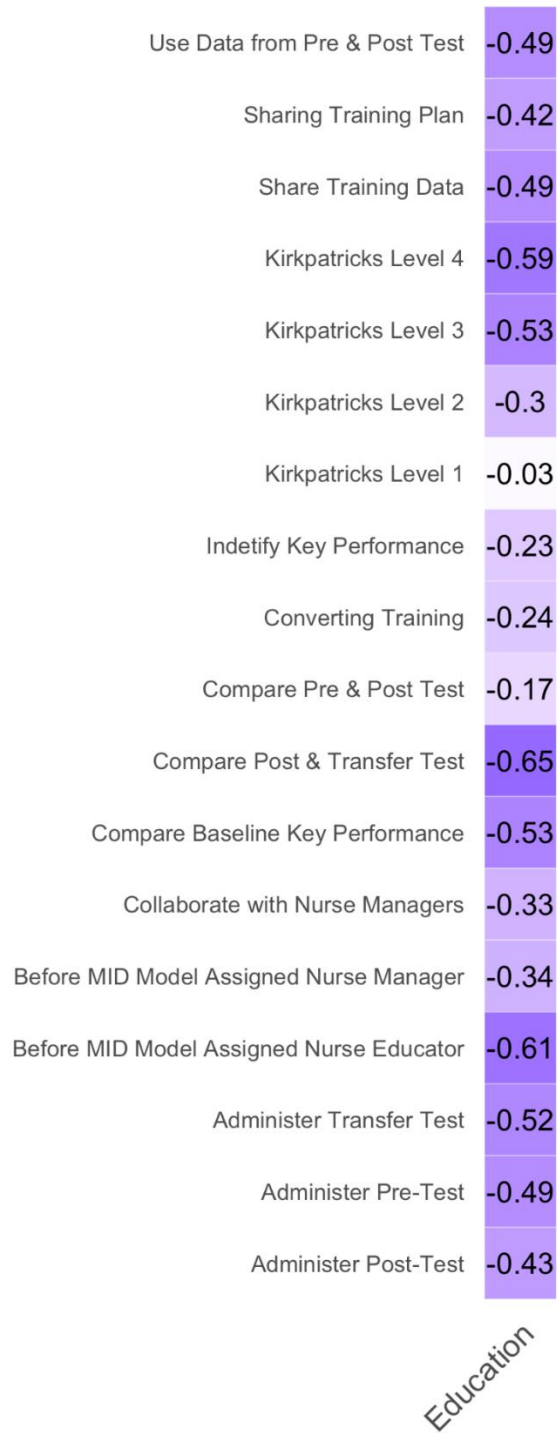
In total, there are the following relationships between experience attainment and assessment measures:

- 6 “no relationships”
- 8 “weak relationships”
- 4 “moderate relationships”
- 0 “strong relationships”

The correlation coefficients are reported in Table 5. In addition, Figures 1 and 2 are additional visuals for reporting the results which are identical to what is reported in the table and are color coded to denote the strength of the relationship, with darker shades of blue indicating greater negative correlations and darker shades of red indicating greater positive correlations. Note that interestingly, all correlations between education attainment level and assessment measures are negative, while all correlations between experience attainment level and assessment measures are positives. This was verified by double-checking that the variable coding is correct. The correlational analysis of the survey data highlighted six moderate relationships between education attainment and assessment measures, and the four moderate relationships between experience attainment and assessment measures. This paper will explore the findings in the next section, Discussion, as well as connections to the literature and the limitations of the data and project.

Figure 2

Correlation between Education and Assessment Measures



Correlation Between Education and Assessment Measures

Figure 3

Correlation between Experience and Assessment Measures



Correlation Between Experience and Assessment Measures

Discussion

The purpose of the quality-improvement project was to assess the changes in NPD practitioners' nurse educators' adaptation to industry standards for ID pre- and post-implementation of a standardized instructional-design model. The Nurse Educator Self-Assessment in Measuring Learning survey was developed to capture NPDs' experience of use of ID industry standards for instructional designing before and after the implementation of a standardized instructional-design model. The ID model facilitates measurement of learning and organizational impact by alignment with business objectives, return on investment (ROI), and other key concepts. The current state in a nursing professional-development department found inconsistent use of a standardized instructional design (ID) model, lack of standardized evaluation of training, lack of clearly assigned accountability for the specific aspects of the requested teaching activity, and the inability to demonstrate organizational impact. Economic assessment of training activities is not currently a consistent part of practice for the NPD department.

Instructional Design is a critical skill for NPD practitioners. It is a problem-solving methodology—an oversimplification of what has been described as deep-domain knowledge, nuance recognition, and a range of analysis activities, as well as the ability of experts to utilize principles and make connections and identify patterns between the different aspects of a problem situation. These problems can be ill-defined or ill-structured. Instructional designers need to be able to understand context, learners, tasks, project constraints, relevant technologies, and the often-multifaceted learning goals set within unique settings (Ertmer et al., 2008; Hoard et al., 2019; Johnson-Barlow & Lehnen, 2021; Stefaniak & Hwang, 2021; Verstegen et al., 2008). Instructional Design seeks to solve gaps in knowledge or skill by identifying both the educational

issue and the outcomes by designing how to achieve the outcomes (Krouse, 2015). There are complex and advanced instructional-design needs for problem solving that requires an educational foundation in instructional design and experience (Verstegen et al., 2008).

Correlational analysis was used to assess the strength of the relationship (a) between the variable “nurse educator experience” and each of the 18 self-assessment outcome measures; and (b) between the variable “educational attainment” and each of the 18 self-assessment measures. For the purposes of this discussion, the focus will be on the six moderate relationships between the variable “education attainment” and the assessment measures, and the four moderate relationships between the variable “experience attainment” and the assessment measures.

To evaluate the following correlations, the following convention with (r) indicates the absolute value of the Pearson’s correlation coefficient R:

- Correlation coefficient $(r) < 0.25$: no relationship
- Correlation coefficient $0.25 < (r) < 0.50$: weak relationship
- Correlation coefficient $0.50 < (r) < 0.75$: moderate relationship
- Correlation coefficient $(r) > 0.75$: strong relationship

Despite the response rate of N=13, there were four moderate correlational relationships between the variable of “experience attainment” and the assessment measures. The pre-survey question asked of the participants was, “How often do you do the following?” The assessment responses with greater positive correlations were as follows: Compare posttest and transfer test to demonstrate knowledge gained from the training retained and used in patient care? This assessment measure is related to Kirkpatrick Level 3, behavior change, Result 0.64, “Compare baseline key performance metric (KPMs) and post KPMs?” This assessment measure is related to Kirkpatrick Level 4, Result 0.53, “Use the data from pre- and posttest scores to identify

problems with the instructional design?” Result 0.60; and “Collaborate with nurse managers to identify the key performance metric (KPMs)?” Result 0.55.

Experience level, capturing the years of experience as a nurse educator/NPD practitioner, of the participants is as follows (Table 2): 0–5 years, 38.4% (N=5); 6–11 years, 7.69% (N=1); 12–17 years, 30.7% (N=4); 18–23 years, 7.69% (N=1); 24–29 years, zero; 30–35 years, 7.69% (N=1); 36 years or more, 7.69% (N=1); total 100% (N=13).

The assessment measures include higher-order thinking (for example, measuring at Kirkpatrick Level 3 and 4 or considering and measuring baseline and post KPMs). Reflective work such as using data from pre- and posttest scores to identify problems with instructional design is a skill that an expert NPD would understand as a standard that should be integrated into design work and program evaluation (Hoard et al., 2019; Miller, 2002; Paramoure, 2014; Verstegen et al., 2008). Benner’s (1982) work on “novice to expert” would be helpful for an initiative leader. Understanding the novice-to-expert model takes into account skill and knowledge acquisition that is built on the nurse’s foundation of education and experience and develops over time. The novice-to-expert model could prepare an initiative leader in what to expect and help mitigate any challenges (Benner, 1982; Cangelosi et al., 2009; Tilden & Tilden, 1985). According to Benner (1982), there are five levels of proficiency: novice, advanced beginner, competent, proficient, and expert. While even experts may revert to a novice stage when learning something new, ultimately the strength of experience and education helps to guide the nurse learner through the learning activity. The more experience a nurse has had, the more they are able to see the picture as a whole, thereby supporting reasoning, judgement, and decision making (Benner, 1982; Gardner, 2012; Higham & Arrowsmith, 2013; Tilden & Tilden, 1985). Of interest, according to Ertmer et al. (2008), for the purpose of their study, an

instructional designer who was currently designing and had completed one or more post graduate ID courses with eight or more years of practical ID experience were considered experts, and those who had completed one post graduate ID course with three or fewer years would be considered novice (2009). Another study, Hoard et al. (2019), defined expertise emerging at 10,000 hours as a benchmark.

The pre-survey data on experience could indicate that experience establishes and enhances a foundation for instructional designing. Novice designers would need support which aligns not only with Benner's literature but also about novice-to-expert instructional designers and their needs for success (DeVaughn & Stefaniak, 2021; Ertmer et al., 2008; Stefaniak & Hwang, 2021; Ugur-Erdogmus & Cagiltay, 2019; Verstegen et al., 2008). The data from the pre-survey may indicate that a few of the experienced NPDs are already taking into consideration the need to execute ID industry standards (Burkett, 2021; Miller, 2002; Paramoure, 2014).

There were six moderate relationships between the variable "education attainment" and the assessment measures. The pre-survey question asked of the participants was, "Training Impact: Based on Donald Kirkpatrick four levels of measurement: How often did you do the following?" The assessment responses with greater negative correlations were as follows: "Measure training at the Kirkpatrick's level 3, Behavior change. Did the learner's behavior change due to the training?" -0.53; and "Measure training at the Kirkpatrick's level 4 Results. Did the organization change due to the training?" -0.59.

The pre-survey question asked of the participants was, "How often do you do the following?" The assessment responses with greater negative correlations were as follows: "Compare post and transfer test to demonstrate knowledge gained from the training, retained and used in patientcare? This assessment measure relates to Kirkpatrick level 3, behavior change, -

0.65; “Compare baseline key performance metric (KPMs) and post KPMs? This assessment measure relates to Kirkpatrick level 4 Results,” -0.53; and “Before the MID model was implemented, accountability for learning was clearly assigned to nurse educator?” -0.61.

Education level—asking the highest level of educational attainment reached of the participants—is as follows: bachelor’s degree, 15.3% (N=2); master’s degree, 46.1% (N=6); doctorate, 38.4% (N=5). See Table 3.

Based on the pre-survey data, there were six moderate relationships based on educational attainment. This data for education attainment level demonstrates a greater negative correlation. Interpretation of this data is challenge by the N=13. Again, the assessment measures are of higher-order thinking. Both educational level of attainment and experience promotes pushing past Kirkpatrick Levels 1 and 2. According to the literature, coaching, schemas, even online ID systems promote knowledge and skill acquisition in both novice instructional design (Ertmer et al., 2008; Hoard et al., 2019; Paramoure 2014; J. Stefaniak, 2017; J. E. Stefaniak & Hwang, 2021; Ugur-Erdogmus & Cagiltay, 8 C.E.; Verstegen et al., 2008).

Limitations

The N=13 limits the nature of the analysis, as does the unexpected abrupt halt of the project. The pre-survey was in progress when the project was halted. Limited and incomplete responses for the pre-survey and a lack of opportunity to run the post-survey is unsupportive for generalizing results, as a comprehensive assessment and analysis of the data was not possible.

Given the small sample size, N=13, as best practice a standard error is reported. Each standard error is very large, indicating a lack of statistical power of a dataset of N=13. This could be seen as fine given the exploratory nature of the hypothesis testing in this analysis plan. Interestingly, despite an N=13, there are moderate correlational relationships for each variable:

education and experience. An additional limitation is the lack of a valid and reliable survey tool. The survey that was developed did not ask the questions regarding whether or not the participant had an instructional design course or how many years of instructional design experience they had.

Conclusion

As healthcare continues to focus on the economics of care, value-based care, and efficiencies, it becomes of strategic importance for NPD Practitioners to demonstrate their value in adding to the capability of the organization (Garrison & Beverage, 2018; Johnson-Barlow & Lehnen, 2021; Opperman et al., 2016a, 2016b; Paramoure, 2014; Smith & Knapp, 2019; Turner, 2016). Instructional design is a crucial tool that impacts practice change by aligning teaching activities to organizational goals (Paramoure, 2014). Utilizing ID industry standards and a standardized instructional-design model can help to develop novice instructional designers and ensure standardized practice for NPD practitioners in regard to instructional design (Benner, 1982; Ertmer et al., 2008; Stefaniak & Hwang, 2021; Ugur-Erdogmus & Cagiltay, 2019; Versteegen et al., 2008). An NPD department is a critical part of the healthcare team that contributes to recruitment and retention, data-driven teaching activities, enhanced competence, safety, and quality as well as cost savings (Garrison & Beverage, 2018; Opperman et al., 2016a, 2016b; Paramoure, 2014).

The importance of this quality-improvement doctoral project was to understand the NPD practitioner's experience in using instructional design industry standards. This information would be helpful to improve future implementation and provide considerations for best use of resources, which includes NPD practitioners with ID experience, as well as the planning of education and training to ID standards and a new ID model.

Using existing team members with expertise in instructional design as coaches for novice instructional designers is in alignment with the supporting literature for this project (Benner, 1982; DeVaughn & Stefaniak, 2021; Ertmer et al., 2008; Stefaniak, 2017; Tilden & Tilden, 1985; Ugur-Erdogmus & Cagiltay, 2019; Verstegen et al., 2008). This could provide a framework for training the experienced NPD practitioners first on ID standards, and then to a new instructional design model before spreading to less experienced NPD professionals. (Stefaniak, 2017). The experienced NPD practitioners could then teach and coach those new to instructional design. Having protected time for drop-in sessions to help with questions and concerns should help coach a new designer through a perceived challenging area (Stefaniak, 2017).

This doctoral project was unexpectedly halted during the pre-survey phase, resulting in only 13 staff responding to the pre-survey. While the N=13 was low and there wasn't statistical power, it was interesting that there were moderate correlation relationships for two of the variables: education and experience.

Future recommendations would be to consider conducting a pilot study for this theoretical framework and increase the number of participants to better evaluate correlational relationships between the education and experience variables and assessment measures.

In addition, consideration of a new validated and reliable survey tool with added instructional-design questions or the use of an existing instructional-design instrument for a future pilot study could prove beneficial.

For future practice scholarship, advancing the expertise of instructional design of NPD practitioners is a critical skill (designing content aligned with the organizational business goals, problem-solving clinical needs, identification of design issues, evaluation of learning, and cost

analysis), especially in the demanding practice of an ever-increasing complex hospital setting. Instructional designers are able to contribute to a quality learning environment and enhance competence impacting patient care with problem-solving, and facilitate the transfer of knowledge, skill, and ability. Utilizing instructional-design industry standards is a worthwhile investment in complex problem-solving and advanced design skills.

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Appendix A

Email Solicitation

My name is Denise Renfro, and I am a graduate student at San Jose State University in the Doctor of Nursing Practice Program. The title of my project is Implementation of a Standardized Instructional Design Model to Facilitate Measurement of Learning.

You are invited to participate in this Research Project. I am interested in nurse educators' perception before and after the implementation of a standardized instructional design model on measurement of learning, organizational impact, alignment with business objectives, and other key concepts.

Your participation in this research project will require:

- Reading a book about the MID model, book provided to nurse educators and should take approximately 2.5 hours to read. *ROI by Design Unlock Training's Impact Through Measurable Instructional Design.*
- Watch YouTube video on MID model concepts that is approximately 42 minutes.
- Three, eight-hour, training days on the MID model and IMPACT System Software System platform by an Paramoure Instructor.
 - i. Training is not a requirement for employment.
 - ii. Completion of the surveys is voluntary.
- Designing with the concepts of the MID model in software system platform.
 - i. Nurse Educators are to come prepared with an idea for one training event to design with the concepts of the MID model.
 - ii. Time commitment for designing is based on the training event's requirements.
For example: if the training event will be a one-hour class, plan for 1- 4 hours

for instructional designing with the new MID model and use of a new software system platform.

- iii. Designing with the MID model in the software system platform will be integrated into each training day.
 - iv. Access to the software system platform for instructional designing with the MID model will be available for the entirety of this research study.
- Coaching sessions available if needed for questions on the MID model concepts.
 - Complete demographics questionnaire.
 - Complete the anonymous pre-survey, and post survey.

Participation in the training and completion of the surveys is voluntary. There is a one-time demographic questionnaire and two online surveys. You will be sent this email solicitation email with a pre-survey link which should take approximately 20 minutes of your time. Later you will receive this same solicitation email with a link inviting you to complete the post-survey which should take 20 minutes of your time. Your participation is voluntary and will be anonymous. You will not be contacted again in the future. You will not be paid for being part of the research project. This survey involves minimal risk to you. There is no risk of any impact on the participant's employment or professional standing or workload. The benefits are demonstrating the organizational impact of added capability and aligning training with business objectives.

You do not have to participate in this research project if you do not want to. You do not have to answer any question that you do not want to answer on the demographic questionnaire and the pre- and post-surveys. You have the right to withdraw from the study at any time without negative repercussions from the VA or SJSU. The completion of the anonymous demographic

questionnaire, and the pre- and post- surveys implies your consent to participate. If you choose to participate, please complete the anonymous demographic questionnaire, and the pre- and post-surveys.

Limit to Confidentiality

While anonymous, there is a limit to confidentiality for the demographic questionnaire as it could allow the investigator to identify the participants since they are within their reporting structure.

Your participation is greatly appreciated. Thank you in advance for your time.

If you have any questions about this survey process or this research project, please contact me, Denise Renfro, as the project lead at: Denise.Renfro@sjsu.edu or the SJSU faculty project chair Dr. Denise Dawkins at Denise.Dawkins@sjsu.edu

Thank you.

Appendix B

Demographics Questionnaire

Participation in the research project, training and completion of the questionnaire and pre- and post-surveys is voluntary and greatly appreciated. Completing the demographic questionnaire implies consent. Thank you in advance for your time.

Limit to Confidentiality

There is a limit to confidentiality for the demographic questionnaire as it will be likely allowing the investigator to identify the participants since they are within their reporting structure.

Survey Participant Anonymity

To help compare pre- & post-survey responses and maintain participant anonymity, please use the last four numbers of a phone number known only to you for both the pre- & post-survey. Please select a phone number that is unknown to the doctorate of nursing practice (DNP) student but one that you can recall easily for the post-survey.

The last four numbers of a phone number known only to you _____

Demographics

Please select the best response.

- Years of experience as a Nurse Educator (Please circle one):
 - 0-5 years
 - 6-11 years
 - 12- 17 years
 - 18-23 years
 - 24-29 years
 - 30-35 years
 - 36 years or more
- Years as a Registered Nurse (Please circle one):
 - 0-5 years
 - 6-11 years
 - 12- 17 years
 - 18-23 years
 - 24-29 years
 - 30-35 years
 - 36 years or more
- What is your age range? (Please circle one)
 - A. 18-24 years old
 - B. 25-34 years old
 - C. 35-44 years old
 - D. 45-54 years old
 - E. Over 65 years old
- What is your gender?
 - A. Male
 - B. Female
 - C. Prefer not to say
- What is your ethnicity?
 - A. White/Caucasian
 - B. Hispanic/Latino
 - C. Black /African American
 - D. Native American/American Indian
 - E. Asian/Pacific Islander
 - F. Other
- What is the highest degree or level of school you have completed?
 - A. Less than a high school diploma
 - B. High school degree or equivalent
 - C. Bachelor's degree
 - D. Master's degree
 - E. Doctorate
 - F. Other (Please specify)

Thank you for your time.

Appendix C

Pre-Survey**Nurse Educator Self-Assessment in Measuring Learning**

Participation in the training and completion of the surveys is voluntary and greatly appreciated. Completing the survey implies consent. Thank you in advance for your time.

Survey Participant Anonymity

To help compare pre- & post-survey responses and maintain participant anonymity, please use the last four numbers of a phone number known only to you for both the pre- & post-survey that you can recall easily. Please select a phone number that is unknown to the doctorate of nursing practice (DNP) student but one that you can recall easily for the post-survey.

The last four numbers of a phone number known only to you (for both pre- & post-survey)

To answer the following questions, please reflect on any of the trainings you have offered **before** the implementation of the Measurable Instructional Design (MID) model, whether it was a planned in-service, a reoccurring course, or a just-in time in-service. This survey should take approximately 20 – 30 minutes to complete.

Self-Assessment Key
Likert Scale:
0=Never
1=Rarely
2=Sometimes
3=Often
4=Always

Please circle the best response that reflects your current practice, **before** using the MID model.

Training Impact: Based on Donald Kirkpatrick key performance metric, how often <u>did</u> you do the following?						
Measure training at the Kirkpatrick's level 1 – Reaction: What a learner thinks and feels about training?	Never	Rarely	Sometimes	Often	Always	
Measure training at the Kirkpatrick's level 2 – Learning: How much the learner increased knowledge and skill?	Never	Rarely	Sometimes	Often	Always	
Measure training at the Kirkpatrick's level 3 – Behavior change: Did the learner's behavior change due to the training?	Never	Rarely	Sometimes	Often	Always	
Measure training at the Kirkpatrick's level 4 – Results: Did the organization change due to the training?	Never	Rarely	Sometimes	Often	Always	
Jack Phillips' expanded on Kirkpatrick's model by adding a 5th level of Measurement, Return on Investment (ROI), how often do you do the following?						
Convert the training results to monetary values and compare to cost of program?	Never	Rarely	Sometimes	Often	Always	
How often do you do the following?						
Administer a pretest to assess baseline knowledge.	Never	Rarely	Sometimes	Often	Always	
Administer a posttest to assess knowledge gained from the training.	Never	Rarely	Sometimes	Often	Always	
Administer a transfer test to demonstrate knowledge retained and used in patient care.	Never	Rarely	Sometimes	Often	Always	
Compare pretest and posttest to demonstrate knowledge gained from the training (Kirkpatrick level 2 – learning).	Never	Rarely	Sometimes	Often	Always	
Compare posttest and transfer-test to demonstrate knowledge gained from the training, retained and used in patient care. (Kirkpatrick level 3 – behavior).	Never	Rarely	Sometimes	Often	Always	
Compare baseline KPM and post KPM (Kirkpatrick level 4 – Results).	Never	Rarely	Sometimes	Often	Always	

Use the data from the pre- and posttests scores to identify problems with the instructional design.	Never	Rarely	Sometimes	Often	Always
Use the data from the pre- and posttests scores to correct problems with the instructional design?	Never	Rarely	Sometimes	Often	Always
Identify key performance metrics (KPMs) prior to training?	Never	Rarely	Sometimes	Often	Always
Collaborate with Nurse Managers to Identify the key performance metric (KPMs)?	Never	Rarely	Sometimes	Often	Always
Share the training plan with the Nurse Manager?	Never	Rarely	Sometimes	Often	Always
Share the training data with the Nurse Manager?	Never	Rarely	Sometimes	Often	Always
Before the MID model was implemented accountability for learning was clearly assigned to Nurse Educator.	Never	Rarely	Sometimes	Often	Always
Before the MID model was implemented accountability for learning was clearly assigned to Nurse Manager.	Never	Rarely	Sometimes	Often	Always