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Facilitators and Inhibitors of LPN-to-RN Student Transition:
A National Survey Study

A Dissertation Presented
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Abstract

PURPOSE: The purpose of this national survey study was to describe the transition conditions (facilitators and/or inhibitors) encountered by LPN-to-RN students.

SPECIFIC AIMS: (1) describe the frequency of specific transition conditions experienced by LPN-to-RN students; (2) explore relationships between transition conditions experienced by LPN-to-RN students and student (personal) and program (community) characteristics; and (3) characterize (through open-ended questions) transition conditions experienced by LPN-to-RN students that were not included in the empirically-based investigator-designed survey.

FRAMEWORK: This study was framed by Meleis et al.’s (2000) transition theory; each transition condition included in the survey was linked to one or more category of transition described by Meleis et al.

DESIGN: In March-April 2020, a cross-sectional national survey was distributed to all LPN-to-RN programs in the United States.

RESULTS: 873 students, in programs across 37 states, responded to the survey. The least frequently reported facilitators were emotional support from faculty and finding online courses helpful. The most frequently reported inhibitors were personal stress and balancing school with non-school responsibilities. The most frequent characteristic related to transition conditions was taking classes with non-LPNs. Respondants reported several transition conditions not included in the survey, including prior experiences (facilitator) and challenges related to the COVID-19 pandemic (inhibitor).

CONCLUSION: These results suggest areas where faculty can further support LPN-to-RN students through their own actions and highlight the importance of carefully planning how to integrate LPN and non-LPN nursing students if they share classes.

Keywords: students, nursing; transitional programs; LPN-to-RN
Proposal

Introduction

Licensed practical nurses (LPNs) in the United States provide important nursing care, with over 900,000 LPNs nationally (Smiley et al., 2018). Many LPNs seek further education to become eligible for licensure as registered nurses (RNs), as this can lead to increased autonomy, career opportunities, and salary (Bureau of Labor Statistics, 2019; Health Resources and Services Administration, 2017). Currently over 40% of accredited nursing programs in the United States offer an option tailored for LPNs to advance their education to become RNs. Such LPN-to-RN students are an important subset of the nursing student population because they can bring diversity and quick supply to the RN workforce. LPNs tend to be more racially diverse than RNs, and diverse RNs can help improve patient outcomes and meet national calls for diversity in healthcare (Campaign for Action, 2018; Meghani et al., 2009; Smiley et al., 2018). LPN-to-RN students also have the potential to help mitigate RN workforce shortages because of briefer nursing program length (Jones, Toles, Knafl, & Beeber, 2018), with LPN-to-RN programs allowing LPNs to bypass as many as half the required nursing credits based on their prior LPN education. Yet, few studies have addressed LPN-to-RN student experience specifically, and most of these are small-scale. This is concerning because attrition from nursing programs is common and it is difficult to support student retention without accurate data.

The shift from being an LPN to being an RN student can be viewed through Meleis, Sawyer, Im, Messias, and Schumacher’s (2000) transition theory. Meleis et al. describe transition conditions as facilitators or inhibitors of a transition; various transition conditions have been identified in prior research on LPN-to-RN students. Unique inhibitors for LPN-to-RN students include not feeling that their prior nursing experience is valued, lacking necessary academic
skills, and encountering difficulty assimilating with non-LPN students (Chachula, Smith, & Hyndman, 2019; Wall, 2016). LPN-to-RN students also experience particular facilitators in their RN education, such as when peers and instructors value LPNs’ prior learning and when they feel support from fellow LPN-to-RN students (Wheeler, 2015; Wall, 2016).

With most prior studies of LPN-to-RN students being qualitative or single-site in nature (with limited sample sizes), such studies have not been able to comprehensively address the transition conditions experienced by LPN-to-RN students across the United States (e.g., Chachula, 2019). Nationally, approximately 40% of college students do not complete a degree at the postsecondary institution they initially enroll in, with attrition in nursing programs acknowledged as problematic globally (McFarland et al., 2019; ten Hoeve, Castelein, Jansen, & Roodbol, 2017). With no national-level data on LPN-to-RN students, identifying best practices to support these students and prevent their attrition is problematic.

Therefore, the purpose of this national survey study guided by Meleis et al.’s (2000) transition theory is to describe the transition conditions (facilitators and/or inhibitors) encountered by LPN-to-RN students. Results will provide a framework to help create future educational and support interventions to increase successful transition from LPN to RN. With national-level data, common experiences of LPN-to-RN students can be identified, increasing the likelihood that interventions arising from these data will be applicable across different programs.

The specific aims of this proposed study are to:

- **Aim 1**: Describe the frequency of specific transition conditions (facilitators and inhibitors) experienced by LPN-to-RN students.

- **Aim 2**: Explore relationships between transition conditions experienced by LPN-to-RN students and related factors including: age, number of years working as an LPN, class
composition (inclusion of non-LPN students or not), method of course delivery, type of degree program (baccalaureate vs. non-baccalaureate), length of degree program, student progression in the LPN-to-RN program, and level of prior education.

- Aim 3: Characterize (through open-ended questions) transition conditions experienced by LPN-to-RN students that are not included in the empirically-based investigator-designed survey.

Without these data it is difficult to support the opportunities for LPN academic advancement and increased nursing workforce diversity envisioned by the National League for Nursing (2014; 2016). With the information from this study, educators of LPN-to-RN students will be better prepared to develop programs to support students in successfully completing their degree.

**Background and Significance**

**Definitions**

In the United States, LPNs may also be known as Practical Nurses (PNs) or—in Texas and California—Licensed Vocational Nurses (LVNs). For simplicity, the term LPN will be used throughout this proposal to refer to LPNs, PNs, and LVNs. An LPN graduates from a vocational or practical nursing program that is usually one year long, passes the NCLEX-PN examination, and earns licensure through his or her state board of nursing (National Council of State Boards of Nursing, n.d.; Health Resources and Services Administration, 2017). According to the National Council of State Boards of Nursing (n.d.), an RN or physician typically oversees an LPN. In contrast to an LPN, an RN typically has more education (associate, baccalaureate, or master’s degree or a diploma) and has a broader scope of practice (Health Resources and Services Administration, 2017).
One impediment to national-level data about LPN-to-RN programs is a lack of consistent definition or nomenclature for such programs. In the United States, LPN-to-RN programs are promoted on nursing school websites by varied terms, including LPN to BSN, LPN to ADN, advanced standing, advanced placement, bridge, mobility, transition programs, and others.

**What is Known about LPN-to-RN Programs and Students**

LPN-to-RN programs are increasing in both number and enrollment (Melrose & Wishart, 2013; Miller & Leadingham, 2010). Although there is not national-level data on student enrollment in these programs, almost half of accredited nursing programs in the United States offer LPN-to-RN programs and at least 6% of current RNs report that their initial nursing license was as an LPN (Smiley et al., 2018). State-level data is also lacking, with North Carolina the only identified state with published data on LPN-to-RN students. In North Carolina, over 3,000 LPNs became RNs from 2001 to 2013 (Jones et al., 2018). Therefore, LPNs may make up a significant proportion of RN students. Yet, LPN-to-RN programs are not commonly studied, with most prior studies consisting of single sites with limited sample size.

Without national-level data on LPN-to-RN students, it is difficult to describe their demographics, numbers, or level of attrition from nursing programs. In North Carolina, Jones et al. (2018) found that LPNs who became RNs were most commonly female (92.5%), White (67%) or Black (25.2%), less than 28 years old when first licensed as an LPN (54%), working in long term care (40%), specialized in geriatrics (36.2%), employed full time in their last year as an LPN (73.6%), and located outside a rural area (68.1%). No similar data on LPN-to-RN students in other states were identified. Across the country, LPN-to-RN programs vary greatly in whether nursing classes include non-LPN students, method of course delivery, and length of
degree program. Approximately 80% of LPN-to-RN programs in the United States offer an associate degree or diploma, with the remainder awarding a baccalaureate degree.

**Value of LPN-to-RN Students**

The need for stronger information about LPN-to-RN student experience is particularly important when considering the potential value that LPNs can bring to the RN workforce. LPNs may be particularly helpful in quickly increasing the number of RNs in the workforce because LPN-to-RN programs provide credit or advanced standing for students’ prior learning. Therefore, LPNs may be able to complete an RN program more quickly than their non-licensed counterparts. This is particularly important because seven states (Alaska, California, Georgia, New Jersey, South Dakota, South Carolina, and Texas) are projected to have RN shortages by the year 2030 (Health Resources and Services Administration, 2017). This is also important in times of unexpected demand for more RNs, such as during the COVID-19 pandemic.

Additionally, LPNs are a potential source for diversity in the RN workforce, with LPNs being more racially diverse than their RN colleagues (Smiley et al., 2018). Jones et al. (2018) found that non-white LPNs were more likely to become RNs than their white counterparts. While this study was limited to North Carolina, this is important information as national data on this topic are not available (Jones et al., 2018). Bringing more LPNs into RN educational programs can help meet national calls for diversity in nursing and nursing education (American Association of Colleges of Nursing, 2017; Campaign for Action, 2018; NLN, 2016). Diverse healthcare providers may be linked to improved patient outcomes, and the goal of diversity has been suggested as inherently worthy (Meghani et al., 2009). Communication and interpersonal care—central elements to nursing’s role—are enhanced through having diverse healthcare workers (Campaign for Action, 2016; U.S. Department of Health and Human Services Health
Resources and Services Administration Bureau of Health Professions, 2006). Additionally, racially and ethnically diverse nurses are more likely to work in communities which are medically underserved, contributing to increased healthcare access (Institute of Medicine, 2004).

By addressing RN workforce shortages, meeting national calls for diversity in healthcare, and potentially improving patient outcomes, LPN-to-RN students are an important population to consider.

**Unique Attributes of LPN-to-RN Students**

While some evidence from other groups of students may apply to LPN-to-RN students, these students are unique in many ways and this necessitates research aimed specifically at them. LPN-to-RN students are different than other student populations because they often enter their educational programs believing that they are already functioning as a “registered” nurse, perhaps because of the apparent similarity of tasks performed by LPNs and RNs (Melrose & Wishart, 2013). Additionally, LPN-to-RN students may view RN clinical experiences as a “step backwards” or “boring” as they are required to be supervised by instructors when performing tasks that they feel are identical to those done independently as LPNs (Chachula et al., 2019, pp. 54-55). LPN-to-RN students also differ from their non-LPN peers because they may enter an already-established cohort of students because of receiving academic credit for their prior learning (Sweet & Fusner, 2008). This may lead to students feeling separated along the lines of LPNs versus non-LPNs, with some reports of students using “segregating vocabulary” and feeling uncomfortable with this division (Porter-Wenzlaff & Froman, 2008, p. 232; Wade, 2001).

These unique aspects of LPN-to-RN students support the need for studies specifically addressing this population.
Literature on LPN-to-RN students describes a number of facilitators and inhibitors that LPN-to-RN students encounter as they work to complete their RN education. The most common facilitator in the literature is support from other students, particularly fellow LPN-to-RN students (Hutchinson, Mitchell, & St John, 2011). The most common inhibitor is the challenge of juggling school with non-school responsibilities (Chachula et al., 2019). A number of other transition conditions are noted as facilitators, inhibitors, or both. Each of the most commonly noted facilitators and inhibitors from the literature inform the planned survey for this study and are noted in the column entitled “Rationale for Inclusion of Question” in Appendix A.

While the literature identified these facilitators and inhibitors experienced by LPN-to-RN students, most studies were single-site, with none offering national-level data or using standardized instruments to facilitate comparison between studies. Without such data, educators in LPN-to-RN programs, employers of LPNs, policy-makers, organizations interested in promoting nursing workforce diversity, and persons interested in RN workforce supply are left with little basis for how to best support LPN-to-RN students. If the facilitators and inhibitors of LPN-to-RN transition are not addressed, these students may be less likely to successfully complete their RN education. Additionally, persons planning and implementing programs to support LPN-to-RN students may not be effectively utilizing scarce resources if they do not have evidence upon which to base these interventions. To help LPN-to-RN students contribute to the needed increase in number and diversity of RNs, and to help educators design effective support for these students, it is essential to better understand the facilitators and inhibitors of transition experienced LPN-to-RN students.

**Theoretical Framework**
This study will utilize Meleis et al.’s (2000) transition theory, a middle-range nursing theory describing elements of transitions. This theory was developed from conceptual analysis of transition and its components, incorporating results of research studies focused on transition. The theory has six main components: (1) types/patterns of transitions, (2) properties of the transition experience, (3) transition conditions, (4) process indicators, (5) outcome indicators and (6) nursing therapeutics. The relationship between these components is illustrated in Figure 1; highlighting has been added to emphasize the aspects of this framework most relevant to the proposed study.

**Figure 1**

*Elements of Meleis et al’s (2000) Transition Theory*
While Meleis (2010) described multiple types of transitions, the LPN-to-RN transition would be considered a situational transition, as this type of transition includes “moving up the educational ladder” within nursing (p. 85); see Figure 1. Meleis points out that every time a student increases their education in nursing, they need a transitional intervention. However, without understanding what facilitators and inhibitors are occurring during the LPN-to-RN student transition, it may be difficult to design interventions appropriate for this specific population. This is further supported by the direct link Meleis et al. (2000) make between transition conditions and nursing therapeutics (the nursing interventions used to support transition); see Figure 1. As Benner (2010) states in her foreword to Transitions Theory, knowing what is most challenging for people and groups in transition is key to designing methods to support their transition. Therefore, this study will focus on transition conditions—the facilitators and inhibitors of a transition—experienced by LPN-to-RN students in their RN educational programs (Meleis et al., 2000).

Three general categories of transition conditions are described by Meleis et al. (2000): personal, community, and society; see Figure 1. Personal transition conditions include four subcategories:

- Meanings (What does this transition and the events preceding it mean to the person in transition?)
- Cultural beliefs and attitudes (Does the person undergoing this transition find it to be beneficial?)
- Socioeconomic status
- Preparation and knowledge (Does the person in transition understand what the transition experience entails? Do they understand how to handle the transition?).

Community includes support from those around the person in transition, including his or her family. Society describes the cultural norms and/or stigma that are part of a person’s environment.

Various researchers have utilized Meleis et al.’s (2000) transition theory to study nursing students in transition. For example, Wadsworth (2010) examined how nursing students transition into their first clinical experiences, while Gigliotti (2004) studied the transition experience of students who were also mothers. Similar to examining LPN-to-RN students, Brennan and McSherry (2007) used Meleis et al.’s transition theory in their study of how health care assistants change their thinking as they train to become nurses. Further, Suva et al. (2015) utilized Meleis et al.’s transition theory as a basis for thematic analysis of literature on students in LPN-to-RN programs. The utility of this theory in studying educational transitions in nursing lends support to the use of Meleis et al.’s theory in this proposed study.

Meleis et al.’s (2000) transition theory underlies each specific aim of this proposed study. Aim 1 (describe the frequency of specific transition conditions experienced by LPN-to-RN students) is informed by the idea that transition conditions must be better understood in order to design support for LPN-to-RN student transition (“nursing therapeutics” in Meleis et al’s theory). The survey used to gather these data will ask about specific transition conditions linked to all the types of transition conditions described by Meleis et al. Aim 2 (explore relationships between transition conditions experienced by LPN-to-RN students and related factors) will link demographic data to transition conditions described by Meleis et al. Finally, Aim 3 (characterize
transition conditions experienced by LPN-to-RN students that are not included in the survey) will gather information on additional transition conditions, enriching understanding of LPN-to-RN student transition. Through close links with Meleis et al.’s transition theory, this study will not only sit on a firm theoretical ground, but will also have the potential to enrich understanding of Meleis et al’s theory. Appendix A further details the links between the survey questions and Meleis et al’s theory.

Methods

Design

The study design is a cross-sectional national survey of students in LPN-to-RN programs. To facilitate data collection on a national scale and make the survey easily accessible to students, the Qualtrics online survey platform will be utilized. A cross-sectional survey can enhance the diversity of responses by targeting LPN-to-RN students in various stages of their programs, without the potential for attrition that would accompany a longitudinal approach.

Sample and Setting

This survey will recruit students currently enrolled in an LPN-to-RN program. Inclusion criteria are: currently enrolled in a United States-based LPN-to-RN program; achieved LPN licensure in the United States prior to entering this degree program; ability to read English; access to smartphone, tablet, or computer to complete on-line survey; and willingness to participate in the survey. To be categorized as an LPN-to-RN program for the purposes of this study, a nursing educational program must meet all of the following criteria:

- Grant graduates a diploma, associate degree, or bachelor degree in nursing which meets eligibility requirements for the graduate to take the NCLEX-RN exam
- Have a defined process (identifiable via website browsing or website searching) for LPN-to-RN students to bypass all or part of specified nursing course(s) or earn transfer credits for specified nursing course(s). This must allow LPN-to-RN students to complete the RN program with less time and/or nursing credits than a non-LPN student. Programs which offer LPN-to-RN student advanced standing only on a case-by-case basis are not considered LPN-to-RN programs for this study.

- Be accredited by one of the nursing programmatic accrediting agencies recognized by the United States Department of Education: namely, the Accreditation Commission for Education in Nursing or the Commission on Collegiate Nursing Education (U.S. Department of Education, 2020).

Exclusion criteria are: graduates of RN programs; students who have dropped out or are not currently enrolled in an LPN-to-RN program; and students who have not yet started their first nursing course in their RN program. Students who have dropped out are excluded because of the logistical challenges of identifying and including them in this national-level survey. It is acknowledged that these students might provide valuable insight into this study’s topic and that future research might work to include their perspectives. Students who have not yet started their first nursing course in their RN program are excluded because this group of students is not yet enmeshed in the RN educational process.

With no national database of LPN-to-RN students and no nationwide organizations for LPN-to-RN students or programs, a comprehensive list of LPN-to-RN students or programs did not exist when this study was first envisioned. To create a list of potential LPN-to-RN programs in the United States, lists of accredited nursing programs from the Accreditation Commission for Education in Nursing and the Commission on Collegiate Nursing Education were combined.
Programs outside of the United States, those which had closed or withdrawn from accreditation, or had been absorbed by another nursing program were removed from this list, leaving 1711 programs. The website for each of these programs was evaluated to ascertain if the program currently had an LPN-to-RN program. During the website search, 20 randomly selected schools (10 coded as having an LPN-to-RN program, and 10 coded as not having an LPN-to-RN program) were called via phone to confirm the accuracy of coding based on website searching. This check revealed that website searching and phone calls agreed 95% of the time. Once the website search was completed, 5% (n = 86) of websites were searched by a research assistant not involved in the original website search, following the same procedures as the initial search. The coders agreed 85% of the time (n = 73). The reasons for differences in coding were differing interpretations of coding scheme (46%; n = 6), the research assistant not finding information about an LPN-to-RN program that the researcher found (38%; n = 5), a potential change in the program offered by the school (8%; n = 1), and an undetermined reason (8%; n = 1). The unit of sampling for this survey will be LPN-to-RN programs, with all students in a selected school’s LPN-to-RN program invited to take part in the study. Schools attended by students who take part in the cognitive interviews or survey pilot (as described below) will be removed from the random assignment list and therefore ineligible for selection. The school where the researcher works will also be ineligible. Random sampling will be used, placing the list of eligible LPN-to-RN programs in random order and selecting schools from this list in order. If a school declines to participate in the study or no student responses are received from the school, this school will be replaced with the next school on the randomly ordered list.

Sample size will be calculated based on the goal of precisely estimating what percentage of survey respondents report experiencing each facilitator or inhibitor, in line with Aim 1 of the
proposed study. The sample size will be calculated so that the estimated percentage of students reporting a facilitator or inhibitor is within 9% above or below the true value, with a 95% confidence interval. To calculate this sample size, an estimated response rate and intra-class correlation for this survey will be necessary. This information will be obtained from the pilot survey, which is described in further detail below. Once the pilot survey is completed, a sample size will be calculated, accounting for within-school clustering with a design effect (Kish, 1995). An example of the sample size calculation is provided in Table 1; similar calculation will occur once the response rate and intra-class correlation from the pilot study are available.

Table 1

*Example of Sample Size Calculation*

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Sample Size Calculated</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Response rate: 5 students per school</td>
<td>- 25 schools would yield a 95% confidence interval of (40.7%, 59.3%); therefore, +/- 9.3% [this is too high for the proposed study]</td>
</tr>
<tr>
<td>- Intra-school correlation = 0.01</td>
<td>- 30 schools would yield a 95% confidence interval of (41.6%, 58.4%); therefore, +/- 8.4% [this is acceptable precision for the proposed study]</td>
</tr>
<tr>
<td>- Assumed true % reporting that an item is a facilitator or inhibitor = 50%</td>
<td></td>
</tr>
<tr>
<td>(a conservative approach)</td>
<td></td>
</tr>
</tbody>
</table>

**Measures**

To identify potential measures for this study, the Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Education Resources Information Center (ERIC) databases were searched to identify nursing and/or educational studies using Meleis et al.’s transition theory. This search revealed that various quantitative measures were used to guide such transition-focused research. After evaluating each identified quantitative measure, it was concluded that none were appropriate for gathering information on the transition conditions experienced by LPN-to-RN students. Therefore, this study will use an investigator-designed
survey to elicit information on the facilitators and inhibitors experienced by LPN-to-RN students.

To identify facilitators and inhibitors appropriate to include in the investigator-designed survey, electronic database searching was performed in PubMed, CINAHL, and ERIC. A medical librarian assisted in designing and executing a literature search strategy as suggested by Price (2017). Ancestry searching was also utilized by examining the reference lists of all identified pertinent publications and five literature reviews on LPN-to-RN students identified through the database searches (Allan & McLafferty, 1999; Ralph, Birks, Chapman, Muldoon, & McPherson, 2013; Suva et al., 2015; Tower, Cooke, Watson, Buys, & Wilson, 2015; Wall, Fetherston, & Browne, 2018). After evaluating the abstract and/or full text of identified publications for relevance to transition conditions experienced by LPN-to-RN students, 35 publications from 1999 and newer were used to inform the investigator-designed survey. See Appendix B for further details of the literature search.

Each of the relevant publications was read to identify facilitators and/or inhibitors experienced by LPN-to-RN students in their educational program. When a facilitator or inhibitor was identified, it was noted in a Microsoft Word document along with standardized information about the source publication. As facilitators and inhibitors were identified, they were grouped according to emerging themes, with the source publication re-read as needed in an iterative process. To increase rigor in the identification of facilitators and inhibitors, four (~10%) of the included publications were randomly selected and read by a researcher not involved in the initial analysis of the literature. The facilitators and inhibitors identified by both researchers were then compared, revealing a 96% interrater reliability in identifying facilitators and inhibitors.
Once all facilitators and inhibitors had been identified, they were further synthesized into 28 themes, with an additional group of “miscellaneous” facilitators and inhibitors created. The miscellaneous facilitators and inhibitors were only mentioned in one publication and did not fit into another theme; these were not included in the final survey. Instead, two open-ended questions were added to the end of the survey, to allow respondents to describe additional facilitators and inhibitors they experienced. Each of the other 28 themes became the basis of a question in the survey and was linked to one or more transition conditions described by Meleis et al. (2000). Demographic questions linked to the study’s specific aims and Meleis et al.’s theory were also incorporated into the survey (See Appendix A for survey questions with links to LPN-to-RN literature and Meleis et al.’s framework). The Flesch-Kincaid reading grade level for the current survey form is 6.5, which is reasonable for this professional group, given that a reading grade level of 5 is suggested for the general population (Calderón & Beltrán, 2004).

**Continued Survey Development**

Four current LPN-to-RN students will be recruited to take the survey and participate in a cognitive interviewing process using retrospective verbal probing (Willis, 2005). Fellow nurse educators will be asked to provide current LPN-to-RN students with information about the cognitive interviews; the students will be asked to contact the researcher if interested. After providing informed consent, participants will be asked to complete the entire survey, then answer questions regarding the process of taking the survey. This cognitive interview will take place via phone or Zoom and will provide information about potentially confusing survey items. Based on the results of the cognitive interviews, the survey may be revised to enhance participant understanding of the survey items. Each participant in the cognitive interview will be offered a $25 gift card, which is close to the median hourly pay for an LPN (Bureau of Labor Statistics,
The schools attended by the students who participate in the cognitive interviews will be removed from the list of LPN-to-RN programs.

The survey will then be tested through the use of a pilot process. Three LPN-to-RN programs will be randomly selected from the list of all United States LPN-to-RN programs, using the same recruitment and data collection processes described in the following sections. At the end of the survey, participants will be asked to describe any difficulties they had in completing the survey. Missing data and respondent feedback on difficulties will be analyzed; this information will be used to inform further revision of the survey, if needed. The number of responses and intraclass correlation from the pilot survey will be used to inform sample size calculations for the study, as described in the “Sample and Setting” section. The schools contacted for the pilot will be removed from the list of all United States LPN-to-RN programs.

**Recruitment & Data Collection**

Using contact information publicly available on each LPN-to-RN program website, an email will be sent to the head of each nursing program (i.e. dean, director, or chairperson), asking them to forward study information to their program’s current LPN-to-RN students. The initial email will inform nursing program heads that aggregate study results will be shared with them if they wish. The study information for students will include a link for potentially eligible participants to follow, which will lead them to a webpage with informed consent and the survey. Participants will be recognized for their time by having the option of entering a raffle for a gift card incentive and/or a summary of the study’s results.

Up to three emails, ten days apart, to each program may be sent, to encourage programs to remind their students to participate, while attempting not to overburden the programs. If the
head of a nursing program declines to have their students participate at any time, the process will be stopped. Table 2 further details the timeframe for data collection.

Table 2

<table>
<thead>
<tr>
<th>Time</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>Send survey information to head of nursing program with request to forward to LPN-to-RN students</td>
</tr>
<tr>
<td>Day 11</td>
<td>If no student responses to survey from school: re-send survey information to head of nursing program with request to forward to LPN-to-RN students</td>
</tr>
<tr>
<td>Day 21</td>
<td>If some student responses to survey from school: thank you email to head of nursing program with request to forward survey reminder to LPN-to-RN students</td>
</tr>
<tr>
<td>Day 31</td>
<td>Data collection closes</td>
</tr>
</tbody>
</table>

Students will click on a link in the email forwarded by their program which brings them to an initial webpage. This webpage will provide the information necessary for informed consent, including inclusion and exclusion criteria. Students will have the option to actively agree to continue or decline to participate. For students who elect to participate in the study, the survey (including demographic questions) will be displayed. Finally, a thank you page will be displayed, where participants can click a link to a separate webpage to enter their email address to get a chance to receive the incentive. This will allow the participant’s email address to remain completely separate from their survey results. To prevent participants from taking the survey more than once, the option in Qualtrics to “Prevent Ballot Box Stuffing” will be enabled. To prevent non-humans (bots) or other ineligible entities from completing the survey, the survey link will not be publicly posted; it will only be made available through email targeted towards eligible participants.

Participants will have the opportunity to enter a raffle to for one of twenty $50 gift cards to amazon.com. Even if they do not request a raffle entry, all participants will be given the
opportunity to enter their email address on this separate webpage, to receive a summary of the study’s results (See Figure 2).

Figure 2

Survey flow for potential participants. Participants may stop at any point in the process.

Data Management

All survey data will be securely stored in Qualtrics’ online platform, subscribed to by the University of Massachusetts Medical School. Email addresses will be stored separately from survey responses, with no linking of the email addresses to the survey responses. Only my dissertation chairperson and myself will have access to this Qualtrics project. For analysis, data will be exported from Qualtrics into Statistical Package for the Social Sciences (SPSS) and stored on a secure, password-protected “R drive” hosted by the University of Massachusetts Medical School. Only myself and my dissertation committee will have access to this drive. All data will be destroyed three years after the conclusion of data collection.

Data Analysis

Data will be analyzed using SPSS, working closely with Dr. Crawford (committee member and statistician). First, all data will be screened for missing, implausible, and outlier values. If possible, missing data on whether or not LPN-to-RN students share classes with non-LPNs, the length of the program, and type of degree granted will be collected by gathering public information from the nursing program’s website. If needed, missing data will be addressed by utilizing multiple imputation with IVEware software (Enders, 2017). Descriptive statistics will be utilized for the demographic data. Continuous variables will be described by calculating
mean, median, skewness, standard error of the mean, standard deviation and histograms; normality of distribution will also be assessed. For categorical variables, frequencies will be calculated. The within-school correlation will be calculated, and this will be accounted for in the analysis if needed.

While there is no national level data available on LPN-to-RN students, the representativeness of the sample will be evaluated by comparing participant demographics to available data from North Carolina on demographics of LPN-to-RN students as reported by Jones et al. (2018). This will be achieved by comparing the gender and age at initial LPN licensure of this survey’s respondents to similar information reported by Jones et al., performing t-tests and Chi-square tests to assess for significant differences between the two groups.

Aim 1 (describe the frequency of specific transition conditions experienced by LPN-to-RN students) will be analyzed by calculating the percentage of students characterizing each transition condition as never, sometimes, frequently, or always occurring. Aim 2 (explore relationships between transition conditions experienced by LPN-to-RN students and related factors including: age, number of years working as an LPN, class composition, method of course delivery, type of degree program (baccalaureate vs. non- baccalaureate), length of degree program, student progression in the LPN-to-RN program, and level of prior education) will have various options for analysis, depending on whether the data fit assumptions of various statistical tests. If the Likert scale results are normally distributed, this can be treated as continuous data and it will be modeled with ANCOVA. If the Likert scale results are not normally distributed, the data will be examined to find out if it meets the assumptions for ordinal logistic regression and if it does, this will be used to analyze the data. If logistic regression is not an option, multinomial logistic regression will be utilized, using crosstabulations and chi-square tests for
categorical predictors, and ANOVA for continuous predictors. If within-school clustering is non-negligible, logistic regression and ANOVA with random effects for school will be used. Aim 3 (characterize transition conditions experienced by LPN-to-RN students that are not included in the empirically-based investigator-designed survey) will be analyzed by using content analysis to determine what other transition conditions are experienced by LPN-to-RN students and then calculating the frequency of identification of each transition condition.

**Potential Methodological Challenges & Human Subjects Considerations**

Several potential methodological challenges have been considered in the planning stages of this study: ethical student recruitment, recruitment of an adequate sample, non-response bias, and the effect of the COVID-19 pandemic. First, recruitment of students brings potential ethical challenges, as students may feel unduly influenced to participate in a research study and may provide inaccurate responses that match what they think their instructors want to hear (Block & Gordon, 2017). This potential challenge will be mitigated through emphasizing the students’ free choice to participate or not—that participation or lack thereof is voluntary and will not affect the students’ grades or standing in the nursing program. This potential challenge will also be addressed by emphasizing that the data collected will be confidential and data will be de-identified, with the option of completely anonymous participation by not sharing an email address. It will also be addressed by emphasizing that the researcher is external to the school and that results will be reported in aggregate. Finally, sending the survey to students via the nursing program head will avoid researcher access to any contact information for students who chose not to provide an email address. To protect human subjects, this study will obtain prior approval of the Institutional Review Board.
Additionally, recruiting adequate numbers of participants is often challenging in any type of research study. This potential methodological challenge will be addressed by providing an incentive for participation, utilizing an online survey that may be more acceptable to busy students, and sending email reminders. Setting up the sampling procedures to replace schools that elect not to participate is another way to increase the likelihood of an adequate sample size for this study.

Non-response bias also has the potential to skew the results of this study, as students who respond to the survey could be systematically different than those who do not (Gray, 2016). To minimize this source of bias, this study will attempt to recruit participants from multiple programs, since causes of non-response may vary more across programs than within only one program. To attempt to detect the presence of such bias, this study will compare demographics of participants to LPN-to-RN students (Sutherland, 2017).

As this proposal is being formulated, the United States is experiencing the COVID-19 pandemic, with many schools shifting to remote learning. Using email and an online survey platform is a strength of this study, allowing the research to proceed while maintaining social distance. However, the pandemic may lead to increased stress for LPN-to-RN students, due to balancing changes in work, school, and family. This may make it less likely that students will participate in the research. Additionally, the pool of LPN-to-RN students may be decreased as LPNs choose to postpone further education in light of the demands of the pandemic. Heads of nursing programs may be less likely to forward the study information to their students due to their own increased workload with the rapid shift to remote learning. It is hoped that the incentives and potential value of the research results will still motivate LPN-to-RN students and nursing programs to participate in this study. The effects of the COVID-19 pandemic will be
considered when discussing the study results. With careful attention to these varied methodological challenges, their potential effects will be minimized.

**Conclusion**

Envision a group of LPN-to-RN students who are diverse racially, ethnically, and in life experiences. This group of future RNs is aided by evidence-based interventions to support their education. The information gathered in this study will support initial steps in developing this type of experience for LPN-to-RN students, leading to their successful career mobility, and increasing the number and diversity of RNs nationally.
References

https://doi.org/10.12968/bjon.1999.8.6.6661


doi:10.1097/01.NNE.0000312215.73298.98


Summary of Changes from Proposal

In November 2020 and again in February 2021 the pilot survey was sent to 3 randomly selected schools, with no responses either time. Therefore, we were unable to gain the data needed for sample size calculations. Therefore—after IRB approval—we sent the survey to all (n = 694) eligible LPN-to-RN programs in the United States.

The data analysis plan changed slightly. The significance level was set at p < .01 for all analyses, to account for multiple testing. Response options were collapsed and analyzed as categories because outcome data were significantly skewed. The frequency of transition conditions (“never,” “sometimes,” “frequently,” and “always”) was collapsed into two categories: “ever” and “never.” Analyses with and without collapsing the data in this manner agreed 91% of the time, with no new significant relationships obtained based on the collapsed data. Data were analyzed using chi-square; when one or more cells had an expected count < 5, Fisher’s exact test was used. For racial and ethnic differences, only categories containing 10% or more of the sample were included in the analysis (White only/not Hispanic, Black only/not Hispanic, and Hispanic/any race).
Facilitators and Inhibitors of LPN-to-RN Student Transition: A Cross-Sectional National Survey

Amanda Cornine MSN, RN, CNE

Introduction

• Licensed practical nurses (LPNs) seek education to become registered nurses (RNs) for many reasons (Bureau of Labor Statistics, 2021; Health Resources and Services Administration, 2017)

• “LPN-to-RN” programs are relatively common in the United States (Smiley et al., 2021)
**Theoretical Framework: Transitions Theory**

**Background & Significance**

- LPN-to-RN students are important to consider because they can:
  - Help bring diversity to the RN workforce (Gomez & Bernet, 2019; National Academies of Sciences, Engineering, and Medicine, 2021)
  - Be educated quickly in times of increased need for RNs (Jones et al., 2018)

- LPN-to-RN students encounter unique transition conditions (Melrose & Wishart, 2013; Wall, 2016; Wallen et al., 2017; Wheeler, 2015)
**Purpose & Aims**

**Purpose:** to describe the transition conditions (facilitators and inhibitors) encountered by LPN-to-RN students.

**Specific Aims**
1. Describe the frequency of specific transition conditions experienced by LPN-to-RN students.
2. Explore relationships between transition conditions experienced by LPN-to-RN students and student (personal) and program (community) characteristics.
   - Program (community) characteristics: method of course delivery (online vs. in person), length of LPN-to-RN program, whether or not LPN-to-RN students take nursing courses non-LPNs, and type of degree awarded
   - Student (personal) characteristics: age, number of years worked as an LPN, race/ethnicity, hours per week of work while in school, amount of the LPN-to-RN program left to complete, level of prior education, and if they attended the same school for both LPN and RN education.
3. Characterize (through open-ended responses) additional transition conditions experienced by LPN-to-RN students that were not included among the survey items.

**Design, Sample, & Setting**

**Design:** Cross-sectional survey of students in LPN-to-RN programs

**Inclusion criteria:**
- Currently enrolled in a United States-based LPN-to-RN program
- Achieved LPN licensure in the United States prior to entering this program
- Ability to read English
- Access to the internet
- Willing to participate

**Exclusion criteria:**
- Graduates of RN programs
- Students who had dropped out or were not currently enrolled in an LPN-to-RN program
- Students who had not yet started their first nursing course in their RN program
Sample & Setting, continued

Search for existing list of LPN-to-RN programs → ACEN and CCNE* program lists combined N = 1711 → Website searching for active LPN-to-RN program → LPN-to-RN programs n = 707

5% checked by research assistant (85% agreement)

20 schools called to check (95% agreement)

* ACEN: Accreditation Commission for Education in Nursing CCNE: Commission on Collegiate Nursing Education

Measure

Literature Search for existing measures

Literature Search for facilitators and inhibitors reported in literature

Iterative process to identify and synthesize themes

Questions developed and refined with expert input

Cognitive interviews

Pilot survey
Data Collection

Invitation sent to all LPN-to-RN programs in United States in March 2021 (N = 694)

Data Management & Analysis

Data collection: Qualtrics®
Data storage: R drive
Quantitative data analysis:
• SPSS® version 27 and SAS Version 9.4 (SAS Institute, Cary, NC)
• Significance level: \( p < .01 \)
• Responses dichotomized (never, sometimes, frequently, always \( \rightarrow \) Yes/No)
• Chi-square; if cell count(s) < 5, Fisher’s exact test
• Statistically significant relationships re-estimated to account for intra-school correlation
  (Molenberghs & Verbeke, 2006)
Open-ended data analysis:
• Removed transition conditions already measured in the survey
• Content analysis to determine frequency of other transition conditions
• 2nd researcher independently coded; reached agreement on all discrepancies
## Demographic Data

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-28</td>
<td>246</td>
<td>30.6</td>
</tr>
<tr>
<td>29-36</td>
<td>290</td>
<td>33.2</td>
</tr>
<tr>
<td>≥37</td>
<td>269</td>
<td>33.4</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>63</td>
<td>7.2</td>
</tr>
<tr>
<td>Female</td>
<td>776</td>
<td>88.9</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian or Alaska Native</td>
<td>28</td>
<td>3.2</td>
</tr>
<tr>
<td>Asian</td>
<td>50</td>
<td>5.7</td>
</tr>
<tr>
<td>Black/African American</td>
<td>175</td>
<td>20</td>
</tr>
<tr>
<td>Native Hawaiian or other Pacific Islander</td>
<td>5</td>
<td>0.6</td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>564</td>
<td>64.6</td>
</tr>
<tr>
<td>Other</td>
<td>42</td>
<td>4.8</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>92</td>
<td>10.5</td>
</tr>
<tr>
<td>Not Hispanic/Latino</td>
<td>744</td>
<td>85.2</td>
</tr>
<tr>
<td><strong>Highest Degree Earned</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school or certificate</td>
<td>495</td>
<td>56.7</td>
</tr>
<tr>
<td>Associate degree</td>
<td>254</td>
<td>29.1</td>
</tr>
<tr>
<td>Baccalaureate degree or higher</td>
<td>90</td>
<td>10.3</td>
</tr>
</tbody>
</table>

*Multiple response option.*

## Aim 1 (Frequency of Transition Conditions)

<table>
<thead>
<tr>
<th>Transition condition</th>
<th>Yes n (%)</th>
<th>No n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you feel supported emotionally by your faculty?</td>
<td>724 (82.7%)</td>
<td>148 (17.3%)</td>
</tr>
<tr>
<td>Do online classes make it easier to do well in your RN program?</td>
<td>645 (84%)</td>
<td>123 (16%)</td>
</tr>
<tr>
<td>Is your prior LPN experience recognized by your faculty?</td>
<td>756 (86.7%)</td>
<td>116 (13.3%)</td>
</tr>
<tr>
<td>Do you feel supported academically by your faculty?</td>
<td>620 (93.6%)</td>
<td>56 (6.4%)</td>
</tr>
<tr>
<td>Do you believe that colleagues at work support your RN education?</td>
<td>765 (95.3%)</td>
<td>38 (4.7%)</td>
</tr>
<tr>
<td>Do you feel supported by your classmates?</td>
<td>833 (95.5%)</td>
<td>39 (4.5%)</td>
</tr>
<tr>
<td>Does your self-confidence help you do well in your RN program?</td>
<td>827 (97%)</td>
<td>26 (3%)</td>
</tr>
<tr>
<td>Do you believe that clinical experiences help you do well in your RN program?</td>
<td>668 (98.4%)</td>
<td>11 (1.6%)</td>
</tr>
<tr>
<td>Do you believe that your family is supportive of your RN education?</td>
<td>846 (99.1%)</td>
<td>8 (0.9%)</td>
</tr>
<tr>
<td>Do you believe that content taught in your RN program is valuable?</td>
<td>846 (99.2%)</td>
<td>7 (0.8%)</td>
</tr>
<tr>
<td>Do you feel motivated to complete your RN program?</td>
<td>849 (99.5%)</td>
<td>4 (0.5%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transition condition</th>
<th>Yes n (%)</th>
<th>No n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you find it hard to juggle school with non-school responsibilities?</td>
<td>863 (98.9%)</td>
<td>10 (1.1%)</td>
</tr>
<tr>
<td>Do you believe that your personal level of stress makes your RN program harder?</td>
<td>813 (95.3%)</td>
<td>40 (4.7%)</td>
</tr>
<tr>
<td>Do you find it hard to pay for school expenses?</td>
<td>785 (90%)</td>
<td>87 (10%)</td>
</tr>
<tr>
<td>Do you find it hard to raise your level of critical thinking?</td>
<td>711 (84.7%)</td>
<td>128 (15.3%)</td>
</tr>
<tr>
<td>Do you believe that you have less independence as a student RN compared to working as an LPN?</td>
<td>671 (82.6%)</td>
<td>141 (17.4%)</td>
</tr>
<tr>
<td>Do you find it hard to take on increased leadership as an RN student?</td>
<td>615 (79.6%)</td>
<td>158 (20.4%)</td>
</tr>
<tr>
<td>Do you believe that it is difficult to &quot;fit in&quot; with your classmates?</td>
<td>549 (62%)</td>
<td>323 (37%)</td>
</tr>
<tr>
<td>Are you worried that your current writing skills are not good enough for your RN program?</td>
<td>504 (57.7%)</td>
<td>369 (42.3%)</td>
</tr>
<tr>
<td>Do you believe that the distance you travel for your education makes it hard for you to do well in your RN program?</td>
<td>422 (49.5%)</td>
<td>431 (50.5%)</td>
</tr>
<tr>
<td>Are you worried that your current math skills are not good enough for your RN program?</td>
<td>414 (47.4%)</td>
<td>459 (52.6%)</td>
</tr>
<tr>
<td>Are you worried that your current computer skills are not good enough for your RN program?</td>
<td>273 (31.3%)</td>
<td>600 (68.7%)</td>
</tr>
</tbody>
</table>

*Note. LPN = Licensed practical nurse; RN = Registered nurse.*
Aim 3 (Other Transition Conditions Experienced)

<table>
<thead>
<tr>
<th>Transition condition</th>
<th>Facilitators</th>
<th>n reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior experiences (e.g., LPN work, as an LPN student)</td>
<td>98</td>
<td></td>
</tr>
<tr>
<td>A specific resource or technique that assists with learning (e.g., websites, apps)</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>School schedule that helps with school/life balance</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Support of friends</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Financial aid/scholarships</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Positive aspects of COVID-19 pandemic (e.g., having fewer social events to distract from school)</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>“Support system” in general</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Faith/prayer</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Financial adjustments to make schooling easier</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Hands on experiences/labs</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transition condition</th>
<th>Inhibitors</th>
<th>n reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Challenges related to the COVID-19 pandemic</td>
<td>126</td>
<td></td>
</tr>
<tr>
<td>Heavy school workload</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Perceived disorganization of LPN-to-RN program</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Mental health challenges</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Issues with testing</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Experience as LPN</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Lack of flexibility in program</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Unprofessional faculty or staff behavior</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Being combined with non-LPN classmates</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Changing mindset to think like an RN</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>A specific requirement (e.g., CPR, ATI)</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Students’ ability to learn/retain information</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Long time since in school</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Change in faculty</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Attending a new (unfamiliar) school</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Personal health (not mental)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Progress in program too slow</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Aim 2 (Relationships)

Relationships Between Transition Conditions and Program Characteristics (p < .01)
Aim 2 (Relationships), continued

Discussion

- Transition theory a good fit
- Actions by faculty members among the least frequently reported facilitators
- Skills-based inhibitors least common inhibitors
- Careful consideration needed when mixing LPNs and non-LPNs in RN education
- 13 transition conditions not significantly related to student/program characteristics likely applicable to most LPN-to-RN students

- Results can help LPN-to-RN programs design support for their students and realize these students’ potential to increase the numbers and diversity of RNs
## Limitations

- Inability to calculate response rate
- Self-report
- Historical effect: COVID-19 pandemic

## Future Research

- Evaluate support for LPN-to-RN students on both process and outcomes (Meleis, 2010)
- Consider additional transition conditions
- Compare/contrast LPN-to-RN students and RN students who are not LPNs

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## References


Acknowledgements

Dr. Susan Sullivan-Bolyai, Dissertation Chair
Dr. Carol Bova, Dissertation Committee Member
Dr. Sybil Crawford, Dissertation Committee Member

My PhD cohort
UMMS GSN Faculty and Staff
Respondants to the survey, participants in cognitive interviews, and the nursing program heads who distributed the study information
Generous support of scholarships from the Worcester State University Goodman, Alexander & Singh Faculty Fellowship for Doctoral Education; GSN Nursing Dean's Scholarship; the Carol Bova Scholarship Award
Friends and coworkers
Family, especially Frank, Ginny & Sammy
Dissemination Plan

The primary description of this dissertation work was submitted as a manuscript on August 12, 2021 to *Journal of Nursing Education* for review and consideration for publication.
<table>
<thead>
<tr>
<th>Question #</th>
<th>Rationale for Inclusion of Question</th>
<th>Question</th>
<th>Meleis et al.’s Corresponding Transition Condition(s)</th>
</tr>
</thead>
</table>
| 1. | Inhibitor from literature: difficulty juggling multiple responsibilities alongside school (Chachula et al., 2019) | How often do you find it hard to juggle school with non-school responsibilities?  
- Never  
- Sometimes  
- Frequently  
- Always | Personal: meanings  
Personal: socioeconomic status  
Community |
| 2. | Inhibitor from literature: financial challenges with added expense of return to school (Wheeler, 2015) | How often do you find it hard to pay for school expenses?  
- Never  
- Sometimes  
- Frequently  
- Always | Personal: socioeconomic status  
Community |
| 3. | Facilitator from literature: when prior experience as LPN is recognized by faculty (Wall, 2016) | How often is your prior LPN/LVN experience recognized by your faculty?  
- Never  
- Sometimes  
- Frequently  
- Always | Society |
| 4. | Inhibitor from literature: lack of recognition of prior experience as LPN by faculty (Wall, 2016) | How often do you wish that your faculty recognized your prior LPN/LVN experience more?  
- Never  
- Sometimes  
- Frequently  
- Always | Society |
| 5. | Inhibitor from literature: difficulty with writing skills (Chachula et al., 2019) | How often are you worried that your current writing skills are not good enough for your RN program?  
- Never  
- Sometimes  
- Frequently  
- Always | Personal: preparation and knowledge |
| 6. | Inhibitor from literature: difficulty with math skills (Wallen, McKay, Santos, LaFrance, & Veith, 2017) | How often are you worried that your current math skills are not good enough for your RN program?  
- Never  
- Sometimes  
- Frequently  
- Always | Personal: preparation and knowledge |
| 7. | Inhibitor from literature: lack of needed technological skills (Laming, 2013) | How often are you worried that your current computer skills are not good enough for your RN program?  
- Never  
- Sometimes  
- Frequently  
- Always | Personal: preparation and knowledge |
| 8. | Facilitator from literature: support from other students in RN program (Wall, 2016) | How often do you feel supported by your classmates?  
- Never  
- Sometimes  
- Frequently  
- Always | Community |
<table>
<thead>
<tr>
<th>Qno.</th>
<th>Description</th>
<th>Question</th>
<th>Community</th>
</tr>
</thead>
</table>
| 9.  | Inhibitor from literature: difficulty assimilating with other students in RN program (Wall, 2016) | How often do you believe that it is difficult to “fit in” with your classmates?  
- Never  
- Sometimes  
- Frequently  
- Always | Community |
| 10. | Inhibitor from literature: lack of support from faculty members (Hutchinson, Mitchell, & St John, 2011) | How often do you wish that faculty members provided more support for your RN education?  
- Never  
- Sometimes  
- Frequently  
- Always | Community |
| 11. | Facilitator from literature: support from faculty (Chachula et al., 2019) | How often do you feel supported by your faculty?  
- Never  
- Sometimes  
- Frequently  
- Always | Community |
| 12. | Needed to assess if questions 13-15 should be shown or not | Have you been employed in any type of job, at any point during your RN program?  
- Yes  
- No | n/a             |
| 13. | [shown only if “Yes” to question #12] Inhibitor from literature: lack of support for education from colleagues at work (Kenny & Duckett, 2005) | How often do you believe that colleagues at work are not supportive of your RN education?  
- Never  
- Sometimes  
- Frequently  
- Always | Community |
| 14. | [shown only if “Yes” to question #12] Facilitator from literature: support for education from colleagues at work (Kenny & Duckett, 2005) | How often do you believe that colleagues at work support your RN education?  
- Never  
- Sometimes  
- Frequently  
- Always | Community |
| 15. | [shown only if “Yes” to question #12] This may provide an objective measure of how much “juggling” a student must do, as well as how supported they may or may not be in decreasing work hours to prioritize school. | On average, how many hours per week do you work while your RN program is in session? _____ | Personal: meanings  
Personal: socioeconomic status  
Community |
| 16. | Needed to assess if question 17 should be shown or not. | Have you ever worked as an LPN/LVN?  
- Yes  
- No | n/a |
| 17. | [Shown only if answer to #16 is “yes”] Inhibitor from literature: lack of autonomy in the student role, compared to being an LPN (Chachula et al., 2019) | How often do you believe that you have less independence as a student RN compared to working as an LPN/LVN?  
- Never  
- Sometimes  
- Frequently  
- Always | Society |
| 18. | Needed to assess if question 19 should be shown or not. | Do you believe that your RN program wants you to raise your level of critical thinking?  
- Yes  
- No | n/a |
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</table>
| 19. | [Shown only if answer to #18 is “yes”] Inhibitor from literature: challenging to change thinking to include more critical thinking (Hoag, 2016) | How often do you find it hard to raise your level of critical thinking?  
- Never  
- Sometimes  
- Frequently  
- Always | Personal: meanings |
| 20. | Needed to assess if question 21 should be shown or not. | Do you believe that your RN program wants you to take on increased leadership as an RN student, compared to as an LPN/LVN?  
- Yes  
- No | n/a |
| 21. | [Shown only if answer to #20 is “yes”] Inhibitor from literature: challenging to take on increased leadership responsibilities (Porter-Wenzlaff & Froman, 2008) | How often do you find it hard to take on increased leadership as an RN student?  
- Never  
- Sometimes  
- Frequently  
- Always | Personal: meanings |
| 22. | Inhibitor from literature: viewing learning experiences as lacking value (Wall, 2016) | How often do you believe that the content taught in your RN program is not valuable?  
- Never  
- Sometimes  
- Frequently  
- Always | Personal: meanings |
| 23. | Inhibitor from literature: lack of self-confidence (Wheeler, 2015) | How often does your level of self-confidence makes your RN program harder for you?  
- Never  
- Sometimes  
- Frequently | Personal: meanings  
Personal: preparation and knowledge |
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<tbody>
<tr>
<td>24.</td>
<td>Inhibitor from literature: high levels of stress (Wheeler, 2015)</td>
<td>How often do you believe that your personal level of stress makes your RN program harder?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Never</td>
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<td></td>
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<td>- Sometimes</td>
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<td>- Frequently</td>
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<td>- Always</td>
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<td></td>
<td>Personal: meanings</td>
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<td>Personal: preparation and knowledge</td>
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<tr>
<td>25.</td>
<td>Inhibitor from literature: having to travel long distances for RN program (Purdy et al., 2012)</td>
<td>How often do you believe that the distance you travel for your education makes it hard for you to do well in your RN program?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Never</td>
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<td>- Frequently</td>
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<td>- Always</td>
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<td></td>
<td>Personal: socioeconomic status</td>
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<td>Community</td>
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<tr>
<td>26.</td>
<td>Facilitator from literature: support from family members (Claywell, 2003)</td>
<td>How often do you believe that your family is supportive of your RN education?</td>
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<td></td>
<td></td>
<td>- Never</td>
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<td></td>
<td></td>
<td>- Sometimes</td>
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<td></td>
<td>- Frequently</td>
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<td></td>
<td>- Always</td>
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<td></td>
<td>Community</td>
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<tr>
<td>27.</td>
<td>Inhibitor from literature: lack of support from family members (Claywell, 2003)</td>
<td>How often do you believe that your family makes completing your RN education harder?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Never</td>
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<td></td>
<td></td>
<td>- Sometimes</td>
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<td>- Frequently</td>
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<td>- Always</td>
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<td>Community</td>
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</tbody>
</table>
| 28. | Facilitator from literature: finding value in what is taught (Batton, 2009) | How often do you believe that content taught in your RN program is valuable? | Personal: meanings  
Personal: cultural beliefs and attitudes |
|   |   | - Never |   |
|   |   | - Sometimes |   |
|   |   | - Frequently |   |
|   |   | - Always |   |
| 29. | Facilitator from literature: having confidence in oneself (Wall, 2016) | How often does your self-confidence help you do well in your RN program? | Personal: meanings  
Personal: preparation and knowledge |
|   |   | - Never |   |
|   |   | - Sometimes |   |
|   |   | - Frequently |   |
|   |   | - Always |   |
| 30. | Facilitator from literature: feeling motivated to become an RN (Melrose & Gordon, 2011) | How often do you feel motivated to complete your RN program? | Personal: meanings  
Personal: preparation and knowledge  
Personal: cultural beliefs and attitudes |
|   |   | - Never |   |
|   |   | - Sometimes |   |
|   |   | - Frequently |   |
|   |   | - Always |   |
| 31. | Needed to assess if questions 32 and 33 should be shown or not.  
Also, starting clinical experience seemed to be a time when LPN-to-RN students’ experiences changed in the grounded theory by Melrose & Wishart (2013) | Have you started clinical experiences in your RN program? | n/a |
|   |   | - Yes |   |
|   |   | - No |   |
| 32. | [Shown only if answer to #31 is “yes”] | How often do you believe that clinical experiences help you do well in your RN program? | Personal: meanings  
Community |
<p>|   |   | - Never |   |</p>
<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
<th>Facilitator</th>
<th>Inhibitor</th>
<th>Possible Responses</th>
<th>Domain</th>
</tr>
</thead>
</table>
| 33.      | [Shown only if answer to #31 is “yes”] | - Sometimes  
- Frequently  
- Always | - Clinical experiences make it harder to do well in your RN program  
- Never  
- Sometimes  
- Frequently  
- Always | | Personal: meanings, Community |
| 34.      | [Shown only if answer to #31 is “yes”] | - Clinical experiences make it harder to do well in your RN program  
- Never  
- Sometimes  
- Frequently  
- Always | | Community |
| 35.      | [not shown if only “face to face…” is chosen in question #35] | - Being able to take courses online  
- Never  
- Sometimes  
- Frequently  
- Always | | Community |
| 36.      | Difficulty assimilating with non-LPN classmates was commonly noted in the literature (Wall, 2016). Also, experience may differ for students who only take courses with other LPNs. | | | | Community |
| 37. | Length of program may be associated with certain experiences being more or less common. | How long do you think your RN education will take, from the first nursing course in your RN program until you graduate?  
- 1 year or less  
- More than 1 year but less than 3 years  
- 3 years or more | Personal: meanings  
Personal: preparation and knowledge  
Community |
|---|---|---|---|
| 38. | LPNs who attend the same school for both LPN and RN programs may have an easier transition as there are less new elements to their educational experience. | Is your RN education program at the same school you attended for your LPN/LVN education?  
- Yes  
- No | Personal: preparation and knowledge |
| 39. | Experience of transition conditions may vary based on where student is in their program (Hill & MacGregor, 1998) | Think about the nursing courses you need to complete your RN program (not including any LPN/LVN courses which you received credit for).  
Which statement best describes you?  
- I still have to finish more than half of the nursing courses in my RN program.  
- I need to finish half or fewer of the nursing courses in my RN program. | Personal: meanings  
Personal: preparation and knowledge  
Community |
| 40. | [Shown only if answer to #16 is “yes”] Needed to assess if question 41 should be shown or not. | Before starting your RN program, how many years did you work as an LPN/LVN?  
- Less than 1 year  
- 1 year or more | n/a |
<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
<th>Answer</th>
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<tbody>
<tr>
<td>41.</td>
<td>[shown only if answer to #40 is “1 year or more”] Level of experience as LPN may impact many transition conditions, such as self-confidence and desire for recognition of prior LPN learning. Before starting your RN program, how many years did you work as an LPN/LVN?</td>
<td>________</td>
</tr>
<tr>
<td>42.</td>
<td>Demographic data to describe sample. Also, students with higher levels of education may have stronger academic skills (such as writing and math) What is the highest level of education you completed before starting your RN program?</td>
<td>Personal: preparation and knowledge</td>
</tr>
</tbody>
</table>
|  | - High school  
|  | - Certificate  
|  | - Associate degree  
|  | - Baccalaureate degree  
|  | - Master’s degree or higher | |
| 43. | Demographic data to describe sample. What is your race? (select all that apply): | Personal: cultural beliefs and attitudes Society |
|  | - American Indian or Alaska Native  
|  | - Asian  
|  | - Black/African American  
|  | - Native Hawaiian or other Pacific Islander  
|  | - White/Caucasian  
|  | - Other (specify) | |
| 44. | Demographic data to describe sample. Are you Hispanic/Latino? | Personal: cultural beliefs and attitudes Society |
|  | - Yes  
<p>|  | - No | |
| 45. | Demographic data to describe sample. What is your age? | Personal: meanings |</p>
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<tr>
<td>46.</td>
<td>Demographic data to facilitate comparison to Jones et al. (2018) study.</td>
<td>How old were you when you first became licensed as an LPN?</td>
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<td>- 16-22</td>
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<td></td>
<td>- 23-27</td>
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<td>- 28-34</td>
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<td>- 35 or older</td>
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<td></td>
<td></td>
<td>n/a</td>
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<td>47.</td>
<td>Demographic data to describe sample.</td>
<td>What is your gender?</td>
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<tr>
<td></td>
<td></td>
<td>- Male</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Female</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Non-binary/prefer to self-describe</td>
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<td></td>
<td></td>
<td>Personal: meanings</td>
</tr>
<tr>
<td>48.</td>
<td>Demographic data to describe sample.</td>
<td>When you finish your RN program, which of the following will you earn?</td>
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<tr>
<td></td>
<td></td>
<td>- Associate degree</td>
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<td></td>
<td>- Diploma</td>
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<tr>
<td></td>
<td></td>
<td>- Baccalaureate degree</td>
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<td></td>
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<td>n/a</td>
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<tr>
<td>49.</td>
<td>Needed to account for intraclass correlation and potentially gather missing data (such as how long the program takes)</td>
<td>What school do you attend for your RN program?</td>
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<td></td>
<td></td>
<td>n/a</td>
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<tr>
<td>50.</td>
<td>To gather data on transition conditions not included in the survey.</td>
<td>Please describe anything else that has made your RN education harder (which was not included above).</td>
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<td>________________________________</td>
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<tr>
<td></td>
<td>To gather data on transition conditions not included in the survey.</td>
<td>Please describe anything else that has made your RN education easier (which was not included above).</td>
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Appendix B
Flowchart of Literature Search and Evaluation

Records identified through database searching
n = 126 (CINAHL/ERIC=42; PubMed=84)

Additional records identified through ancestry searching n = 34
(through literature reviews= 22; through reference list of included publications = 12)

Records after duplicates removed
(n = 149)

Records screened
(n = 149)

Records excluded:
(n = 92)

Full-text articles assessed for eligibility
(n = 57)

Full-text articles excluded, with reasons
(n = 22)

Publications included
(n = 35)