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Effect of Gender on Intentional Learning Orientation

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Effect of Gender on

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Abstract

Knowledge of how gender affects learning is scarcely understood in the realm of nursing education. Prior studies have indicated certain learning styles are predictors of passing board examinations. Pinpointing specific learning styles could improve educational outcomes and produce thoroughly equipped nurses. Previous researchers have studied the differences in learning preferences according to gender; however, no studies have solely concentrated on gender specific learning preferences among undergraduate nursing students. Learning Interest, as well as Goal Orientation, were found to be statistically significant between genders.

Keywords

Acknowledgements

1. Introduction

1.1 Background

With a significant increase in the demand for nurses, as well as a significant enhancement in the scope of practice for bachelor level nurses, it is imperative that colleges and universities prepare students to enter their roles in the health care setting. It is important to both accommodate students by identifying their learning style and in adapting the style of instruction for their optimum success. Students participating in BSN programs come from a variety of demographics including differences in age, gender, race, socioeconomic background, and more. As a result of this diverse student population, it would benefit colleges and universities to accommodate students' intrinsic learning orientations. For example, Lown and Hawkins (2017) found that preferred learning styles are a predictor of the likelihood of passing or failing the national nurse licensing examination (NCLEX). This would allow for optimum learning, maximized academic performance, and the schools would therefore produce more thoroughly equipped, baccalaureate prepared nurses in a more effective and cost-efficient manner.

Although studies have been conducted regarding differences in comprehension according to gender of instructor, personal learning preferences related to gender, and gender biases in education, very little or even no data exists regarding gender differences and how they coincide with goal orientation, levels of learning interest, degree of instructor dependence, and orientation toward the achievement of extended goals beyond the requirements of a class or curriculum. Learning orientation seems to have been forgotten or abandoned in recent years despite that fact that early studies indicate its value (see below). This has been especially true in health care settings where learning orientation analyses have not been applied.

1.2 Gender Differences in Learning

Previous studies have shown that men and women can have different learning preferences due to neurocognitive differences. Saleh (2016) proposed that women tend to use both hemispheres of their brains concurrently while men tend to have more connections within one hemisphere, predominantly the left. Das and others (2019) recently showed that women medical students at a New Delhi medical college showed better academic achievement after team-based learning and also rated this instructional technique higher when compared to their male counterparts. A Hungarian study which explored implicit sequence learning and consolidation based off gender and age determined that there were, "... no gender differences in the acquisition of sequential memories but gender differences emerged after the consolidation: male participants showed somewhat better performance in terms of accuracy compared to the female participants" (Juhász and Németh, 2018).

Lenney, Gold, & Browning (1983) found that female students may have lower levels of self-efficacy in educational settings and may be less likely to associate academic success with their own abilities. In contrast, Schweder and Raufelder (2019) concluded that 6th and 7th grade girls in primary school had a significantly higher level of volition, meaning they had more power to make decisions and move towards personal goals. Martinez (2005), the developer of the

intentional learning orientation instrument, found that total learning orientation score was significantly correlated with gender in a mixed sample of high school students, university students, and full-time employed adults in the U.S.; however, there was no report on whether the males or females scored higher. Tyson (1989) tested measures of (1) the desire to perform a task well, (2) the desire for new and challenging tasks, and (3) the desire to outperform others. Females scored higher on the first and lower on the second and third measures. A number of studies have found that differences in learning between genders are related to differences in intrinsic motivation rather than extrinsic motivation (Fraser, Lytle, & Stolle, 1978; Sizoo et al., 2003) but the study by Kosgeroglu and others (2009) in Turkey concluded that there are significant differences according to gender in intrinsic motivational factors, as well as extrinsic motivational factors, and negative motivational factors. Female students had higher intrinsic motivators than male students. Females also had higher levels of extrinsic motivational factors and lower levels of negative motivational factors.(Kosgeroglu, Nedime; Acat, M. Bahaddin; Ayranci, Unal; Ozabaci, Nilufer; Erkal, Sibel, 2009).

To sum up learning in relation to gender, the picture has formed that the main differences are with learning style and nature of motivation. There is a lack of agreement regarding the role of extrinsic motivation that might be due to cultural differences between the countries in which the studies were conducted. It is noteworthy that none of the previous studies addressed the question of learning orientation, which is a different facet of learning than style or motivation. In fact, despite the availability of instruments for this purpose, there has been no systematic investigation of these issues. The investigation of these issues is important because different fields of nursing obviously require varying degrees of education, skills, and varying levels of problem solving ability. This leads to the question of whether the nursing student's level of learning orientation (goal orientation, learning interest, instructor dependence, and achievement of extended goals) might be indicative of the nursing specialty the student might eventually enter. In addition, is unknown how gender differences in learning orientation relate to the observation that males are more likely to be attracted to intensive and critical care settings than females (Martin, Welch, & Barr, 2018)

1.3 Learning Orientation

Differing definitions of *learning orientation* have evolved in different fields of research where it has been defined as orientation to individual as compared to team learning (Pearsall and Venkataramani, 2015; Bunderson and Sutcliffe, 2003), achievement compared to cultural value learning (Marryshow et al., 2005), heteroracial as compared to homoracial learning settings (Burgess et al., 2016), as well as how students study (Böckers et al., 2014). A more consistent definition has been in business research, where the term is widely used to indicate an employee's global orientation toward the task of learning (Jha and Bhattacheryya, 2013). The global nature is reflected by the elements of the degree to which an individual prioritizes learning and the mastering new skills and knowledge, whether they achieve their learning goals better on their own or with the guidance of an instructor. whether or not they prefer to learn in a formal

education program, and others. The key aspect is that the individual's willingness or determination to engage in self-directed learning as opposed to learning that is dependent on an instructor or others (Martinez, 1999). This is separate from the issues of learning styles, motivation, performance, or performance orientation. The distinction of learning orientation was well characterized by Balogh (2001) who stated, "These learning orientations do not suggest different levels of intelligence or IQ. They are indicators of how a student would prefer to learn, and where their perception of learning responsibility lies." A succinct definition for learning orientation that is adopted in the present study is "the tendency or habit of seeking to increase one's knowledge and skills; toward valuing the learning process as a means to accomplish mastery over a task; toward being interested in challenging activities; and toward using information seeking as a personal strategy when problem solving " (California Academic Press, 2018).

Balough found that LOQ scores were significantly correlated with the final grade in undergraduate physical science courses as well as student ratings of instructor effectiveness an course quality. Learning orientation scores were found to be correlated to both holistic thinking and problem solving ability (Martinez, 2005). The measurement reliability and validity of the 25-item instrument have been assessed and determined to be very good Martinez (1999, 2005; Dinsmore and Glenn, 2018a) . Dinsmore and Glenn (2018b) proposed a shortened version of the LOQ that used 8 items taken from the 25-item LOQ on the basis of a factor analysis that showed these 8 items to correlate well with and to represent well the responses to all 25 items. This conclusion has not yet been tested in a separate sample. The short version of the survey is more convenient and expedient for researchers so it would be a good choice for a study of gender differences in learning orientation.

1.4 Purpose

The purpose of this study was (1) to test the short 8-item version of the LOQ in a different sample in order to determine whether the psychometric properties of the instrument were consistent across different samples, (2) to determine if there were differences in learning orientation and its four components according to gender, nursing field preference, and other demographic variables. The null hypotheses was that there were no differences in psychometric properties for different samples and no difference in learning orientation measures according to demographic characteristics. Preliminary results of this study have been presented at a research conference (Anderson and Glenn, 2019).

2. Methods

2. 1 Sample

The sample was taken from students in class sessions in 2018 and 2019 at a medium-sized university with 15,000 undergraduate and graduate students in upper east Tennessee region of the U.S. The sample method for the site selected for the study was a convenience sample of junior-level nursing students at one educational institution. No sampling method was used for the

participants because all participants in the sample frame were asked to participate in the study. The participation rate was 100% in that 198 participants that were requested to participate so there was no missing data for the LOQ items.   Three participants did not answer the demographic question on preferred nursing field and a different three did not answer the question on gender, so these two items had a 98.4% response rate. All other demographic questions were answered for a response rate of 100%. The demographic composition of the sample (Table 1) was relatively homogeneous with predominantly white, non-Hispanic females in their early to late twenties, which reflects the community demographics of college-aged females in the region. The Institutional Review Board of East Tennessee State University in Johnson City, Tennessee approved the study.

2.2 Research Design and Measurements

A quantitative, non-experimental, one-group, correlation design was used with subgroup that completed the instrument a second time after an intervening period (see above) which is a time series or repeated measures design. The measurement instruments were a short demographic instrument and a shortened version of the Learning Orientation Instrument (LOQ) developed and copyrighted by Martinez (2005) by permission. The shortened version had 8 items instead of 25 and used the core items selected from a the cluster and factor analyses (Dinsmore and Glenn, 2018a) and shown in Appendix 1. Dinsmore and Glenn (2018b) conducted a tentative assessment of the short version of the LOQ and found that the explanatory power of the short 8-item version of the in (in terms of the percentage of the variance accounted) was 77% to 93% of the explanatory power of the full 25 –item instrument.

The response values ranged from "Very characteristic of me" which had a coded value of 7 "Not characteristic of me" with a coded value of 1. Response values 2 to 6 were not labeled but instead the instructions explained that the midpoint of the scale (4) was "Neutral or don't know". Martinez (2005) found the Learning Orientation Instrument to have good measurement reliability with an overall Cronbach's alpha of 0.84. As for measurement validity, Martinez (1999) assessed the discriminate validity by comparing LOQ score with scores on a related instrument, the System for Intentional Learning and Performance Assessment. The measurement validity was fair to good at F=5.01 and p=0.007.

2.3 Classification System:

Participants were asked to identify which field or specialty of nursing they desired to work in. The responses were then manually placed into the following standard categories: T=Trauma, CC= critical care, MH= Mental Health, P= Pediatrics, AP= Advanced Practice, D= Dermatology, L&D= Labor and Delivery, MS= Medical Surgical, S= Surgery, CRNA= Certified Registered Nurse Anesthetist, O= Oncology, U= undecided, G= Geriatrics, W= Wound Care WH= Women's Health TR= Travel. These specific categories were then generalized into broader categories according to the reputation for complexity and hospital unit mortality rate according the judgment of the authors. The high challenge category was comprised of the CC, O, CRNA,

T, G, and AP categories. The regular challenge category was comprised of the other categories. The intention behind this categorization was to identify whether or not levels of instructor dependence foreshadowed what type of nursing the student may enter in the future.

Using Pearson's Correlation test, the factors were compared with one another independently. The scores for Goal Orientation, Learning Interest, Instructor Dependence, Achievement of Extended Goals were compared. The correlations as well as the *p* values for the scores can be seen in Table 2. Additionally, analysis was conducted for the ordinal variables "Age" as well as "Hospital Distance". Pearson's Correlation test was also used to compare the scores. Using the Kruskal-Wallis test designated for nonparametric factors, nominal variables "Program" and "Nursing Field" were each compared with the scores for Goal Orientation, Learning Interest, Instructor Dependence, Achievement of Extended Goals. The Kruskal-Wallis test was also used to compare each of the subscores of by gender and challenge of preferred nursing specialty.

2.3 Procedure and Data Analysis

The demographic survey and LOQ instrument were merged and placed on the institutional web server. All students enrolled in a first semester junior-level course were asked to complete the confidential instrument in the classroom and later with email reminders. Data validation and confirmation messages were used to alert the participant if a question had a nonsensical response or was accidentally skipped in order to minimize missing or wild data. A four day period was allowed for its completion. The first 41 participants in the study completed the LOQ instrument a second time 8-12 days after the first completion in order to calculate test-retest (external) reliability.

After the data collection period was over, the data were downloaded securely from the server as a comma-separated value file and imported for statistical analysis using the R language version 3.6.2 (R Core Team, 2020). The data were double checked then item 5 (see Appendix A) was transformed to account for its reverse coding were reversed by the formula $x_{rev} = 8 - x$, where x is the value of the participant's response on a scale from 1 to 7. Four subscores were calculated based on the cluster and factor analysis recommendations of Dinsmore and Glenn (2018a). Specifically, the average of items number 2 and 5 in Appendix 1 was calculated as the learning interest factor; 4 and 6 as goal orientation; 3 and 8 as instructor dependence; and 1 and 7 were for the factor of achievement of extended goals. The participants were stratified into the four learning orientation classifications of Martinez (1999, 2005) on the basis of their individual average score, which were resistant (Under 3.5), conforming (3.5-4.5), performing (4.5-5.5), and transforming (Over 5.5).

Due to the scores and subscores having a skewed distribution (see Results section) , a Wilcoxon rank sum test was used to compare scores for variables with two groups, such as gender. The Kruskal-Wallis test was used for variables with three or more groups, such as age group. The scores and subscores were ordinal variables so Kendall's τ_b was used to calculate correlation coefficients. For comparing and testing strictly nominal variables, the Fisher Exact

Test was used. The α value for the statistical significance was set at $\alpha = 0.05$. Note that α confusingly represents two different quantities in research, both the measurement reliability and the criterion for statistical significance.

3. Results

3. Distributions and Normality

The overall learning orientation scores and subscores had a non parametric distribution. Fig. 1 shows the how the distribution for the overall score was skewed to the right with a skew of 0.82, kurtosis of 1.77 and $W = .92$ ($p < 0.00001$) by the Shapiro-Wilk normality tests. Although the instructor dependence score was the closest to begin parametric, all four factors had a markedly non parametric distribution with skews ranging from 1.12 to 1.49, kurtoses ranging from 2.02 to 2.81, and a Shapiro-Wilk W range from 0.80 to 0.89. Consequently, only non parametric statistical tests were used in the present study.

3.1 Measurement Reliability

Both internal and external (test-retest) measurement reliability were assessed. The Cronbach α for internal reliability was 0.83 and the Guttman λ 6 was 0.84 (N=198). These values can be rated as be a high reliability. The external (test-retest) reliability assessment had an α of 0.95 and Guttman lamba 6 of 0.91, rated as very high. The measurement validity can be assessed by comparing the subscores for factors that should be related to each other, which is a method of concurrent validity. The subscores for goal orientation and achievement of extended goals would be expected to be correlated to some degree and the correlation was r= 0.63 ($p < 0.0001$). By Cohen's criteria (Cohen, 1988), this is strong effect size which means that the measurement validity was high. Accordingly, the total score correlates high with each of these subscores (Table 2) so the measurement validity of the total score is high.

3.2 Total Score and Subscores

The mean score for the LOQ was 5.94 on a scale from 1 to 7 (Table 2). This corresponds to the highest level of classification of Martinez (1999, 2005) which is the learning orientation of *transforming*. The distribution of students across the other learning orientation levels is shown in Fig. 2. The predominant transforming class had 71% of all participants. The performing class had 27% with the conforming and resistant classes containing 2% and 0.5% respectively. There was a strong correlation by Cohen's criteria (Cohen, 1988) between the factors of goal orientation, achievement of extended goals, and learning interest which ranged from $r = 0.63$ to 0.82. This contrasts with the instructor dependence factor which was independent of each of these three. This means that instructor dependence can be either high or low regardless of goals and interest. This also argues for the further reduction of the factor structure to only two factors in the future, one for instructor dependence and one for the combination of goal orientation, achievement of extended goals, and learning interest. This possibility could be investigated in

the future.

3.3 Influence of Demographic Characteristics

A third question was whether learning orientation differed according to gender. A statistically significant relation had been found in a preliminary report (Anderson and Glenn, 2019) with females having a higher overall learning orientation score than males. However, the statistical significance fell short in the full study herein reported at $p = 0.061$. There was a trend where females had an average score of 5.60 ± 0.52 SD compared to 5.25 ± 0.88 for males, a 6.9% difference. Given that gender was the only demographic variable with a trend to affect learning orientation score, the analysis of gender was taken to a deeper level by exploring the four factors that comprise learning orientation. The question was which, if any, of four factors comprising total learning orientation were responsible for the trend observed. As shown in Table 3, statistically significant differences were observed for goal orientation and learning interest but not for instructor dependence or achievement of extended goals. Females had an 8.1% greater goal orientation subscore and an 8.7% greater learning interest score than males. Therefore, the trend observed in overall learning orientation score is explained primarily by differences in these two factors.

The fourth and last question concerned whether learning orientation had a relation to preferred field of nursing. The many reasons for suspecting that there might be a relation to the challenge (complexity or patient mortality rate experienced) are explained in the Introduction section above. Participants with an interest in nursing specialties of greater challenge were had a significantly higher learning orientation score than those in specialties considered to have a regular level of challenge (6.08 ± 0.70 SD versus 5.85 ± 0.76 SD, $p = 0.034$, Wilcoxon rank sum test). Given that there was a difference, an analysis of the four factors that comprise the overall orientation was conducted (Table 4). The factors of learning interest and instructor dependence were both significantly greater in participants with the preference for high challenge specialties. There was no significant difference for the factors of goal orientation or achievement of extended goals.

The fifth and last question concerned the issue of whether there was a relation between the challenge level of a nursing specialty and gender, as raised in the Introduction section above. There was a significant relationship and it was in the expected direction. The percentage of females that preferred high challenge specialties was 35.5% compared to 65.4% of males ($p = 0.009$, Fisher Exact Test).

4. Discussion

4.1 Comparison of Psychometric Results To Previous Studies

The present study found that the LOQ instrument had a high measurement reliability at $\alpha = 0.83$ and a high concurrent validity of $r = 0.63$ to 0.82, depending on which pairs of factors are used for the validity determination. Although this is not an exhaustive test of the psychometric properties of the short version of the LOQ, it does use the core methods for such a test so we can

consider this instrument to be ready for deployment in health care settings at the least and likely more broadly universally after it has been translated into many international languages. Although Dinsmore and Glenn (2018a) did not assess the measurement reliability and validity of the short version of the LOQ, the did determine that the shortened version had 77% to 93% of the explanatory power of the full version, which is relatively high.

The mean score on the LOQ was for all participants in the study (Table 2) with 71% of the participants located within the highest of the four learning orientation levels identified by Martinez (1999, 2005). The question is how our present sample compares to other populations previously tested, most of which were in sectors other than health care. Jones and Martinez (2001) assessed 56 university science students taking a course in statistics and found that the predominant level was the performing level with 20% in the highest level of transforming. This compares to 71% in nursing students showing a far greater learning orientation as defined by the domain of this instrument (Fig. 1). A convenience sample of 71 adults recruited from the community (white and blue collar employees; small business and corporate; homemakers; students) also were mostly at the performing level (Martinez, 2000). Ninety-two senior citizens at senior centers were also predominantly at the performing level for both in rural (52%) and urban (56%) communities compared to 27% of nursing students in the present sample. Only 6% of urban seniors and 20% of rural seniors were at the transforming level, compared again to 71% of nursing student in the present study (Fig. 1).

Alias and others (2005) studied 57 students between 26 and 30 years of age at a Malaysian technology and business college. This sample had an average score of 4.74 compared to 5.94 in the present study. The predominant learning orientation level was performing with 47% in that category and with 12% at the transforming level. Romanian (N=168) technical college instructors had an average LOQ score of 4.86 compared to 5.94 for the present sample. Chapman (2006) found that 46% of students in a masters-level research course were at the performing level and 54% at the transforming level. These two percentages can be considered to be the statistically the same due to the small size of the sample (N=13) in Chapman (2006). A national sample of 130 adult students (K-12 teachers) across the USA in a masters-level program in learning and technology in Utah showed that 65% were at the performing level and 28% at the transforming level (Jiang and others, 2006).

To sum up, the present sample of junior-level nursing students is distinct from any other population previously in being predominantly at the transforming level of learning orientation. In fact, there were more than twice as many students at the transformational as the performance level, which contrasts with all other populations previously studied. The reason for this is unknown but we can conjecture that it is because the nursing students are assertive and excel at transformative processes such as case-studies (Martinez, 2000).

4.2 Effect of Gender on Learning Style and Orientation

In a preliminary report at a research conference (Anderson and Glenn, 2019), in contrast to the findings here, we found that "The LOQ score was significantly different between males

and females (p= 0.013)." The reason for the inconsistency is due to our assumption that we could use parametric methods (t-tests and anova) in the preliminary report. For the main analysis later, we first analyzed the normality of the distributions and determined that the data had a non parametric distribution, which violated the assumptions of the t-tests and anova methods. Upon switching to superior statistical methods, this finding was close to statistical significance at $p = .061$, but was above our statistical significance criterion of $\alpha = 0.05$. Obviously, the findings in the current report supersede those of the preliminary report. Females had higher goal orientation and learning interest scores compared to males (Table 3) in the present study. Two studies have previously investigated the gender-dependence of learning orientation. Martinez (2005) found a significant correlation of gender to both the overall LOQ scale and the goal orientation factor in a mixed, heterogeneous sample of 6, 178 high school students, university students, and community adults of multiple nationalities and languages. This is consistent with the findings in the present study which was conducted in a more homogeneous group than that of Martinez. However, Martinez did not report a significant relationship to the factor of learning interest. Regardless, this is largely a confirmation of the findings in the present study. The comparability of the findings supports the use of the short form of the LOQ instead of the longer form, providing greater efficiency and response rate in future studies. Our finding of non-significant trend for the females to have higher overall learning orientation scores was also found in the sample by Alias and others (2005). Our findings are also consistent with their findings that age had no significant relationship to the overall score.

The reason for the effect of gender on learning orientation can be surmised by first reconsidering the nature of the four factors Martinez, 2005; Dinsmore and Glenn, 2018a). The first factor centered around the concept of interest in and receiving joy from learning. The second factor centered around using learning to accomplish personal goals by managing one's own progress. The third factor was the degree of control and autonomy over learning, which is primarily the issue of the degree of dependence on the instructor. The last factor concerned setting extended learning goals especially the determination to learn above and beyond what was presented in a formal course. Consequently, we suggest that the explanation for the gender difference is intrinsic motivational factors associated with goal achievement. This derives from the findings of Schweder and Raufelder (2019) which found intrinsic motivation among 6th and 7th grade girls. This intrinsic motivation explains why there are gender differences in regard to Goal Orientation and Learning Interest.

4.4 Gender and Learning
Women use both hemispheres of the brain, as opposed to men primarily using the left hemisphere. This ability to consolidate information is a possible explanation of why females have higher scores in Goal Orientation and Learning Interest. Female brains may be able to interconnect present learning to future application. Contrastingly, men may focus on more singular aspects and compartmentalize knowledge for present use. On the other hand, research has found males to be more capable of consolidating information when shown implicit sequences

(Selah, 2016). This would not support the theory mentioned prior that women are superior at consolidating information for future use. Additionally, Schweder and Raufelder (2019) found that females in middle school have higher levels of volition. This supports the findings of this study regarding Goal Orientation. More research is required to understand the decline of volition in females past middle school age. Tyson (1989) found that females initially have the desire to perform tasks well, with a decrease in desire to perform new tasks and outperform others. This supports findings that of gender differences related to Learning Interest.

4.5 Limitations

The study was conducted at a rural, medium sized university of about 15,000 total students. Had the sample size been larger, the study could have encompassed a wider and more diverse group of students. The sample size was taken from students in their first semester of junior year (or second semester of the nursing program). Students may adapt their learning styles to accommodate the rigor of the nursing program as they advance to later semesters. For example, a student in second semester may have adapted and found better learning methods by the time they enter their last semester. Additionally, most of the students instrumented were first degree, traditional BSN students. Students who are earning their second degree, are on an accelerated track, or are in the LPN-BSN programs were underrepresented. Given their past experience of exposure to post-secondary education, they may have adapted their learning style to accommodate this program and its demands. There is also a limitation that most of the students are female. This limits the amount of males available to take the instrument and gather data from. Last, all findings in this study are based on self-reported beliefs. Although phrases are used such as "the participants had a strong commitment to learning," for the sake of brevity, it should be kept in mind that this is subjective measure of high reliability and validity, so it really means "the participants reported that they had a strong commitment to learning."

5. Conclusion

The shortened LOQ instrument utilized throughout this study had 93% measurement validity and reliability. Non-parametric methods (t-tests and anova) were used to determine that females scored higher in both Goal Orientation and Learning Interest when compared to males. Results of this study support the notion that age had no statistical significance in relational to overall score. The present study will hopefully reintroduce the LOQ as a valuable instrument in learning studies and also provide a validated shortened version for great study efficiency and promotion of higher response rates. Just as instructors and in-service clinical trainers are advised to provide different learning conditions for adult versus traditional students, they should also provide sufficiently diverse learning opportunities to accommodate the strengths and strength differences between genders. Providing these opportunities will allow for better nursing education and produce adequately prepared nurses.

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Appendix 1

Short Form of the Learning Orientation Instrument (LOQ-SF8)

Response Choices. All items were rated on a scale from 1 (Very Uncharacteristic of Ne) to 7 (Very Characteristic of Me) with 4 in the middle (Neutral or Don't Know).

Instructions. For each statement, circle one number in the range between 1 and 7 to describe your usual learning approach.

1. I push myself to accomplish personal learning goals beyond those expected by the instructor.
2. I enjoy learning.
3. The instructor helps me stay on task and meet course objectives.
4. I use learning as a vital resource in accomplishing my professional or personal goals.
5. I avoid learning situations if I can.
6. Monitoring my own progress helps me manage and improve my learning and professional performance.
7. I set and accomplish personal learning goals beyond the stated course objectives.
8. The instructor can plan my best learning approach for accomplishing training objectives.

Tables

Table 1. Demographic Composition of the Sample (N=198)

Demographic Characteristic	Proportion (%)
Age Group	
23 or Less	80.5
24 – 29	11.7
30 – 39	4.7
40 or More	3.1
Gender	
Female	86.7
Male	13.3
Education Program	
Main (Traditional)	82.3
2nd Degree	12.6
RN-to-BSN	3.0
LPN-to-BSN	2.0

Table 2. Total Score and Four Factors. The first row shows means and standard deviations (in parentheses) and the remain rows show correlations between the four factors and the total score (N=198).

	Total Score	Factor 1 Goal Orientation	Factor 2 Instructor Dependence	Factor 3 Learning Interest	Factor 4 Achievement of Extended Goals
Central Tendency	5.94 ± 7.25	6.36 ± 7.23	3.74 ± 7.34	6.22 ± 7.21	5.88 ± 6.96
Total Score	1.00	0.82**	0.81**	0.79**	0.81**
Goal Orientation	0.82**	1.00	.57**	0.63**	0.63**
Instructor Dependence	0.81**	.57**	1.00	0.51**	0.45**
Learning Interest	0.79**	0.63**	0.51**	1.00	0.78**
Achievement of Extended Goals	0.81**	0.63**	0.45**	0.78**	1.00

*p < 0.05; **p < 0.0001

Table 3. Dependence of Factors Comprising Intentional Learning Orientation on Gender by the Wilcoxon rank sum test. Means and SDs are shown in the table.

	Female	Male	*W*	*p*
Factor 1 Goal Orientation	6.44 ± 0.69	5.96 ± 0.99	2837	0.012*
Factor 2 Instructor Dependence	5.32 ± 1.19	5.29 ± 1.26	2247	0.851
Factor 3 Learning Interest	6.27 ± 0.86	5.77 ± 1.32	2726	0.040*
Factor 4 Achievement of Extended Goals	5.96 ± 0.91	5.38 ± 1.53	1777	0.111

$* p < 0.05$

Table 4. Dependence of Factors Comprising Intentional Learning Orientation on Nursing Specialty of Preference by the Wilcoxon rank sum test. Means and SDs shown.

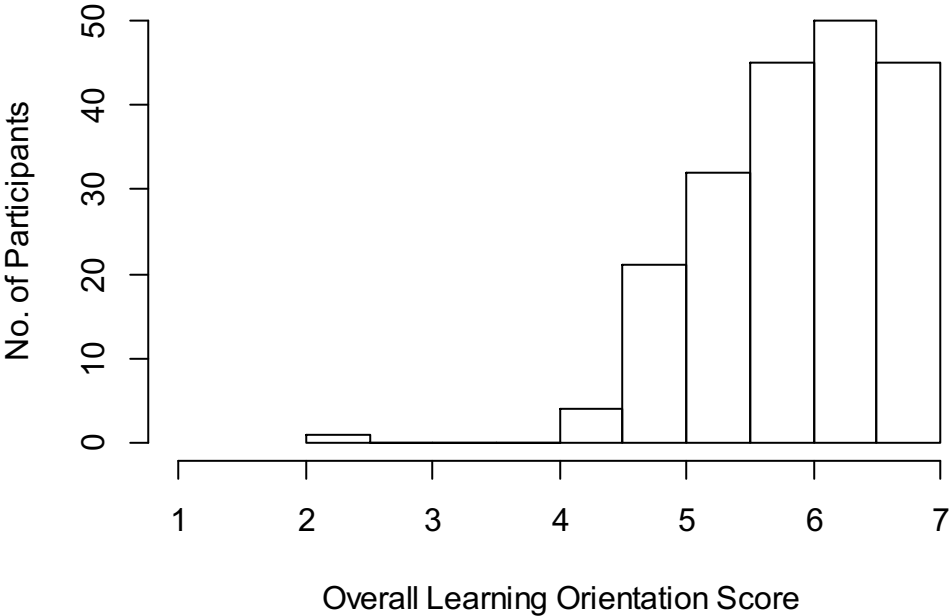|	High Challenge N = 78	Regular Challenge N = 120	*W*	*p*
Factor 1 Goal Orientation	6.42 0.75	6.32 0.78	4256	0.259
Factor 2 Instructor Dependence	5.56 1.11	5.15 1.25	3852	0.034*
Factor 3 Learning Interest	6.37 0.73	6.13 0.81	3479	0.015*
Factor 4 Achievement of Extended Goals	5.99 1.05	5.81 1.03	4134	0.16

* $p < 0.05$

Figures

Fig. 1 Nonparametric distribution of the overall learning orientation score.
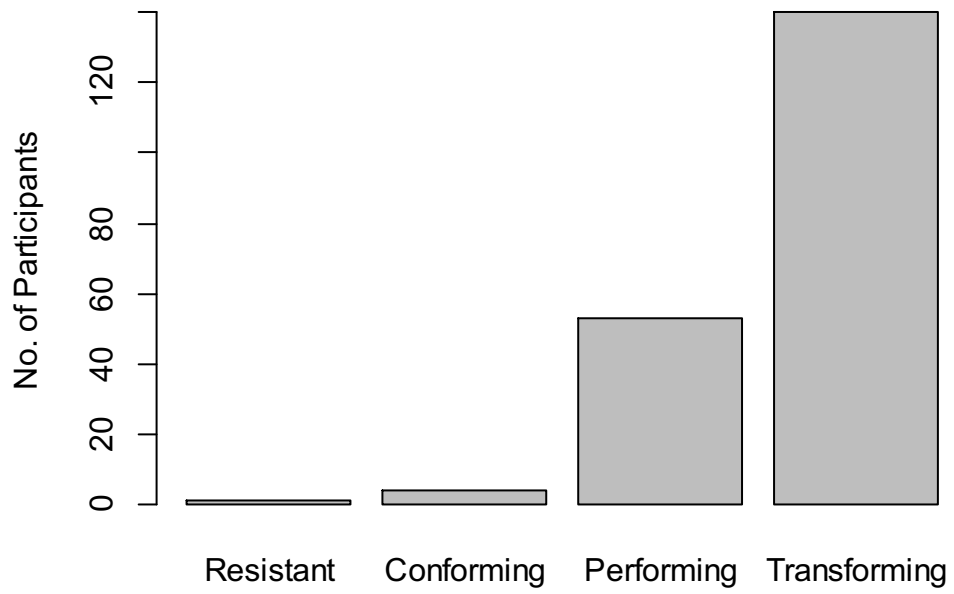
Fig. 2. Distribution of participants across the four learning orientation classifications.