NCLEX SUCCESS

LIPPINCOTT FOR LIFE

Case Study

Helping Students Achieve First-Time NCLEX Success

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Contemporary Issues in Nursing | **Fall 2011**

SUMMARY OF FINDINGS

- **Students had optional use of Lippincott NCLEX-RN 10,000 to prepare for the NCLEX.**
- **100% of the students who used Lippincott NCLEX-RN 10,000 , passed the NCLEX on their first try.**
- **Average Mastery Level (ML) of students passing the NCLEX was 5.38**

Course

Nursing 436 is an NCLEX course for graduating seniors. During fall, 2011 16 students completed the course.

Course Grading Policies and Assessment

Students take three ATI predictor tests during the course.

NCLEX-RN 10,000 Implementation

Use of NCLEX-RN 10,000 was 'optional' for these students in their prep for NCLEX. Professor Orm did not assign any specific assignments. She did, however, encourage the use of NCLEX-RN 10,000 prior to each predictor test taken. Professor Orm guided her students towards areas to focus on for their continued NCLEX Prep after they graduate. She checked the *How is My Class Doing?* page in NCLEX-RN 10,000 only after each predictor test was taken in order to view the student usage.

Fall 2011 Data Analysis

Student Usage
During the fall semester, six students used NCLEX-RN 10,000 (see Table 1). Of the six students who accessed NCLEX-RN 10,000, five of them took at least one quiz, with an average of 71.8 quizzes and 1,955 total questions.

Table 1: Overall NCLEX-RN 10,000 Usage Data Nursing 436 Fall 2011 (early use group)	
Number of Students	6
Students who've taken a quiz:	5 (83%)
Quizzes taken:	359
Average number of quizzes: (among those who've taken quizzes)	71.8
Questions answered:	1,955
Average number of questions: (among those who've taken quizzes)	391

The average number of questions answered by each student in this course was much lower than has been documented in other courses. Indeed, in Professor Orm's other course (Nursing 237), the average number of questions answered per student was 5,403. Students in this course were encouraged to use NCLEX-RN 10,000 as they prepared for the NCLEX exam, but use of NCLEX-RN 10,000 was not a course requirement.

The pattern of student usage changed over the course of the semester: Prior to the first predictor exam, 50% of students had used NCLEX-RN 10,000 with an average of 313.33 questions answered. Following the first predictor, usage increased to 4/6 students, and following the second predictor exam usage increased to 83%.

Performance on the ATI Predictors (1, 2 and 3) and cumulative NCLEX-RN 10,000 usage across time are shown in Table 2.

Table 2: ATI Predictor Scores and NCLEX-RN 10,000 Questions Answered (by student)						
Student	Questions	ATI 1	Questions	ATI 2	Questions	ATI 3
1	289	64.7	289	66	309	72.7
2	250	62.7	400	61.3	700	68.7
3	401	62	401	56	606	62
4		66	125	55.3	325	68
5		71.3		66.7	0	68
6		62.7		61.3	15	64.7
Average	313.33	64.9	303.75	61.1	325.83	67.35

Following graduation at the end of the fall, 2011 semester, students continued to have access to NCLEX-RN 10,000 in order to study for the NCLEX exam. Usage increased post-graduation with the number of students using NCLEX-RN 10,000 increasing from 5 to 12 out of the possible 16 students in the class. Table 3 below presents usage data for all 12 students who used NCLEX-RN 10,000 prior to the NCLEX exam.

Table 3: NCLEX-RN 10,000 usage data for all student users (N = 12)					
	N	Min	Max	M	SD
NCLEX-RN 10,000 Log Ins	12	2	88	27.92	27.49
Number of Quizzes	12	3	777	169	227.54
Number of Questions	12	15	3747	1043.17	1101.81
Mastery Level	12	2.00	8.00	5.38	2.28

Table 4 presents a comparison of the early usage and post-graduation NCLEX-RN 10,000 usage students.

Table 4: Comparison of NCLEX-RN 10,000 usage (early/late)				
	Usage	N	M	SD
NCLEX-RN 10,000 Log Ins	Early	5	38.40	37.77
	After Graduation	7	20.43	16.66
Number of Quizzes	Early	5	258.60	304.78
	After Graduation	7	105.00	146.71
Number of Questions	Early	5	1402.60	1444.11
	After Graduation	7	786.43	806.70
Mastery Level	Early	5	6.16	1.56
	After Graduation	7	4.81	2.66

Results of independent samples t-tests indicated no significant differences in any of the usage variables in Table 4. In other words, there was no significant difference in number of quizzes, questions, log-ins or average mastery level between the early use students and the later use students. In all cases, however, the early use students had higher numbers of quizzes; log-ins and questions and a higher overall mastery level.

ATI Predictor Scores

Students' scores on the ATI predictor tests are shown in Table 5 below. Average scores on Predictor 1 were 62.76, Predictor 2 62.54, and Predictor 3 68.18. The average probability of passing the NCLEX for each Predictor was 73%, 72% and 85% respectively.

Table 5: ATI Scores and Predictive Probabilities (all students)					
	N	Min	Max	M	SD
1st ATI Predictor	16	51	71	62.76	5.28
Passing Probability (1)	16	.27	.93	.73	.18
2nd ATI Predictor	16	55	70	62.54	4.57
Passing Probability (2)	16	.45	.91	.72	.15
3rd ATI Predictor	16	59	80	68.17	6.06
Passing Probability (3)	16	.63	.98	.85	.11

Students' scores for the NCLEX-RN 10,000 users on the ATI predictor are shown in Table 6 below.

Table 6: ATI Scores and Predictive Probabilities (PrepU users)

	N	Min	Max	M	SD
1st ATI Predictor	12	54	71	63.51	4.84
Passing Probability (1)	12	.40	.93	.75	.15
2nd ATI Predictor	12	55	70	62.61	5.32
Passing Probability (2)	12	.45	.91	.71	.17
3rd ATI Predictor	12	59	80	68.34	6.41
Passing Probability (3)	12	.63	.98	.85	.12

An independent samples t-test was conducted to explore any differences between the NCLEX-RN 10,000 and non-NCLEX-RN 10,000 users on the course outcomes. There were no significant differences found on any course outcome measure between those using prepU and those who did not.

Student Within-NCLEX-RN 10,000 Correlations

A Pearson product-moment correlation coefficient was computed to assess the relationship between the average number of questions answered by students and their NCLEX-RN 10,000 mastery level. There was a significant, positive correlation between number of questions answered and final mastery level, $r(12) = .751, p < .01$. Thus, as students practice more in NCLEX-RN 10,000, the difficulty level of the questions they are able to answer correctly increases.

Table 7: Correlations between NCLEX-RN 10,000 Usage and Mastery

		Number of Quizzes	Number of Questions	Mastery Level
Number of Quizzes	Pearson Correlation	1	.964**	.651*
	Sig. (2-tailed)		.000	.022
	N	12	12	12
Number of Questions	Pearson Correlation		1	.751**
	Sig. (2-tailed)			.005
	N		12	12
Mastery Level	Pearson Correlation			1
	Sig. (2-tailed)			
	N			12

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

There were no significant correlations between NCLEX-RN 10,000 usage variables and the predictor scores.

NCLEX Results

Of the 16 students in the course, 14 took the NCLEX and passed, and two have yet to take the exam. Two of the 14 students who passed have not reported their numbers of NCLEX questions, thus the data in Table 8 are only for the 12 students who reported back. The average number of questions answered on the NCLEX was 101.92 (the average number for all students taking the NCLEX in 2009 was 121), with a minimum of 75 and a maximum of 265. An independent samples t-test was conducted to explore any differences between the early ($N = 5$) and late NCLEX-RN 10,000 ($N = 7$) users on the number of NCLEX questions (see Table 9). There were no significant differences in the number of NCLEX questions between those using NCLEX-RN 10,000 earlier in the semester and those who used it later.

Table 8: NCLEX Question Summary

	N	Min	Max	M	SD
Number of Questions on NCLEX	12	75	265	101.92	54.56

Of the 16 students in the course, 12 have taken the NCLEX and reported their scores and number of questions. Of the remaining four students (who did not use NCLEX-RN 10,000 either during the course, or following graduation), two passed the NCLEX but did not report the number of questions answered, and two have not yet taken the exam. Thus, we can make no comparison of users vs. non-users in terms of number of questions answered on the NCLEX.

Two students scored 60 or below on the final predictor test and had a probability of passing the NCLEX of 65% and below. Both of these students passed the NCLEX, one with 115 questions and one with the maximum of 265 questions. Nine students passed the NCLEX with fewer than 97 questions. All of these nine students used NCLEX-RN 10,000 and seven of them and reported that they would recommend NCLEX-RN 10,000 as a preparation resource. Students were grouped into high (98 or above) or low (97 and below)

Table 9: NCLEX Question Statistics (early vs. late users)

	Usage	N	M	SD
Number of Questions on NCLEX	Early	5	93.60	22.39
	After Graduation	7	107.86	70.88

NCLEX question groups. Data from both groups are shown in Table 10. Although an independent samples t-test did not reveal any significant differences between the groups, the difference between scores for the low question group ($M = 70.31$, $SD = 5.76$) and the high question group ($M = 62.43$, $SD = 4.83$) on the third predictor test was close to significant, $t(10) = 2.116$, $p = .06$.

Table 10: Predictor test Scores by Question Group (high or low)

	High Low NCLEX Question Number	N	M	SD
1st ATI Predictor	Low	9	63.79	3.63
	High	3	62.67	8.65
2nd ATI Predictor	Low	9	61.99	5.55
	High	3	64.47	5.04
3rd ATI Predictor	Low	9	70.31	5.76
	High	3	62.43	4.83

Thus we see a trend indicating that those students who passed the NCLEX with 97 or fewer questions scored higher on the third predictor test and had a higher probability of passing the NCLEX ($M = 89\%$). An independent samples t-test looking at differences in the probability estimates was significant indicating that the probability of the low question group passing the NCLEX was greater ($M = 89\%$) than the high question group ($M = 72\%$), $t(10) = 2.659$, $p < .05$ (see Table 11).

Table 11: Predictor Probability Estimates by Question Group (high or low)

	High Low NCLEX Question Number	N	M	SD
Passing Probability (1)	Low	9	0.77	0.10
	High	3	0.69	0.27
Passing Probability (2)	Low	9	0.69	0.18
	High	3	0.78	0.16
Passing Probability (3)	Low	9	0.89	0.08
	High	3	0.72	0.14

Student Survey

Students were given an 8-question survey focused on which resources they used to study for the NCLEX and which they found most helpful and why. Of the 16 students in the course, 12 responded to the survey. The same 12 students completed and passed the NCLEX and all used NCLEX-RN 10,000.

Preparing for the NCLEX

All students used more than one resource to prepare for the NCLEX. Eleven students reported they used NCLEX-RN 10,000, ten students used Kaplan, eight used Saunders, one used ATI, one used a resource called LaCharity, Kumagai, & Bartz, and none of the students reported using ATI Virtual or NCSBN (see Table 12 below). The average number of resources used (for students reporting data) was 2.6.

Table 12: NCLEX Prep Resources used (post-graduation)

PrepU	Saunders	ATI	ATI Virtual	NCSBN	Kaplan	Other	Total Number of Resources Used
✔	✔				✔		3
✔	✔				✔		3
					✔		1
✔					✔		2
✔					✔		2
✔	✔				✔		3
✔	✔	✔					3
n/a	n/a	n/a	n/a	n/a	n/a	n/a	
✔					✔		2
✔	✔				✔		3
✔	✔				✔		3
n/a	n/a	n/a	n/a	n/a	n/a	n/a	
NR	NR	NR	NR	NR	NR	NR	
NR	NR	NR	NR	NR	NR	NR	
✔	✔				✔		3
✔	✔					LaCharity, Kumagai, & Bartz	3

n/a = student not taken the NCLEX
NR = no response to student survey

Ten out of 12 students reported that NCLEX-RN 10,000 was helpful to them in their NCLEX preparation. The aspects of NCLEX-RN 10,000 students found most helpful are shown in Table 13 below.

Table 13: Preferred NCLEX-RN 10,000 Features for NCLEX Preparation

prepU Feature	Number of Students
Rationales/feedback for questions	3
Randomization of the questions	1
Helping identify content not covered by other prep resources	1
Questions similar in style to NCLEX questions/good practice on NCLEX style questions	2
Answering questions on core NCLEX content	1
Identification of weaker areas	2

One question asked if students would recommend NCLEX-RN 10,000 as a preparation tool for future graduate nursing students. Nine of the respondents said yes, and 3 said they were not sure.

Additional comments from students:

- "Great practice questions. It is also nice to see your progress as you move through the mastery levels."
- "Lots of questions, and can pick topics, explains well why something is right or wrong."
- "I thought that the questions were competitive to some of the leading study tools available, but without the hefty price tag that most carry."

Students were also asked to make suggestions for possible changes or improvements to NCLEX-RN 10,000. All twelve students responded (see Table 14).

Table 14: Comments from Students Regarding Possible Improvements
Longer, timed tests
More questions. The more you use the program the more repeat questions you get.
Teach the student how to eliminate the wrong answers.
Less repeat questions, have a feature that allows the user to answer only unused materials - More in depth questions
I didn't use it enough to learn about all the pros and cons. I do wish more companies made apps for cell phones.
I think the questions are not phrased as well as Kaplan's are as far as being similar to what you see on the NCLEX.
None
Make practice exams that students could take, that were the full 275 questions with all the different content.
Have more click all that apply, and hot spots
The NCLEX had a lot of medications. I would increase this area. Also, having a decisions tree available would be nice. I think Kaplan pushes this concept more than needed and a simple tree describing priority or delegation would be beneficial.
I can't think of anything particular. I thought the website was easy to use and efficient.
More delegation.

Table 15 presents the features of NCLEX-RN 10,000 students reported to like the most. Students highlighted the relationship of NCLEX-RN 10,000 interface and questions to the NCLEX (students 1, 7, 10), the ability to see improvement through mastery levels (students 3, 6, 8,11), the explanations and rationales (students 2, 8, 9, 10) and ease of use (students 5, 9, 12).

Table 15: Student Reported Preferred PrepU Features	
1	The questions were most like the NCLEX questions. They were application questions just like the NCLEX.
2	I liked the explanations you received with each incorrect answer.
3	That it scored your mastery level.
4	The computer adaptive testing was a plus, although I'm not quite sure how well that worked for me.
5	I did like that I could decide how many questions I wanted to answer at one time. It allowed me to work for as little or as long as I wanted.
6	I liked that it built up to higher competency levels.
7	I liked the variety of nursing topics and questions. The program seems very thorough in the subjects on the NCLEX.
8	The growth you can see through the content areas. I also like that you can go back and see your answers and I really enjoyed the explanations it gave.
9	It is on line...so you can use it anytime and anywhere. Why an answer was right or wrong. Picking a topic that you needed to work on.
10	It resembles the NCLEX. The questions increase in difficulty with the level one is at. I also liked the rationales that were provided. More than enough quality questions are available.
11	The graph that showed how you improved and also in comparison to others taking the same tests.
12	Easy to use, convenient.

Table 16 (in Appendix A) presents the features of NCLEX-RN 10,000 students reported to like the least. Main themes were a few students felt they saw repeat questions too frequently, and others had some initial difficulties logging into the system.

Conclusions

In the fall of 2011, Professor Orm provided access to NCLEX-RN 10,000 for all NCLEX students and encouraged them to use NCLEX-RN 10,000 as a studying tool to help them prepare for the NCLEX exam. Sixteen students completed the course requirements for Nursing 327 and 14 of these students took the NCLEX exam and passed (as of July 2012). As reported above, 12 students made use of NCLEX-RN 10,000 either during the semester, after graduation or both. All students who took the NCLEX passed. Without any variation in NCLEX passing rates, there are few meaningful analyses to carry out to tease out the impact of NCLEX-RN 10,000 usage on student outcome—there was one positive outcome across all students. Students in the course received an average of 101.92 questions on the NCLEX which is lower than the last reported national average of 121. The bottom line is that all students passed the NCLEX and most (86%) used NCLEX-RN 10,000 to help them prepare for the exam. Although there was a significant (negative) correlation between the number of questions on the NCLEX and the % likelihood for passing the exam based on Predictor 1

and Predictor 3—as all students passed the exam, there is no real significance of this relationship.

We hoped to see a positive relationship between NCLEX-RN 10,000 usage and student success on the NCLEX. Analyses indicated that of the group who has taken the NCLEX (and passed), 86% of them used NCLEX-RN 10,000, answered an average of 1,043 questions and achieved an average mastery level of 5.38 which all may have contributed to the student success.

Professor Orm has been using NCLEX-RN 10,000 successfully for several years in both her NCLEX course (a smaller senior level course) and another junior-level nursing course with typical enrollment of around 25. When asked how students were using NCLEX-RN 10,000 in her course, Professor Orm reported that: "The senior students who did choose to use NCLEX-RN 10,000 as their prep for the NCLEX predictor LOVE this product. They stated that the areas that were identified as strengths on the ATI predictor happened to be the areas they were reviewing with NCLEX-RN 10,000." Professor Orm also stated that: "For the seniors, I would encourage instructors to incorporate NCLEX-RN 10,000 somehow into the curriculum in one of the capstone courses. It is difficult to encourage seniors to take Fundamentals when they are working very hard to pass the current courses they are taken. Some kind of NCLEX Success Plan needs to be incorporated somehow into that final semester—OR—it needs to be used program wide and used/incorporated into the entire curriculum where they are able to use throughout the program".

Appendix A

Table 18: Student Reported Least Preferred prepU Features
I really liked it so not much to say to change it.
The repeat questions
I could never remember what the website was called to login!
Repeat questions...
Setting up my account and logging into the website took much more time than I thought it should. A simple registration page like most websites use would be more concise and user-friendly.
The questions are not as similar to the questions you see on the NCLEX.
The only thing was that you had multiple steps in order to access the learning modules.
Sometimes you would get the same questions as you worked through the content, so you got a higher mastery, but you had already seen the question. It would be nice if they eliminated the question once you answered it correctly so you didn't see it again.
At times it was slow
I didn't really have anything that I didn't like, especially since this was my primary tool in studying, so I do not really have anything to compare it to.
Not sure.
Organization of the site should be re-thought.