MASTERY LEARNING: IMPLICATIONS FOR NURSING

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ABSTRACT

Mastery learning is a concept that has been around for over 40 years, but is currently making its application into both the nursing and adult learner world (Cooperman, 2011). This paper gives insight to mastery learning and its application to the adult learner, specifically in the nursing education realm. Utilizing such areas of technology as simulation, students will be able to practice their skills and feel confident in them prior to patient care. Instructors can combat the application barrier by utilizing different techniques during delivery of content. Such national problems as nursing and nursing educator shortages have proven to be a barrier to effective application of the mastery learning concept. There are advantages and disadvantages alike to this learning mastery with implementation for the student and teacher.

Keywords: *mastery learning, adult learner, application, advantages, disadvantages*

MASTERY LEARNING

Mastery learning is a concept that is important to the world of education. However, it is not well known other than its use in the elementary and high school settings (Cooperman, 2011). It is well known with school aged children, but is also making its emergence into the adult learner realm (Cooperman, 2011).

Benjamin S. Bloom is partially responsible for the world of mastery learning, after creating an article on the topic in 1968 (Cooperman, 2011). The article entitled "Learning for Mastery" challenged the current world of teaching and its assessment techniques (Cooperman, 2011). It is not specific to one type of learning, but more a way of remembering the content.

Mastery learning is the based on the idea of allowing the student to work at their own pace to acquire content (Bohlin, Durwin, & Reese-Weber, 2012). The concept of mastery learning can be interpreted differently among educators and students alike. According to Bloom, approximately 90% of students are able to grasp the concept if the material is presented in an appropriate manner (Cooperman, 2011). The instructor needs to approach a topic in a systematic manner, and help students where they are struggling (Changeiywo, Wambugu, & Wachanga, 2010). Mastery learning in nursing education closely resembles competency education (McGaghie, Issenberg, Barsuk, & Wayne, 2014). With this competency based education, the overall task of learning can be a bit more flexible

from student to student, especially in the adult nursing education learner (Sutton Roberts, Ingram, Flack, & Jones Hayes, 2013).

MASTERY LEARNING IN NURSING

Mastery learning is very important in many fields. For nursing especially, it is critical that the nurse not only understand the content learned, but be able to remember it and integrate it into care in the future.

Nursing students have to understand how everything with a patient is linked, and the actions that can happen. These include such things as medications, disease processes, and comorbidities. One key feature to mastery learning is that all outcomes are the same, with little or no variation (McGaghie, Issenberg, Barsuk, & Wayne, 2014). In nursing, this is shown by the ability to pass the NCLEX-RN. Once these national boards have been passed, it shows that the new RN has at least this minimum standard of knowledge. Given that most areas of nursing are carried out in similar fashions, most new graduates should be able to perform given interventions with the same techniques. Of course, each person will be unique and have their own slight variations; the outcomes should be the same. With such things as the nursing process, NANDA-Is, and care plans, it has allowed for more standardized care across the nation.

NANDA-I, which is the North American Nursing Diagnosis Association International, was created to allow for a standardized list of nursing diagnoses with associated plans of care (NANDA International, 2015).

For example, with the NANDA impaired skin integrity, a nurse would typically care for the patient by utilizing assessment techniques, turning the patient every 2 hours, cushioning bony prominences, and also increasing protein into the diet. Again, there may be slight differences in the care for the patient given each individual situation, environment, and the nurse, but the end result should be the same; healing of the impaired skin.

MASTERY LEARNING AND OUTCOMES

Mastery learning fosters favorable learning outcomes. It is thought that students focusing on the concept of mastery learning are more likely to succeed in a given task, particularly those that are more difficult to understand (Guskey & Anderman, 2013). These students tend to show greater control over such things as self-regulation and metacognitive strategies to fully understand the learning concept (Guskey & Anderman, 2013). These students also tend to put school and learning first, and do not engage in behaviors that may jeopardize their ability to learn, such as going out late the night before with friends (Guskey & Anderman, 2013).

Different evaluation methods are very important when considering the topic of mastery learning. It is important for evaluation to occur to ensure that actual learning in the student has taken place.

Considering mastery learning requires the student to first fully understand the concept prior to moving on to the next informational segment, evaluation is

critical. Asking certain questions during the learning process can prove effective. These include if the learner achieved the outlined objectives, if the learning is accessible to the targeted learner, if the instructional method is effective given the allotted time, if the style is adequately modified to accommodate different learner needs, and if the teaching method is cost-effective (Bastable, 2014).

These questions can help the teacher evaluate effectiveness, and make the necessary changes to help the content be learned.

MASTERY LEARNING IN THE ADULT LEARNER

Mastery learning is one that has been around for over 40 years, but has not been embraced until recently, especially in the adult learner world (Hunter, 2012). Mastery learning really looks at the outcome, as opposed to other teaching strategies (Hunter, 2012). There are several ways to include this concept while teaching the learner. It is necessary to incorporate a variety of ways to deliver content, so that the learner has an opportunity to choose one that will best explain the content. New textbooks, workbooks, video, simulation, skills lab and online resources are an example of ways to include this in the world of nursing education (Hunter, 2012). Allowing hands on experience after learning the content may provide an opportunity for the learner, versus just simply reading the concept.

Ideally, utilizing the concept of mastery learning will help address the nursing shortage, by allowing the opportunity for more students to become nurses (Hunter, 2012). This is because the teaching strategies are aligned to that of the learner, and allows the student to truly grasp the concepts of nursing. By going over the content repeatedly, the student will have the capacity to both understand and apply the content; thereby passing boards, and being able to go out into the workforce to fill the current void.

MASTERY LEARNING AND THE USE OF TECHNOLOGY

Utilizing simulation based learning is one concept that has truly come a long way in the world of nursing.

Many simulation labs have the capacity to allow the student to be recorded and look back at their interventions to see what should be modified (Wu, Hwang, Su, & Huang, 2012). The high-tech nature of the mannequin monitors and objective assessment data can be adjusted from a control room (Wu, et. al., 2012). This allows the student to hear different breath sounds, or heart rate patterns and utilize interventions to get a positive response (Wu, et. al., 2012). The ability to practice given situations in a safe environment prior to being in actual patient care can do a lot for the student (McGaghie, Issenberg, Barsuk, & Wayne, 2014). By understanding that there can be no actual patient harm, it allows the student to use mastery learning in a whole new realm and truly be able to grasp the concept (McGaghie, et. al., 2014). This can be beneficial to both student, and patient safety.

With today's students, most have grown up being inundated with technology. This includes anything from home computers, to laptops, to cell phones, to tablets, to other sources of technology being constantly available. Utilizing simulation is a

way to cultivate interest and meet the need of the student to learn with use of technology (Shank, 2013). Simulation allows several types of learning modalities to be available to the student, including audio, visual, and kinesthetic (Shank, 2013). Since some students need more than one mode of educational style to grasp a concept, this can be especially helpful.

Keeping in line with Benjamin Bloom, the creator of mastery learning, Bloom's taxonomy was created to generate a framework for higher order thinking (Bohlin, Durwin, & Reese-Weber, 2012). Bloom's taxonomy provides examples of performance activities to accomplish cognitive goals (Bohlin, et. al., 2012). For example, if that student needs to evaluate a certain concept, they could participate in a group discussion (Bohlin, et. al., 2012). This requires the student to first understand the concept, and then be able to discuss or explain it in a meaningful way. This would further solidify the concept for further understanding by the student.

CHALLENGES

Some challenges do exist with mastery learning when incorporating it into the world of nursing and healthcare. Considering the concept was originally created for K-12 learners, making it applicable to the adult learner can be difficult (Cooperman, 2011). Things like age, culture, and gender need to be incorporated so that each learner can get the most out of the learning situation (Cooperman, 2011).

According to the research, another potential barrier to learning could be the lack of motivation in the adult learner (Changeiywo, Wambugu, & Wachanga, 2010). Extrinsic and intrinsic motivation comes into play with the adult learner and determining what actions to take to encourage the adult learner (Changeiywo, et. al, 2010). External motivation involves rewards whereas intrinsic involves an individual performing a task solely because it is enjoyable (Changeiywo, et. al, 2010). Ideally, a mastery teaching approach will help inspire the student to naturally develop motivation to learn (Changeiywo, et. al, 2010).

Additional challenges exist from the perspective of the teacher. With the time frame of nursing school already being very challenging, it may be difficult to find additional time to allow the student to fully grasp the content (Sutton Roberts, Ingram, Flack, & Jones Hayes, 2013).

The evaluation and testing development is also another area of concern for the teacher (Sutton Roberts, Ingram, Flack, & Jones Hayes, 2013). With an area such as nursing, it is not only important, but potentially deadly to a future patient if a student does not correctly understand a certain concept.

Nursing school provides the foundation of this education, and it is imperative that the student is able to understand the concept and apply it to patient care. With mastery learning the student must be able to grasp a concept, successfully test on this concept in nursing school, and then successfully apply it to the NCLEX-RN (Sutton Roberts, Ingram, Flack, & Jones Hayes, 2013). Considering the amount of content that is exposed to the student, it is important that the concept carry

through and not be purged from the student's thought process following an examination.

INTERVENTIONS TO GRASP MASTERY LEARNING

Mastery learning is based on the assumption that the student needs to first grasp and understand the concept before moving on (Hunter, 2012). This is very true, because most things in nursing are interrelated, but become more complex. For example, if a student did not understand the basic nature of the heart and how the blood flows through it, the concepts related to heart failure with the objective assessment data would not be easily understood.

If the student does not grasp a concept at the end of the teaching session, there are interventions to help. These include peer mentoring, remediation, tutoring, and small group discussion (Changeiywo, Wambugu, & Wachanga, 2010). These may provide additional learning sessions for the student to grasp the content, and allow mastery learning outcomes to be met (Changeiywo, et. al, 2010). Open lab is another way that students can gain confidence of skills that they feel they need more practice (Sutton Roberts, Ingram, Flack, & Jones Hayes, 2013). With the concept of mastery learning, students are provided multiple opportunities to master content and feel comfortable with its application (Sutton Roberts, et. al, 2013).

ALLOWING TIME TO LEARN

Previous approaches to learning, especially in the nursing education curriculum, were to give students the same amount to learn, and the main focus was on the differences in ability (Sutton Roberts, Ingram, Flack, & Jones Hayes, 2013). Although there is little overall documentation of mastery learning applied to nursing education, those who implement it believe that there are no disadvantages to using it and it can be effective in any diverse student population (Sutton Roberts, et. al, 2013). The table is in essence flipped with the concept of mastery learning. The outcome is not based on student aptitude, but the teacher's instruction (Sutton Roberts, et. al, 2013). It is also very important that the instructor look at individual student outcomes to make sure that they are met (Sutton Roberts, et. al, 2013). With its application to nursing, mastery learning allows the student to grow a strong decision making foundation that can be transferred to many different patient care settings (Sutton Roberts, et. al, 2013). This can allow for student independence and autonomy when making clinical decisions.

BARRIERS TO IMPLEMENTATION

Instructors can help combat the barrier of teaching effectiveness by implementing a few different strategies. These can include such things as instructing the content with enthusiasm, incorporating humor, exhibit risk-taking behaviors such as discussing controversial issues, using drama to deliver the

content, including problem-solving activities, serving as a positive role model for the student, using examples of the content and using technology to make learning more future oriented (Bastable, 2014).

Educators should always strive to improve their abilities as an effective teacher and change ineffective approaches. By utilizing some of the listed techniques, perhaps greater strides can be taken to become more expert (Bastable, 2014).

Fear of failure is a thought process that is eliminated with mastery learning with its application to nursing education (Sutton Roberts, Ingram, Flack, & Jones Hayes, 2013). The student does not have to worry about not grasping a concept, because they did not understand the material as rapidly as their student peers. With this anxiety being eliminated, the students have the opportunity to really grasp the content and feel confident in their understanding. The outcome of achievement is always held constant as an expectation of the instructor, where time is now the new variable (Sutton Roberts, et. al, 2013).

This means that the instructor does not expect anything less from any student, and there is still a high expectation of achievement and application of learned content. The student must be able to have as many tries and time as possible to grasp the concept without repercussions (Guskey & Anderman, 2013). It is relatable to the idea of a coach with football players. They continue to practice the play until it is right, with no penalties for continuing to practice.

INDIVIDUALIZED MASTERY LEARNING

One way that nursing education can make mastery learning individualized is with admission requirements (Sutton Roberts, Ingram, Flack, & Jones Hayes, 2013). These requirements can be such things as a certain score on an entrance exam, SAT or ACT scores, certain expectations of GPA, and passing grades from previous prerequisite courses (Iwasiw, Goldenberg, & Andrusyszyn, 2009). If a more level standard is required on admission, students can be thought to potentially have the same outcomes, and exit criteria are based on those measures (Sutton Roberts, et. al, 2013). With mastery learning the student approach is supposed to be more individualized and personalized, this means that remediation is possible for the student not able to grasp the learning concept (Sutton Roberts, et. al, 2013). Simply allowing the student to fail without any further direction is not acceptable with mastery learning.

NEGATIVE ASPECTS OF MASTERY LEARNING

With all the positives associated with the concept and implementation of mastery learning, there are still some negative aspects as well. When using standardized testing, students who have been taught using mastery learning direction typically show no gains as compared to teacher-made tests (Bohlin, Durwin, & Reese-Weber, 2012). Mastery learning can also serve as a hindrance to higher achieving students. This is because while the lower-achieving students are

allotted more time to learn, the students already grasping the concept and be held back waiting on their peers (Bohlin, et. al, 2012).

There are ways to promote all students to benefit from mastery learning. Breaking up learning objectives into smaller units and allowing each unit to have its own learning objectives could allow the higher-achieving students to work ahead or at a faster pace (Bohlin, et. al, 2012).

The individualized nature of mastery learning can be difficult due to the overall shortage of nursing instructors. With the given shortages, it is related to fewer amounts of students being accepted into nursing programs. In 2014, there were 68,938 students turned away from qualified nursing programs due to lack of faculty (Rosseter, 2015). This shortage is due in part to the overall national nursing shortage, but also due to the requirement of advanced education as a nurse educator. Typically it takes the nurse educator longer to obtain the necessary degree, at least a master's degree, because the need for experience is necessary prior to teaching (Rodgers, 2012). The educator shortage is also related to the fact that higher education is expensive and the bill is usually the responsibility of the learner (Rodgers, 2012). Another factor to this shortage includes that a nurse educator takes on average a $20,000-$30,000 annual pay cut as compared to other nursing roles (Ramachandran, 2014). The patient population will continue to grow due to the baby-boomers becoming older and acquiring more health problems (Rodgers, 2012). There is also a prediction that there will be a half a million new nursing jobs created as well as half a million nurse deficit due to nurse retirement by the year 2022 (Ramachandran, 2014). This creates a big gap for the current field of nursing to fill.

INTEGRATING MASTERY LEARNING INTO AN EXISTING CURRICULUM

Considering that most nursing education programs do not have mastery learning already built into their curriculum, a backward design approach can be utilized to allow for implementation of the educational approach (Sutton Roberts, Ingram, Flack, & Jones Hayes, 2013). Programs can accomplish this by looking at desired results, determining acceptable revisions, and plotting desired learning experiences and instruction (Sutton Roberts, et. al, 2013). Setting such standards as a certain percentage to successfully complete a semester is one way to obtain a desired result. Many programs implement anywhere from 77-80% as an overall grade to pass (Sutton Roberts, et. al, 2013). These scores have been tied to NCLEX-RN pass rates, and show that the student is adequately prepared to sit for boards successfully.

SUMMARY AND CONCLUSIONS

Overall, the application of mastery learning into the nursing education field has both positive and negative sides. It can be beneficial to the lower-achieving student, as many opportunities are provided to fully grasp and understand the content. Considering that the information of nursing will be needed for future patient care, it is definitely important that the student is able to understand and

apply this information. On the flip side, the higher-achieving students who do not need the extra time to understand the information may be held back by their peers who take more time to comprehend a concept. It is also more strenuous and time consuming for the instructor to find time to allow the lower-achieving students to grasp the content and the evaluation to make sure the outcome has been met is also taxing. It is important that the student and their education are individualized and that the most opportunity is provided to allow for success. Allowing for this individualization can make the dream of becoming a nurse a reality for a student. Choosing to become a nursing instructor is a career that takes patience and it should not exclude or pass over a student that takes a bit longer to get it. The realm of nursing is very complex and may take a little more time for some, rather than others. These students who do need more time should not find this to be an unsurpassable obstacle of being a nurse. It takes the student and the teacher working together to accomplish the goal of education.

REFERENCES

1) Bastable, S. B. (2014). Nurse as educator: Principles of teaching and learning for nursing practice (4th ed.). Burlington, MA: Jones & Bartlett Learning.
2) Bohlin, L., Durwin, C. C., & Reese-Weber, M. (2012). Ed psych modules (2nd ed.). New York, NY: McGraw Hill.
3) Changeiywo, J. M., Wambugu, P. M., & Wachanga, S. W. (2010, November). Investigations of students' motivation towards learning secondary school physics through mastery learning approach. International Journal of Science & Mathematics, 9, 1333-1350. http://dx.doi.org/10.1007/s10763-010-9262-z
4) Cooperman, R. (2011, June 1). Mastery learning in the adult classroom. T+D, 65, 52-57.
5) Guskey, T. R., & Anderman, E. M. (2013, December 1). In search of a useful definition of mastery. Educational Leadership, 71, 18-23.
6) Hunter, T. (2012). Mastery learning in nursing education. The Oklahoma Nurse, 57, 11.
7) Iwasiw, C. L., Goldenberg, D., & Andrusyszyn, M. A. (2009). Curriculum development in nursing education (Second ed.). Sudbury, MA: Jones and Bartlett.
8) McGaghie, W. C., Issenberg, S. B., Barsuk, J. H., & Wayne, D. B. (2014, April 1). A critical review of simulation-based mastery learning with translational outcomes. Medical Education, 48, 375-378. http://dx.doi.org/10.1111/medu.12391
9) NANDA International. (2015). About us. Retrieved October 9, 2015, from http://www.nanda.org/about-nanda-international.html
10) Ramachandran, V. (2014). The new nursing shortage. Retrieved September 26, 2015, from http://www.usatoday.com/story/money/business/2014/05/07/ozy-nursing-shortage/8807937/

11) Rodgers, L. (2012). Nation needs to address nursing shortage, yesterday. Retrieved September 26, 2015, from http://www.huffingtonpost.com/laura-rodgers/nursing-educator-shortage_b_1822193.html

12) Rosseter, R. (2015). Nursing faculty shortage. Retrieved September 26, 2015, from http://www.aacn.nche.edu/media-relations/fact-sheets/nursing-faculty-shortage

13) Shank, J. D. (2013). Interactive open educational resources: A guide to finding, choosing, and using what's out there to transform college teaching. Retrieved from http://site.ebrary.com.glbvvproxy.enmu.edu/lib/enmu/detail.action?docID=10822370

14) Sutton Roberts, D., Ingram, R. R., Flack, S. A., & Jones Hayes, R. (2013, April). Implementation of mastery learning in nursing education. Journal of Nursing Education, 52, 234-237. http://dx.doi.org/10.3928/01484834-20130319-02

15) Wu, P. H., Hwang, G. J., Su, L. H., & Huang, Y. H. (2012). A context-aware mobile learning system for supporting cognitive apprenticeships in nursing skills training. Educational Technology & Society, 15, 223-236. Retrieved from http://www.ifets.info/journals/15_1/20.pdf