Journal of Learning and Development Studies
ISSN: 2752-9541
DOI: 10.32996/jlds
Journal Homepage: www.al-kindipublisher.com/index.php/jlds

JLDS
AL-KINDI CENTER FOR RESEARCH AND DEVELOPMENT

| RESEARCH ARTICLE

The Ten-Jump Model Implementation in Endocrine System Learning: A Study at Universitas Negeri Gorontalo

Cecy Rahma Karim[1], Elya Nusantari[2], Frida Maryati Yusuf[3] ✉ Margaretha Solang[4], Weny J. A. Musa[5] and Nova Elysia Ntobuo[6]

[13]Postgraduate Science Education Program, Universitas Negeri Gorontalo, Gorontalo, Indonesia
[2456]Faculty of Mathematics and Natural Sciences, Universitas Negeri Gorontalo, Gorontalo, Indonesia

Corresponding Author: Frida Maryati Yusuf, **E-mail**: fridamaryati@ung.ac.id

| ABSTRACT

This study aimed to address the shortcomings of the Seven Jump learning model by developing and evaluating a new learning model called the Ten Jump model. The research was conducted in class C with 42 nursing students in the 2022/2023 academic year using the ADDIE method. The validity, practicality, and effectiveness of the Ten Jump model were evaluated based on validation results, lecturer and student activities, and student learning outcomes. The findings suggest that the Ten Jump model is a valid, practical, and effective learning model, with validation results over 90%, comprehensive application of learning model syntax, and N-Gain values over 70% representing improved student learning outcomes. The study also found positive student responses, indicating that the Ten Jump model can enhance soft skill learning.

| KEYWORDS

Ten Jump model; Nursing students; Learning outcomes.

| ARTICLE INFORMATION

ACCEPTED: 01 April 2023 **PUBLISHED:** 14 April 2023 **DOI:** 10.32996/jlds.2023.3.1.5

1. Introduction

Education systems must grow to produce skilled health workers. With disruptive innovation and outcome-based healthcare, the industrial revolution benefits the health industry. Universities must teach professional health professionals the 6Cs (communication, cooperation, critical thinking, citizenship, creativity, and character) of data, technology, and literacy. The nursing department of Universitas Negeri Gorontalo has seen more prospective students and graduates, indicating a surge in quality health personnel.

PBL and the seven-jump model are used in nursing school. The adult learning theory has driven changes to the syntax of the seven-jump model to boost student learning satisfaction and personality development (Arlan et al., 2014; Fitria, 2016; Polii, 2015). The seven-jump model syntax does not properly reflect this notion. The model needs 10 new syntaxes. The seven-jump model's influence on student learning led to the model's expansion. Students lack the desire and self-study abilities and struggle to understand topics and settings. Students cannot use technology to improve learning and creativity.

The Seven-Jump approach must be implemented by lecturers in a more effective manner in order to achieve the desired learning results; these have not yet been achieved. The documentation of learning outcomes and the procedures involved in problem-solving are also weak. Students have the opportunity to improve their learning outcomes and obtain a more in-depth grasp of both theories and practice when they apply the Ten Jump methodology. In addition, students are inspired to share their knowledge across a variety of platforms, including YouTube, by utilising this approach, which encourages students to be inventive in their use of learning technology. To make the Seven-Jump technique better, it is necessary to carry out an in-depth investigation into the areas in which it is deficient.

2. Theoretical framework

2.1. Seven-jump model

The Seven Jumps model is a sort of Problem-based Learning (PBL) that includes students evaluating and solving a case to strengthen students' problem-solving, thinking, and intellectual abilities. The model is named after the seven jumps that are used in the model. The methodology is comprised of a total of seven phases, which are as follows: explaining unfamiliar words, describing the problem, brainstorming potential solutions, assessing the situation, articulating learning concerns, doing self-study, and reporting the findings. Despite the fact that the Seven Jumps model is dynamic, it is essential to use it in a balanced manner in order to accomplish one's educational goals. This learning approach is based on adult learning theory, which places emphasis on acquiring knowledge in a way that satisfies one's curiosity and allows for personal growth. The instructional method known as Seven Jumps is well suited for fields of study that emphasise the coordinated use of both theoretical and practical knowledge. Ratnawati et al. (2019) offer specifics on the Seven Jumps model's progression through each level.

2.2. Endocrine system learning and nursing care

The field of natural science is a structured and organized area of study that examines material occurrences by using observation and deduction. Its focus is typically limited to natural phenomena, and it encompasses a collection of systematically arranged knowledge. Among the topics discussed in natural science is the endocrine system, which is responsible for controlling ductless glands that release hormones into the bloodstream to affect various organs. This system is crucial for regulating numerous vital functions of the human body, such as responding to injury and stress, growth and development, reproduction, ionic homeostasis, and metabolism. When humans experience stress, their endocrine system is activated as a survival mechanism via a series of reactions, with the hypothalamus-pituitary-adrenal axis being the primary mechanism involved in this process.

Nursing science approaches the treatment of complex issues in the endocrine system by using various ideal treatments that align with good standards of care. The nursing process is a systematic, structured, and integrative method for providing nursing care. The Orlando Deliberative Nursing Process theory suggests that nurses' actions are based on patient needs, which require investigation through processes such as perceptions, critical thinking, clinical reasoning, and the nurse's feelings. The nursing process helps nurses achieve their goals, assess the quality of nursing care, and facilitate clinical nursing practices, especially for novice nurses.

Nursing care is a variety of actions delivered to patients in various healthcare settings, guided by nursing principles and backed by systematic research. Patients' needs are prioritised to improve therapy and recovery. Nursing involves assessment, diagnosis, planning, execution, and evaluation. Padila et al. (2018) define the nursing process as building a relationship with the patient, defining the nurse's job and identity, and increasing knowledge. Telenursing requires nurses to be enthusiastic about solving problems to communicate with patients.

2.3. Instructional media quality

It is critical for students' success in the classroom that instructional material be of high quality. Learning activities should be interesting, challenging, interactive, and exciting in order to encourage active engagement from students. This strategy encourages inventiveness, self-reliance, and independence in pupils, all of which are in line with the kids' natural abilities, interests, and growth. As a consequence of this, instructional materials have to satisfy stringent quality requirements in order to guarantee efficient education. According to Mustami et al., it is, therefore, extremely important to make certain that the learning material in question is up to the desired quality criteria (2017).

3. Method

This research was conducted at the Nursing Study Program at Universitas Negeri Gorontalo, specifically 42 students in C Class, which are in the even semester of the 2022/2023 academic year. The present work relied on the research & development method proposed by Dick and Carry (1996), namely ADDIE (analysis, design, development or production, implementation or delivery, and evaluations). The final product is the ten-jump model for discussing the endocrine system in the research site.

4. Results and discussion

4.1 Analysis phase

The Ten Jump model outlines the following learning outcomes related to the endocrine system: (1) Simulating nursing care scenarios for adult clients with endocrine, immunological, digestive, and urinary system disorders while considering ethical and legal considerations. (2) Conducting health education simulations for adult clients with endocrine, immunological, digestive, and urinary system disorders while considering ethical and legal considerations. (3) Applying research findings to nursing care practices in addressing issues related to the endocrine, immunological, digestive, and urinary systems. (4) Simulating nursing care management for groups of adult clients with endocrine, immunological, digestive, and urinary system disorders while considering ethical and legal considerations. (5) Advocating for adult clients with endocrine, immunological, digestive, and urinary system

disorders. (6) Demonstrating nursing interventions that comply with applicable standards and using innovative thinking to provide effective and efficient services for adult clients with endocrine, immunological, digestive, and urinary system disorders.

4.2 Design phase

During the design phase, the Ten jump model was created, and various processes were undertaken, such as selecting tests and determining suitable learning media and instrument formats based on analysis results. This phase outlines the outcomes of the design phase, which are the Ten jump model and associated learning instruments, reflecting the model's characteristics, as described by Joyce et al. (2014). The model encompasses the syntax of the Ten Jump model, social systems, reaction principles, support systems, and instructional and companion impact.

4.3 Implementation phase

This implementation phase is performed by directly testing the ten-jump model through learning. As a result, the practicality of the model and the effectiveness of the Ten Jump model will be obtained. The implementation phase was carried out in Class C Nursing of the nursing study program at the Faculty of Sports and Health, with a total of 42 students.

Table. 1: Results of Observation of the Implementation of the Ten Jump Model in Class C of the Nursing Study Program

No.	Meeting	Score Percentage of Each Meeting (%)	Category
1.	First	78.26%	High
2.	Second	91.30%	Very High
3.	Third	100.00%	Very High
Average		**89.86%**	**Very High**

The implementation of the Ten Jump model syntax is describable.

1) The implementation of the model syntax in Class C of the Nursing Study program at the Faculty of Sports and Health, Universitas Negeri Gorontalo, is in the high category, with percentages in the range of 80.00% -100%.
2) Based on Table 1, the average percentage of the overall assessment of the implementation of each stage of the Ten Jump model has increased from meeting one to meeting three. Such an improvement indicates an improvement in lecturers' mastery in applying the Ten Jump model in learning is either carried out in the research site.
3) The amount of participation of instructors in presenting essential ideas, carrying out SWOT analysis for addressing problems, and encouraging the development of students' creative talents are all factors that contribute to the difficulties associated with putting the ten-jump model into practise.

4.4 Effectiveness of the ten-jump model

The efficiency of the Ten Jump model is evaluated based on three criteria: (1) the learning outcomes of the students; (2) the activities of the students; and (3) the responses of the students to the model, which includes how well they self-regulate their learning and how much their emotional and spiritual work attitudes have shifted. In order to determine how effective it is, statistics are collected not only from short trials but also from the consequences of implementation.

4.5 Learning outcome test

Endocrine system learning outcomes data were obtained from student worksheets; the data were seen in the score of student tests from class C in the research site. The results are described in the following subsections.

4.6 Learning outcomes tests of Class C students

The results of the study showed that there was a significant improvement in student learning outcomes from the pretest to the posttest, with an increase of 28.18% (from 74.66 to 95.70). The limited trial conducted in the Medical Study Program, Faculty of Medicine, Universitas Negeri Gorontalo reported a tcount value of 105.996 with a sig (2-tailed) value of 0.000, which was significantly different. The ttable value with a degree of freedom (df) of 41 was 2.701, indicating that the tcount value was greater than the ttable value, and the significance value was smaller than the alpha value used (0.000 < 0.01). These findings suggest that there was a significant difference in the pretest and posttest scores in the endocrine system learning outcomes of the class C students in the nursing study program at the research site. In conclusion, the ten-jump model effectively improved the learning outcomes of the students.

4.7 Observation results of activities of class C students

The percentage of student activities improved steadily, with averages of 81.94% (good), 85.56% (good), and 90.91% (very good) in the first, second, and third meetings, respectively. This indicates that the implementation of the ten-jump model had a significant impact on the learning outcomes of the class C students. The model encouraged students to become more actively involved and think more creatively, particularly during case study activities.

4.8 Implementation of self-regulated learning (SRL) in class C students

The data on self-regulated learning (SRL) were collected to increase the reliability of the students' perception data. The results of SRL are discussed in the subsections that follow.

4.9 Response of class C students regarding the ten-jump model

According to the findings, students in class C demonstrated impressive performance in independent learning, which exceeded the expected learning outcomes. These encouraging results suggest that class C has the ability to independently study and engage in discussions on endocrine system topics, a component of the Medical Surgery II course. The activities primarily emphasize independent discussions to solve problems using contextual analysis of literature and technology in the field of medicine and learning.

Overall, nursing students gave the Ten Jump model an 85.95% rating. Class C pupils liked the learning methodology. Emotional and spiritual capacities improved by 86.55%. The Ten Jump methodology improves students' multiple bits of intelligence, problem-solving, computer literacy, and work attitudes. The study site lecturers' Ten Jump model adoption improved students' work attitudes.

4.10 Evaluation phase

Five validators approved the 10-jump model after limited and extensive testing. The Medical Studies and Nursing programmes used this approach to teach the endocrine system to test its practicality and efficacy. The validation shows that the Ten Jump model and learning tools may be used to explore the endocrine system in nursing. Validators' suggestions changed several elements of the model.

The effectiveness and feasibility of using the Ten Jump model for endocrine system learning in the Nursing study program have been evaluated. The validation results indicate that both the Ten Jump model and its associated learning media are suitable for teaching the endocrine system. Additionally, in the future, the Ten Jump model can be applied to all courses that rely on case studies at Universitas Negeri Gorontalo. The learning model incorporates three fundamental elements that are crucial for delivering high-quality education: (1) a digital-based learning approach, (2) active student participation via peer assessment, and (3) the enhancement of students' work attitudes (emotional and spiritual) to foster professionalism.

5. Discussion

5.1 An elaboration on the ten-jump model

The Ten Jump model was developed using behavioristic, Piaget, Brunner, constructivism, and humanistic theories. Endocrine system learning activities used these theories to promote student learning. Cognitive, social learning theory, or Bandura's observational learning, supports the Ten Jump model's successful application. This approach considers individual behaviour as a product of environmental interactions with cognitive systems rather than an automatic reactivity to stimuli (Husamah et al., 2016). Social cognitive learning theories allow people to copy others. Learning phenomena teach students.

Social cognitive learning theory states that people model behaviour in social and moral learning. This role model impacts student behaviour. The role model should set good examples for students. According to Bandura (quoted in Suroso, 2014), observational learning involves language, morality, reasoning, and self-regulation. Then, a person's behaviour is seen as the outcome of numerous learning processes, not only copying others.

The ten-jump model helps pupils process independent study knowledge (observing models around the environment). Students assemble and synthesise information in repeating codes to give real answers. This learning helps students flourish. Relevant theory and research promote improving student learning outcomes by linking learning objectives (outcomes), learning phases, and learning environment management. The Ten jump model has these elements.

5.2 An elaboration on the quality of the ten-jump model

Based on its validity, practicality, and efficacy, the ten-jump model is suitable for understanding the endocrine systems. Instructional media should be high-quality. Media must meet standards (Mustami et al., 2017). Validity, practicality, and efficacy are the criteria (Abdan et al., 2018; Nieveen, 1999). The ten-jump model requires the following components.

5.3 Validity of the ten-jump model

Content and construction validate the ten-jump model. The content validity and construct of the created learning model include supporting theory, objective rationality, syntax, and a fulfilling learning environment. The Ten Jump model's construct validity indicates syntax steps and learning model components (high consistency). The ten-jump model is highly relevant and consistent. Hence, the Ten Jump paradigm is suitable for nursing endocrine system learning. The ten-jump model's practicality and efficacy follow.

Student activity responses indicate that the ten-jump model can assess student views of Medical-Surgical Nursing II endocrine system learning activities. The construct validity of the questionnaire instrument measures (1) the usage of the Ten Jump model, (2) students' self-regulated learning (SRL), and (3) changes in students' emotional and spiritual attitudes following implementation. This trio is consistent. Nieveen (1999) believed that a learning model with solid theoretical logic has good content validity. Logical design and internal linkages of the learning model determine the construct validity. A valid instrument can be used to create a learning model (Latif et al., 2022).

5.4 Practicality of the ten-jump model

The Ten jump model's first-meeting practicality was 78.26%. This demonstrates that lecturers utilising the Ten Jump paradigm need to optimise classroom management, including identifying and clarifying unexpected phrases in scenario syntax. Lecturers must actively instruct pupils on unfamiliar words.

The implementation in class C of the nursing study programme increased student learning outcomes from 74.66% to 95.70%. Limited experiments show improved student learning outcomes. N-Gain averages 0.83 (83.00%), making it effective. Pretest and posttest student endocrine system learning outcomes differ in the paired t-test sample. The ten-jump approach enhances learning outcomes for class C nursing students in the research site.

5.5 Response and activities of C students regarding the ten-jump model

Learning results, student activities, and student reactions showed the Ten Jump model's success. In the short trial, students' ten jump model implementation activities were investigated. Medical and nursing students from Universitas Negeri Gorontalo's Faculty of Medicine participated in this trial. Student activities are 81.51% (good), 84.61% (good), and 90.18% (very good) in the first, second, and third meetings, respectively. Their score increased gradually. Students learn better with the ten-jump model. As shown by students' learning development in each meeting, the methodology encourages innovative thinking and active engagement, especially in case study activities.

The ten-jump model (adapted from the seven-jump model) improves student learning, according to this study. Student competence knowledge, skills, work attitudes, and active participation are improved by the Ten Jump paradigm. This emphasises the necessity of understanding and effectively implementing problem-based learning (PBL) using the Seven Jump approach in competency-based curriculum tutorial learning. The ten-jump approach for maximum learning improves students' independence, critical thinking, and self-regulated learning (Zakiah et al., 2020).

6. Conclusion

In conclusion, the present work, which focused in aiming to address the shortcomings of the Seven Jump learning model by developing and evaluating a new learning model called the Ten Jump model, has developed a learning model known as the Ten Jump model and evaluated its validity, practicality, and effectiveness. Based on the validation results of over 90%, it can be concluded that the Ten Jump model is a valid learning tool that is appropriate and feasible for use. Moreover, it is a practical learning model as it incorporates both lecturer and student activities comprehensively. The effectiveness of the Ten Jump model is also supported by the N-Gain value of over 70. This study contributed to the existing literature, which represents a significant improvement in student learning outcomes. Additionally, student responses scoring above 85% suggest that the Ten Jump model is an effective tool for boosting soft skill learning. In summary, the Ten Jump model is a valid, practical, and effective learning model that can be used to enhance student learning outcomes and soft skill development. All in all, it is suggested that future research replicate the study in different contexts, such as different subjects, levels of education, and student populations, to validate the generalizability and robustness of the Ten Jump model.

Funding: This research received no external funding.
Conflicts of Interest: The authors declare no conflict of interest.
Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers.

References

[1] Abdan, H., Hasan, A. M., & Nusantari, E. (2018). Pengembangan kamus elektronik berbasis aplikasi Microsoft Excel materi prinsip hereditas untuk SMA Kelas XII IPA. *Jurnal Riset Dan Pengembangan Ilmu Pengetahuan*, *3*(1), 77–86. http://ejurnal.pps.ung.ac.id/index.php/JPS/article/view/167

[2] Arlan, A. J., Fitria, N., & Rafiyah, I. (2014). Intensi Melaksanakan Self Study (Seven Jump : Step 6) Dalam Small Group Discussion (SGD) pada Mahasiswa Angkatan 2011 Fakultas Ilmu Keperawatan Universitas Padjajaran. *Jurnal Ilmu Keperawatan*, *2*(1), 95–108.

[3] Fitria, N. (2016). Adversity Quotient Mahasiswa Fakultas Keperawatan Yang Sedang Mengikuti KBK Dengan Metode SCL [Adversity quotient of nursing faculty students participating in the CBC using the SCL method]. *Jurnal Ilmu Keperawatan*, *4*(2), 58–66. http://ejournal.bsi.ac.id/ejurnal/index.php/jk

[4] Husamah-Pantiwati, Y., Restian, A., & Sumarsono, P. (2016). *Belajar dan Pembelajaran* (1st ed., Vol. 21, Issue 1). Universitas Muhammadiyah Malang. http://journal.um-surabaya.ac.id/index.php/JKM/article/view/2203

[5] Joyce, B., Weil, M., & Calhoun, E. (2014). *Models of Teaching* (9th ed.). Pearson Education. http://journal.um-surabaya.ac.id/index.php/JKM/article/view/2203

[6] Latif, D., Yusuf, F. M., & Dama, L. (2022). UJI VALIDITAS PENGEMBANGAN PERANGKAT PEMBELAJARAN MENGGUNAKAN MODEL PEMBELAJARAN PROBLEM SOLVING MATERI PEWARISAN SIFAT UNTUK MELATIH KETERAMPILAN BERPIKIR KRITIS. *Jambura Edu Biosfer Journal*, *4*(2), 2656–0526.

[7] Mustami, M. K., Suyuti, M., & Maryam. (2017). Validitas, Kepraktisan, Dan Efektivitas Perangkat Pembelajaran Biologi Integrasi Spiritual Islam Melalui Pendekatan Saintifik. *Al-Qalam*, *23*(1), 70. https://doi.org/10.31969/alq.v23i1.392

[8] Nieveen, N. (1999). Prototyping to Reach Product Quality. In *Design Approaches and Tools in Education and Training* (pp. 125–135). Kluwer Academic Publishers. https://doi.org/10.1007/978-94-011-4255-7_10

[9] Padila-Lina, L. F., Febriawati, H., Agustina, B., & Yanuarti, R. (2018). Home Visit Berbasis Sistem Informasi Manajemen Telenursing. *Jurnal Keperawatan Silampari*, *2*(1), 217–235. https://doi.org/10.31539/jks.v2i1.305

[10] Polii, H. (2015). Problem Based Learning sebagai Metode Pembelajaran yang Kontekstual [Problem-based Learning as a Contextual Learning Method]. *Jurnal Zenit*, *4*(2), 129–132. http://ci.nii.ac.jp/naid/110001102066/

[11] Ratnawati, F., Adriana, & Herman. (2019). Faktor-Faktor yang Berhubungan dengan Pelaksanaan Metode Seven Jump pada Problem Based Learning terhadap Kepuasan Belajar Mahasiswa Program Studi Keperawatan. *Jurnal ProNers*, *4*(1), 1–10.

[12] Zakiah, N. E., Fatimah, A. T., & Sunaryo, Y. (2020). Implementasi Project-Based Learning Untuk Mengeksplorasi Kreativitas Dan Kemampuan Berpikir Kreatif Matematis Mahasiswa. *Teorema: Teori Dan Riset Matematika*, *5*(2), 286. https://doi.org/10.25157/teorema.v5i2.4194