



The Role of Case Based Teaching Method for Japanese Learning

Rita Agustina Karnawati^(✉), Ninuk Lustyantie, and Uwes Anis Chaeruman

Department of Applied Linguistics, Postgraduate Program, Universitas Negeri Jakarta, East
Jakarta, Indonesia

RitaAgustinaKarnawati_9906919007@mhs.unj.ac.id

Abstract. Studying Japanese as a foreign language requires the learner's skills and abilities to understand grammar and master the four language skills so that the learning process will be maximized. Therefore, appropriate learning methods are needed to answer these outputs. The focus of this research is the application of the case based teaching method to improve Japanese language skills. The population in this study was the second semester students of the Japanese Language Education Study Program at a private university in Jakarta, total 39 respondents, each in class 2A with 20 respondents as the Experimental Group with the case based teaching method, and 19 respondents in 2B as the Control Group. Using traditional learning methods. Case-based teaching methods are giving cases, identifying key cases, exploring case values, conducting analysis and argumentation, finding solutions to identified problems. The instruments that will be used in this research are tests, questionnaires, observations, and interviews. It was found that applying the case-based teaching method provides innovation and new creativity in the teaching and learning process, as well as an increase in students' four language skills, namely the ability to listen, speak, read, and write. It can be concluded that the case based teaching method has an effect on increasing student's Japanese language skills. Of the many concepts about the case based teaching method, not many have applied it in Japanese language learning which can produce higher-order thinking skills with collaboration, so this research is something new.

Keywords: Case Based Teaching Method · Collaboration · Critical Thinking · Japanese Language · Learning Method

1 Introduction

In learning a language, there are four basic skills that are indicators of a person mastering the language, namely writing skills, speaking skills, reading skills, and listening skills. Studying Japanese as a foreign language requires the learner's skills and abilities to understand grammar and master the four language skills so that the learning process will be maximized. So, we need the right learning method to answer the output of the four language skills. One of the abilities that foreign language learners must possess at the university level is higher order thinking skills (HOTS). Critical thinking can be interpreted as a process and ability used to understand concepts, apply, synthesize

and evaluate information obtained or information generated [1]. In the diagnosis of language ability, determining the relevant attributes is the initial step that has an important impact on the validity and usefulness of the diagnosis. First, attributes related to the ability to understand written texts tend to be drawn from theoretical models of language skills, both those related to language knowledge and strategic competencies. Second, the theory of reading and text processing provides a clear relationship between different reading attributes, which can be used to build a theoretical framework of diagnosis especially in the specification of the attribute hierarchy. Third, test items or operational test specifications can be reviewed or re-engineered to identify the attributes evoked by the test items. Fourth, empirical studies using verbal reports on reading comprehension can provide useful findings that are to help understand the cognitive processes and skills used by test takers to complete reading tasks. Finally, the experience of language teachers can be consulted to identify attributes of cognitive diagnostic assessments on students' abilities [2]. In teaching practice, if teachers simply doing abstract exercises and it is boring generally in domestic textbooks, students will gradually lose their enthusiasm for learning, let alone application and innovation [3].

In learning a language, the use of inappropriate learning models is one of the causes of the low ability of students because the existing learning conditions still tend to be conventional and there are not many innovative efforts. This conventional model is like giving a reading text to students, then students answer the question [4]. In addition, teachers also still have limited understanding and ability in choosing learning models that can improve students' abilities [5]. So it can be concluded that the learning model is an important aspect that must be considered in the success of teaching in the classroom. The learning model is a tool in the implementation of education, which is used in the delivery of teaching materials. The use of the right model in learning will influence and facilitate students in understanding and accepting the teaching material presented. So the importance of the teacher's role in determining and choosing what learning model will be applied to improve students' Japanese language skills that the learning model is an important aspect that must be considered in the success of teaching in the classroom. The learning model is a tool in the implementation of education, which is used in the delivery of teaching materials. The use of the right model in learning will provide influence and ease of students in understanding and accepting the teaching material presented. So the importance of the teacher's role in determining and choosing what learning model will be applied to improve students' Japanese language skills.

Before carrying out the research, the researcher conducted a needs analysis survey first. This preliminary survey was carried out to find out responses from students to find out about the expected learning model and according to the needs of students in the teaching and learning process in the classroom. The instruments used in this needs analysis are questionnaires and observations. From the results of the questionnaire that was distributed to 39 students, it was found that the analysis of student needs for the Japanese language learning model was obtained. As many as 54.9% of students answered that they understood grammar well with the grammar learning model used today. As many as 46.9% of students feel that the learning model used is now interesting. Then, 100% of students admitted that they wanted a more appropriate learning model to be able to improve their Japanese language skills, and as many as 100% of students also

admitted that they needed a more innovative learning model to improve their knowledge and understanding of Japanese grammar. The findings from this questionnaire show that students admit that they are quite good at understanding Japanese grammar, and the use of the learning model currently used is quite interesting for them. However, it was also found that they wanted a more appropriate grammar learning model to improve their Japanese language skills and needed a more innovative learning model to improve their knowledge and understanding of Japanese grammar. One of the learning models that are considered appropriate to be used in improving Japanese language skills is the case-based teaching method. Case teaching is a teaching method that guides and organizes students to discuss the presented case scenarios, and finally solves the problem, allowing students to take the initiative to acquire relevant abilities [6, 7]. It believes that the case teaching method can be understood as the teacher creates some scenarios for students according to the teaching goals [8]. In this case, the students first think independently of the problem, and then through the analysis and discussion of the group, in the process of solving the problem, improve the students' various this ability is a new type of teaching method [9]. This learning model is widely used in teaching activities. Many research results show the success of the learning process by using this learning model.

Case Based Teaching is a learning method based on an analysis in solving a problem. Case-based approaches encourage the community-based, student-centered and patient-oriented exploration of realistic and specific situations. Students focus on the case, engage in self-guided learning, scientific inquiry and collaboration with fellows, developing critical thinking and problems' solving ability, integrating theory into practice [10]. CBL provides a practical model for postgraduate students to relate content learning to professional practice and helps them improve the ability to collaborate studying, critical thinking, and clinical problem's solving [11–13]. The use of this CBT method is very effective in learning because when compared to traditional teaching methods, it shows that CBT is able to develop critical thinking and clinical problem solving skills and can integrate theory into practice for students [10]. Case-based learning methods have been widely used in a variety of applied disciplines, such as medicine, law, management, and so on [14–17].

The traditional teaching method has been shown to be less effective than other teaching strategies in practical application and critical thinking abilities [18, 19]. The Case Based Teaching method has also emerged as a method that has developed throughout the world, especially for the improvement of problem solving practice by students. By using this case based teaching method which provides a large number of cases for analysis, it can improve students' ability to solve practical problems comprehensively. Students learn through case accumulation, understanding ideas to analyse problems, knowing what problems to solve, and how to solve these problems [20]. The use of case based teaching in teaching is intellectually interesting and very refreshing to see what students can do intellectually on their own. Each session of a given case is different, it will produce results with different levels. Empirical evidence that generally students like learning with this case based teaching. They appreciate it by taking it seriously and important in every time they learn in class [21].

The successful use of this case-based learning model is also proven by the results of the research of Shetty, et al. that in teaching students, the use of this case-based learning

model and team-based model is very effective compared to traditional models, such as power point presentations. The majority of students feel that case-based and team-based learning is a wonderful, motivating, and enjoyable learning experience [22] and CBL can achieve better teaching results [23, 24]. Compared to traditional didactic methods, case based learning has several advantages. First, in case based learning curriculum, students are more actively involved in their learning as compared to traditional teaching where students may be passive and lose their attention in class. Second, case-based learning is effective at promoting knowledge application and integration, collaboration with partners, and problem-solving skills rather than simply delivering content through traditional teacher-driven methods. Third, the case-based learning format allows for feedback on case studies and opportunities to discuss problems with experts in their fields [10]. Case-based learning has been delivered in various curricula, and feedback received from students suggested that CBL significantly improved student's knowledge acquisition [25, 26].

The benefits obtained by using a case-based teaching method-based learning model are (1) contributing to the organization of appropriate information for students to remember which is then used in reasoning; (2) produce experiences that are impossible for students to have; (3) increase the visibility of student's clinical reasoning processes; (4) increase students' self-confidence [27]. Through case study, study and discussion in class, students' participation efficiency and analysis and understanding ability can be improved [28].

The implementation of this case-based teaching method is divided into three main stages, namely pre-class, implementation, and after-class [20].

1. In the first stage or pre-class, namely designing case-based teaching methods. The premise of successful implementation is careful preparation of the cases. The material chosen must be closely related to real life so that it can liven up the atmosphere in the classroom, and can attract students' interest and attention and can stimulate students to explore things they don't know yet. This curiosity expands student goals and develops students' abilities to understand and properly apply their theoretical knowledge.
2. Next in the second stage, namely the implementation of case-based teaching methods in the classroom. The key to the successful implementation of the case based teaching method is the careful organization of teaching. Throughout the teaching process the teacher leads and uses actual cases to guide the rest of changing from "passive learning" to "active learning". To achieve this goal, teachers can use modern teaching such as pictures, audio, video and flash to stimulate students' curiosity.
3. And the last stage is after class, which is a discussion about case-based teaching methods. At this stage students are asked to provide feedback on the results of teaching. Further discussion and guidance to students on learning outcomes that are less appropriate.

From the explanation above, it can be seen that the use of case-based learning models has many advantages and benefits for both students and teachers in its implementation in learning. In addition, this case-based learning model is also one solution that can be used by teachers in improving students' Japanese language skills. The focus of this research

is the application of a case based teaching method to improve Japanese language skills which was carried out to 39 students of the Japanese Language Education Study Program at a private university in Jakarta.

2 Method

This research is quantitative descriptive. According to Creswell [29], quantitative descriptive describes and analyses a research problem based on mathematical analysis in numerical form. The population in this study was the second semester students of the Japanese Language Education Study Program at a private university in Jakarta, totalling 39 respondents, each in class 2A with 20 respondents as Experimental Group and 19 respondents in 2B as Control Group. Control group: the control group used the traditional learning method. Experimental group: using the case based teaching method, cases regarding learning Japanese grammar in the book *Minna no Nihongo 1* were sent via whatsapp group to the experimental group of students in the form of pictures, words, sounds and videos, and students were guided to find relevant information. In the experimental class, students were divided into three groups with 6–7 students in each group. Group leader arranges students to use group whatsapp for group discussion. Each student conducts the experiment according to the experimental steps designed by himself and explains the key points. The group leader used the student's smartphone to record the entire operation process. Other students in the group pay attention to student details according to the task notes, such as interpreting Japanese sentences, understanding the meaning conveyed, presentation skills and solutions and so on, the task notes rotate every time.

In the second half of the course, the tutor will host the class and send student videos to student whatsapp groups. Students review their cell phone videos, make a self-evaluation first, and then receive a general evaluation. Each group of students will summarize and report the material that has been prepared by each group using multimedia. Reporting time is approximately 20 min. The audience will ask questions according to the contents of the report and gather information. Through discussion and evaluation, the teacher summarizes and corrects the contents of student reports, re-explains key points in the book, corrects blurred concepts and erroneous views, consolidates students' understanding of course knowledge, and also can appropriately ask questions and make evaluations according to each student's presentation. After class, questionnaires and examinations were used to understand students' experiences in the application of case-based teaching methods. The students in the experimental group participated in the questionnaire.

3 Finding and Discussion

Before conducting the research, the researcher conducted a needs analysis survey first. This preliminary survey was conducted to determine student responses to determine the expected learning model and according to student needs in the teaching and learning process. in the classroom. The instruments used in this needs analysis are questionnaires and observations. The preliminary survey was conducted by distributing questionnaires to 39 s semester students of the Japanese Language Education Study Program which was

Table 1. Sample **Head** **Table 1.** Student Needs Analysis Results

No	Question	Percent
1	Is the learning model used in the current Bunpou course interesting?	46,9%
2	Is the learning model used in the current Bunpou course effective and innovative?	55%
3	Does the current learning model make you understand Japanese grammar well?	54,9%
4	In your opinion, does the learning model currently used improve your Japanese language skills?	70%
5	Do you want another learning model that is more appropriate to improve your Japanese language skills?	100%

divided into two classes, namely class A with 20 samples and class B with 19 samples. From the data analysis, the following findings were found:

From the results of the questionnaire that was distributed to 39 students, it was found that the analysis of student needs for the Japanese language learning model was obtained. As many as 54.9% of students answered that they understood grammar well with the grammar learning model used today. As many as 46.9% of students feel that the learning model used is now interesting. Then, 100% of students admitted that they wanted a more appropriate learning model to be able to improve their Japanese language skills, and as many as 100% of students also admitted that they needed a more innovative learning model to improve their knowledge and understanding of Japanese grammar.

The findings from this questionnaire show that students admit that they are quite good at understanding Japanese grammar, and the use of the learning model currently used is quite interesting for them. However, it was also found that they wanted a more appropriate grammar learning model to improve their Japanese language skills and needed a more innovative learning model to improve their knowledge and understanding of Japanese grammar.

3.1 Normality Test

Normality test is carried out with a view to determining whether the sample comes from a normal population. Normality test was carried out using the Liliefors test formula α : 0.05. The normality test was carried out on the pre-test and post-test value data with the following results.

3.1.1 Pre-test

. The results of the normality test of pre-test data on Japanese language skill on 39 samples that were the subject of the study were divided into two classes, namely class A with 20 samples and class B with 19 samples. Obtained the average (mean) for the pre-test value for class A of 69.75 and class B of 69.68. This shows that the average score of students in Japanese is quite sufficient. The results of the pre-test provide an illustration that the learning model used today is less effective in improving Japanese

Table 2. Normality Test Japanese language pretest based on case based teaching method

Statistic	Score	
	Class A	Class B
N sampel (jumlah sample)	20	19
Mean (rata-rata)	69,75	69,68
Simpanan Baku (standar deviasi)	3,611	3,448
Liliefors hitung	0,877	0,885
Liliefors Tabel	0,190	0,195
Kesimpulan	Normal	Normal

language skills. While the standard deviation for class A is 3.611 and class B is 3.448. This shows that there is a variety of answers from the sample which is quite diverse, which means that the range of understanding on the top, middle and bottom boards does not vary. This means that the range of student's Japanese proficiency levels is almost the same.

Based on Table 2, it can be seen that for class A L count = 0.877 and L Table = 0.190 and class B L count = 0.885 and L Table = 0.195, thus L arithmetic L table, shows that the data is normally distributed.

3.1.2 Post-test

The results of the normality test of post-test data on Japanese language skills on 39 samples that became research subjects were divided into two classes, namely class A with 20 samples and class B with 19 samples. Students who become the sample group are students who have received Japanese learning by using the case based teaching method learning model. Obtained the average (mean) for the post-test value for class A of 74.15 and class B of 77.15. This shows that the average score of students in Japanese is quite good. The results of the post-test illustrate that the learning model used is the case based teaching method learning model that is effective in improving Japanese language skills. There is an increase in Japanese language skills by using a case based teaching method. The standard deviation obtained for class A is 5.815 and class B is 5.814 which shows understanding of the Japanese language by using the case based teaching method learning model is not diverse which shows the test results are normally distributed.

Based on Table 3, it can be seen that for class A L count = 0.830 and L Table = 0.190 and class B L count = 0.697 and L Table = 0.195, thus L arithmetic L table, shows that the data is normally distributed.

Based on the summary of the t-test calculations in Table 4, it can be seen that in class A tcount = -2.874 < ttable = 1.685 and in class B tcount = -4.818 < ttable = 2.609 at a significance level of $\alpha = 0.05$. Thus, H₀ is accepted and H₁ is rejected. Thus, the post-test results of Japanese language proficiency using a case-based teaching method-based learning model were higher and significantly higher than the pre-test results. This shows that the use of the case based teaching method learning model is better than the

Table 3. Normality Test Japanese language posttest based on case based teaching method

Statistic	Score	
	Class A	Class B
N sampel (jumlah sample)	20	19
Mean (rata-rata)	74,15	77,15
Simpangan Baku (standar deviasi)	5,815	5,814
Liliefors hitung	0,830	0,697
Liliefors Tabel	0,190	0,195
Kesimpulan	Normal	Normal

Table 4. Hypothesis test of two samples of Pre-test and Post-test values of Japanese language skills using a case-based learning method

Statistic	Class A		Class B	
	Pre-test score	Post-test score	Pre-test score	Post-test score
N sampel (jumlah sampel)	20	20	19	19
Mean (rata rata)	69,75	74,15	69,68	77,15
Standar deviasi	3,611	5,815	3,448	5,814
Variance	13,039	33,818	11,894	33,807
T hitung	-2,874		-4,818	
T table	1,685		2,609	

current learning model and there is a big influence on students' Japanese language skills by using this case based teaching method based learning model.

3.2 Discussion

The application of the case-based teaching method-based learning model in this study with the following results.

3.2.1 Needs Analysis

1. Distributed questionnaires to 39 s semester students of the Japanese Language Education Study Program at a private university in Jakarta.
2. The results showed that students needed a more interesting learning model to be used in the process of learning Japanese in the classroom.
3. The results showed that a more appropriate learning model is needed and can improve students' Japanese language skills.

Based on the above analysis, the purpose of instructional design is to offer a more effective learning model. In this study, a case-based teaching method-based learning model was developed.

3.2.2 Design

In designing the case-based teaching method-based learning model, there are several things to consider including: identifying learning objectives, determining learning topics or themes, planning the learning process, determining learning approaches, evaluation tools and media used.

3.2.3 Development

The third stage is the development activity which includes the steps for developing the learning model that will be used. The stages of the case based teaching learning model according to Joyce, B., Weil, M., & Calhoun [30], namely:

1. Giving cases, the lecturer prepares real cases that will be studied and solved by students.
2. Identify key information in the case, where students identify the information and facts provided by the lecturer and discuss it collaboratively.
3. Exploring values in cases, lecturers assist students in exploring values in cases and possible alternatives in solving cases according to individual perspectives.
4. Conducting analysis, students are involved in analysis and argumentation to resolve cases and take appropriate action.
5. Summarizing the action solution, students summarize the appropriate alternative solution actions and their consequences.

3.2.4 Implementation

The implementation of this case-based teaching method is divided into three main stages, namely pre-class, implementation, and after-class [20].

1. In the first stage or pre-class, namely designing case-based teaching methods. The premise of successful implementation is careful preparation of the cases. The material chosen must be closely related to real life so that it can liven up the atmosphere in the classroom, and can attract students' interest and attention and can stimulate students to explore things they don't know yet. This curiosity expands student goals and develops students' abilities to understand and properly apply their theoretical knowledge.
2. Then in the second stage, namely the implementation of case-based teaching methods in the classroom. The key to the successful implementation of the case based teaching method is the careful organization of teaching. Throughout the teaching process the teacher leads and uses actual cases to guide the rest of changing from "passive learning" to "active learning". To achieve this goal, teachers can use modern teaching such as pictures, audio, video and flash to stimulate students' curiosity.

3. And the last stage is after class, which is a discussion about case-based teaching methods. At this stage students are asked to provide feedback on the results of teaching. Further discussion and guidance to students on learning outcomes that are less appropriate.

3.2.5 Evaluation

The last stage is evaluation. This study uses a summative evaluation conducted at the end of the program to determine its effect on student learning outcomes and the quality of learning in general. The final test scores show that students can do the practice questions well to get good grades. Then, the results of the student's final test become research data to test its effectiveness.

4 Conclusion

Since the initial stage of the preliminary study and needs analysis that the researcher did at the beginning of the research, it was found that lecturers and students needed a reading learning model that was interactive, effective and fulfilled all the needs in learning so that researchers looked for solutions to overcome the problems they faced by developing a case based teaching learning model. The method after being developed and tested is proven to be in accordance with the needs of lecturers and students.

It was found that by applying the case-based teaching method, it provided a new innovation and creativity in the teaching and learning process, as well as an increase in the four language skills of students, namely the ability to listen, speak, read, and write. It can be concluded that the case based teaching learning method has an effect on increasing students' Japanese language skills.

References

1. S. Zubaidah, "Berpikir Kritis: Kemampuan Berpikir Tingkat Tinggi yang Dapat Dikembangkan melalui Pembelajaran Sains," *Semin. Nas. Sains 2010 dengan Tema "Optimalisasi Sains untuk Memberdayakan Manusia,"* no. January 2010, p. 11, 2010.
2. T. Fan and X. Yan, "Studies in Educational Evaluation Diagnosing English reading ability in Chinese senior high schools," *Stud. Educ. Eval.*, vol. 67, no. May 2019, p. 100931, 2020, doi: <https://doi.org/10.1016/j.stueduc.2020.100931>.
3. R. Razzouk and V. Shute, "What is design thinking and why is it important?," *Rev. Educ. Res.*, vol. 82, no. 3, pp. 330–348, 2012.
4. S. Jauhari, A. R. Hakim, M. Kudsiah, and M. Yazid, "Influence of integrative learning model based on lesson study in student's reading comprehension ability," *J. Phys. Conf. Ser.*, vol. 1539, no. 1, 2020, doi: <https://doi.org/10.1088/1742-6596/1539/1/012057>.
5. N. Dapa and H. B. . Kiriweno, "How to Implement the Savi Learning Model for Students with Reading Difficulties," *Univers. J. Educ. Res.*, vol. 7, no. 9, pp. 44–55, 2019, doi: <https://doi.org/10.13189/ujer.2019.071606>.
6. D. Guiyu and C. Yi, "Application of Case-Task Based Approach in Business English Teaching--A Case Study of the Marketing Course in SEIB of GDUPS.," *High. Educ. Stud.*, vol. 7, no. 1, pp. 23–29, 2017.

7. S. Gupta and G. S. Pathak, "Understanding the dimensions of virtual teams: a study of professional students in India," *Int. J. Web-Based Learn. Teach. Technol.*, vol. 12, no. 2, pp. 55–68, 2017.
8. Y. Wang, "The application of case teaching method in business teaching-research on the teaching mode of enterprise strategic management based on 'two Subjects + Cases,'" *ACM Int. Conf. Proceeding Ser.*, pp. 927–930, 2021, doi: <https://doi.org/10.1145/3456887.3457107>.
9. E. A. Cameron and M. A. Pagnattaro, "Beyond millennials: Engaging generation Z in business law classes," *J. Leg. Stud. Educ.*, vol. 34, p. 317, 2017.
10. M. Bi, Z. Zhao, J. Yang, and Y. Wang, "Comparison of case-based learning and traditional method in teaching postgraduate students of medical oncology," *Med. Teach.*, vol. 41, no. 10, pp. 1124–1128, 2019, doi: <https://doi.org/10.1080/0142159X.2019.1617414>.
11. J. E. Thistlethwaite *et al.*, "The effectiveness of case-based learning in health professional education. A BEME systematic review: BEME Guide No. 23," *Med. Teach.*, vol. 34, no. 6, pp. e421–e444, 2012.
12. M. Yoo and H. Park, "Effects of case-based learning on communication skills, problem-solving ability, and learning motivation in nursing students," *Nurs. Health Sci.*, vol. 17, no. 2, pp. 166–172, 2015.
13. Hassoulas, E. Forty, M. Hoskins, J. Walters, and S. Riley, "A case-based medical curriculum for the 21st century: the use of innovative approaches in designing and developing a case on mental health," *Med. Teach.*, vol. 39, no. 5, pp. 505–511, 2017.
14. B.-F. Lee, N.-T. Chiu, and C.-Y. Li, "Value of case-based learning in a nuclear medicine clerkship," *J. Am. Coll. Radiol.*, vol. 10, no. 2, pp. 135–141, 2013.
15. Preeti, A. Ashish, and G. Shriram, "Problem based learning (PBL)-an effective approach to improve learning outcomes in medical teaching," *J. Clin. diagnostic Res. JCDR*, vol. 7, no. 12, p. 2896, 2013.
16. K. M. Bonney, "Case study teaching method improves student performance and perceptions of learning gains," *J. Microbiol. Biol. Educ.*, vol. 16, no. 1, pp. 21–28, 2015.
17. N. B. Berman, S. J. Durning, M. R. Fischer, S. Huwendiek, and M. M. Triola, "The role for virtual patients in the future of medical education," *Acad. Med.*, vol. 91, no. 9, pp. 1217–1222, 2016.
18. J. E. Ilkiw *et al.*, "Curricular revision and reform: the process, what was important, and lessons learned," *J. Vet. Med. Educ.*, vol. 44, no. 3, pp. 480–489, 2017.
19. L. Dickinson, W. Lackey, M. Sheakley, L. Miller, S. Jevvert, and B. Shattuck, "Involving a real patient in the design and implementation of case-based learning to engage learners," *Adv. Physiol. Educ.*, vol. 42, no. 1, pp. 118–122, 2018.
20. H. Ouyang, "Study on the case-based teaching method in the circuit principle course under emerging engineering education," *PervasiveHealth Pervasive Comput. Technol. Healthc.*, pp. 19–23, 2019, doi: <https://doi.org/10.1145/3375900.3375901>.
21. V. L. Golich, "The ABCs of case teaching," *Int. Stud. Perspect.*, vol. 1, no. 1, pp. 11–29, 2000, doi: <https://doi.org/10.1111/1528-3577.00002>.
22. S. R. Shetty, S. G. Babu G., R. Castelino, S. Hegde, P. K. Rao, and S. Kishor, "Case-based, team-based learning: A novel method for teaching orofacial syndromology to dental undergraduate students," *Educ. Heal. Chang. Learn. Pract.*, vol. 28, no. 1, pp. 112–113, 2015, doi: <https://doi.org/10.4103/1357-6283.161957>.
23. S. Gade and S. Chari, "Case-based learning in endocrine physiology: an approach toward self-directed learning and the development of soft skills in medical students," *Adv. Physiol. Educ.*, vol. 37, no. 4, pp. 356–360, 2013.
24. Crowther and S. Baillie, "A method of developing and introducing case-based learning to a preclinical veterinary curriculum," *Anat. Sci. Educ.*, vol. 9, no. 1, pp. 80–89, 2016.
25. R. E. Dupuis and A. M. Persky, "Use of case-based learning in a clinical pharmacokinetics course," *Am. J. Pharm. Educ.*, vol. 72, no. 2, 2008.

26. M. Ali *et al.*, “iCBLS: An interactive case-based learning system for medical education,” *Int. J. Med. Inform.*, vol. 109, pp. 55–69, 2018.
27. Mary Durand Thomas, Frederica W. O’, “Case-Based Teaching and Learning Experiences,” *Issues Ment. Health Nurs.*, vol. 22, no. 5, pp. 517–531, 2001, doi: <https://doi.org/10.1080/01612840121084>.
28. Xianghong *et al.*, “Practice and discussion of case teaching method in medical laboratory practice teaching [J],” *Int. J. Lab. Med.*, vol. 37, no. 01, pp. 138–139, 2016.
29. Creswell, John W. “Mixed- Method Research: Introduction and Application,” pp. 455–560, 2012..
30. Bruce R. Joyce, Marsha Weil, Emily Calhoun, “Models of Teaching,” Pearson/Allyn and Bacon Publishers, 2009.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter’s Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter’s Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

