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Effect of Inductive Grammar Instruction on The Achievement of Elementary School Students

Abstract   'Key objectives of the study are to (1) determine the effectiveness of the inductive method in augmenting the students' achievement in English grammar and (2) compare the perceptions of students in the experimental group (whom intervention of inductive method was given) and control group (who were taught through traditional, i.e. deductive process) regarding teaching methods used for them. Following quasi-experimental design termed as a pretest, post-test control group, two sections of class 8th with 30 students constituted the sample. A 53 items achievement test was used for pre and post-test. The experimental group was exposed to an intervention of teaching tenses through inductive method for 34 days. Meanwhile, the deductive method was used for the control group. Lastly, a 16 items questionnaire was employed to figure out students' perceptions. Findings of the intervention study substantiated the usefulness of the inductive method for teaching English grammar. The descriptive study exposed the inductive method as more effective, enjoyable, motivating, exciting and interactive.

Introduction

It is an undeniable fact that English has proved itself to be the language of higher education, improved career opportunities and international communication. Keeping its significance in view, the English language is not only introduced from class one as a compulsory subject, but it has always been a medium of instruction for different subjects in Pakistan especially at the higher education level. Unfortunately, despite studying English throughout the academic session, students exhibit low proficiency in English. Majority of the students feel it difficult to master English because it is not their first language. Learning the English language has never been a subconscious process for them. They get minimal opportunities from their environment to absorb the language with proper vocabulary, linguistic structure and style both in social and academic settings. Henceforth, students are not to be blamed. They can learn, but it is the entire educational setting which needs improvement.

As far as the curriculum of the English language is concerned, it is multidimensional. It integrates all constituents of language, i.e., phonetics, morphology, lexis, syntax, grammar, semantics, discourse and other language skills. What is emphasized here is the appropriate use of language knowledge for communication in real-life situations (NCEL Grades I – XII, 2006). Grammar and structure play a vital role in this regard (Mahjoob, 2015b). The curriculum proposes to get learners to comprehend grammatical functions, understand writing mechanics and apply the rules and principles of grammar, syntax and punctuation to develop their proficiency in written and spoken communication (NCEL Grades I – XII, 2006).

These intentions are very clearly translated in the English language textbooks. However, language teachers are much concerned about teaching grammar to English language learners. Concerning English as a second language, the students may go through numerous problems, for example, the intricate rules of language and inept application of strategies. That is why; the approaches to teaching grammar are excessively pondered and researched about (Male, 2016).

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Grammar was considered to be an indispensable part of language teaching before the 1970s. Effective communication was an outcome of knowledge of grammatical rules. Later on, the emphasis was shifted on the proper use of that grammatical knowledge. These shift advocates that a communicative writer or speaker should not only have expertise in learning the rules of language forms but also should be familiar withdrawn up these rules in real life communiqué to convey meaning appropriately (Richards & Renandya, 2002). Whatever the notion may be, it is an agreed-upon fact that good command of grammar facilitates language development. Now what is debatable is how we should teach grammar. Should it be taught inductively or deductively? (Mahjoob, 2015b). For that reason, the recent study intends to find out the relative effectiveness of these methods.

Review of Literature

Every language has specific grammatical rules. Thornbury (2002) has delineated that basically grammar studies the forms (or structures) of a language intricately. Hence, grammar comprises sets of rules that lead towards sentence formation. As backbone is indispensable for the human body, the same is the case with grammar for the sake of a language (Anani, 2017). Grammar helps in structuring and organizing a message. Therefore, it is evident that we cannot rule out grammar in schools.

The teaching of grammar has been a growing area of research. Although research on inductive and deductive styles of grammar instruction had been debated since the era of early stages of English learning (Hammerly, 1975) yet it remains inconclusive to declare a single best method to teach grammar. Therefore, choosing the proper grammar teaching approach between inductive and deductive is very important. Consistent with Hammerly, Fischer (1979) ingrained that indecisive situation as both the systems have their strengths and limitations.

Inductive and Deductive Approaches

Rivers and Temperley (1990) believed that the inductive method is a modern and student-centered way of grammar instruction. Contrariwise, deductive is an outmoded and teacher-centered method of teaching grammatical structures. Moreover, Brown (1994) declares that a general rule of law is induced from a number of particular examples in the inductive method. In contrast, rules are presented first in the deductive way, followed by examples of the rules. According to Gollin (1998), inductive reasoning embroils conclusion from the specific to the general, whereas deductive thinking applies a general rule to particular instances. In connection with the teaching of grammar, Widodo (2006) names inductive and deductive approaches as rule-discovery learning and rule-driven learning, respectively.

Strengths of the Inductive Approach

Inductive is nearer to the natural language learning process as learners enjoy a communicative feeling regarding certain aspects of language. They get intrinsically motivated by discovering rules rather than being told by the teacher (Behjat, 2008). Discovery of regulations makes the learnt practices more memorable, meaningful and usable for learners. Involvement of more significant mental effort and more cognitive depth makes greater memorability possible. Active participation in learning process increases learners' attention and motivation level. Involvement of students' problem- solving and pattern-recognition abilities makes this approach challenging and, ultimately, interesting. Chance of extra language practice can be availed if rules are driven collaboratively. Learning the rules by themselves, rule discovery, enhances self-reliance and autonomy among learners (Widodo, 2006).

Limitations of the Inductive Approach

Concept building of the rule takes more time and energy. If the examples are not practiced thoroughly after the rule is driven, this approach may lead to misconceptions. Selection and organization of the data require teachers to work carefully and intelligibly while planning a lesson so that learners could be guided towards a correct formulation of the rule. So, it is a very demanding approach on the teachers' part. This approach can be frustrating for the students who have always been encouraged to be told the rules instead to explore them (Widodo, 2006).

Strengths of the Deductive Approach

Getting forthrightly to the point makes the deductive approach time and energy saving. It is easy and straightforward to explain rules than to elicit them from examples. A great variety of direct practice examples can be given immediately followed by rule. It can be practiced with even adult learners. It facilitates learners who possess the analytical style of learning (Widodo, 2006).

Limitations of the Deductive Approach

Young learners may find it challenging to pick up the rules when presented at the beginning of the lesson as they are unfamiliar with the terminology. Learners may not get involved in the class because it used the teacher-focused transmission-styled approach. Memorizing the rules with the help of explanation alone gets complicated in the absence of students' active involvement. This approach makes the learners believe that merely knowing the rules can make language learning possible (Widodo, 2006).

Research Studies Related to Methods of Teaching Grammar

Several research works are available to address the issue of a suitable approach for teaching grammar at almost all levels of education all around the world. Yet, the picture is not vivid. Some of the studies conducted at school level proved inductive style of grammar instruction better than deductive type (Anani, 2017; Eriksson, 2014; Hmedan & Nafi, 2016; Kaur & Niwas, 2016; Tammenga-helmantel, Bazhutkina, & Steringa, 2016) whereas the others found both the approaches to have an equal effect on achievement in grammar (Shaffer, 1989; Tammenga-helmantel, Arends, & Canrinus, 2014).

There were only two studies completed at the college level for the same purpose. One of them found inductive approach better (Vogel, Herron, Cole & York, 2011) for long-lasting grammatical rules learning while the second (Mahjoob, 2015a) explored that both methods worked similarly for students' learning of grammar.

Most of the research work which aimed at creating a census in favour of any particular teaching approach is accomplished at the university level. No vibrant conclusion can be drawn at a higher education level either. Some researchers drew results in favour of the inductive method (Akram, 2015; Alzubi, 2015; Gorat & Prijambodo, 2013; Nazari, 2013; Nur, Yassi, Nasmila & Mahmood, 2018). Some others found both the approaches equally useful (Behjat, 2008; Motha, 2013; Sik, 2015). In contrast, a few proved that the deductive method is better (Adel & Abu, 2008; Erlam, 2003; Mallia, 2014; Tezi, 2014).

Some of the researchers explored the perceptions of participants about the teaching methods which were used to teach grammar to them (Gorat & Prijambodo, 2013; Nur et al., 2018). They found that students liked the inductive method, and they enjoyed it because of better opportunities to participate in in-class activities energetically. Kaur and Niwas (2016) probed the usage of both the teaching methods to teach grammar. By using a questionnaire, they collected data from 100 elementary school teachers. He discovered that the teachers were more inclined towards inductive method as compared to deductive one.

No doubt, teaching approaches to grammar instruction is a well-researched area all around the world, yet, it could not catch the attention of researchers in Pakistan. It is only Atta, Ayaz and Nawaz (2015) who have studied the relative effectiveness of deductive and inductive methodologies but their target content area was Mathematics rather than English. They declared inductive style as more effective. The current study may overcome the scarcity of research in Pakistan in the related area of study. Conventionally, grammar instruction is delivered deductively in government sector schools in Pakistan. The researcher, in this study, aims to find out the effectiveness of the inductive style of grammar instruction as compared to deductive style through quasi-experimental design which was termed as pretest, post-test control group design. Key objectives which lead the current study are to (1) determine the effectiveness of the inductive method in augmenting the students' achievement in English grammar and (2) compare the perceptions of students in the experimental group (whom intervention of inductive method was given) and control group (who were taught through traditional, i.e. deductive process) regarding teaching methods used for them.

Methodology

Nature of the Study

This is an experimental study. A quasi-experimental design is used to discover the effectiveness of the inductive method of English grammar instruction. Data were authenticated with the help of a questionnaire regarding perceptions of the students about teaching methods used with them (deductive as a traditional method in case of the control group and inductive as intervention in case of experimental group).

Sample

8th grade students from a private school in a metropolitan city of Pakistan were selected as sample. There were two sections of 30 students each which were randomly nominated as experimental and control groups as a result of their pretest score.

Sampling

In this research study, students took pretest before their division in the control group or experimental group. Their mean achievement score on a grammar test did not differ significantly from each other. Consequently, the groups were nominated as experimental and control groups on a random basis.

Research Instruments

The researcher used achievements test and a questionnaire as research instruments:

Achievements Test

An achievement test, for measuring students' achievement in grammar (tenses), was prepared. First all, an item tool (pool) of 65 items was made for which expert opinion was sought. Three experts opined about the content validity of the test. They were teaching English in secondary schools for five years or more. On their recommendation, 58 items were retained.

On the next stage, pilot testing was done. A test comprising 58 items was administered on 58 students studying in another private school of the same area. Later on, item effectiveness was ensured through item analysis. After assuring the appropriate difficulty level and proper discrimination power, 53 items were finalized for pre and post-testing.

Questionnaire

A questionnaire was prepared by the researcher to investigate students' perceptions about the teaching methods used in both groups. It comprised 16 items measured on 5 points Likert type scale ranging from one for strongly disagree to five for strongly agree. It carried five negative things which were reverse coded before data analysis. Internal reliability of the questionnaire was 0.89.

Data Collection

This was a quasi-experimental study; pretest was administered at the start. Two sections of class 8th with 30 students each were selected as the sample. Their achievement score on pretest was calculated. On the pretest, both the groups did not differ significantly. Consequently, the groups were nominated as experimental and control groups on a random basis. Then, the experimental group was exposed to an intervention. They were taught tenses through inductive method for 34 days. In the meantime, the same content was introduced to the control group using the deductive method, which is traditionally used. After treatment, post-test was taken.

Data Analysis

Data were analyzed in SPSS version 24. After cleaning the data, descriptive analysis was conducted. Later, paired sample and independent sample t-tests were applied to reach a conclusion regarding first objective. The second objective was addressed by applying an independent sample t-test.

Results

Table 1. Difference of Achievement Level between Control Group and Experimental Group before Intervention

	Groups	N	M	SD	t-value	df	p-value
Pretest	Group1	30	21.90	6.22	-.174	58	0.86
	Group2	30	22.20	4.56			

Before intervention, the mean achievement score of students studying in both sections was compared through independent sample t-test. Table 1 shows that there is no significant difference between Group 1 (*M*=21.90, *SD*=6.22) and Group 2 (*M*=22.20, *SD*=4.56), t (58) = -.17), p=0.86. It reveals that both groups have almost the same level of achievement in English grammar before the intervention. Both can randomly be selected as control or experimental groups.

Table 2. Difference between Achievement Score of Control Group before and after Intervention

		M	N	SD	t-value	df	p-value
Pair 1	Pretest	21.90	30	6.22	-43.12	29	0.00
	Posttest	42.20	30	7.79			

The mean score of the control group on pre and post-tests was compared by applying paired sample t-test accordingly. Table 2 displays that mean score of pretests (*M*=21.90, *SD*=6.22) is significantly lower than that of posttest (*M*=42.20, *SD*= 7.79), t (29) = -43.12, P< 0.001. After applying the traditional deductive teaching method, the students performed comparatively better in their posttest.

Table 3. Difference between Score of Experimental Group before and after Intervention

		Mean	N	SD	t-value	df	p-value
Pair 2	Pretest	22.20	30	4.56	-33.66	29	0.00
	Posttest	52.30	30	1.03			

The mean score of experimental groups on pre and post-tests was compared by applying paired sample t-test accordingly. Table 3 displays that mean score of pretests (*M*=22.20, *SD*=4.56) is significantly lower than that of posttest (*M*=52.30, *SD*= 1.03), t (29) = -33.66, p< 0.001. After the intervention of inductive teaching method, the students performed comparatively better in their posttest.

Table 4. Difference of Achievement Level between Control Group and Experimental Group after Intervention

	Groups	N	M	S D	t-value	df	p-value
Posttest	Control Group	30	42.20	7.79	-5.74	58	0.00
	Experimental Group	30	52.20	1,03			

After intervention, mean post-test score of students studying in both groups was compared by applying independent sample t-test accordingly. Table 4 displays a significant difference in achievement score of control (*M*=42.20, *SD*=7.79) and experimental groups (*M*=52.20, *SD*=1.03), t (58) = -5.74, p< 0.001. It reveals that both groups scored significantly different from each other on post-test after studying through either deductive or inductive methods.

Table 5. Difference between Control and Experimental Groups' Gain Achievement Score in Posttest

	Groups	N	M	SD	t-value	df	p-value
Growth	Control Group	30	20.30	2.10	-9.69	58	0.00
	Experimental Group	30	30.10	3.99			

To compare the mean gained achievement score of both groups in post-test, Independent sample t-test was used. Gained score was calculated by subtracting achievement score of pretests from that of post-test for both the groups. Table 5 shows a significant difference in gained achievement score of control (*M*=20.30, SD=2.10) and experimental group (*M*=30.10, *SD*=3.99), t (58) -9.69, p< 0.001. It reveals that although both the groups have gained a better score on post-test as compared to the pretest score, yet the difference is greater in case of the experimental group. Therefore, it can safely be interpreted that intervention proved to be highly effective.

Table 6. Comparison of students' Perceptions about Teaching Methods used in Control and Experimental Groups

Groups	N	M	SD	t-value	df	p-value
Control Group	30	1.85	.35	-31.18	58	0.00
Experimental Group	30	4.53	.151			

The mean score of students' perceptions about teaching methods in control and experimental groups was compared by applying independent sample t-test. Table 6 shows a significant difference in perceptions of control (*M*=1.85, *SD*=.035) experimental group (*M*=4.53, *SD*=.151), t (58) = -31.18, p< 0.001. It reveals that both groups have a lot of difference in their perceptions about teaching methods (deductive in case of the control group and inductive in case of experimental group) for teaching English grammar. The experimental group found the intervention to be highly effective, whereas the control group found the traditional method to be less effective.

Discussion

Improvement of the students' achievement in English is a growing concern of language researchers and teachers, especially in grammar. This study attempts to figure out the relative effectiveness of deductive and inductive styles of grammar instruction in grade eight. Findings of the present study substantiated the usefulness of inductive method English grammar instruction. The findings are in proportion to the former studies (Akram, 2014; Alzubi, 2015; Anani, 2017; Eriksson, 2014; Gorat & Prijambodo, 2013; Haight, Herron & Cole, 2007; Hmedan & Nafi, 2016; Kaur & Niwas, 2016; Nazari, 2013; Nur et al., 2018; Tammenga-helmantel et al., 2016) and in contrast with some others which concluded that the two approaches are equally effective (Behjat, 2008; Chalipa, 2013; Erikson, 2014; Mahjoob, 2015(a); Motha, 2013; Shaffer, 1989; Sik, 2015; Tammenga-helmantel et al., 2014) or that deductive is more effective than inductive style for maximizing learning of English grammar (Adel & Abu, 2008; Asriany, 2013; Erlam, 2003; Mallia, 2014; Tezi, 2014).

The prime difference between the two approaches lies in the role of learners and teacher. Inductive is student-centred, whereas deductive is the teacher-centred approach. In Pakistan, teachers traditionally follow reasoned approach which, therefore, is called tradition with reference to present study. In this approach, the flow of information or knowledge moves from teacher to students. Students are passive beings who have to cram the rules as they receive them. After cramming the rules, they are provided with examples and exercises for practice. They feel boredom which makes learning short-term. Contrarily, when the teacher uses the inductive approach, s/he acts as a facilitator who provides relevant examples or content in the beginning and asks students to involve collaboratively in the induction of the rule. S/he uses the strategy named 'noticing'. Students experience great mental effort and get actively involved in the discovery of rules. They get attentive and intrinsically motivated when they learn by themselves. It makes learning enjoyable and long-lasting (Mahjoob, 2015b; Nur et al., 2018). These features of inductive approach lead to positive educational outcomes which are evident in findings of the current study as well.

Additionally, this study compared the perceptions of students in control and experimental groups regarding teaching methods which were used to teach them English grammar. The experimental group found the inductive method more effective, enjoyable, motivating, interesting and interactive as compared to the control group. Some other researchers also found similar results (Gorat & Prijambodo, 2013; Nur et al., 2018). The findings are similar to those of Nur et al., (2018) who, based on the classroom observation, declared that students showed enthusiasm in inductive class.

Moreover, the students in the inductive class enjoyed the discovery of the formula by themselves. It helped them maintain longer retention of the grammar rules. Silvia (2006) also highlighted that Rule discovery enhanced self- reliance and learning autonomy.

Piaget (1974) believed that interaction between students' inherent mental structures and the learning atmosphere plays a vital role in learning. He, further, advocated that rote memory can never be equal to comprehension. If the underlying meaning of linguistic structures is not comprehended and transformed into the internalized intake, it cannot become part of long-term memory.

Recommendations

Teachers should use different examples to create curiosity among students before teaching grammar as inductive method proved to be more useful to teach grammar in this study. Teacher pieces of training and workshops conducted in this scenario may be useful for teachers. Teachers should be encouraged and supported to attend online teaching grammar courses to improve their proficiency in teaching grammar courses and to apply them in classroom settings. Additional research may be directed to substantiate the efficiency of progressive approaches to teaching grammar. The finding of the current study may not be applicable for different student populations as the generalizability of experimental research is limited to only practical setting. To generalize the results, it is suggested that the same study may be revised by conducting it on a larger sample.

References

Adel, M. A., Abu, J. H. (2008). The effects of deductive and inductive approaches of teaching on Jordanian university students' use of the active and passive voice in English. *College Student Journal*, 42(2), 545-553.

Akram A, M. (2015). Effectiveness *of Inductive and Deductive Methods in Teaching* Grammar. *Advances in Language and Literary Studies. 6* (2), 187-193.

Alzubi, M. A. (2015). Effectiveness of Inductive and Deductive Methods in Teaching Grammar. *Advances in Language and Literary Studies*, *6*(2), 187–193. https://doi.org/10.7575/aiac.alls.v.6n.2p.187

Anani, G. E. (2017). Teaching and Learning of Grammar at the Basic Level of Education : Revisiting Inductive Teaching Approach. *Education Journal.*, *6*(1), 51–62. https://doi.org/10.11648/j.edu.20170601.17

Asriany, R. A., Arafah, B, & Yassi, A.H. (2013). Deductive *and Inductive Methods in Teaching Passive English Construction* (A Study at STKIP YPUP Makassar), Unpublished Thesis, Makassar. Postgraduate School of Universitas Hasanuddin.

Atta, M. A., Ayaz, M., & Nawaz, Q. (2015). Comparative study of inductive & deductive methods of teaching Mathematics at elementary. *Gomal University Journal of Research*, *31*(1), 20–28.

Behjat, F. (2008). Inductive vs. Deductive Grammar Instruction and the Grammatical Performance of EFL Learners. *Journal of English Language Pedagogy and Practice*, *1*(Inaugural Issue), 1–13. Retrieved from http://jal.iaut.ac.ir/article_524175.html

Brown, H. D. 1994. *Principles of language learning and teaching.* Englewood Cliffs, NJ: Prentice Hall.

Chalipa, S. (2013). The effect of inductive vs. deductive instructional approach in grammar learning of ESL learners. *DIJARS Publication,I* (1), 2321-2336.

Eriksson, L. (2014). *The effectiveness of modified inductive versus deductive teaching.* Master Thesis, Umea University, Sweden.

Erlam, R. (2003), The effects of deductive and inductive instruction on the acquisition of direct object pronouns in French as a second language. *The Modern Language Journal, 87*, 242-260. doi:10.1111/1540-4781.00188

Fischer, R. A. (1979). The inductive-deductive controversy revisited. *The Modern Language Journal. 63* (3), 98-105.

Gollin, J. (1998). Key concepts in ELT. *ELT Journal, 52*(1), 88–89.

Gorat, L., & Prijambodo, V. L. (2013). The effect of using deductive approach and inductive approach in teaching english to students on their conditional. *Magister Scientiae, 33*(3), 78–92.

Haight, C., Herron, C, & Cole, P. S. (2007). The effects of deductive and inductive instructional approaches on the learning of grammar in the elementary foreign language college classroom. *Foreign Language Annals, 40(* 2), 288- 310.

Hammerly, S. (1975). The deduction/induction controversy. *The Modern Language Journal. 59* (1), 15–18.

Hmedan, H. A. A., & Nafi, J. (2016). The Effect of Using Inductive and Deductive Methods on 7th Grade Students' Achievement in Grammar in Bethlehem District and their Attitudes toward EFL Heba Ali Amer Hmedan , MSc. *International Journal of Education and Social Sciences*, *3*(9), 38–53.

Kaur, S., & Niwas, R. (2016). Usageof deductive and inductive methods in teaching english. *Scholarly Research Journal for Interdisciplinary Studies*, *3*(24), 2130–2142.

Mahjoob, E. (2015a). A Comparison of the Effectiveness of Inductive vs. Deductive Instruction of Grammar to EFL Students. *Journal of Language, Linguistics and Literature*, *1*(5), 164–169. Retrieved from http://www.aiscience.org/journal/j3lhttp://creativecommons.org/licenses/by-nc/4.0/

Mahjoob, E. (2015b). A comparison of the effectiveness of inductive vs . deductive instruction of a comparison of the effectiveness of inductive vs . deductive instruction of grammar to EFL students. *Journal of Language, Linguistics and Literature*, *1*(5), 164–169.

Male, H. (2016). Understanding inductive and deductive approaches in teaching. *Research Gate, 9*(1), 19–24.

Mallia, J. G. (2014). Inductive and deductive approaches to teaching English grammar. *Arab World English Journal, 5*(2), 221–235.

Ministry of Education. (2006). National Curriculum for English language Grades I – XII. Islamabad: Government of Pakistan.

Motha, H. (2013). *The Effect of Deductive and Inductive Learning Strategies on Language Acquisition*. Tilburg University, Tilburg.

Nazari, N. (2013). The effect of implicit and explicit grammar instruction on learners achievements in receptive and productive modes. *Procedia - Social and Behavioral Sciences, 70*, 156–162. https://doi.org/10.1016/j.sbspro.2013.01.051

Nur, S., Yassi, A. H., Nasmila, & Mahmood, H. (2018). The effect of inductive learning approach in teaching grammar. *International Journal of Scientific Research, 7*(9), 24–28.

Piaget, J. (1974). The future of developmental children psychology. *Journal of Youth and Adolescence, 3*(2), 87-94.

Richards, J.C, & Renandya, W.A (eds). (2002). *Methodology in Language Teaching: An Anthology of Current Practice*. Cambridge: Cambridge University Press.

Rivers, W. M. & Temperley, M.S. (1990). *A practical guide to the teaching of English as a second or foreign language*. Oxford University Press.

Shaffer, C.(1989). A comparison of inductive and deductive approaches to teaching foreign languages. *Modern Language Journal, 73*(4), 395-403.

Silvia, A (2013) Deductive and inductive grammar teaching. Retrieved from: http://www.academia.edu/2344319/Deductive_and_Inductive_Grammar_Teaching accessed on January 16, 2019.

Sik, K. (2015). Tradition or modernism in grammar teaching : Deductive vs . inductive approaches. *Procedia - Social and Behavioral Sciences, 197*(February), 2141–2144. https://doi.org/10.1016/j.sbspro.2015.07.340

Tammenga-helmantel, M., Arends, E., & Canrinus, E. T. (2014). The effectiveness of deductive , inductive , implicit and incidental grammatical instruction in second language classrooms. *System, 45*, 198–210. https://doi.org/10.1016/j.system.2014.06.003

Tammenga-helmantel, M., Bazhutkina, I., & Steringa, S. (2016). Comparing inductive and deductive grammatical instruction in teaching German as a foreign language in Dutch classrooms. *System, 63*, 101–114. https://doi.org/10.1016/j.system.2016.09.002

Tezi, Y. L. (2014). *Using inductive or deductive methods in teaching grammar to adult learners of english kübra*. Master thesis. Erzincan University.

Thornbury, S. (2002). *How to teach grammar*. England: Pearson.

Vogel, S., Herron, C., Cole, S. P. & York, H. (2011). Effectiveness of a guided inductive versus a deductive approach on the learning of grammar in the intermediate-level college french classroom. *Foreign Language Annals, 44*, 353-380. doi:10.1111/j.1944-9720.2011.01133.x

Widodo, H. P. (2006). Approaches and procedures for teaching grammar. *English Teaching: Practice and Critique, 5*(1), 122–141. https://doi.org/10.1017/CBO9781107415324.004