

Development of Crossword Puzzles as Teaching Tools in Explanatory Texts Learning

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Abstract

This research is based on Indonesian language learning that has not been effective yet, so the result of learned is not optimal yet, to overcome this problem, the researcher developed crossword puzzle game. This development research aims to produce crossword puzzle products as well as know the feasibility and effectiveness of the product. This research used Research and Development method developed by Borg and Gall. The subjects of this study are the students of class V which amounted to 34 students. Data analysis techniques used descriptive percentage and n-gain test. The results showed that the media of crossword puzzles is very feasible to use with the percentage of assessment 89.58%, material expert judgments of 88, 63%. The result of N-gain analysis showed that the value obtained is 0.5226 in the medium category and the response is very good. Based on the result of the research, the crossword puzzle game to summarize the developed explanation text is declared eligible and effective in improving the writing skill of the students' explanatory text.

Keywords; Indonesian language: cross-game design, explanatory text;

1. Introduction

Education is very necessary to create the highly competitive and globally thinking generation. Under *Permendiknas Nomor 22 tahun 2006* (Regulation of Minister of Education Number 22 in 2006) on Standard Content of Primary Schools, it was stated that Language plays key part in intellectual, social, and emotional development of students and constitutes supporting element for the success in learning all subjects. Language learning is expected to help the students identify themselves, their cultures, and the others', express their ideas and feelings, get involved in the language speaking people, and find as well as perform analytical and imaginative skills inside them.

Pursuant to *Baand Standar Nasional Pendidikan* (National Body of Education Standardization) (BSNP, 2006:119) standard contents of Indonesian language learning are the followings: "Indonesian language learning aims to improve the students' communication skill in effective and proper Indonesian, both orally and written, as well as to grow appreciation to the Indonesian men's literary works." The purposes

of Indonesian language teaching are: in order that the students are able to enjoy and to use the literary works to develop personality, to widen life insights as well as to improve linguistic knowledge and skill. Indonesian language teaching basically is aimed at improving the students' oral and written communication in Indonesian (Susanto, 2016:245).

From the pre-research activities I did such as interviews in Sekolah Dasar Negeri Mangkang Kulon 02 I found several issues such as: the students looked less active and less enthusiastic during the learning particularly in Indonesian language learning, as the students tend to be reluctant and uninterested when only being asked to read books. During the learning process, the teacher applied some methods and approaches but they were not diverse. In addition, insufficient media the teacher used and inadequate media or special teaching tool able to get the students involved in the learning process are also the obstructive factor.

That issue has impact on the students Indonesian learning outcomes, strengthened by the interview with classroom teacher of grade V and portfolios showing the quality of

Indonesian language learning. Indonesian language has low average score (51.21) and many still did not meet the determined Minimum Mastery Point, i.e. 65. This can be viewed from the data of the scores gotten by 34 grade V students, i.e. 28 did not meet minimum mastery point and only 6 did. The lowest score student got was 20 and the highest one was 80. It shows that collectively, only 17.64% while 82.35% didn't.

The students need a teaching tool which can stimulate their interest in reading and studying the lessons in Indonesian language class. Whereas, the learning process can be enjoyable if the students can interact one another. The teacher can use a variety of teaching tools as one method to create fun learning. With the tools, the students can be encouraged to learn by playing. Game is a place where the players can interact with one another by following the certain rules to reach certain goals (Sadiman, 2014:75-76).

The research that supports this investigation is the international study conducted by Michael L. Littman, Greg A. Keim, and Noam Shazeer published in a journal named *Artificial Intelligence* titled "A probabilistic approach solving crossword puzzles" which stated that crossword puzzles solving presents the unique challenge on intelligence, competition on wide insights, and speed. This resource allows the scholar to manage the language-related games and the other essential things in the application although developing the solution also needs better understanding about themes and tricks on the puzzle.

Another supporting research is the study conducted by Moh. Sholahuddin Ghazali and Ahmad Qosyim published in *E-Jurnal Pensa* Volume 05 Nomor 01 Tahun 2017 (*E-Jurnal Pensa* Vol.5, No.1, 2017) titled "Efektifitas Permainan Teka Teki Silang Tiga Dimensi (TTS3D) sebagai Media Pembelajaran pada Materi Interaksi MakhluK Hidup" (The Effectiveness of Three Dimension Crossword Puzzles as Teaching Tool for Interaction between Creatures Lesson). That investigation

aimed to describe the effectiveness of the three-dimension crossword puzzles as the teaching tool in the lesson of interaction between creatures.

This study applied the design of Research and Development (R & D) restricted to the seventh stage. The study shows that this game tool is affirmed as effective. It was proven in that study that crossword puzzle as a tool can improve the grade V students learning outcomes, while I developed the crossword puzzles to ease the students in terms of summarizing explanatory texts.

This study was strengthened by the research carried out by Novita Andayani, Kundharu Saddhono, Yant Mujiyanto published in *BASASTRA Jurnal Penelitian Bahasa, Sastra Indonesia and Pengajarannya* Volume 4 Nomor 2 Tahun 2016 (*Journal of Research on Indonesian Language, Literary, and Teaching*) titled "Peningkatan Kemampuan Menulis Teks Eksplanasi Dengan Menggunakan Media Audiovisual Pada Siswa Sekolah Menengah Pertama" (The Improvement of Explanatory Writing Skill Using Audiovisual Media onto Secondary Students) stating that the study shows the increasing motivation and level of explanatory writing skill of the students. The average score for the students' explanatory writings was 74.61 at the success rate 69.23%. The students' final average score of explanatory writings was 84.42 at the success rate 88.46%.

Based on the background above, supported by the experts' statements, and strengthened by the preceding studies, I analyze that issue by carrying out Research and Development) titled "Pengembangan Media Permainan Teka Teki Silang Untuk Meringkas Teks Eksplanasi Siswa Kelas V SDN Mangkang Kulon 02 Semarang" (Development of Crossword Puzzles to Summarize Explanatory Texts for Grade V Students in SDN Mangkang Kulon 02 Semarang). This investigation aims to develop the crossword puzzles to find the properness as well as the effectiveness of monopoly game using crossword puzzles to summarize explanatory texts for grade V students.

2. Research Method

In this investigation I applied Research and Development (R&D). Sugiyono (2013:407) stated that (Research and Development) is the research method applied to create the particular products, and to test the effectiveness of the products. In the research on and development of comics as learning media, I applied development model stated by Sugiyono which only took 8 steps because I did not have enough time and fund to make mass production. The subject of this research was 34 grade V students in SDN Mangkang Kulon 02 Semarang. The data were collected from the classroom teacher and student grade V in SDN Mangkang Kulon 02 Semarang as well as the lecturers as linguistic and media assessors. The investigation was conducted from April to May. I collected the data through questionnaires, documentation, interviews, and testing.

The data taken in this investigation consists of the assessment made by linguistic and media assessors, questionnaire on responses filled out by teacher and students, as well as the students learning outcomes of explanatory writing skill. The data comprising the assessment scores given by the media assessor, linguistic assessor, and teacher and students' responses were counted using percentage descriptive assessment measured with likert scale. The score of students explanatory writing skills was collected from pretest and posttest scores which subsequently was counted using N-gain formula.

3. Results and Discussion

This study made a product in form of crossword puzzles to summarize explanatory texts for grade V students. The developed crossword puzzles to summarize explanatory texts were based on questionnaire on needs distributed by teacher to the students. Stated by Amin included in the work of Cahyo (2011:61-62) Crossword puzzles constitute one of brain teasers many people favor. This game is helpful for both adults and children, mainly for sharpen their left brains. In this game the players must

fill the white squares, forming words or phrases by solving clues which lead to the answers. The clues are usually categorized into left-to-right and downward, depending on which squares to be filled.

It was strengthened by the article written by M.Husni Abdullah published in JPGSD Volume 5 No. 3, 2017 titled "Penggunaan Media Teka Teki Silang Untuk Meningkatkan Hasil Belajar Siswa Pada Mata Pelajaran IPS Kelas V SDN Songgokerto 01 Batu" (Application of Crossword Puzzles to Improve Grade V Students Social Science Learning Outcomes in SDN Songgokerto 01 Batu).

This investigation aims to find the effectiveness of crossword puzzles application to improve Arabic learning outcomes. The samples of this research were 18 grade II students as experimental classroom using Simple random sampling. Data for this study was collected through testing, observation, interviews, and documentation. And I applied t-test as data analysis method. Thus, the experiments I did showed the following things. First, the grade II students' Arabic learning outcomes, particularly lesson of learning numbers (1-10) in Madrasah Ibtidaiyah Nurul Iman Pengabuan before the application of the crossword puzzles was 56.11 (pretest). After its application, the average score bettered into 79.44 (posttest). Second, I found significant difference between pretest and posttest score which can be interpreted that Null Hypothesis was rejected, i.e. $t_0 < t_0 > t_0$ or $2.11 < 11.73 > 2.90$. based on such finding, I can conclude that there was significant difference between the students Arabic learning outcomes before and after the application of the crossword puzzles.

Another journal confirming this research is the study conducted by Mohammad Andi Wasgito published in Jurnal Pendidikan Seni Rupa Volume 2 Nomor 3 Tahun 2014 (2014 Journal of Fine Arts Teaching Vol.2, No.3) titled "Pengembangan Media Permainan Edukatif Teka-Teki Silang (TTS) Dalam Proses Pembelajaran Siswa Kelas VII SMP Negeri 2 Kalianget" (Development of Crossword Puzzles as Educative Game for Learning Process for

Grade VII Students in SMP Negeri 2 Kalianget). The study produced (1) development concept of educative crossword puzzles in the Arts and Culture learning for SMP Negeri 2 Kalianget containing the questions related to applied fine arts which comprises definition, functions, categories of applied fine arts, and examples of applied fine artworks presented in crossword book. The crossword book was also added with picture and puzzles adjusted to the basic competencies and learning success indicators and learning objectives; (2) The development of educative crossword puzzles was made after doing research, beginning from field survey, analyzing students' needs, media selection, media setting, validation by assessors, revision, media application, and reporting; (3) The benefits of educative crossword puzzles in the learning, i.e. it can improve the students' activeness in the learning. This can be viewed from recapitulation of students' activeness assessment in the learning process. Thus, the students' activeness is "very good" at rate 86%. And questionnaire on students' responses shows that the students respond well to the application of crossword puzzles in the learning process, at average rate reached 2.86% included in category of "meeting" standard assessment of students' responses. Meanwhile, students' exam scoring using the experimented crossword puzzles in the classroom shows the "very good" scores at average score 84.7.

Another study was conducted by Wingga Pratami, Ngurah Ayu, and Henry Januar Saputra (2017) titled "Pengaruh Media Game Edukasi Teka Teki Pengetahuan Terhadap Minat Belajar Siswa Pada Mata Pelajaran IPA Kelas 5 SDN 03 Protomulyo" (Impact of Educative Crossword Puzzles on Grade V Students Learning Interests in Natural Science Class in SDN 03 Protomulyo). Based on t-test, it was found that at significance rate = 0.05 at t-value = 2.115 and t-table = 2.024. as t-value > t-table i.e. 2.115 > 2.024 H1 was accepted. So it can be concluded that educative game named "Crossword on Comprehension" had significant

impact on grade 5 students' interests in Natural Science learning in SDN 03 Protomulyo.

Another research was conducted by Putu Hendy Pradika, I Gusti Agung Oka Negara, I G. A. Agung Sri Asri, in 2017 titled "Pengaruh Pembelajaran Course Review Horey Dengan Permainan teka Teki Silang (TTS) Terhadap Kompetensi Pengetahuan IPS Siswa kelas V SD Gugus Budi Utomo Dentim Tahun pelajaran 2016/2017" (Impact of Course Review Horey Learning through Crossword Puzzles on Grade V Students' Social Science Comprehension of in SD Gugus Budi Utomo Dentim during 2016/2017 School Year), aiming to find the impact of Course Review Horey using crossword puzzles on grade V students' understanding of Social Science lesson in SD Gugus Budi Utomu Denpasar Timur during 2016/2017 school year. The study based on data analysis shows that t-value = 6.78 > t-table = 2.000 at significance rate 5% and df = 86, thus H0 was rejected and Ha was accepted. This shows that there was significant difference in terms of Social Science understanding between experimental and control groups of grade V students in SD Gugus Budi Utomo Denpasar Timur during 2016/2017 school year. The average score also showed that Social Science understanding of experimental group is better than the control group ($X = 86.24 > X = 69.89$). Thus, they concluded that Course Review Horey through crossword puzzles has impact on the grade V students' Social Science understanding in SD Gugus Budi Utomo Denpasar Timur in 2016/2017 school year.

The related research published on international journal made by Wiwat Orawiwnakul (2013) titled "Crossword Puzzles as a Learning Tool for Vocabulary Development" shows that posttest score of the students in general is higher than pretest at significance rate 0.05. He then divided the students into three groups. From their vocabulary mastery, he found that the students in all groups could better the vocabulary mastery at significance rate 0.05. The results of repetitive acts in variants test analysis shows that there was significant difference on the

average score of the three based on the scores the students got in the test and final exam.

Another research was made by Elizabeth Yuriev, Ben Capuano, and Jennifer L. Short. They investigate Crossword Puzzle, published on a journal named Chemistry Education Research and Practicer in 2016 titled “Crossword puzzles for chemistry education: learning goals beyond vocabulary”. In that research they had developed crossword puzzles to help the students master the chemical terminology through meaningful learning rather than rote learning. They had evaluated the tool to assess its effectiveness in the study and revision, in particular. The investigation shows that the crossword puzzles improve the students’ problem-solving skill and if it were applied systematically, it would make contribution to the learning improvement. This finding was discussed in information processing and meaningful learning context.

In terms of the development of crossword puzzles was applied to learn the lesson of explanatory text, the following is the supporting journal on this study. It is the research conducted by Iis Suwartini published on a journal named Bahastra Vol. 37 No. 1, 2014 titled “Analisis Teks Eksplanasi Pada Media Masa Melalui Pembelajaran Berbasis Masalah” (Analysis of Explanatory Texts on Mass Media through Problem-based Learning) which shows that the learning process of explanatory text lesson needs the effective learning method to apply.

The design of crossword puzzles was developed and consisted of several parts, e.g. 1) teacher’s and student’s crossword book 2) game boards, 3) marker. The contents of crossword book are Core Competency, Basic Competencies, and Indicators of learning success, game rules, explanatory texts, clues, and answers.

The arrangement of various components in the crossword puzzles was composed in preliminary form of product. The preliminary form of product was used as first impression in terms of expressing development ideas. Preliminary form of product is the reference in

terms of product making so the developed product will match the initial ideas of product development. The design of the development of crossword puzzles was made on A3+ paper (48 cm x 32 cm), laminated, framed, as well as covered with plywood.

The developed crossword puzzles were also adjusted to the learning objectives and the taught lesson, i.e. explanatory texts. The followings are presentation of product of the developed crossword puzzles:



Picture 1. Display of Crossword Puzzles Board



Picture 2. Front and Back Cover of Crossword Book



Picture 3. Contents of Crossword Book

The crossword puzzles were assessed by media and lesson assessors. The lesson assessor was Drs. Sukarir Nuryanto, M.Pd. while the media assessor was from Department of Educational Technology, i.e. Dr. Kustiono, M.Pd, I analyzed the assessment made by the assessor using the formula created by Purwanto (2013:102), and i.e. the acquired score is divided with maximum score then multiplied with a hundred percent.

Validation of Properness Test of Teaching Tools

Table 1. Analysis of Validations Made by Learning Tool and Lesson Assessors

No	Assessor	Validator	Percentage	Description
1	Drs. Sukarir Nuryanto, M.Pd. Assessor	Lessons	88%	Excellent
2	Dr.Kustiono, M.Pd. Assessor	Learning Tools	89%	Excellent

Based on table 1, the assessment validation carried out by the assessor of lesson materials shows 88% as rate which means excellent. It was not much different from the assessment made by teaching media assessor which got 89% as rate which means excellent. There are 3 aspects of assessment when assessing crossword puzzles with 15 clues, including Core Competencies, Basic Competencies, learning objectives, display design, sizes, colors, media application, and media durability, as well as usability of the media. Based on the assessment validation made by learning materials and media assessors, I can draw a conclusion that crossword puzzles are usable in the Indonesian language learning particularly explanatory texts as lesson material.

Responses Given by Teacher and Students

The teacher and the students made assessment on the properness of monopoly game using crossword puzzles by questionnaire on responses distributed after the learning applying the teaching tool. The followings are assessment grade for the media.

Table 2. Recapitulation of Response Questionnaire Filled Out by Teacher and Students

No.	Validator	Percentage	Description
Siswa SDN Mangkang			
1	Kulon 01	95%	
Guru SDN Mangkang			
2	Kulon 01	86%	
Siswa SDN Mangkang			
3	Kulon 02	94%	Excellent
Guru SDN Mangkang			
4	Kulon 02	88%	

Based on the table shown above, it is found out that the rate was included in the percentage range (81%-100%) which means it got excellent responses.

Product Effectiveness Testing

The effectiveness testing was conducted on 34 grade V students in SDN Mangkang Kulon 02 Semarang, and the data were collected from the students' learning outcomes before applying the learning tool or in pretest and after the learning tool application or in posttest. The testing shows that t-value was -16.058. Because t-table is positive point, i.e. 2.034, t-value point should be changed into positive or be changed into absolute value, i.e. 16.058 so t-value > t table which means that H_a is accepted and is rejected which also means that crossword puzzles is effective to apply in Indonesian language learning.

Table 3. Mean interval of Pretest and Posttest

		Paired Differences				T	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Paired Pretest - Posttest	-9,1108	1,562	28,267	21,910	-16,058	33	,000		

I counted the average improvement using N-gain as stated by Lestari (2015:234-236) using formula: posttest score minus pretest score per maximum score minus pretest score. The followings are the students' pretest and posttest scores.

Table 4. Students' Pretest and Posttest Scores

Average Pretest Score	Average Posttest Score	N-Gain	Description
		0	
		5	
51.02	76.11	2	Fair

4. Conclusion

The products created from the research on monopoly game using crossword puzzles to summarize explanatory texts for grade V students developed to meet the teacher's and students' needs are: (1) the monopoly game is rectangle with dimension: 48 cm x 32 cm; (2) crossword book the contents of which are Core Competencies, Basic Competencies, indicators of learning success, game rules, explanatory texts, and clues and answers. The development of crossword puzzles as teaching tools has passed the learning media properness test scored 89%, and lesson materials properness test scored 88%. The testing shows that t-value was -16.058. Because t-table is point, i.e. 2.034, t-value should be changed into positive or be changed into absolute value, i.e. 16.058 so t-value > t-table which means that H_a is accepted and is rejected. Average score improvement (N-gain) from pretest and posttest data was 0.5226 which means fair. So I can conclude that crossword puzzles as learning tools are proper and effective to be used in Indonesian language learning particularly explanatory texts and it has significant impact on the learning outcomes of grade V students in SDN Mangkang Kulon 02.

5. Reference

- Abdullah, M.Husni. 2017. "Penggunaan Media Teka Teki Silang Untuk Meningkatkan Hasil Belajar Siswa Pada Mata Pelajaran IPS Kelas V SDN Songgokerto 01 Batu. JPGSD". 5(3) 1491
- Cahyo, Agus N. 2011. Gudang Permainan Kreatif Khusus Asah Otak Kiri Anak. Jogjakarta: Diva Press.
- Ghozali, Moh. Sholahuddin, Ahmad Qosyim.2017. Efektifitas permainan Teka Teki Silang Tiga Dimensi (TTS3D) Sebagai Media Pembelajaran Pada Materi Interaksi Makhluk Hidup". E-Jurnal Pensa.
- Littman,L Michael. Greg A. Keim, dan Noam Shazeer. A probabilistic approach solving crossword puzzles. Jurnal Artificial Intelligence:23
- Novita, Andyani., Kundharu Saddhono., Yant Mujiyanto. (2016). Peningkatan

- Kemampuan Menulis Tes Eksplanasi Dengan Menggunakan Media Audiovisual pada Siswa Sekolah Menengah Pertama. *Jurnal Penelitian Bahasa, Sastra Indonesia dan Pengajarannya*.4(2):161
- Orawiatnakul, Wiwat. 2013. "Crossword Puzzles as a Learning Tool for Vocabulary Development. *Academic Journal*.
- Permendikbud No. 22 Tahun 2016 dalam BAB I tentang Standar Proses.
- Pratami, Wingga., Ayu, Ngurah., & Saputra, Henry Januar.2017. Pengaruh Media Game Edukasi "Teka Teki Pengetahuan" Terhadap Minat Belajar Siswa Pada Mata Pelajaran IPA Kelas 5 SDN 03 Protomulyo. *Jurnal Profesi Keguruan*.3(2):149
- Pradika, Putu Hendy. dkk. 2017. "Pengaruh Pembelajaran Course Review Horey Dengan Permainan teka Teki Silang (TTS) Terhadap Kompetensi Pengetahuan IPS Siswa kelas V SD Gugus Budi Utomo Dentim Tahun pelajaran 2016/2017. e-jurnal PGSD Universitas Pendidikan Ganesha". 5(3): 17
- Sadiman, Arief S.dkk. 2014. *Media Pendidikan, Pengertian, Pengembangan, dan Pemanfaatannya*. Jakarta: PT. Raja Grafindo Persada.
- Suwartini, Iis.2014. "Analisis Teks Eksplanasi Pada Media Masa Melalui Pembelajaran Berbasis Masalah"*Jurnal Bahastra*.37(1):49
- Susanto, Ahmad. 2013. *Teori Belajar dan Pembelajaran di Sekolah Dasar*. Jakarta: Prenadamedia Group.
- Wasgito, Andi Mohammad. 2014. "Pengembangan Media Permainan Edukatif Teka-Teki Silang (TTS) dalam Proses Pembelajaran Siswa Kelas VII SMP Negeri 2 Kalianget. *Jurnal Pendidikan Seni Rupa*". 2(3):43
- Yuriev, Elizabeth. dkk. 2016. "Crossword puzzles for chemistry education: learning goals beyond vocabulary. *Jurnal Chemistry Education Research and Practiceur*". 18. *Joyful Learning Journal* 6 (3) 2018 xxiv