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**Submission date:** 24-Feb-2020 10:02AM (UTC+0700)

**Submission ID:** 1262717226

**File name:** 13\_Isnawati.pdf (2.72M)

**Word count:** 4136

**Character count:** 21582

# Character Education of Learning Media in Excretion System Material

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**Abstract**— This study aims to describe of the learning media that can training character education on excretion system material. Learning media is equipped with a Student Worksheet. Development methods by ASSURE method. The results showed value of feasibility media is 0.89 while the value of feasibility Student Worksheet is 0.86. It is concluded media of Mapping Ren and Student Worksheet that using character content very feasible to be used in the learning process on excretion system material to training character of discipline and accurate.

**Keywords:** *Ren Mapping of Learning Media, Character Education, The Excretion System.*

## I. INTRODUCTION

Character education should be focused on the development of an educational culture that directs students to become an integral personal. Character education if it is to be effective and should include a three-piece design basis for its program. The three bases are design-based character education classroom, the design of the school culture based on character education, character education and community-based design. Without the three bases that character education will be partial, inconsistent, and ineffective (Koesoema A, 2010). This is in accordance with the mandate of Law Number 20 Year 2003 is a character education will only be a mere discourse if not understood more fully and comprehensively in the context of national education.

Learning-based character education can use the media game because of an educator who taught in the classroom through the game will provide a tremendous impact for the development of psychological, intelligence, skill, and the unity of the learner. Physically, the games provide learning opportunities for students to develop motor skills. Socially participant students also learn to interact with each other (Suyatno, 2008).

In general, media education has a usability-usability as follows: the existing see objects or events that happened in the past; observe objects / events which are difficult to be visited, either because it is remote, dangerous, or forbidden; obtain a clear picture of the object that is difficult observed directly because the size is too big or too small; elusive heard directly by ear; observe a wild animal or elusive; observe rare events or hazards to be approached; observing objects that are easily damaged and difficult preserved; easy compare things, can quickly see a process that takes place slowly; can see a slow a process that is rapid, and so on (Santayasa, 2007).

So the purpose of this research is to develop character education instructional media charged specifically to describe the feasibility of media Ren Mapping and Student Worksheet.

## II. RESEARCH METHOD

This study is part of the research development with the ASSURE instructional media developed by Heinich, (2002) which consists of six stages: analyze learner, state, select method media and material, require learner participation, evaluate and revise. In this study developed instructional media shaped mat for a picture of the renal tract training character of discipline, and accurate. This study develops media Ren Mapping and Student Worksheet.

Trials conducted in Surabaya SMA Muhammadiyah 2 science classes XI-1 in the second semester with heterogeneous abilities, hyperactivity. With the average cognitive ability of 74.27 and an average age of 16 years, at this stage of cognitive development they enter the formal operational stage of development with the main capabilities of pure abstract thought and symbolic, and can solve the problem through an activity. Way of thinking development of students are in a phase transition from phase to phase concrete formal phase of way of thinking development which allows trained to abstract thinking.

Learning objectives to be achieved are to identify the structure of the human kidney; identify the function of the human kidney, and identify the physiological processes in human kidney.

The selection of methods, media, and materials used are as follows: determine the method of simulation for learning, creating and designing media Ren Mapping to simulation methods as applied in the background of the situation, make the Student Worksheet and Ren Mapping media, and reviewing media of Ren Mapping and Student Worksheet to media experts and material expert.

Instrument for collecting data in this study uses a study by reviewing paper of media and the Student Worksheet by 2 a media expert and matter experts. Data were analyzed with descriptive-quantitative method.

## III. RESULTS AND DISCUSSION

Ren Mapping Media is the process of formation of urine are drawn in the form of kidney channels on media mat 4x3,5 m, in which students will be simulating the

process of urine formation on this medium. Development results of Ren Mapping media has been designed can be seen in the picture below:

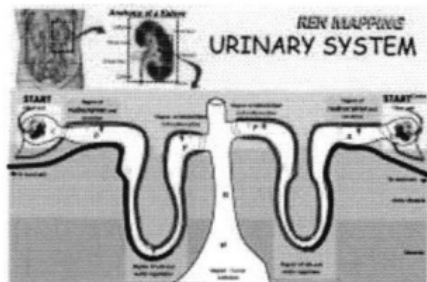


Figure 1. learning media-charged character (Ren Mapping)

Feasibility assessment carried out by the media Ren Mapping the media expert are Dra. Isnawati M. Muji's and Sri Prastiwi S. Pd, M. Pd. Whereas for the assessment of conformity with the theory, carried out by materials experts that is Dra.Nur Kuswanti M. Sc, St. Assessment conducted in accordance with the study of media-charged character sheet for class XI RSBI excretion system. Data obtained from the study of media can be seen in Table I, while the Student Worksheet study results can be seen in Table II.

TABLE I. FEASIBILITY ASSESSMENT SYSTEM FOR MEDIA LOADED CHARACTER EXCRETION XI HIGH SCHOOL CLASS RSBI

No	Aspects are reviewed	The total score	% skor	Note
1	Aspects of media format components consist of:	3	25 %	Clear and systematic.
		8	66.6%	
	a. Instructions on how to play.	3	25 %	Media components support each other, inter-media components are interrelated.
		8	66.6%	
	b. Linking media components (Mapping Ren, Ren Mapping Cards, Guidance Cards, and Student Worksheet).	3	25 %	Components of media support each other, between the components of inter-related media, all media components facilitate the learning process.
		8	66.6%	
c. Recency media.	3	25 %	Making use of media technology tools (hard ware) that have been developed, making use of media and technology are evolving science.	
	8	66.6%		
2	Visual Aspects of components consisting of:	3	25 %	In accordance with the concept, image size is appropriate
		8	66.6%	
	a. The quality of the image or illustration.	3	25%	Appropriate level of sharpness of the color image, color combinations right image.
		8	66.6%	
	b. Quality color images and illustrations.	6	50 %	Appropriate choice of font type, font color most clearly readable, easy to read font size.
		4	33.3%	
c. Clarity and form of letters to the media.	6	50 %	Porprosional size of media to be played by students, according to media design concepts.	
	4	33.3%		
d. The design and size of the media.	6	50 %	Porprosional size of media to be played by students, according to the concept of media design, media design is easy to understand.	
	4	33.3%		
3	Aspects of Component Function / Quality Media consists of:	3	25 %	Able to attract the attention of students, capable of inflicting a fun learning atmosphere.
		3	25 %	

No	Aspects are reviewed	The total score	% skor	Note
		8	66.6%	Able to attract the attention of students, able to attract students stay focused on learning, able to create a pleasant learning atmosphere.
	b. Clarify the presentation of the message and not be verbalitas (in the form of the written word or words).	12	100%	Verbalitas is not, able to concretize the abstract material, student-based learning center.
	c. Overcome the limitations of space, time and sense of power.	12	100%	Overcome the limitations of space, overcoming the limitations of time, overcome the limitations of the senses
	d. More communicative and productive learning.	2	16.6%	The learning process just creates an atmosphere of learning more enjoyable, but to provide information in the media more easily understood information on the students and make teachers teach media material
		3	25%	Information in the media teacher to teach the material easier, more enjoyable learning atmosphere.
		4	33.3%	Information in the media easier to understand the students, the information in the media teacher to teach the material easier, more enjoyable learning atmosphere.
	e. Increase student motivation in learning something / excite learning.	3	25%	Excite student learning, create a sense to try to play media.
		8	66.6%	Raises the curiosity of students, excite student learning, create a sense to try to play the media.
	f. Learning fun (Joyfull learning).	3	25%	Make learning more fun, do not lead to boredom.
		8	66.6%	Create a new atmosphere of learning, make learning fun, not cause boredom.
	g. Increase student involvement in learning activities.	12	100%	Media encourages students to work together, students find their own media to facilitate their understanding, students play an active role in learning.
4	Compliance with the simulation strategy:	3	25%	Setting appropriate location, setting appropriate process.
	a. Setting the game illustrates the ongoing process.	8	66.6%	Setting appropriate location, setting the appropriate settings according to the role
	b. Players involved in the simulation process of the formation of urine is an effective and efficient.	12	100%	Appropriate number of players in the process of formation of urine, according to the role players in the process of urine formation, the whole game fit in the process of urine formation.
	c. Purpose of the simulation game is directed.	3	25%	Clear purpose and use oprasional sentence, there is consistency between the objectives and process simulation game.
		8	66.6%	Clear purpose and use oprasional sentence, the purpose in accordance with the purpose of learning, there is consistency between the objectives and process simulation game.
	d. Media models developed represent the actual process.	12	100%	Model media in accordance with the theory, the process in accordance with the theory of media, game models represent the real situation.
	e. Media can melatihkan character on student discipline.	0	0%	Reviewers were unable to observe the process of learning that takes place.
		8	66.6%	In the media game based on the student Ren Mapping Rules Mapping Ren.
	f. Media can training accurate character in students.	0	0%	Reviewers were unable to observe the process of learning that takes place.
		3	25%	In playing cards in a careful student Ren Mapping playing cards Ren Mapping.
		4	33.3%	In playing cards and conscientious student Ren Mapping celebrants themselves.
The total score		214		Very feasible

$$\text{feasibility of media} = \frac{\text{the total score}}{\text{the maximum score} \times \text{number of reviewers} \times \text{number of aspects}}$$

$$= \frac{214}{4 \times 3 \times 20} = \frac{214}{240} = 0,89$$

Very feasible

Based on Table I above, we know that the media Ren Mapping feasibility assessment is divided into four components: the component aspects of media format; components of the visual aspect; component aspects of the function / quality of the media, and component compatibility with simulation strategy. On average in each aspect of the component scores well, as shown by the acquisition of a total score of 12, 8 and 6, but there are still aspects of obtaining a score of 2 from one of the reviewers are more communicative aspects of learning and productive (3.d), this is due to the language used is English so that more time is needed to understand the material. In the table above we can also know that there

are two aspects that do not obtain a score from one of the aspects of media reviewers can training character on student discipline (4.e) and aspects of the media can training accurate character in students (4.f), this is because researchers are given a rubric that leads to the learning process so that reviewers cannot pass judgment. According to the reviewers, the media can training aspects of discipline in students' character (4.e) and aspects of the media can training accurate character in students (4.f) is clearly reflected in the media. Overall feasibility of the media value of 0.89. This value indicates that the media Ren Mapping into the category of very feasible.

TABLE II. HASIL PENILAIAN KELAYAKAN STUDENT WORKSHEET

No	Aspects are reviewed	The total score	% skor	Note
1	material:			
	a. The truth of the content (concepts, principles, and theories)	6	50%	The material is easy to understand, the material in accordance with the truth of the concepts, principles and theories of the formation of urine.
		4	33.3%	Easy to understand, according to the truth of the concepts, principles and theories of urine formation process, the material in accordance with the material covered.
	b. Noting the relevance of science and technology	3	25%	The presentation of materials utilizing technology development and presentation of the material taking into account developments on the formation of urine science.
		8	66.6	The presentation of materials utilizing technology development, scientific presentation of the material taking into account developments on the formation of urine, materials design applications that take advantage of the technology has evolved.
	c. The presentation of the material	12	100%	Systematic, effective, efficient.
2	language:			
	a. Legibility of the language or languages used in accordance with the standard of students' thinking.	2	16.6%	In accordance with the level of student thinking.
		3	25%	In accordance with the level of student thinking, using a choice of words are easy to understand.
		4	33.3%	In accordance with the level of student thinking, using an easily understood word choice, using a choice of words are easy to understand.
	b. Use of English is good and true.	2	16.6%	The selection of easy to understand students' vocabulary
		6	50%	The selection of easy to understand students' vocabulary, partly in accordance with the rules of writing proper English, most students understood the sentence grammar.
	c. Biological terms used are appropriate and understandable.	12	100%	Precise, steady, easy to understand.
3	presentation:			
	a. Generating motivation /interest/curiosity.	12	100%	Arouse the curiosity of students, excite student learning, improve student learning spirit.
	b. Encourage students to engage actively.	12	100%	Encourage students to try to play Ren Mapping, encourage active student discussion, encourage students to find information in the Ren Mapping and Student Worksheet.
	c. The interaction between students and the game environment.	3	25%	Encourage students to interact with other students, encourage students to interact with the media.
		8	66.6%	Encourage students to interact with other students, encourage students to interact with the media, encouraging students to interact with teachers.
	d. Attention to students with the ability / different learning styles.	12	100%	Support student learning styles visual, kinesthetic learning styles of students support, audio support student learning styles.
	e. Interesting / fun.	12	100%	Giving new situation in learning process, not apper boring, make fun situation.



No	Aspects are reviewed	The total score	% skor	Note
4	Assessment of Student Worksheet to support of simulation methods by Ren Mapping media: a. Support the implementation of the learning process characterized by a more student centered rather than teacher centered.	12	100%	Dominating role of the student learning process, students actively discover their own understanding, active students find their own understanding, role of teachers in learning only as a facilitator.
	b. Support to the work group / team work.	3	25%	Students work together, there was a division of the same tasks in each group.
		8	66.6%	Students work with each other, give each student feedback and opinion (discuss), there was division of the same tasks in each group.
	c. Much easier and enhances cognitive ability, affective and psychomotor students.	12	100%	Can improve cognitive abilities, can improve the ability of affective, psychomotor skills may improve.
	d. Provide facilities in developing the character of the discipline in students.	0	0%	Reviewers were unable to observe the learning process.
		3	25%	Students engage in play Ren Mapping the faithful, following all the instructions are made and are coupled with other activities but did not interrupt the game.
		4	33.3%	Students engage in play Ren Mapping the faithful and follow all instructions
	e. Provide facilities in developing a thorough character in students.	0	0%	Reviewers were unable to observe the learning process.
		3	25%	While playing Ren Mapping simulation, each student carefully in playing cards Ren Mapping.
		4	33.3%	While playing Ren Mapping simulation, each student is conscientious and confident in playing cards Ren Mapping.
	f. Support the implementation by using a variety of learning media.	12	100%	Presents a more varied learning activities, set up an innovative learning activities, provide fun and exciting learning activities.
	g. Provide ease in making evaluations about the learning outcomes.	0	0%	Reviewers were unable to observe the learning process.
		3	25%	Questions were developed in the Student Worksheet can be developed quite easily become a matter of evaluation.
		4	33.3%	Questions were developed in the Student Worksheet can easily be developed into a matter of evaluation.
	h. Students are able to invite further curiosity.	0	0%	Reviewers were unable to observe the learning process.
		3	25%	Student Worksheet well developed to be used to guide the implementation of Ren Mapping media in learning.
		4	33.3%	Student Worksheet is very well developed to be used to guide the implementation of Ren Mapping media in learning.
	i. Thorough assessment of Father / Mother of the model of this Student Worksheet.	3	25%	Student Worksheet is very feasible.
		8	66.6%	Student Worksheet feasible.
	Total of score	207		Very Feasible

$$\text{feasibility of students worksheet} = \frac{\text{the total score}}{\text{the maximum score} \times \text{number of reviewers} \times \text{number of aspects}}$$

$$= \frac{207}{4 \times 3 \times 20} = \frac{207}{240} = 0,86$$

Very feasible

Based on Table II above we know that the assessment of the feasibility of Student Worksheet is divided into four components: a component material, the components of language, presentation components, and components to support the assessment of Student Worksheet performed simulations in media strategy Ren Mapping. On average in each aspect of the component scores well, as shown by the acquisition score 12, 8 and 6, but of the 20 aspects of the study on the Student Worksheet, there are 2 aspects of obtaining a score of 2 from one of the reviewers that the legibility of the language or languages used in accordance with the level of student thinking (2.a) and aspects of using English is good and right (2.b), this is due to the language used is English so that more time is needed to understand the material. In Table II above we can also know that there are four aspects that do not get scores that provide facilities in developing aspects of the character of discipline in students (4.d), the aspect of providing the ease of developing character in students thoroughly (4.e), aspect provide ease in making evaluations about the learning outcomes (4.g), and aspects can invite the curiosity of students (4.h). This is because the reviewers were unable to observe the process of learning that takes place. Overall feasibility of the media value of 0.86. This value indicates that the media into the category of Student Worksheet is very feasible.

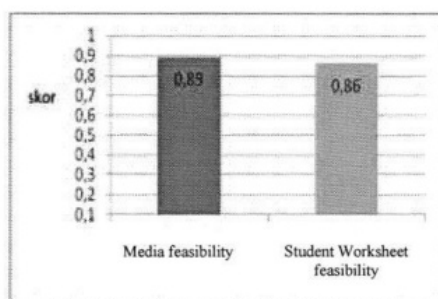


Figure 2. Feasibility of Ren Mapping Media and Student Worksheet

Value of media is 0.89 while the value of study Student Worksheet is 0.86. This value indicates that the media and the Student Worksheet in the category of very decent.

Media was developed to facilitate teachers deliver the material that is abstract to more concrete (Sumiati, 2008). Play this simulation method can improve cognitive abilities, affective, and psychomotor students (Person, 2010). The learning process of students using interactive media to help children to older students remember the lessons, easily expressed in fast, accurate and can be used as a source of learning by students (Fathurrohman, 2007)

Media and Student Worksheet training developed for character education, particularly the character of the discipline, and thorough. Based on the study of Ren Mapping media-charged character (Table I) in the aspect (4.e) the media can training character discipline in students earn a total score of 8 from 2 reviewers media experts, this suggests that the media can require students to remain guided by the regulations game. While the matter of expert reviewers did not give this score due to the rubric of media study leads to the learning process, so

that reviewers cannot provide the scoring. But according to media experts such material can training disciplined character, this is indicated in the instruction of discipline in the media. Based on the Student Worksheet developed study also supports research for the character training discipline, there is the aspect (4.d) the Student Worksheet provides the ease of developing the character of the discipline. This aspect of obtaining a total score of 8 from 2 of the faculty of media experts, this score indicates that the Student Worksheet can training students to obey the rules set. While the professor does not matter experts to score, this is due to the researchers created a rubric that leads to the learning process so that the reviewers did not matter experts can provide scoring. Based on observations of student activity (Table III) shows that all the rules set by the research carried out by abiding by the student. This concurs with Koesoema (2010) in which the character education should be integrated in the learning. While 20% of student who answered no because they do not get a chance to play.

Mapping the results of Ren media study of the ability to training of accurate character (.2) can be seen from the aspect (4.f) the media can training accurate character in students obtaining a score of 4 and 2 from the media expert reviewers. This suggests that the media is training students to peruse in playing cards. While the matter of expert reviewers did not get the score, it is also due to be given a rubric that researchers are learning, so reviewers cannot score. Actually, according to expert reviewers lecturer in media material may training character Ren Mapping careful, because in the media clearly written instructions to the students so accurate in playing cards. Student Worksheet of the study (.3) aspect (4.e) Student Worksheet which provides ease of developing character in students gain a thorough score of 4 and 2 of the faculty reviewers media experts, this score indicates that the Student Worksheet able to train while playing cards meticulous character Ren Mapping-cards. While the professor does not matter expert reviewers scored, it is also due to the rubric provided researchers are in the learning process, and therefore cannot provide the reviewers. Actually, according to expert reviewers lecturer in the Student Worksheet material may training conscientious character, because in the media clearly written instructions to the students so accurate in playing cards Ren Mapping. It also supports the opinion Koesoema (2010) which states that character education should be integrated into classroom learning.

#### IV. CONCLUSION

Based on the study of media, review the Student Worksheet, and the learning outcome evaluation sheets can be concluded that the media is developed capable of learning the character training disciplined and accurate to students.

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