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STUDENTS' RESPONSES TO LEARNING MULTIMEDIA ON THE HUMAN DIGESTIVE SYSTEM DURING COVID-19 PANDEMIC

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Abstract: This study aimed to determine students' satisfaction with learning multimedia on the human digestive system topic at a public high school (SMA Negeri 1 Praya Tengah). This study applied a quantitative approach with a survey method. The population in this study were students of class XI MIPA SMA Negeri 1 Praya Tengah. Meanwhile, the sample was determined by purposive sampling with the category of students using multimedia learning media on human digestive material. Therefore, the sample was 35 students from class XI MIPA 3. The data on students' satisfaction was conducted using a Likert-scale questionnaire instrument. The data analysis technique used was calculating the percentage of the data and then interpreting the data percentage score. The results of data analysis showed that the level of students' satisfaction was 94.14%, with the interpretation in the category of very satisfying. It can be concluded that students are very satisfied with multimedia learning media on the human digestive system material at SMA Negeri 1 Praya Tengah.

Keywords: *Students' Responses, Multimedia, Human Digestive System, Ccovid-19 Pandemic*

INTRODUCTION

During the Covid-19, the development in the education field was disrupted [1]. The virus spread rapidly and caused many victims. Consequently, the government made a policy to prevent the spread of the Covid-19 virus [2]. This policy affected the teaching method used by teachers to carry out teaching and learning activities in schools. For instance, the biology teachers at SMA Negeri 1 Praya Tengah applied collaborative learning between face-to-face learning and online learning called blended learning. Blended learning is assessed according to the Covid-19 pandemic and 21st-century guidance, where students are forced to have high order thinking skills and critical, be able to collaborate, be communicative, and master information technology.

Biology, which has specific material characteristics, assembles teachers to be more creative and innovative in the learning process. Besides using varied learning models, learning media is essential and must be considered in learning activities [3]. Media is a tool that can be used to deliver messages to achieve learning objectives [4]. Media use makes interaction, communication, and material delivery between teachers and students appropriate and efficient. Nowadays, there are various kinds of learning media, one of which has several advantages over other media is computer multimedia. The reason is that the information in the form of text, graphics, animation, audio, and video can be shown simultaneously [5] and enable the creation of beautiful presentations, dynamic and interactive [6].

Etymologically, the term multimedia is derived from the words multi and media. Multi means many or plural, and media is a tool to convey messages or information such as text, images, sound, and video [7-8]. Linguistically, multimedia combines many or several media such as text, images, sound, and video that are used to convey messages or information. Multimedia elements can be classified into multimedia elements that are not time-based (discrete) and time-based (continuous) multimedia. Examples of multimedia that are not time-based include text and images. Continuous multimedia includes animation, sound, and video [8].

With the innovation of multimedia learning media on the material of the human digestive system, it is expected that it will create an effective and efficient learning atmosphere. The advantages of interactive multimedia are: (a) Interactive multimedia program is programmed or designed to be used by students individually (self-study), and (b) it Provides an individual affective climate, which is more effective in a more individual way, never forget and get bored, is very patient in carrying out instructions as desired, (c) Increases learning motivation (d) Provides feedback (response) and (e) Since interactive multimedia is programmed for independent learning, the control over its use is entire with the users [9].

Based on the explanation above, it is necessary to research the level of students' satisfaction with multimedia learning media on the human digestive system material at SMA Negeri 1 Praya Tengah.

RESEARCH METHOD

This study applied a quantitative approach with a survey method. This research was conducted in the second semester of the 2020/2021 academic year in January 2022. The population in this study were students of class XI MIPA SMA Negeri 1 Praya Tengah. The sample was carried out by purposive sampling with the category of students using

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multimedia learning media on human digestive material. Therefore, there were 35 students in class XI MIPA 3. Students' responses to questionnaires were used to measure student satisfaction with multimedia learning media. This questionnaire used a Linkert scale score. The Linkert scale is a psychometric scale commonly used in questionnaires and is one of the techniques used in evaluation to measure attitudes, opinions, and perceptions. The answer form of the Linkert scale consists of strongly agree, agree, average, disagree, and strongly disagree (Table 1) [10].

Table 1. Linkert Scale

Assessment Criteria	Scoring Scale
Strongly Agree	5
Agree	4
Average	3
Disagree	2
Strongly Disagree	1

The data analysis technique in this study was carried out by calculating the percentage of the scores obtained, while the formula for calculating the percentage was as follows [11].

$$Index\ Formula\ \% = \frac{T\ x\ Pn}{Y}\ x\ 100$$

Description:
T : Total number of selected respondents
Pn : Choice of Likert score numbers
Y : Ideal score

The percentage results achieved are interpreted based on Table 2 [12].

Table 2. Score Interpretation Criteria

Percentage	Description
0%-19,99%	Very Dissatisfying
20%-39,99%	Dissatisfying
40%-59,99%	Average
60%-79,99%	Satisfying
80,99%-100%	Very Satisfying

RESULTS AND SATISFYING

The product in this research is multimedia learning media on the material of the human digestive system. The learning media is designed with an apk file format (Android package kit) that can be installed on an android smartphone. The use of media does not require internet access, and students are free to access it anytime and anywhere. Learning media is composed of a variety of menu options arranged so that students can easily use the media. The following displays the multimedia learning media used in this study.

Students' responses to questionnaires were given to 35 students of class XI MIPA 3 at SMA Negeri 1 Praya Tengah. The data in this study aimed to determine the level of students' satisfaction with

multimedia learning media, with results that can be seen in Table 3.
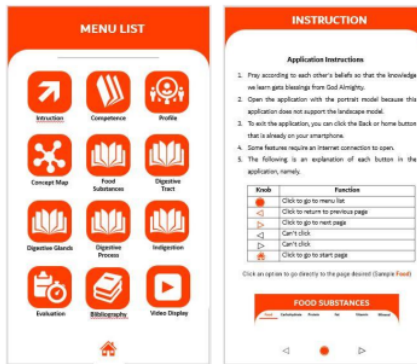

Figure 1. Preliminary view
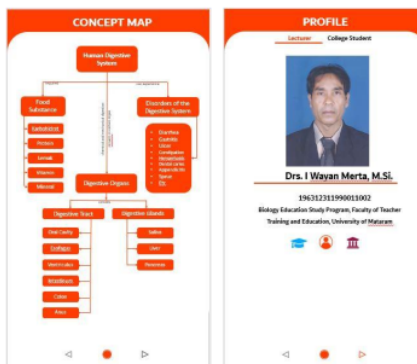

Figure 2. Menu list display and instructions

Figure 3. View of the concept map and profile
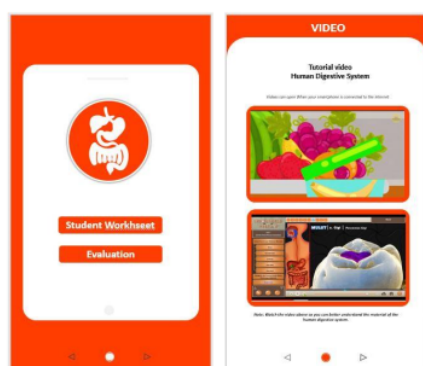
Figure 4. Display of learning materials

Figure 5. Evaluation and video display

The results of the student response analysis showed that the media illustration factors and benefits for students as a whole got a very positive response. It can be seen from the average percentage of student response data results (90.34%), which means that multimedia learning media is included in the very satisfactory category. Student responses based on media illustrations relate to the clarity of the available menus and the suitability of the design with student appeal. The media illustration factor consists of indicators of image clarity, letter clarity, media clarity, and media attractiveness.

The image clarity indicator received a highly satisfying response (93.14%) because this media uses images following the subject matter. In addition, the image can be enlarged or zoomed by students so that it does not complicate students' understanding. The image must match the actual shape [13]. The picture's composition should be clear enough to show the main points in the picture. Relative size means that the image can be enlarged or reduced, and the image should contain motion or action. The type of media used should be of high quality [14]. The media's spoken form and visual form must be easily readable, the specifications of the image and sound must be clear, and the focus and size of the image must follow the media. The suitability of the use of animation and images with material concepts must be considered. Images or animations must show experimental facts by adding explanations [15]. This suitability makes the media more interesting and increases students' knowledge.

Table 3. Students' Responses Questionnaire Results

Factor(s)	Indicator(s)	Percentage (%)	Description
Media Illustration	Image Clarity	93.14	Very Satisfying
	Letter Clarity	89.14	Very Satisfying
	Media Clarity	90	Very Satisfying
	Media Attraction	90.86	Very Satisfying
Benefits for Students	Motivating Students	89.71	Very Satisfying
	Increasing Knowledge	90	Very Satisfying
Average percentage (%)		90.34	Very Satisfying

The letter clarity indicator received a very satisfactory response (89.14) since the type of font and the color of the writing matched the design of the media. Therefore it is easier for students to read it. The letters used must be consistent, simple, and clear, such as arial, verdana, tahoma, and tabucet [16]. The type and size of the letters used must be designed to make it easier for students to read [17]. Accuracy and balance in choosing the color of letters, images, and backgrounds make the media more attractive and easier to read. Choice of typeface, space size, and font size are considered in the design of the website or media [18]. This is very important so that visitors or users feel comfortable in reading these texts and the message conveyed from the website or media can be well received.

The media clarity indicator received a very satisfactory response (90%) because the instructions for using the media were clear, making it easier for students to use it. In addition, the appearance of the design is clear and suitable for the existing menu so that students can easily read the learning material. Good media must be neat in its presentation [19]. The use of design colors that are less contrasting on one side makes it difficult to distinguish the other side, and the use of type and size of letters must be in harmony with the design. The images displayed have to be appropriate to the material conveyed to students. Maheasy and Yudha [20] media can deliver

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information clearly, seen from the clarity of images, good selection of types, colors, and font sizes, and the ease of use of learning media. Multimedia is easy to use with simple commands, and users can actively select the wanted menu [21].

The attractiveness indicator of the media received a very satisfactory response (90.86%) because this media has an attractive design so that students are interested and not easily bored in the learning process. Kuswanto and Walusfa [21] multimedia preparation must adjust the characteristics of students so that it does not bore users in using the media. Multimedia consists of text, graphics, audio, animation, and video that move into an application [22]. Combining these media can produce information that has very high communication value and high graphic art value in its presentation. Multimedia makes learning more structured and systematic, logical and clear, starting from concepts or materials, examples, and exercises to make learning media more interactive and attract students' attention. Students can use learning media independently and in groups.

Student responses based on benefits for students relate to the contribution of learning media to raise student learning motivation and increase students' knowledge or understanding of the material of the human digestive system. The benefit factors for students consist of indicators of motivating students and increasing knowledge. The indicator motivating students to get a satisfactory response (89.71%) is because multimedia learning consists of various particular menus arranged systematically. It can be used without requiring internet access, making students free to access learning materials and other menus anytime and anywhere. Furthermore, the media is designed with the android package kit file format that can be installed on an android smartphone, making it easy for students to use it. Anam [23] multimedia learning media contributes to growing students' positive values towards the material and learning process and makes the learning process more interesting. It encourages and motivates students to love science and study hard. Triyanti [24] suggested that interactive multimedia media can increase students' motivation and learning outcomes. The use of multimedia had a positive impact on students' quality and learning outcomes [25]. This quality improvement can be seen in increasing students' motivation, enthusiasm, and understanding.

The increasing knowledge indicator obtained a satisfactory response (90%) because this media has comprehensive learning materials. The comprehensiveness of the learning materials can be seen from the assessment of the material aspects by the validation of the material experts, who gave a decent score (80%), and the biology teacher, who gave a very decent score (93.33%). The average pretest of students is 27.14, and the average posttest of students is 73.14. It shows that there has been an increase in students' understanding or knowledge of

the human digestive system material. Learning media serves as a source of student learning to obtain messages and information from the teacher to increase student knowledge [26]. Interactive multimedia learning media can assist teachers in delivering interesting and interactive human digestive system material with visualization in the form of videos and animations [27]. In addition, interactive multimedia learning can improve the quality of student learning in the natural sciences and help students carry out the learning process independently anywhere and anytime. Interactive multimedia learning media has a higher attractiveness qualification [28], so it can significantly improve students' understanding [29].

Multimedia learning media comprises various menu options such as competence, conception maps, text material, audio, images, animations, videos, student worksheets, and exercise questions or quizzes. The exercise questions contained in this media are presented so that it can minimize students memorizing the answers, and practice in answering questions can be done continuously. Learning media can be accessed anytime and anywhere so that students can adjust generously the place to study, study time, study duration, and the order of the material they want to be studied. Many studies have proven that multimedia can overcome problems in the learning process [30-32]. Knowing the important role of multimedia in a learning process should be no more problems, such as educators finding it difficult to determine the right media in learning. Multimedia must be used as well as possible to achieve learning objectives in the education field.

CONCLUSION

Multimedia learning media contributes to increasing students' learning motivation and knowledge of the human digestive system material. The results showed that the satisfaction level of students in class XI MIPA 3 was 94.14% which is interpreted as a very satisfactory category. It can be concluded that students are very satisfied with multimedia learning media on the human digestive system material at SMA Negeri 1 Praya Tengah.

REFERENCES

[1] Aji, R. H. S. (2020). Dampak Covid-19 pada Pendidikan di Indonesia: Sekolah, Keterampilan, dan Proses Pembelajaran. *Jurnal Sosial & Budaya Syar'i*, 7 (5), 395-402.

[2] Fatwa, A. (2020). Pemanfaatan Teknologi Pendidikan di Era *New Normal. Indonesian Journal of Instructional Technology, 1* (2), 20-30.

[3] Susilawati, S., Jamaluddin, J., & Bachtiar, I. (2017). Pengaruh Model Pembelajaran Berbasis Masalah (PBM) Berbantuan Multimedia terhadap Kemampuan Berpikir

Kritis Peserta Didik Kelas VII SMP Negeri 2 Mataram ditinjau dari Kemampuan Akademik. *Jurnal Pijar Mipa*, *12*(2), 64-70.

[4] Dari, S. W., Muhlis, M., & Kusmiyati, K. (2021). Analisis Penggunaan Media Internet pada Mahasiswa Pendidikan Biologi Universitas Mataram dalam Pembelajaran Daring Ditengah Pandemi Covid-19. *Jurnal Pijar Mipa*, *16*(3), 381-386.

[5] Kurniawati, I. D. & Nita, S. (2018). Media Pembelajaran Berbasis Multimedia Interaktif untuk Meningkatkan Pemahaman Konsep Mahasiswa. *Journal of Computer and Information Technology*, 1 (2), 68-75.

[6] Ramdan, M., Hamidah, I. & Purnawan. (2015). Penerapan Pola Pembelajaran Berbasis Multimedia terhadap Peningkatan Hasil Belajar Siswa SMK pada Materi Katup Pneumatik. *Journal of Mechanical Engineering Education*, 2 (1), 83-90.

[7] Effendi, Z., & Murinto, M. (2014). Aplikasi Multimedia Sebagai Media Informasi Pada Pengenalan Monumen Yogya Kembali Yogyakarta. *Jurnal Sarjana Teknik Informatika*, *2*(1), 1039-1050.

[8] Surjono, H. D. (2017) *Multimedia Pembelajaran Interaktif Konsep dan Pengembangan*. Yogyakarta: UNY Press.

[9] Husein, S., Herayanti, L., & Gunawan, G. (2017). Pengaruh Penggunaan Multimedia Interaktif terhadap Penguasaan Konsep dan Keterampilan Berpikir Kritis Siswa pada Materi Suhu dan Kalor. *Jurnal Pendidikan Fisika dan Teknologi*, *1*(3), 221-225.

[10] Fadila., Woro, I. R., & M, H. K. S. (2020). *Penerapan Metode Naïve Bayes dan Skala Likert pada Aplikasi Prediksi Kelulusan Mahasiswa*. Bandung: Kreatif Industri Nusantara.

[11] Fitriyani, Y., Fauzi, I., dan Sari, M. Z. (2020). Motivasi Belajar Mahasiswa pada Pembelajaran Daring Selama Pandemik Covid-19. Jurnal Kependidikan: *Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran*, 6 (2): 165-175.

[12] Setyoningrum, N. R. (2020). Analisis Tingkat Kepuasan Pengguna Sistem Informasi Kerja Praktek dan Skripsi (SKKP) Menggunakan Metode *End User Camputing Satisfaction* (EUCS). *Journal of Applied Informatics and Computing (JAIC)*, *4*(1), 17-21.

[13] Wardani, F. T., Ibrahim, M. Y., & Zakso, A. (2013). Penggunaan Media Gambar untuk Meningkatkan Pemahaman Siswa pada Mata Pelajaran Sosiologi. *Jurnal Pendidikan Dan Pembelajaran Khatulistiwa*, *2*(6), 1-12.

[14] Miftah, M. (2015). Media Pembelajaran: Dari Konsepsi ke Utilisasi dan Permasalahannya. *Kwangsan: Jurnal Teknologi Pendidikan*, *3*(2), 135-145.

[15] Ristina, Herdini & Rery. R. U. (2017). Pengembangan Media Pembelajaran Kimia Lectora Inspire12 pada Pokok Bahasan Kimia Unsur Kelas XII IPA SMA/ MA. *Jurnal Online Mahasiswa Fakultas Keguruan dan Ilmu Pendidikan Universitas Riau*, 4(2), 1-15.

[16] Nurseto, T. (2011). Membuat media pembelajaran yang menarik. *Jurnal Ekonomi dan pendidikan*, *8*(1), 19-35.

[17] Triyani, T., Nulhakim, L., & Berlian, L. (2021). Pengembangan Media Pembelajaran Berbasis Sparkol Videoscribe Tema Pertumbuhan si Hijau yang Berorientasi pada Literasi Sains Siswa SMP Kelas VII. *PENDIPA Journal of Science Education*, 6(1), 269-277.

[18] Monica, M. (2010). Pengaruh Warna, Tipografi, dan Layout pada Desain Situs. *Humaniora*, *1*(2), 459-468.

[19] Sachriani & Yulianti, Y. (2020, October). Analisis Pengetahuan Dan Respon Siswa Terhadap Media Pembelajaran CD Interaktif Tentang Pengolahan Kue Kontinental Pada Siswa Di SMKN 57 Jakarta. *Prosiding Seminar Dan Diskusi Pendidikan Dasar*, 7-20.

[20] Mahmudah, R. E., & Yudha, A. A. (2013). Pengembangan Media Pembelajaran Dasar Kompetensi Kejuruan Menggunakan Adobe Flash CS4 untuk SMK Negeri 1 Blitar. *Jurnal Pendidikan Teknik Elektro*, *2*(1), 381-390.

[21] Kuswanto, J., & Walusfa, Y. (2017). Pengembangan Multimedia Pembelajaran pada Mata Pelajaran Teknologi Informasi dan Komunikasi Kelas VIII. *Innovative Journal of Curriculum and Educational Technology*, *6*(2), 1-7.

[22] Rahmat, S. T. (2015). Pemanfaatan Multimedia Interaktif Berbasis Komputer Dalam Pembelajaran. *Jurnal Pendidikan dan Kebudayaan Missio*, *7*(2), 196-208.

[23] Anam, K. (2015). Pengaruh Media Pembelajaran terhadap Minat Belajar Siswa pada Mata Pelajaran PAI di SMP Bani Muqiman Bangkalan. *Tadarus: Jurnal Pendidikan*, 4 (2), 1-17.

[24] Triyanti, M. (2015). Pengembangan Multimedia Interaktif pada Materi Sistem Saraf untuk Meningkatkan Motivasi dan Hasil Belajar Siswa SMA Kelas XI. *Jurnal Bioedukatika*, *3*(2), 9-14.

[25] Rusmiyati, I., Nurkamto, J., & Haryanto, S. (2014). Penggunaan Multimedia dalam Pembelajaran Bahasa Sastra Indonesia di SMP Negeri 2 Bawen Kabupaten Semarang. *Jurnal Teknologi Pendidikan dan Pembelajaran*, 2(2), 171-184.

[26] Nurrita, T. (2018). Pengembangan Media Pembelajaran untuk Meningkatkan Hasil Belajar Siswa. *MISYKAT Jurnal Ilmu-Ilmu Al-Quran Hadist Syari Ah Dan*

Tarbiyah, *3*(1), 171-210.

[27]   Dhaniawaty, R. P., Suci, A. L., & Hardiyana, B. (2021). Aplikasi Pembelajaran Multimedia Interaktif Mata Pelajaran IPA Mengani Sistem Pencernaan Manusia untuk Siswa SMP Kelas VII. *Jurnal Teknologi dan Informasi*, 11(2), 183-194.

[28]   Septiana, N. (2018). Pengembangan Media Pembelajaran berbasis Multimedia Interaktif pada Pemahaman Konsep Siswa. *PANCAWAHAN: Jurnal Studi Islam*. 13(1), 84-90.

[29]   Hotimah, H., & Muhtadi, A. (2017). Pengembangan Multimedia Pembelajaran Interaktif IPA untuk Meningkatkan Pemahaman Siswa pada Materi Mikroorganisme SMP. *Jurnal Inovasi Teknologi Pendidikan*, *4*(2), 201-213.

[30]   Namiroh, S., Sumantri, M. S., & Situmorang, R. (2018). Peran Multimedia dalam Pembelajaran. *Prosiding Seminar dan Diskusi Nasional Pendidikan Dasar*, 352-357.

[31]   Susilawati, S., Jamaluddin, J., & Bachtiar, I. (2017). Pengaruh model pembelajaran berbasis masalah (PBM) berbantuan multimedia terhadap kemampuan berpikir kritis peserta didik kelas vii smp negeri 2 mataram ditinjau dari kemampuan akademik. *Jurnal Pijar Mipa*, *12*(2), 64-70.

[32]   Husnadi, S. I., Ilhamdi, M. L., & Khair, B. N. (2021). Pengembangan Multimedia Interaktif Berbasis Macromedia Flash Professional 8 Pada Tema Daerah Tempat Tinggalku (Kearifan Lokal Lombok) untuk Siswa Sekolah Dasar. *Jurnal Pijar Mipa*, *16*(2), 191-197.

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