CHAPTER II
THEORETICAL REVIEW

2.1 Flip PDF Corporate Edition

Flip PDF Corporate Edition is software that is used to make the appearance of a book into a digital electronic book in the form of a flipbook, besides that this software can be developed to create electronic modules that are used as learning media in which there are animations, audio, sound, navigation which make users more interactive in learning. In the Flip PDF Corporate Edition application, you can enter files in the form of PDFs, images, videos, and animations so that the teaching materials are made more interesting. Apart from that, Flip PDF Corporate Edition has design templates and features such as control buttons, backgrounds, navigation bars, hyperlinks and back sounds. Students can read like physically opening a book because there is an animation effect when switching pages look like physically opening a book. The final result will be saved in html, exe, zip, and screen saver format.

Flip PDF Corporate Edition can also be defined as software to make PDF files into flash pages, each flash page can be flipped like a real book. This software will convert PDF files such as online magazines, online catalogs, digital books, newspapers and other publications for online sharing. It's very easy to use to create realistic flash book page turning without any programming skills. With just 3 steps, namely importing PDF/ images/ FLV, customizing styles and publishing, and users can convert PDF to digital-based flash publications with an intuitive user interface.

Flip PDF Corporate Edition software includes single or batch conversion modes, command line, embed multimedia, add shopping cart and price animation, set password security, track with inserted Google Analytics ID, add bookmarks, publish online instantly, output in HTML, EXE, ZIP, Mac App, FBR, CD, and mobile version. Furthermore, you may publish the flipbook straight to your FTP server, email it to your readers, or make a *.scr format flip book to use as a screen saver. You can also directly publish the flipbook as a WordPress plugin, Joomla module, or Drupal module.

The advantages of the Flip PDF Professional application are:

a. Able to open or flip page by page so that it is like reading a book physically (gives a flip effect).
b. Making an electronic book using the Flip PDF Professional application is very easy.
c. The appearance of the module is not only in the form of text and images, it can be equipped with images, sound and video.
d. The resulting product is published in the form of SWF or Flash, HTML to be published through the website.

Using E-module learning media is expected to provide renewal in the learning process. The advantages of this media if it is related to the learning process are:

a. Students have diverse experiences from each learning media.
b. The media used varies so that students do not get bored.
c. Very well used for independent learning activities.
d. Use Flip PDF Corporate Edition media without internet online.

Before the researcher explain about how to make a students' worksheet (would explain in Chapter IV), he would explain about the application first; main Layout of the Flip PDF Corporate Edition

a. New Project Menu

Figure 2.1.1. New Project Menu

This menu consist of; 1) Recent Project, 2) Recent Output, 3) Create New Project, 4) Demo (example output), 5) Project Templates, 6) Bookcase Demo, 7) Cloud Platform, and 8) Advance Mode

b. Select Version

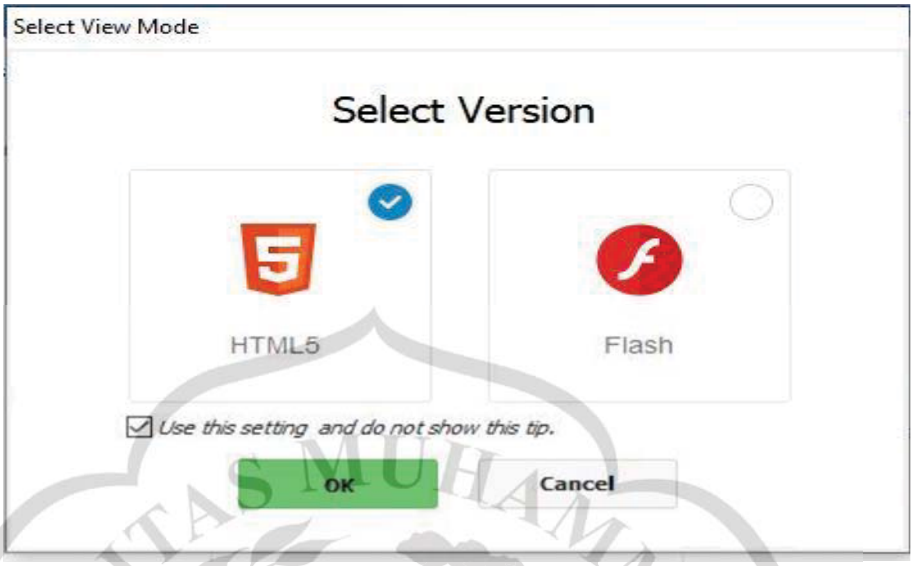

Figure 2.1.2. Select Version Menu

This menu appears after clicked New Project menu, and it used to produce output format of the project whether Flash or HTML 5.

c. Import Files

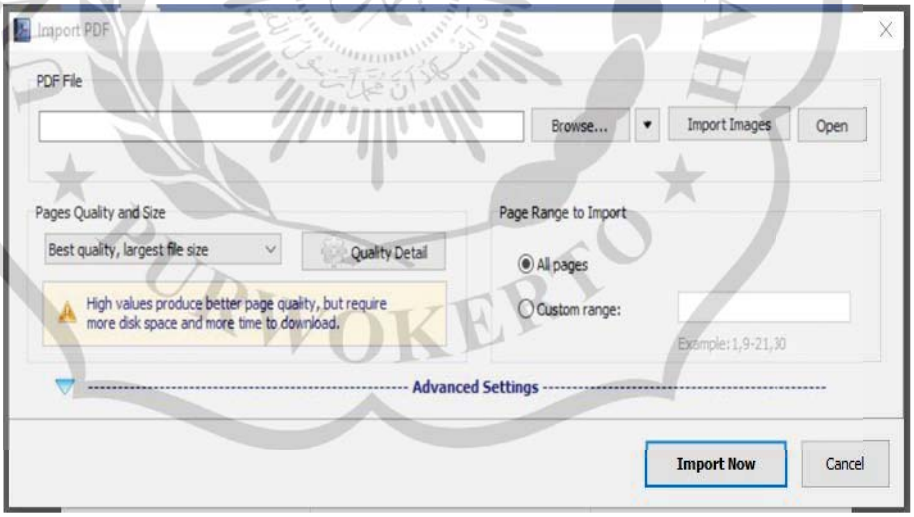

Figure 2.1.3. Import Files Menu

This menu is used when user want to select file (s) that is formatted in PDF or even images as raw input to be created.

d. Main Page

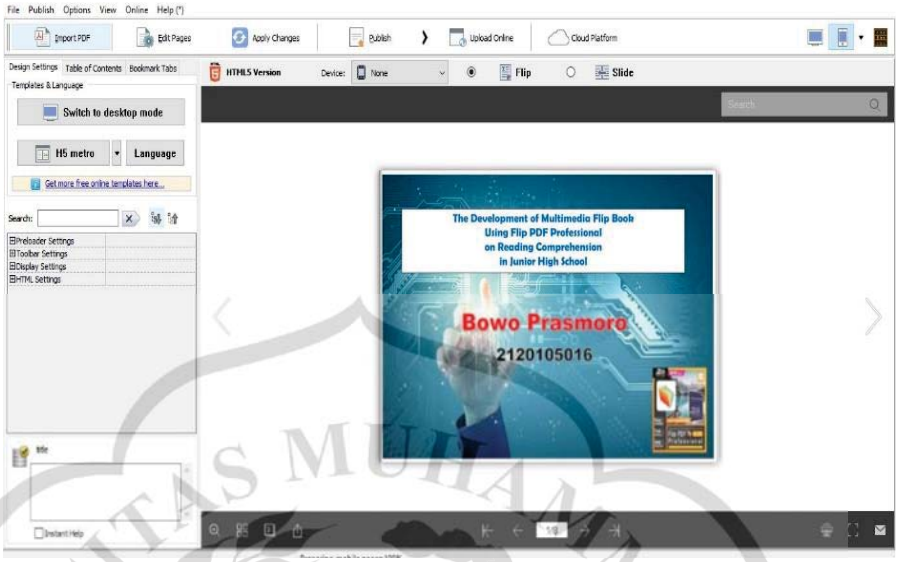

Figure 2.1.4. Main Page Display

Main Page is the main layout of the application stands. In this page, development of the product will be started.

e. File Menu

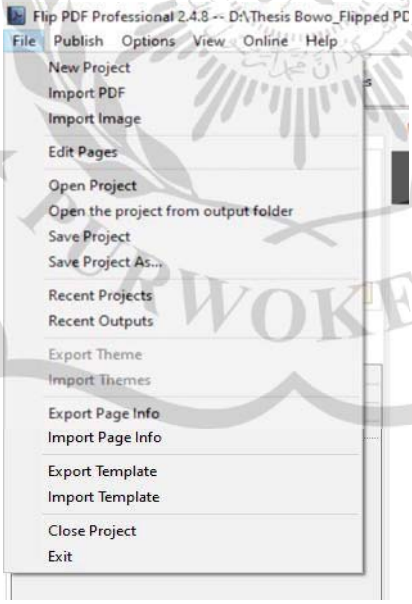

Figure 2.1.5. File Menu

File menu leads us to choose what we are going to do deal with the file.

f. Publish Menu

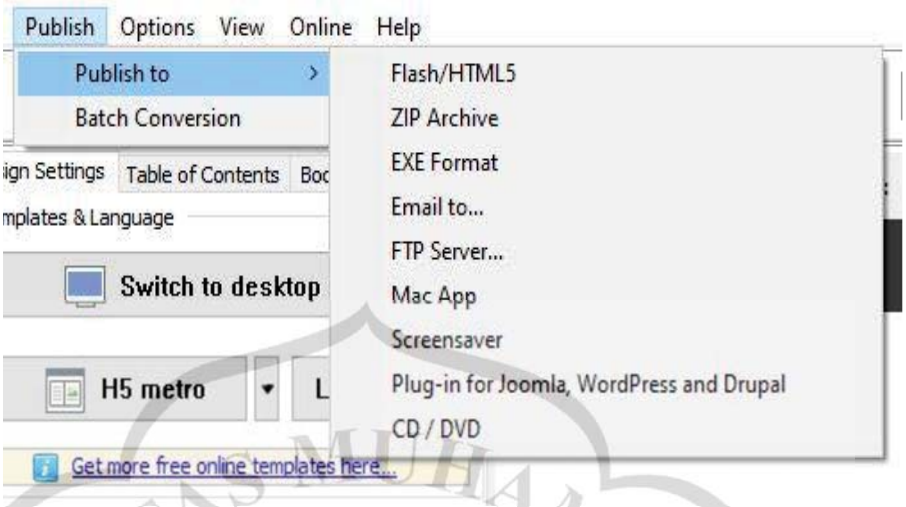

Figure 2.1.6. Publish Menu

This menu consists of what file format that the page we want to publish

g. Option Menu

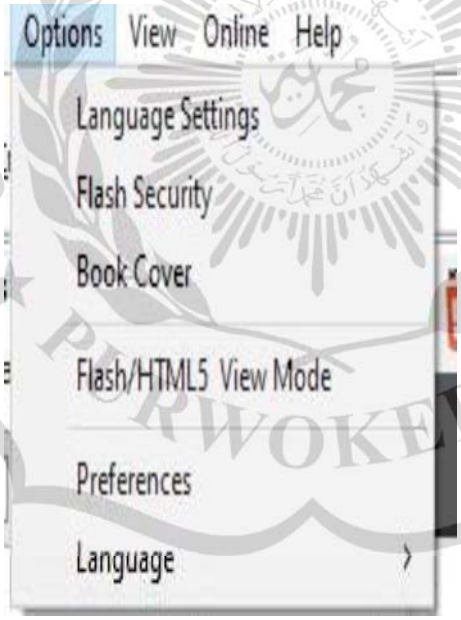

Figure 2.1.7. Option Menu

Option menu leads us to set up the application based on our desire.

h. View Menu

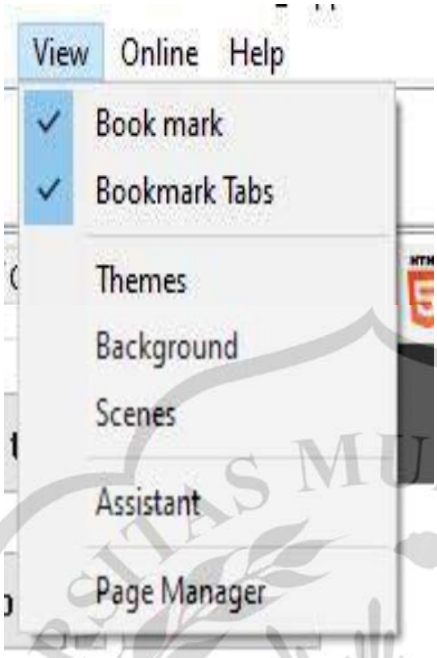

Figure 2.1.8. View Menu

View menu let us to choose what the point of view of page selected

i. Online Menu

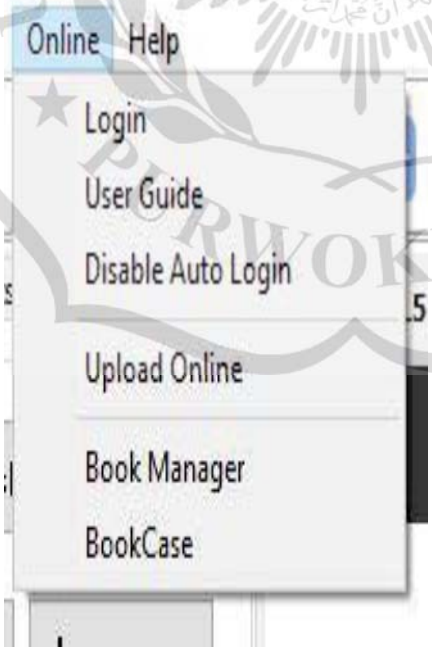

Figure 2.1.9. Online Menu

This menu used to publish the work that we have created

j. Help Menu

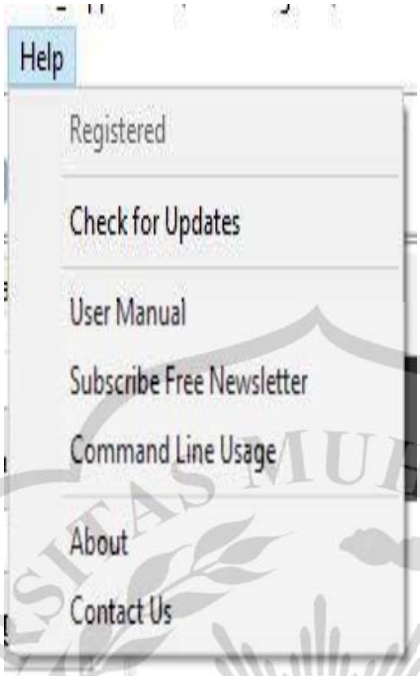

Figure 2.1.10. Help Menu

Help menu is a helpful menu for us to find out solution when we find any difficulties in our work

k. Toolbar

Figure 2.1.11. Toolbar

This menu consists of; 1) Import PDF, 2) Edit Pages, 3) Apply Changes, 4) Upload Online, 5) Cloud Platform, 6) Switch View of the page

2.2 Digital Students' Worksheet

As the researcher stated before that students' worksheet (LKPD or LKS) is a collection of sheets containing student activities that allow students to carry out real activities with the objects and problems being studied. It functions as a study guide for students and also makes it easier for students and teachers to carry out teaching and learning activities. LKPD can also be defined as printed teaching materials in the form of sheets of paper that contain materials, summaries, and instructions for carrying out tasks that must be done by

students, which refers to the basic competencies achieved (Andi Prastowo, 2014). The assignments given to students can be in the form of theory and or practice.

The purpose of students' worksheet for learning are a). strengthen and support learning objectives and achievement of indicators as well as basic competencies and core competencies in an applicable curriculum, and b). help students to achieve learning goals.

In order to make students activate in the learning process, especially active in communication skills, active in conveying opinions or ideas both in writing and orally it must be attractive. For this reason, it can be conveyed in up to date tools that familiar with students and teachers.

Using computer technology, digital worksheets are an evolution of printed worksheets that have been converted to digital or electronic form. Worksheets for students are commonly used as learning materials so that students can interact with the provided material.

Digital students' worksheets, unlike physical worksheets, provide immediate feedback to students and instructors. This alone is a benefit over conventional worksheets. Students can correct their errors or seek assistance before falling too far behind.

2.3 E-Module

E-Module or electronic module is an independent teaching material that has information in the form of a book that is presented electronically using diskettes, hard disks, flash disks, CDs, and can be read using a computer or electronic book reader. electronics are arranged systematically to achieve certain learning objectives in which there are audio, animation, navigation that make students interactive in the learning process. With the existence of teaching materials such as interactive electronic modules which involve audio-visual displays, sound, movies and other programs, it will make it easy for users to understand so that they can be used as good learning media.

E-modules are books in the form of soft files that students can open and read anywhere and anytime. E-modules are adapted by utilizing technology because modules are usually identical to printed teaching materials (Amin et

al., 2021). It means that E-module employs electronic model to carry out materials.

Another definition states that an electronic module is an electronic version of a module that is printed and readable on a computer designed using the required software. E-module is a learning tool that contains material, methods, and limitations as well as how to evaluate, which are arranged in a systematic and interesting way to achieve the expected goals. E-modules that can be accessed by students have different benefits and characteristics. If viewed from the benefits of e-modules can make the learning process more interesting, interactive and can improve the quality of learning and can be done anytime and anywhere.

Based on the definitions above, it can be concluded that e-module is an electronic version of a printed module which has the characteristics of a relatively small file size that can be stored in a flash drive and can be used offline as long as there is a laptop/computer, it can be studied when and anywhere and can meet the objectives of the learning process.

As a learning medium used by students to solve learning problems, a module must have characteristics. These characteristics are adopted from the print module media, this is done because the characteristics of the print module are still relevant when applied to e-modules.

The module is a teaching material that includes the smallest gradual unit of a particular lesson. The meaning of gradually is that modules are studied individually from one unit to another. Another definition states that a module is a teaching material that is arranged systematically using language that is easy for students to understand according to their age and knowledge, so that they learn independently with minimal assistance from educators. Modules can also be interpreted as books written which have the goal that students can learn independently without or with guidance from educators. In another view, the module is defined as a set of teaching materials that are presented systematically so that in their use they can be learned without or with the guidance of an educator or facilitator. Thus, modules must be used as teaching materials that can replace the function of educators. If educators have the function of explaining something, then the module must be able to explain

something using language that is easy to understand according to their age and knowledge.

According to Mantulenko (2020), a module is a learning unit in printed form, has a function as an independent learning medium, and its content is in the form of a unit of learning material. Meanwhile, according to Houston and Howson, the module is defined as a set of activities that aim to make it easier for students to achieve a set of learning objectives. Meanwhile, according to Abdul Majid, a module is a book that contains all the basic components of teaching materials that aim to allow students to learn independently without or with guidance from educators.

Based on the above understanding, it can be concluded that the module is one of the teaching materials in the form of printed media which contains a learning unit designed by educators to facilitate the learning process so that they can achieve learning objectives independently with a little guidance from educators.

Based on the explanation of the meaning of electronic modules and modules, there is only a difference in the physical presentation format, the electronic module adapts the components contained in the printed module. There is no difference in the principle of development between printed modules and electronic modules.

Besides, Mantulenko (2020) talked about the characteristics of multimedia in teaching. The first manifestation of these characteristics is the pervasiveness of digital practices in all sectors of human life. The media of the modern, digital, generation themselves cause large-scale changes in the socio-cultural environment, expanding the boundaries and tasks of media consumption, allowing users to create their own media content, media product, or information resource, influencing existing forms of interaction between people, giving new properties to human communication, and forming a unique socio-cultural reality with its own distinctive characteristics.

2.4 Teaching Media

Teachers utilize during the class to interact with students. This interaction process will run smoothly if pupils are actively engaged in learning. Therefore,

it is vital for teachers to employ instructional strategies that facilitate student learning. Common methods of instruction include lectures, dialogues, demonstrations, etc. The utilization of learning methods cannot stand on its own, as the media is also required as a means of conveying contents or knowledge to pupils. The use of learning material to help the learning process so that learning objectives can be attained. Sanaky in Yanuari and Muhammad (2019) said that the definition of learning media is a physical or non-physical medium used by teachers to impart information to pupils more effectively and efficiently. So that students accept the learning materials more quickly and are more interested in learning

The term media is synonymous with learning technology, because the early developments of technology provided three main elements, namely teachers, chalk, and textbooks. Learning is an activity that involves a person to gain knowledge, skills and positive values that can be used in everyday life. Learning involves two parties, namely educators as facilitators and students as learners.

It can be explained that learning media are all forms of equipment that are designed in a planned manner to convey information and build interaction. The physical equipment in question is printed objects, original objects, visuals, audio, audio-visual, multimedia, and the web. These tools must be developed according to the needs of students and learning objectives, then used to convey information containing learning messages so that students can instruct knowledge effectively and efficiently. In addition, interactions between educators and students, students and other students, as well as between students and learning resources can be well developed.

2.5 Reading Comprehension

As one of the receptive skills, reading is important to be taught. Reading helps us focus, remember things, show empathy, and communicate better. It can lessen stress, enhance mental health, and lengthen your life. People can discover new things through reading to advance in students' careers and personal relationships. Reading may exchange ideas, knowledge, information, and even emotions. Given that it is the language ability that is most frequently

employed in daily life, it makes perfect sense. Reading difficulties likely cause significant societal issues, education, and communication issues.

Kintsch in Jacobson et al. (2022) states that reading comprehension is a multifaceted process in which the reader converts textual information into a mental representation. The construction-integration model is one of the most comprehensive models, accounting for the complexities of the metacognitive processes involved in reading, from word identification to text comprehension. Reading comprehension is regarded as one of the most crucial abilities and a vital method of gathering knowledge for both social and academic purposes. While comprehension is defined as the mind's ability to perceive and comprehend ideas, built through stages and procedures presented during the reading. Understanding is a process, not a product.

There is a meaningful interaction between the text and the reader, who evaluates the text. It refers to a deep mental process that is required in order to appreciate and recognize important information in the text. As a result, the reader can derive information from the text that is stated directly or indirectly to understand its purpose. Refers to the material, Samat and Azlina (2020) said that the content and excitement factor of the materials are commonly thought to influence children's willingness to read or comprehend the text. The materials should pique children's interest and encourage them to read independently.

Several feasible meanings are formed in parallel during the building phase to produce a propositional network of the text content; during the integration phase, that network is cleaned up depending on the reader's past knowledge and experience. As a result, readers may build significantly disparate scenario models based on their reading interests and goals, their prior knowledge and experience, and the text itself.

According to Kristi (2022), a teaching strategy is a teacher's plan in the teaching and learning process to achieve a goal that has been planned. In other words, teaching strategies are methods of instructing students. The teacher must use a strategy to strike a balance between the method used by the teacher and the method used by the teacher to apply the material.

On the other hand, states that the reading component of an English language course may include a set of learning objectives for:

a. The ability to read a wide range of English texts.
b. Increasing language knowledge, which aids in reading ability.
c. Increasing schematic knowledge.
d. The ability to change one's reading style depending on the purpose of the reading.
e. Gaining an understanding of the structure of written English texts.
f. Taking a critical stance on the text's content.

2.6 TPACK

Integrating Technology with pedagogy and content knowledge is a new breakthrough in the world of education. This new teaching framework or so-called technological pedagogical content knowledge (TPACK) combines three basic components of knowledge namely component knowledge, pedagogical knowledge, and technological knowledge. TPACK serves as a framework for thinking about what knowledge a teacher must have to integrate technology into their teaching and how to develop that knowledge (Baran et al., 2011).

The application of TPACK to the teaching and learning process increases the accuracy and effectiveness of the information conveyed. The TPACK framework is used to teach lesson content, serving as a tool used to build new knowledge and reinforce existing knowledge.

TPACK is a development of Shulman (in 1986) namely Pedagogical Content Knowledge (PCK). TPACK is known in the field of educational research as a framework (theoretical framework/framework) in designing learning models by integrating three main aspects, namely technology, pedagogy, and content. Koehler state that there are seven domains of knowledge in TPACK, namely: 1) Content Knowledge which is the teacher's knowledge of the subject matter to be studied or taught; 2) Technological Knowledge (TK) is the teacher's knowledge of technology that can support learning; 3) Pedagogical Knowledge (PK) is in-depth knowledge of processes and practices in conveying the material to be studied; 4) Pedagogical Content Knowledge (PCK) refers to Shulman's 1986 statement (in M.J. Koehler et al.,

2014: 102) that effective teaching requires more than just separating understanding content and pedagogy; 5) Technological Content Knowledge (TCK) is knowledge about how technology can create a new image in certain materials; 6) Technological Pedagogical Knowledge (TPK) is an understanding of how learning can change when certain technologies are used in certain ways; 7) Technological Pedagogical Content Knowledge (TPACK) is knowledge about complex interactions between domains of knowledge principles (content, pedagogy, technology).

2.7 PBL and PjBL

The learning models are Problem-Based Learning (PBL) and Project-Based Learning (PjBL) models. Barrows (Barrett, 2005, p.14) states that PBL is learning resulting from the process of working to understand problem solving. Furthermore Savery (2006, p.12) states that PBL is a student-centered learning approach that empowers students to carry out investigations, integrate theory and practice, and apply knowledge and skills to develop appropriate solutions to the problems set. Supporting this opinion, Arends & Kilcher (2010, p.326) revealed that PBL is a student-centered approach that involves students in investigations of complex problem situations. The starting point for PBL learning is an interesting problem. Students are expected to be able to find realistic solutions to real-world problems. Furthermore, PBL has three characteristics, namely focusing on problem solving, students are responsible for solving problems, and the teacher supports the problem-solving process by students.

Holbrook (2013) defines PjBL as a model for student-centered, interdisciplinary and integrated classroom activities with real-world issues and practices. Interdisciplinarity is the conscious involvement and integration of several academic disciplines and methods to study a central problem or project. Project-based learning is learning that trains students to use acquired knowledge, skills, and attitudes to solve problems and adapt to unexpected circumstances in real life. In other words, project-based learning is a complex assignment by providing questions in the form of challenges or problems that

involve students to design, solve problems, and carry out investigative activities.

2.8 ADDIE in Developing E-Students' Worksheet

This study uses the Research and Development (R&D) research with ADDIE model. Holden in Lu (2022) states ADDIE is the model that provides generic, systematic, dynamic, and flexible instructional design process. It has five steps those are Analysis, Design, Development, Implementation, and Evaluation. This model is helpful approach to lead designer or teachers in creating effective and efficient teaching design for any instructional product (Aldobie,2015). Further, Branch in Samer (2018) suggested the following concept and stages in developing ADDIE model:

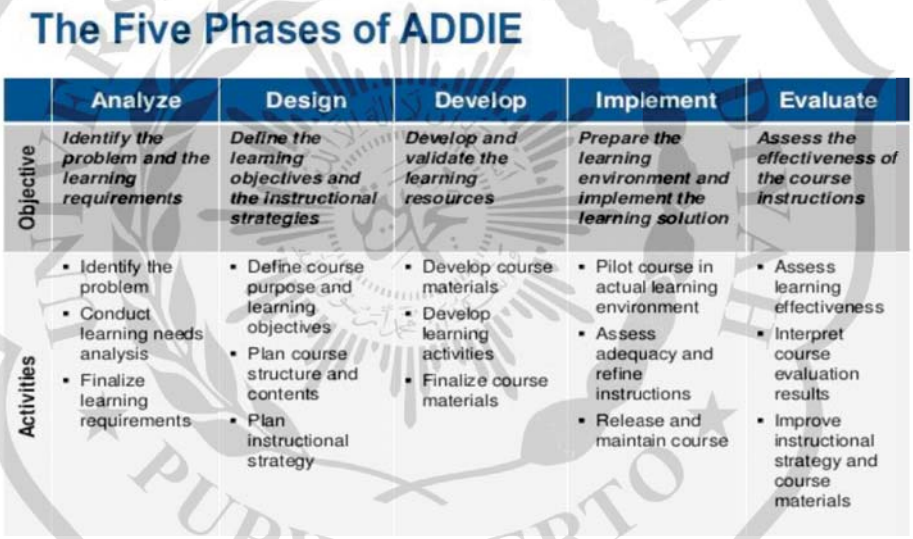

Figure 2.8.1. Five Phases of ADDIE model

1. Analysis Phase

All other phases of instructional design, including the ADDIE method, are built on the analysis phase. Potential instructional challenges and objectives are discovered at this early stage. The existing knowledge and abilities of learners are also assessed in order to determine the type and extent of education required. The analysis phase might also involve specialized research approaches such as needs analysis, goal analysis, and task analysis, according to the author. A needs analysis technique, for

example, can assist instructional designers in determining the resources needed as well as the potential restrictions of their plans of action. Additionally, earlier learning modules or courses should be used as input for the analysis step. Learning goal targets, as well as available resources, should be identified towards the end of the analytical process.

2. Design Stage (Design)

The Design step begins after you have completed your training plan and identified any performance gaps discovered during the Analysis stage. This phase entails filling identified gaps, finalizing the training blueprint, and obtaining final approvals from key decision-makers.

The primary purpose of the design phase is to create the course's skeleton.

The prototype can take the form of a storyboard, a thorough course plan backed by detailed descriptions and graphics, or both. It should contain the learning objectives as well as a detailed overview of the course.

The prototype is critical in this phase of ADDIE because it allows the instructional designer to construct a design for the course and explain the training program's purpose to key stakeholders.

3. Develop (Development) Stage

Bring all materials and contents from the design stage is the main activity in this stage. Development is the third phase in the ADDIE model, after first going through the analysis phases. At this stage, learning materials are made and arranged according to the design or storyboard that has been made at the design stage. Required resources such as audio, video, graphics and other multimedia are starting to be packaged in a teaching material. At this stage, several teaching materials were tested trainees to get feedback from them.

There are several important things that need to be considered in order to be able to answer some basic questions provided such as 1). whether the teaching materials are in accordance with the estimated schedule that has been designed, 2). whether a group is needed for implementation during the

participant assignment process later, 3). whether participants can contribute according to their capacity, and 4). to what products will be produced by the participants.

It should be considered that indeed the design stage is related to the preparation of instruments and tools related to training materials, lesson plans and media selection to determine their suitability with the training participants' needs analysis. Therefore, it is necessary to focus on an integrated, effective and efficient arrangement.

4. Implementation Stage

Implementation means application of products in the ADDIE development research model. It is intended to obtain feedback on products that are made or developed. Initial feedback (initial evaluation) can be obtained by asking questions related to product development objectives. The application is carried out referring to the product design that has been made.

Implementation is a real step to implement the developed learning system. This means that at this stage everything that has been developed is installed and set up in such a way according to its role and function so that it can be implemented.

5. Evaluation

Evaluation is the final process. Each phase should be reviewed by educators to ensure that the instructional design and content satisfy the objectives. There are two distinct types of evaluation: formative and summative. Formative assessment is an internal evaluation process that occurs at each level of the ADDIE instructional design model in order to examine the team's continuous development and to review the ongoing process (Karmila et al., 2019). Whereas summative assessment comes following the application process. Because the emphasis is on the learning outcome, the summative assessment enables a clear comprehension of the concept's true meaning. Summative assessment entails assessments that evaluate domain-specific reference items, instructional course objectives, and student input. Summative assessment is beneficial for gaining a better

grasp of the student's performance and the utility of the design features after the course's conclusion (Dick, Carey & Carey, 2014). The diagram as follows:

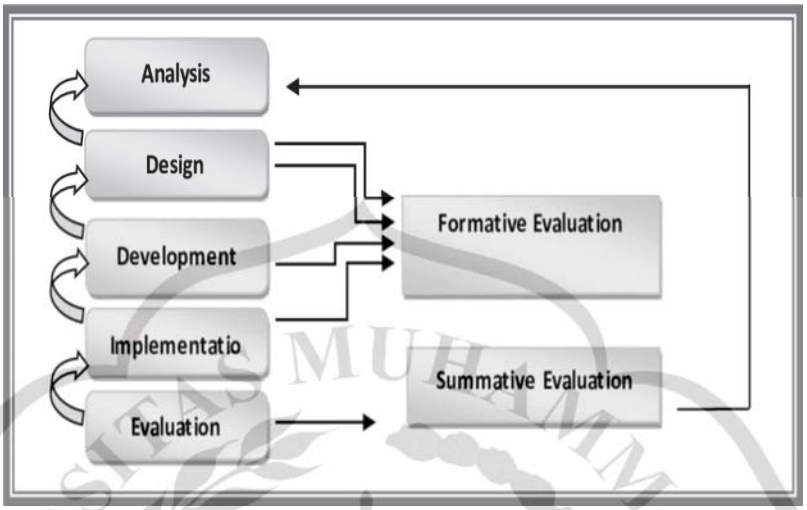

Figure 2.8.2. Evaluation in ADDIE

2.9 The Previous Research

Anelka (2018) said the changes that occur in Education 4.0 accurately describe the learning preferences of Gen Z students. Based on his research, it is not impossible for a language course to adapt to the changes brought about by the IR4.0 wave. It is past time for teachers to consider incorporating more modern technologies into their teaching methods. They now have students who have different preferences than they did ten years ago. Integrating more current technologies encourage instructors to be more creative in designing lessons, making learning more engaging. Learning can also be more effective if the manner in which it is delivered corresponds to the preferences of Gen Z students. In short, instructors should welcome this new wave of Education 4.0 because it would have beneficial not only students but also language instructors who have more flexibility in designing creative lessons.

Herdiana Fitryani and Hunaepi (2019) on their research his research entitled Development of an Android-based Smartphone-Based Electronic Module in the Higher Plant Taxonomy Course. Based on the results of the evaluation of an electronic module based on a smartphone platform, the validation score of 3,5 is deemed to be very good. The effectiveness of the

module obtains a percentage of 45.67% and the average change in students' concept understanding scores before and after learning reaches 0.57 with other categories. If you look at the data, you can see that the products that are growing are effective.

Farah Muthi Hermawati et al (2018) on Development of Problem-Based Learning Flipbook Electronic Modules in Class XII High School Electronic Induction Materials stated the results of the preliminary study indicate that it is necessary to expand the module, based on the findings of 61% of teachers who believe that education in schools is ineffective, and 42% who believe that the material used to produce electromagnetism is too expensive. The Flipbook product has been developed and validated by media and material experts, and it is ready for implementation. As a result, using simple words and familiar pictures to demonstrate the meaning of the selected vocabulary helped the students understand the vocabulary that was chosen to be taught during a specific lesson.

Sarala Thulasi Palpanadan (2019) stated the color choices influenced the mood of the students while they were learning. As a result, the flip book method was deemed effective in assisting students in expanding their vocabulary in specific topics. The survey results on participants' responses to using the flip book revealed positive feedback. The survey results before and after the invention revealed a significant difference. In the post intervention survey, participants chose more smileys than sad smileys, which was reversed from the beginning. This demonstrated that the participants were pleased with the intervention. The results demonstrated that the activities were meaningful to them and aligned with the curriculum, which promotes fun and meaningful learning for the benefit of the students. This action research was successful in answering the research questions posed earlier in the study.

Zahra Qibtia Balqis et al (2021) research entitled "E-module Learning Material on Global Warming Based on Quantum Learning" this research has the aim of developing electronic modules using the ADDIE method and the results of this study are that e-modules are quite feasible to be used as learning resources.

Insih Wilujeng and Tri Suci Yolanda Putri (2018) whose research is entitled "Development of Integrated SETS E-module with POE Model for Science Learning". This study adopts the ADDIE model. The results of the study show that e-modules are appropriate for use according to material and media experts and practical according to educators and students.

Yuni Rochmawati et al (2019) research entitled "Development of SETS-Based Integrated Science Module on the Subject of Business and Energy in Middle Schools". The results of the validation test, namely 4.11, were said to be suitable for use and obtained a positive response of 76.48% with the category suitable for use.

"Development of Multirepresentation-Based Physics E-module on Straight Motion Material," by Bemie Eka Saputra et al. (2020). The material expert validator's feasibility results were 86.67% with very good criteria, while the media experts' feasibility results were 87% with very good criteria, and the results of students' perceptions of the electronic module showed that 16 students responded very well and 14 students responded well. Based on the findings of the described research, the researcher had the idea to conduct research by creating learning media in the form of a flip book maker e-module based on the SETS approach to environmental pollution material.

Muhlis et al (2019) stated Electric Circuit Flipbook was created using the ADDIE model. The following tools were used: a material, media, and language validation sheet; a student response questionnaire; and a learning outcomes test. The findings revealed that: (1) the validity of the Electric Circuit Flipbook is very feasible; (2) the flipbook's practicality is in the very practical category; and (3) the flipbook's effectiveness is in the very effective category. The developed flipbook was suitable for use as a learning.

Bahri et al (2021) in their research on Blended Learning Integrated with Innovative Learning Strategy to Improve Self-Regulated Learning found that Technological, Pedagogical, and Content Knowledge (TPACK) is a framework for integrating technology into the classroom. Integrating technology into the curriculum is now an integral component of the most effective teaching methods. This study intends to provide reliable, practical, and efficient e-learning tools for Animal Physiology courses that integrate blended learning

with the PBLRQA (Problem-Based Learning and Reading, Questioning & Answering) technique in the form of a lesson plan, evaluation sheets, and moodle-based e-learning media. Based on the study's findings, it was possible to infer that the lesson plan, evaluation sheets, and moodle-based e-learning were valid, practical, and useful in enhancing students' self-regulated learning. It shown that the lesson plan, assessment sheets, and moodle-based e-learning media that use PBLRQA techniques are suitable for implementation.

The above researches showed that the effectiveness using digital media especially flip book to enhance understanding in learning process. In this research the researcher wanted to explore more about reason why the current application (students' worksheet in flipbook) was needed in certain school. He also wants to explain how to create the media in simple way. Besides, he has desire to show about the effectiveness of the application.