



Hybrid Learning-based Instruction in Teaching Aviation English for Cadets – A Case Study at Vocational Higher Education Indonesia

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Abstract: The project aims to develop a hybrid learning-based instructional paradigm that integrates both traditional face-to-face training and online learning methods. The study employed a qualitative research approach, utilizing case study approaches. The researchers carefully chose and ascertained the research participants to acquire a comprehensive understanding and insights into implementing hybrid learning at the Makassar Aviation Polytechnic. The study investigated one English lecturer and a class of 24 second-semester cadets enrolled in the Air Traffic Controller (ATC) study program. The researchers employed many tools to gather data and adhere to the Creswell theory of qualitative research methodologies in this study. The instruments utilized in this study encompassed observation instructions, interview guidelines, field notes, and documentation. The results indicate that the lecturer at Makassar Aviation Polytechnic can fully implement Hybrid Learning-based Instruction in the Aviation English class. Aviation English Learning encompasses three stages: planning, implementation through face-to-face meetings, and virtual learning cooperation involving synchronous and asynchronous modes. Additionally, self-paced asynchronous learning and evaluation are integral components of this process. The research has the potential to make significant contributions to the fields of science and education: 1) Enhanced Aviation Safety; 2) Innovative Pedagogy; 3) Data-driven Insights; 4) Application in Practice; 5) Contribution to the Literature; 6) Optimization of Learning Efficiency; 7) Adaptability in Learning; 8) Evaluation and Assessment; 9) Synchronous and Asynchronous Learning Modes; 10) Integration of Technology; 11) Cost-efficiency.

Keywords: hybrid learning-based instruction, aviation English, air traffic controller

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INTRODUCTION

The perceptions of students toward distance learning have been the subject of numerous studies and works. Aristovnik et al. (2020) introduce a thorough and extensive study of students' perceived impacts of the COVID-19 pandemic on various aspects of their lives globally. This study was specifically related to students' perceived impacts of the COVID-19 pandemic. 30,383 students from 62 countries who are at least 18 years old and enrolled in higher education institutions make up their study sample. Data were gathered using a multilingual web-based questionnaire consisting primarily of closed-ended questions—39. In addition to the various aspects and components of higher education student life, such as online academic work and life, emotional life, social life, personal situations, changing habits, responsibilities, and personal thoughts on COVID-19, the questionnaire asked about sociodemographic, geographic, and other characteristics. Hybrid learning combines the benefits of both distance and face-to-face learning. Teachers play the facilitator's role by assisting the students whenever necessary and the role of the instructor by providing complimentary lessons in line with the student's online course. Competition among educational institutions has intensified due to the emergence of open and online learning methods (Buheji et al., 2020). As physical schools shuttered, the focus quickly shifted to online education. Virtual classrooms and online platforms required teachers and students to adjust, which presented issues with engagement, access to technology, and digital competence.

Blended learning, which involves online and offline resources, is an example of the new culture emerging from the widespread use of IT for educational purposes worldwide. Blended learning combines traditional classroom instruction with digital tools (Bashir et al., 2021). The learning model must reflect the characteristics of today's pupils, who are accustomed to using technology and devices for learning. Additionally, it produces a learning environment that is cozy, engaging, enjoyable, and full of learning tools. Blended learning is one of the methods that is best suited to accommodate technology. An OER (Open Educational Resource) is required to supply educational materials that meet students' demands. OER will assist students in locating content that suits their level of proficiency. Graham teaches BL via in-person and online instruction (Graham, 2013). As well as the ability of a student to study in a digital environment depends on their access to resources, communication,

learning, and technological aptitude (Damast et al., 2021). On the other side, cadets have numerous issues when learning online, such as poor internet access (Dinh & Nguyen, 2020) and the issue of learning barriers caused by inequalities in geographic location (Aydin, 2021; Ullah & Ali, 2021).

Researchers have also identified or suggested different Hybrid learning models based on their experience and a review of the literature. Graham (2013) integrates the recent literature on Hybrid learning in higher education. He suggests a blended learning model based on four different levels in which blending could occur: (1) activity level, (2) course level, (3) program level, and (4) institutional level. From the corporate perspective, however, models are proposed with a different focus and angle. In Kyong-Jee, Valiathan identified three blended learning models based on the aims that drive learning: a (1) skill-driven model, (2) attitude-driven model, and (3) competency-driven model. Depending on how, what (i.e., content), and where (i.e., face-to-face classroom, online, and workplace) the activities are organized, Rossett and Frazee (2006) also characterize blended learning models, such as an anchor blend, a bookend blend, and a field blend.

Additionally, Rossett et al. (2003) point out six factors that impact the decision regarding the design of blended learning experiences: (1) how stable the content is, (2) how much time one has for the development and implementation, (3) whether human interaction is essential for the learning goals, (4) how much the budget is, (5) whether the learning resource can be reusable and referenced in the future, and (6) whether the nature of the activities and learners' situation is individual or social. The present study is not grounded on any of the aforementioned specific models due to the exploratory characteristics of the study; however, the survey instrument was developed considering the complexity of the corporate training environment and based upon the assumption that organizations can implement different kinds of blended learning models due to their unique organizational context. Research on blended learning is very recent, and blended learning theories have yet to be developed.

Hybrid learning has been demonstrated as an effective and efficient method that can be used in teaching in many fields of study by previous research results (Khalafullah, 2010). The study conducted in Egypt aimed at detecting the effectiveness of e-learning and BL in developing the skills required to produce educational models. The study sample comprised students of Educational Technology in the Faculty of Education, Al-Azhar University. The results also revealed the effectiveness of integrated learning in increasing students' skills and developing the practical performance of skills. The study also showed the superiority of the integrated teaching group over the e-learning group's achievement of skills and the e-learning group's models' production skills. Many validated results proved that Hybrid Learning is effective in improving the students' content knowledge and students' performance in vocabulary acquisition and an ordinary test (Jia et al., 2012), effective in enhancing vocabulary knowledge (Tosun, 2015), useful in terms of the attainment of relevant learning outcomes in a blended environment (Kember et al., 2010), effective in increasing learning outcomes and students' perception (Miyazoe & Anderson, 2010; Oweis, 2018). The study conducted by Kintu et al. (2017) indicates that some student characteristics/backgrounds and design features significantly predict student outcomes in Hybrid learning.

According to a study by Hediensah and Surjono (2020), hybrid learning improved learning and teaching management. The result shows that hybrid learning has impacted the interactive environment and can learn to be independent (for upgrading their skill), including interaction with teachers or peers. Related to teachers' personal development, HL has been proven to improve teachers' professional development (Kling & Courtright, 2003; Motteram, 2006; Duncan-Howell, 2010; Cheong, 2010; Fisher et al., 2010; Yeh et al., 2011). Many studies extolled the advantages of hybrid learning, including learning process facilitation via online or classroom technologies. Hybrid learning facilitates transitioning from a 'teacher-centered' classroom to a 'learner-centered' format and shapes the co-learning environment (Liashchenko & Babi, 2017). Students can acquire skills during the course, interact with peers, share their ideas, and complete practical tasks.

The research was limited to determining the implementation of hybrid learning in teaching Aviation English, especially in a vocational school in Indonesia. Some research about the performance of hybrid learning needs to be more specific in Aviation English teaching (Awaliyah & Noni, 2019). The research results show that the students preferred the online and face-to-face driver models. It was proven by the results of an interview where most students answered their preference toward the online driver model. On the other hand, the vocabulary test results showed that the face-to-face driver model contributes more to students' vocabulary improvement. It can be seen from the mean post-test scores for both models that the mean score of the face-to-face driver model is higher than that of the online driver model. The students concentrate more on doing their exercises in the online driver model, while in the face-to-face drive model, the students are more relaxed in doing the exercises. The results of the sheet/note diary prove this. Herman et al. (2017) reveal that with the implementation of Hybrid Learning in Multimedia courses, student achievement positively correlates with student activities. Students perceived that the implementation of Hybrid Learning was exemplary. Fitri and Zahari (2019) state that students who are taught HL learning feel happier and more attractive, not quickly bored during the lesson. Blended learning can improve student activity, understanding of concepts, and learning outcomes. Syam et al. (2019) find that there are several categories of the usefulness of hybrid, institutional support, the impact

of hybrid e-learning on subject mastery, and the percentage use of hybrid e-learning. The study was significant for several reasons. First, there are no Hybrid Learning-based Instruction studies about Aviation English conducted in vocational higher education in the Indonesian context. Second, it fills the gap by providing up-to-date information on the conception of hybrid learning, especially for aviation students in vocational higher education. Third, this research is significant for lecturers, curriculum planners, or stakeholders who might realize a gap between the approach's conception and implementation. Finally, this research fills the gap in perceptions of students, policymakers, and practitioners on implementing hybrid learning in Industrial Revolution 4.0, as stated by [Syam et al. \(2019\)](#).

Implementing Hybrid Learning in teaching Aviation English, especially in a vocational school in Indonesia, needed to be improved. Some research about the performance of hybrid learning needs to be more specific in aviation English teaching ([Awaliyah & Noni, 2019](#)). The research results show that the students preferred the online and face-to-face driver models. The researcher formulates the research questions based on the problem indicated in the study backdrop and problem statement: (1) What is the impact of applying the Hybrid Learning-Based Instruction for Aviation English class in Indonesian Higher Vocational Education? (2) How does Hybrid Learning-Based Instruction influence Aviation English lessons in Indonesian Higher Vocational Education? The researchers have devised a novel framework that caters to the requirements of aviation school cadets, aligning with the curriculum. This model comprehends the execution and consequences of hybrid learning, specifically tailored to the unique circumstances and curriculum at the Makassar Aviation Polytechnic campus.

METHODS

This study used the Borg and Gall (1983) procedural research and development model (R&D) design. The research design used a qualitative research method with case study designs. Qualitative research is a study that generates descriptive data in the form of written or oral words from the subject and the actions of the issue that can be observed; thus, the research aim is a unique understanding and its background completely ([Setiyadi, 2019](#)). Academic researchers systematically observe and document behavior, events, or phenomena as they occur within their respective natural environments. Qualitative research methods encompass participant observation, where the researcher has a dual role as observer and participant, and non-participant observation, where the researcher maintains a distinct separation from the observed group. Additionally, conducting interviews serves as a core approach within qualitative research. Academic researchers employ open-ended talks to collect comprehensive and detailed information from participants. Interviews can be categorized into two main types: structured interviews, which involve preset questions, and unstructured interviews, which resemble a conversational format. Semi-structured interviews, which include elements from both methodologies, are frequently employed in research. Content analysis examines texts, documents, or media to identify recurring themes, patterns, and underlying significance. The application of this method is frequently employed for the examination and interpretation of written or visual materials.

The research purposes are subjective in the qualitative research method, using prospection to describe ([Creswell, 2012](#)). [Creswell \(2012\)](#) state several characteristics of qualitative research that met the aspects of this research. Qualitative research explores a problem and develops detailed information on a particular phenomenon. The data analysis in this research is written with a more significant meaning. In writing the findings, the researcher uses a flexible and emerging structure. This research uses several criteria to determine the research subject. Milles and Huberman, 1994 (in [Cresswell & Clark, 2017](#)) explain that the discussion of participants and research locations could reach four aspects, namely: setting (research location), actors (who will be observed or interviewed), events (what events are felt by actors who will be the topic of interviews and observations), and the process (the nature of events perceived by actors in the research setting). The first criterion is setting; the research setting was one of the Vocational Higher Education in Indonesia, Makassar Aviation Polytechnic. The second criterion was the actors; the research subjects were the lecturer and the Air Traffic Controller class cadets.

RESULT AND DISCUSSION

Well-prepared tables and figures are an essential component of this section, as they effectively communicate the primary observations to readers. The language must not duplicate any information already shown in tables and figures. Instead, the narrative should emphasize the significance of the primary outcomes obtained from the research. Typically, scholarly journal articles would encompass a range of three to seven figures and tables. It is impossible to provide identical data in tabular and graphical formats simultaneously. The findings are analyzed to answer the specified problem, objectives, and research hypotheses. It is strongly recommended that the discourse center around the causality and mechanisms underlying the research findings, as well as the potential applicability of these findings to other pertinent issues.

The findings of the research deal with (1) the implementation of Hybrid Learning-Based Instruction for Aviation English classes at Indonesian Higher Vocational Education, and (2) the impact of the implementation of Hybrid Learning-Based Instruction for Aviation English classes at Indonesian Higher Vocational Education. This research data was taken during the fourth semester of Aviation Polytechnic of Makassar. The cadets of Air Traffic Controller (ATC) batch XIV are selected as the sample of this research. Since ATC IV has the Aviation English subject in the fourth semester of the curriculum, some instruments were used for this research, such as interviews, questionnaires, and observation. Learning English in the Air Traffic Management curriculum is divided into two courses. The first is the English for General Purposes course, which focuses on general English. The English for Specific Purposes (ESP) course, namely Aviation English, focuses on cadets' unique skills and needs to be based on a detailed analysis of students' professional or academic needs. Unlike general English or EGP, ESP engineering or aviation students need a particular language skill set to succeed in education. In collecting data on the implementation of HL, the researcher used a questionnaire instrument with open-ended questions, interviews, and observations. The researcher observed several times to obtain complete and precise data. In doing observation, the researcher pays attention to teaching and learning activities in the classroom while noting several phenomena that occur in the classroom related to the research objectives. The illustration of the analysis of the implementation of HL in the Aviation English course for the Makassar Aviation Polytechnic MLLU class is as follows:

Based on the observations made by the researcher, the teaching and learning activities of Aviation English in the MLLU class are varied. The lecturer starts the lecture with a smile, greeting the cadets in a friendly manner, and before starting the course, according to the SOP, the picket cadets carry out a daily readiness report. The lecturer replied with the command, "Carry on!" strictly. Although the first lecture was implemented through online learning, the report session before the course was solemn. The application of Aviation English material in the MLLU class is varied. The lecturers teach attractively and use supporting applications such as Padlets, sometimes interspersed with some humor, to build a conducive virtual classroom atmosphere. The initial meeting began with discussing the lecture contract, which the lecturer had prepared well. From the lecture contract, it was discussed starting from the number of meetings, assessments, evaluations, and regulations during the objective of learning, the learning process, rules, material in one semester, and the learning methods that will be used in semester 2. Therefore, the cadets have prepared everything related to the implementation of HL, and the lecturer has explained it with the initials MA.

In the following observation, the learning material is listening to Aviation English. At this meeting, the MA gave directions on the activities to be carried out for the Aviation English practical course, namely listening. MA asked the cadets to turn on the video in the Zoom Meeting, then MA shared the screen and played the video about the plane crash or emergency. MA asked the cadets to listen carefully to the video and record important information from the accident video. MA asked randomly for detailed information about the plane crash in the video. After the question-and-answer session, the Supreme Court asked the cadets to look for videos on the internet related to plane crashes or emergencies. They will then be analyzed in groups (consisting of 2 cadets). The MA guided the discussion using the breakout room feature in Zoom Meeting. From this meeting, MA was seen casually making a breakout room while observing the cadets on the monitor screen. Through this activity, cadets are trained to use the internet (by surfing the internet looking for videos about Aircraft Accidents) and using breakout rooms, namely dividing the space in the Zoom Meeting into as many groups as possible we want. The cadets are not silent because if they are going to enter the breakout room, they must click the box that appears on the laptop or computer monitor screen to join the breakout room.

The following observation was on learning Aviation English, with the material on Emergencies caused by birds, namely bird strikes. At the previous meeting, the cadets had group discussions online, and each group presented the results of the group discussions. MA gave the cadets a question-and-answer session by pressing the rise hand sign before asking the group to present. After the whole group presented the results of the group discussion along with a question-and-answer session, the lecturer gave an interaction game using quizzes related to the material that had been delivered. The cadets were enthusiastic because this game could use the cadets' mobile phones or laptops. The researcher also took data research from the questionnaire using an open-ended question to support the observation data. This questionnaire determines how the implementation of hybrid learning in Aviation English learning in the Air Traffic Management Study Program of the Makassar Aviation Polytechnic. The questionnaires are for the cadets, lecturers in Aviation English courses, and policymakers. Based on the open-ended answers from the cadets' responses to the questionnaire question, how is hybrid learning implemented in the Aviation English class of the Makassar Aviation Polytechnic Study Program? According to respondents, totaling 24 cadets, data showed that HL is easy to implement because learning can take place anywhere and at any time without being limited by time and place, such as in-classroom learning, so learning is more effective. Based on respondents' code numbers 01, 05, 08, 20, 21, and 24.

Learning becomes more varied and attractive (statements from respondents with code 02, fun (code 06), and engaging (codes 22 and 22), making it easier for cadets to understand the material given by the

lecturer (03), 09, 11,12,14, and 17. Implementation of HL requires more creativity from the lecturers concerned, as evidenced by the many diverse and exciting applications that can motivate MLLU cadets to learn Aviation English. In addition to various and exciting applications, the methods in HL vary, not just using the streaming video platform.

While the question about what English skills have increased when lecturers implement HL in learning Aviation English, out of 24 respondents, 13 respondents thought that their speaking skills in English had improved (statements with code numbers 01, 02, 03, 04, 05, 05, 10, 11, 13, 14, 15, 17, 18). The cadets become more confident and accustomed to speaking (in English) with the Aviation English theme. Meanwhile, according to MLLU cadets, the other improved skill is listening skills with statements number 15, 16, and 20. Using an application or audio player, cadets can hear the audio when the lecturer uses video media or plays a recorded conversation between the pilot and the ATC (Air Traffic Controller). Such as writing (writing) is obtained in statements with codes number 12 and 20. Of 24 cadets, there are 4 points. The information did not state what English skills had increased because the respondent's information was unrelated to the question posed by the researcher (coded statements 22, 23, and 24).

Regarding the question about how to implement HL in Aviation English learning, several respondents stated what they felt was related to the implementation of HL. As stated by respondents with code numbers 01, 02, 05, 10, 12, 17, 18, 19, 21, and 22. The process of implementing HL in Aviation English learning is fun. The respondents get new experiences because of several applications or learning media used by lecturers something new for them, such as the use of Padlet, Kahoot, or Quizzes (code numbers 04, 19, and 20) so as not to make the learning process boring (code number 11). The smooth learning process (code number 12) makes respondents excited and not lazy to study (code number 24). The implementation process could have improved when the respondent faced a poor internet connection at home or on campus (codes 21 and 23).

In answering how to implement HL in Aviation English learning from the lecturer's perspective, the researcher has interviewed the research subject according to the profile of the research subject described in chapter three of this study. Researchers conducted in-depth interviews to determine the implementation of HL in the Aviation English learning program at MLLU Poltekbang Makassar.

In implementing the HL by the MA subject, the first thing the subject does is plan the implementation of the HL in the Aviation English class of the MLLU study program by analyzing students, context, and learning content. From the analysis results, the competencies that students must master are mapped face-to-face or remotely. Furthermore, the results of the analysis become a syllabus or lesson plan. After the subject finished the lesson plan, he informed the cadets that the lecturer would implement HL in the upcoming learning semester. Prior knowledge about HL is given to provide basic knowledge about HL learning. HL learning is learning that combines brick-and-mortar meeting learning or face-to-face learning with online learning. In the planning stage, the MA lecturer defines HL as a learning method that will be used in the upcoming semester but determines everything, including setting learning semester objectives to be achieved by students, mapping activities, and choosing the HL model to be used. In the planning stage, the MA lecturer explained several essential points, namely setting semester learning objectives, mapping activities, and determining the HL learning model to be used. Online learning requires preparations including using computers or laptops, smartphones with Android or IOS operating systems, tablets, internet connections, data packages, and mastery or proficiency in operating these electronic devices. As stated by the MA subject as follows:

The planning of HL

11:56 Okay, let us move to the next question. It is about the implementation of hybrid learning. Yes, the question is focusing on how you implement the hybrid learning.

MA 12:37 Actually, not too different about the setting of the plan, yeah, not too different. If we compare it to offline learning, because online learning and hybrid learning are similar Yeah, the first plan, of course, is to analyze the students, the context, and the content of the learning, then map the competencies that students must master through face-to-face or remotely. Furthermore, I changed the analysis results into a syllabus or lesson plan. Last but not least, setting the semester goals

MA 13:00 We set everything that we want to the objective or the goals, the goals of the cadet that we want to the setting the semester goals, we can do a lesson plan, we can apply the lesson plan and the.... learning objective like that, that is the semester goals. The second is we can do the mapping out, mapping out, and then determine which course objectives are best served in personal activity. So those are the three steps we have to do in planning the hybrid learning, settings, semester goals, mapping out, and determining.

Researcher 14:08 Okay, what makes a difference? Is there any difference when you apply this? When

you map out the materials, or when you set... the objective of the learning? Maybe you have something to do with hybrid learning or maybe "ini lho.. ciri-ciri, sir Ary menggunakan Hybrid learning."

MA 14:40 Okay. Of course. The first thing that we have to do is inform Yeah, we inform the cadet, we informed the cadet Yeah, I want to apply hybrid learning what is hybrid learning, we give them the prior knowledge about what is hybrid learning, I informed them we will apply hybrid learning and how to apply it. Of course, I will inform them that offline learning exists. Moreover, there is online learning, Itu kan metode sebelumnya kan aaa. Yeah, of course, it is dominantly applied; I can say that it is 100% applied in the classroom, but in hybrid learning, there is offline learning, and there is online learning about the portion which one is dominant, more dominant. I cannot. I did not, I did not. I did not inform them in more detail. I just say that there is online learning. Online learning means there is no face-to-face learning in the classroom, but still face-to-face online like Zoom meetings or Google Meets. So, I informed them.

After carrying out the planning stage in action, the next step taken by the MA subject is the implementation (do) or action stage. In this stage, the MA subject combines face-to-face learning with online learning understanding using the Zoom Meeting platform. Online learning is carried out to provide online interaction facilities using a learning management system (LMS), as used by MA, Google Classroom, Google Meet, Zoom Meet, WhatsApp, and other online media. In implementing online learning, the lecturer only sometimes used Zoom meetings and used various ways to make learning more exciting. One of them is e-learning applications provided by the Makassar Poltekbang. In implementing HL, MA uses the Flex model in HL learning.

Now, the next question is, how is the core of the action of the hybrid? Well, can you tell me how you do? How did you the hybrid learning

MA 16:26 The action? Right? I explained before. As I said, hybrid learning is a combination of online learning and offline learning. So, there is no, so there is. We may say that there is a variation; it is not just offline learning. Tidak hanya offline learning tetapi, dikombinasikan dengan online learning jadi untuk pengaplikasiannya ya by Zoom meeting, for online learning, especially, I applied by Zoom meeting, like a Zoom meeting. Google meets like that, but for the offline meeting here, we do it in the classroom, as usual, conventional. But not all online meetings were using Zoom meetings; I give you an example of an I did an online meeting.

Researcher 17:26 Do you use LMS learning just like a learning management system from Poltekbang Makassar?

MA 17:39 Yeah. I used it when I implemented HL for my students and other chat applications like WhatsApp.

The next stage in HL implementation is evaluation. In this stage, the method used in evaluating learning outcomes is the same in face-to-face learning, while the difference is in the implementation of the exam. When the MA subject implements HL in the Aviation English class, the MA gives a test with the same format; there are multiple-choice and essays. But at the exam time, MA only shared a link (using features from Google and Google Forms). The link contains questions for the Mid-Semester Examination or the Final Semester Examination. As a substitute for the supervisor, whose job is to oversee the exam, during the exam, cadets are required to activate the video button so that the lecturer can monitor the test. Before the test, the MA ensures that there are no other people around the cadets. As said by the subject in the 21.59-minute interview. From this explanation, implementing HL in Aviation English learning uses three stages: planning, action, and evaluation.

Researcher 20:39 Yeah, that might be how to score them, how to know their achievements in English in English subject.

MA 20:48 I can say that there is no difference in the scoring between offline and online learning. Just the media, the media in the media

Researcher 20:59 How do you mean by the media?

MA 21:03 As I told you, most of the teaching and learning process is applied or implemented by online

learning, so all of the media, of course, relate to them online. Also, online, there is a quiz. There is a mid-test. There is a UAS or final test. Yeah, similar just the media we can see the media.

Researcher 21:32 So how, just like they usually do when offline exam, there are some supervisors. So how do you supervise them when they are doing the examination?

MA 21:59 Okay, For the supervising. Yeah, we still provide. But in the Zoom meeting, the meeting, or in Google Meet? Yeah, we still supervise them. How to apply it? Yeah. When we send the link, when we send the link for the past, for example, for UAS (final test) in a group in WA (WhatsApp) group, for example, this is the link for the UAS test in Google Form. And then, we will share the Zoom meeting on the Zoom meeting link for supervision. So, we may say that we still supervise them all by Zoom meetings. So, all of you do it by yourself, do it by yourself, and do it in Zoom meeting with on camera, on camera, so that is supervise them.

MA explained that there were differences in student evaluation results compared to conventional classes. Ma has compared the results of the students' speaking test, the ICAO English Language Proficiency (IELP) Test, using different methods, namely HL implementation and conventional learning. For your information, the IELP test is an English proficiency test for cadets of the MLLU study program and is a mandatory requirement to take the license exam as an Air Traffic Controller (ATC). The comparison results found that by learning by implementing HL, the number of students who passed the IELP test was more than learning using conventional methods.

So based on your observation, while or maybe during your teaching class, and then you observe the student, your student. Have you compared the student academics between conventional teaching and learning and the HL of your students?

MA 9:08 Yes. I have compared. I have compared offline learning with offline learning and online learning. It is probably about this score, but the score. I think online learning is higher, a little bit higher, even though it is not too specific. In online learning, their score is higher than in offline learning, but it is not just basically about the gap.

Researcher 9:42 Okay, what about... if I am correct, that LLU or MLLU. When they graduate, they have to take a particular ILP test. This is one of the requirements To become an ATC. What about the result? I mean, is the number of your students after you apply hybrid learning increasing?

MA 10:32 Okay, still comparing? Compared to Yeah. ILP test? Yeah, ILP test. Like you said, yeah, in the, in the last grade? Yeah. In the last grade of the MLLU class, there is an ILP test, as you say. And then, if we compare the result of the ILP test of online learning and offline learning, yeah, it is similar to the score that I have seen before. Moreover, the score tends to be increased rather than offline. The score tends to increase.

Based on research findings, the implementation of hybrid learning in the learning process is divided into three stages: designing for learning the hybrid learning method, implementing Hybrid learning, and evaluating. There are four primary considerations; planning, designing, and developing the hybrid learning elements, implementing, reviewing, and evaluating the design by Bath and Bourke (2010). In Indonesian fundamental Law No.14 the Year 2005 about teachers and lecturers, it is stated that pedagogical competence is the ability to manage learning, which includes planning, implementing, and evaluating the learning outcomes of learners. Department of National Education (2004) defines pedagogical competence as learning management competence. Competence can be seen in the ability to plan a learning program, interact with the learners, manage to learn, and evaluate.

At this stage, MA has made plans such as preparing materials according to the Aviation English syllabus and determining learning resources, learning activities, and the type of assessment used in the Aviation English class. Before the learning process, the MA makes a lesson plan that will be used for one semester, and one semester consists of sixteen meetings. In the lesson plan, the MA has prepared materials adapted to the curriculum and syllabus for Aviation English courses and arranged learning activities such as individual presentations, group discussions, investigation, IELP test simulation, and case analysis. MA realizes that the condition of the Air Traffic Controller class cadets is that they are second-semester cadets, consisting of twenty-four cadets with different English skills. It can be seen from the academic results of the previous semester. To determine whether the cadets of the ATC study program are accustomed to using technology, the MA has known

the character of the cadets of this class in the previous semester. As the interview results it is said to confirm whether the cadets can use technology or not; at the beginning of the meeting, MA asked and confirmed by asking the cadet.

At the action stage or implementation of hybrid learning, the MA performs according to what was previously planned. The learning materials provided follow the syllabus in the ATC study program curriculum. [Cunningsworth](#) (1995) states that learning materials are a crucial component of the teaching-learning process. They are used to help transfer information and skills to others. There are two kinds of learning materials, i.e., printed and non-printed. The printed materials include textbooks, modules or course books, and handouts, while the non-printed materials include cassettes or audio materials, videos, or computer-based materials. Printed material uses papers, which can serve for learning purposes or submission of information. From an educational point of view, the various learning materials are categorized as parts of learning media ([Kemp & Dayton, 1985](#)). As part of the learning media, printed materials significantly contribute to the learning process. However, they still have the weakness of not presenting the movement. Therefore, the printed materials should be completed with multimedia materials. Multimedia materials are categorized as non-printed materials. [Richard](#) (2020) states that multimedia learning materials use computers to present and combine text, graphics, audio, video, and animation with links and tools that let the users interact, create, and communicate. Thus, a computer must coordinate what the users see and hear and interact with users in the teaching and learning process. There must be links that connect information, navigational tools that let users connect information, and ways for users to gather, process, and communicate their knowledge and ideas. Implementing multimedia learning materials in teaching speaking skills at university is practical and effective ([Ampa et al., 2013](#)).

The learning model carried out by MA is a combination of one or more approaches, such as face-to-face learning, namely learning that is carried out face-to-face in the classroom. Learning can be through lectures or material delivery, group discussions, individual or group presentations, and learning in the laboratory. Second, Synchronous Virtual Collaboration (SVC) is a collaborative learning method between lecturers and cadets that is carried out simultaneously (of course) in different places. This learning is included in online learning because it utilizes an internet connection such as video conferencing (Zoom meeting, Google Classroom, etc.), instant messaging, or chat applications (WhatsApp, Telegram, Google Chat, etc.). WhatsApp can be a promising tool to support communication and collaboration inside and outside the classroom ([Qamar et al., 2019](#)). Third, learning with the Asynchronous Virtual Collaboration (AVC) method, which involves interaction between lecturers and cadets, is carried out at different times and places. AVC learning leverages technologies such as SVC. Learning with the AVC method can be done through discussion forums and electronic mail (email). Asynchronous learning is based on flexible self-learning. Students complete work when and when they decide to do so indefinitely ([Hrastinkski, 2008](#)). Fourth is the Self Pace Asynchronous learning model, namely learning carried out by cadets independently. Materials can be provided by giving learning modules, materials in soft copies (PowerPoint format, PDF, or documents), practice questions, YouTube video links, or learning evaluations conducted independently and online. In performing the hybrid learning design, the lecturer has considered the student's active involvement in the learning process.

There are several reasons why hybrid learning offers active and collaborative learning. Active learning is primarily based on constructivist and collaborative learning theories, meaning students must construct their knowledge and understanding. The teacher will only provide a stimulating environment, and Hybrid Learning provides teachers with various methods and strategies for teaching. In the evaluation stage, learning in the Aviation English class is done online and offline. [Stein and Graham](#) (2014) state that the teacher can have various types and methods of evaluating hybrid learning in designing an evaluation. Depending on their specific learning objectives, they can be done online or onsite. In offline assessment, cadets use software available in the multimedia language laboratory. MA uses the software to assess comprehension, fluency, and pronunciation related to material about emergency or abnormal situations in flight. The online assessment of the Supreme Court was tested by using a feature on Google, namely Google Form, and through a direct presentation using the Zoom Meeting video conference.

CONCLUSION

Based on the analysis of the findings and discussion in the previous chapter, the researcher concludes that the lecturer can fully implement Hybrid Learning-based Instruction in the Aviation English class at the Makassar Aviation Polytechnic. There are three stages in Aviation English Learning: planning, implementation (direct face-to-face meeting, virtual learning collaboration (synchronous and asynchronous), self-paced asynchronous learning), and evaluation. The researcher further concluded that the success of implementing hybrid learning-based instruction is closely related to the lecturers' pedagogical competencies in transforming traditional learning into modern and also online learning. It is combined with their ability to use technology and integrated with their content knowledge. The lecturers' TPACK competencies here can be improved through

numerous trainings on online teaching strategies. The impact of the hybrid learning-based instruction model has been significant. It includes several key aspects: flexibility, personalized learning, increased student engagement, preparation for the digital world, cost efficiency, and hybrid teaching skills. Overall, the impact of the hybrid learning model has been transformative in education, providing a flexible and adaptable approach that can meet the needs of diverse learners and help institutions navigate the challenges presented by events like the COVID-19 pandemic. It has encouraged innovation in teaching and learning, and its influence will likely continue as education evolves in the digital age. Future research could focus on how university-level hybrid learning-based instruction is perceived by both lecturers and college students. The study's conclusions and analysis have significant ramifications for future research. The fact that the cadets preferred the new model of hybrid-learning-based instruction and reported that they learned more and were eager to integrate technology in learning speaks for itself, even though the study did not show that one teaching model of hybrid learning is better than the other concerning objective learning outcomes.

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