

# Augmented Reality Audit as Experience Solution for Internship during Covid 19

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**Abstract:** *Internships or practical work for students currently in higher education or university has become a necessity. Internships are important because they introduce students to the world of work, so that students not only learn theory, but also practice. The current condition where the world is hit by the Covid 19 pandemic makes many students unable to physically intern. Students cannot come to work and to clients due to social distancing. Augmented reality is one of the solutions so that students can get an augmented internship experience. This research is a descriptive qualitative research. In this study, we present data in the form of literature reviews and observations regarding the use of augmented reality in providing internship experiences to students who specialize in the field of auditing science. The results of our research state that augmented reality is more widely used in providing augmented experiences, students can gain work experience without having to meet people physically, however, some challenges must also be considered in augmented development and augmented reality in audit learning, including: content problems, content development costs are still expensive, and also the issue of health problems after usage.*

**Keywords:** *Augmented, Reality, Internship, Experience, Audit, Student, Study*

## 1. INTRODUCTION

Internship in many study programs at the university level is no longer an option, but has even become a necessity (Medeiros, Ícen, Morciano, & Cortesão, 2015). Many educational curriculums in growth and developing countries have made internship one of the main programs and even a unique selling point in offering study programs to students. Internships provide various added values to students, including providing work experience, work environment. In order to students able to master theory thus practice. They already earn work experience when fresh graduating from study. One of the benefits that is also important is that students can experience in advance what kind of work world they will enter and pursue (Jeske, 2019). When they comfort and fit, enjoy the job, then after graduating from college, they can continue to pursue that field, conversely when they feel unsuitable, after graduating they will take another field (Zhang, 2016).

Auditing as one of the knowledge field of study under the field of accounting study, it has a challenging career opportunity (Handoko, Widuri, Andrian, & Darmasaputra, 2019). Students who pursue auditing studies have the opportunity to become an auditor. The job of auditors in public accounting firms is quite popular with fresh graduates, one of which is due to remuneration or salaries given above the average of other jobs or professions. However, there are also opinions that do not like a career in auditing. The profession as an auditor is often seen as a very tiring job, working overtime to come home at night and even staying at the office, until getting married at an old age due to being too busy at work so there is a lack of time to build relationships (Azham, Teck Heang, Mohamad, & Ojo, 2008). Internships can be a solution for high-level students to taste first what it's like to work in the audit field as a

junior auditor. Internships that take between 4 - 6 months make them taste the world of work as professional auditors. Because this work is done before they graduate from college, students also consider this job as a try first. If they are suitable, they will continue to work as auditors, if they are not, usually students do not want to apply again after graduation to apply for or be related to auditing work.

It's an unfortunate that in the midst of the Covid 19 Pandemic that is currently hitting the world, it has disrupted internship activities. Where in preventing the transmission of Covid 19, people are required to do social distancing and also work from home. Several offices complained of a decrease in income, including public accounting firms that employ auditors. Many accounting firms complain that they have to keep paying auditors in the midst of declining client income. To pay auditors who are permanent employees is hard, let alone recruiting internship employees again. Apart from that, another problem is that some audit procedures are usually carried out in person and carry out physical examinations. A concrete example is the observation procedure, where the auditor goes to the client site, then observes the client's business and operational activities, besides that, there is also an inspection of tangible assets, where the auditor performs a physical examination of the assets, such as taking a stock take to check the existence of these assets (Mariani, Sniderman, Harr, & Horvath, 2017). It is fortunate that the development of current technology has made work online and augmented. Augmented reality is expected to provide experience for students to be able to feel the work atmosphere of the auditors, without having to meet physically. Students can do it from their homes and even without having to fear being affected by the Covid 19 Pandemic

## **2. LITERATURE REVIEW**

### *2.1 Augmented Reality*

Augmented reality is a technology that allows users to interact with an existing environment in an augmented world that is simulated by a computer, so that users feel they are in that environment. In many cultures, augmented reality is well known for video game and tourism advertisement (Das, Zhu, McLaughlin, Bilgrami, & Milanaik, 2017). Augmented reality works by manipulating the human brain so that it seems as if feeling augmented things feels like real things (Patel & Shah, 2017). In other word, augmented reality is the process of eliminating the real world around humans, then making the user feel led into an augmented world that is completely out of touch with the real world. To be able to do this, of course, various additional devices are needed. At the very minimum, if you want to experience an augmented reality world, you need a VR headset, such as the one that is now commonly found on the market. Arrangement of components in VR devices in plain view, this VR headset is shaped like diving goggles, but with the lens closed. The part that looks like diving goggles is called a VR box, such as Google Cardboard which is a place to put a smart phone that functions to project an augmented image. VR using this smart phone is a standard version of the VR device. In contrast, for example, VR headsets that already use advanced technology such as the Oculus Rift, in it no longer use a smart phone, but there is already a screen that displays videos and augmented reality images that can also be connected to a computer using Bluetooth. There are 4 important elements in augmented reality.

The 4 elements are as follows:

1. Augmented world, a content that creates a augmented world in the form of a screenplay or script.
2. Immersion, a sensation that brings augmented reality technology users to feel they are in a real environment that is even fictional. Immersion is divided into 3 types, namely:  
Mental immersion makes mental users feel like they are in a real environment.

Physical immersion, it is making the user physically feel the atmosphere around the environment created by augmented reality.

Mental immersion, giving the user the sensation to dissolve in the environment generated by augmented reality.

3. Sensory feedback functions to convey information from the augmented world to the user's senses. These elements include visual (sight), audio (hearing) and touch.

4. Interactivity which is in charge of responding to actions from users, so that users can interact directly in a fictional or augmented world field. The user sees a pseudo world which is actually dynamic images. Through headphones or speakers, listeners will hear a realistic sound. Through a headset, glove, and walker, all movements of the user are monitored by a system that will react accordingly so that the user feels as if he is feeling a real situation, both physically and psychologically.

## *2.2 Covid 19 and Internship Students*

Corona virus infection is a disease caused by the corona virus and causes the main symptoms of respiratory problems. This disease is in the spotlight because of its appearance at the end of 2019 for the first time in Wuhan, China. The location of its appearance for the first time, made the corona virus also known as the Wuhan virus. The cause of Corona virus is a single stranded RNA virus that comes from the Corona Viridae group. It was named Corona Virus because of its crown-shaped surface (crown / corona) (Hogan, 2020).

Another virus that belongs to a similar group is the virus that caused Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV) several years ago. However, the corona virus from Wuhan is a new virus that has never been identified in humans before. Therefore, this virus is also referred to as 2019 Novel Corona Virus or 2019-nCoV.

Corona viruses are generally found in animals - such as camels, snakes, livestock, cats and bats. Humans can contract the virus if there is a history of contact with the animal, for example, to breeders or traders in animal markets. However, the explosion in the number of cases in Wuhan, China shows that the corona virus can be transmitted from person to person. Viruses can be transmitted through droplets, which are water particles that are very small and usually come out when coughing or sneezing. If the droplets are inhaled or hit the lining of the cornea of the eye, a person is at risk for contracting this disease. Although everyone can be infected with the corona virus, those who are elderly, have chronic diseases, and have low immunity are more susceptible to this infection and its complications (McPeake & Pattison, 2020).

The best way to avoid corona virus infection is to take active precautions. The CDC recommends that everyone take actions such as: avoid contact with people who are sick, stay home when you are sick, avoid travelling, especially to areas with cases of corona virus infection (Bhashyam & Dyer, 2020).

Covid 19 conditions such as this make the government announce for social distancing, and this has an impact on the number of activities that are restricted, including work. Many people work from home (Hogan, 2020). This has an impact on student apprenticeship activities (Jeske, 2019), where many companies for the time being do not recruit apprentice students, because they pay the current salary of their existing employees.

The social distancing condition due to Covid 19 is what encourages people to create experiences in cyberspace using augmented reality, however, later when there is no Covid 19 pandemic, this augmented reality will still be used, especially for remote places. For example, there is a difference in the distance between students and internships, here the problem is not social distancing but a long distance, so augmented reality can be a solution.

### *2.3 Auditing Studies*

Auditing studies or accounting examinations provide a framework for providing knowledge regarding auditing concepts in order to understand audit decision making and evidence gathering. The concept of auditing is concerned with determining the nature and amount of evidence the auditor must gather after considering the unique circumstances of each audit engagement (Laitinen & Laitinen, 2015). This study teaches students to be able to understand auditing concepts in order to understand the objectives that must be achieved in a particular audit field, the risks associated with that assignment, and the decisions that must be taken in order to be able to determine the right evidence that must be collected and to know how to evaluate the evidence, which is obtained. Reports prepared in financial accounting need to be audited. So, the purpose of Audit Accounting is to ensure the accuracy and validity of accounting information in financial reports so that the data listed can be trusted and are in accordance with applicable policies. In the Auditing process, an Auditor can submit an opinion on the appropriateness of a company's financial statements.

Auditing studies seek to present not only theory but practice to students (Patel & Shah, 2017). For this reason, this study is often complemented by an internship, where students who have passed the Financial Audit course can continue their internship at a public accounting firm or audit firm as an intern. Usually, apprentices will adapt the job band as junior auditors, they are treated the same as fresh graduate employees, the only difference is their salary, where the fresh graduate is bigger. Job descriptions for internship students as junior auditors are: checking client financial reports, such as: vouching, tracing, footing, checking client depreciation tables, observing, checking physical assets, such as inventory taking inventory in warehouses

### **3. RESEARCH METHODOLOGY**

Our research is qualitative descriptive, Descriptive qualitative research methods are useful for outlining qualitative information and descriptive history. This research is often used to analyse the activities and social phenomena that exist in the community (Sekaran & Bougie, 2016). Descriptive qualitative research translates data relating to social conditions, connections between variables that occur as well as the emergence of existing facts and their effects on the environment, etc. The results of qualitative descriptive are factual empirical information. The descriptive qualitative research model reflects the real situation without adding and manipulating variables. This research model is a model that obtains data in a way that is factual and factual where qualitative descriptive research focuses more on results and their meanings.

Research qualitative researchers start from the data and use existing theories as a basis for explaining and the final session reveals conclusions with the theory. In qualitative research, data is obtained from various references (Sekaran & Bougie, 2016). The methods for collecting data also vary, which is carried out repeatedly until the data is full. The main data collection was carried out by the researchers.

The steps taken in this research are investigation, interview and documentation. The source of this research is the resource persons used to gather information about the circumstances and situation of the research setting. We do interview and focus group discussion with external auditor, which is auditor who works on accounting firm. The auditors that already use computer assisted audit techniques in their daily work in data extraction and analysis. We do online focus group discussion using online meeting application like Zoom or Team.

#### 4. RESEARCH RESULT

##### 4.1 Augmented Reality as Solution for Audit Internship Experience During Covid 19

The results we obtained after making observations to public accounting firms are related to the number of students who wish to intern as junior auditors but are rejected by public accounting. Some students who have even entered internships for one month, were terminated by their accounting firm, here are the reasons we collect

Table 1 Reason of Rejection of Internship Student by Public Accounting Firm

Condition	Reason
Rejection	Firm accept less client than before
	The existing full time employee / auditor is sufficient to handle the audit work
Termination	Accounting firms have difficulty paying existing interns
	Many audit procedures that are physical in nature cannot be conducted due to social distancing

Such conditions make universities have to rack their brains on how to provide internship experience in the audit field to students without the student having to do internships. Some accounting firms are aware of this. Not being able to do student internships is also detrimental for them, because fresh substation students will later graduate without having any experience. They are looking for a solution by making augmented reality videos so that students can still feel the atmosphere of the internship. Big Four Public Accountant Firm produced augmented video for internship experience for students

##### 4.2 Criteria of Appropriate Augmented Reality Audit for Internship Experience

Based on the results of our interviews with technology experts at public accounting firms, here is what we get regarding the criteria for good augmented reality that can provide an appropriate experience for audit students.

Table 2 Criteria of Appropriate Augmented Reality for Audit Intern Experience

Criteria	Explanation
Visual	3D architectural and humanoid modelling
Sound	Auditory sound output with clear and non-obtrusive gear
Avatar	3D avatar with user full control

Augmented reality that will be used is augmented reality projection, marker-based. Projection is performed using virtual depiction to add objects that the user can see. Marker is an image that can be detected by the camera. Marker will be used as a place to determine the location of virtual objects on the screen. The marker used must have a good contrast so that the camera can easily detect it. When the marker has been detected by the camera, the virtual object results will be displayed in the place where the marker is.

Marker-based augmented reality is used to display virtual objects in the form of merchandise inventory at the client's warehouse, company cash to be calculated, observations of the

company's business environment, and other audit procedures performed by auditors. Making augmented reality is first done by using a camera that is used to scan markers. The application will search for markers using a marker detection algorithm. The actual position of the markers is calculated using the direct linear transformation method. The next stage is the rendering stage. At this stage there are two inputs, namely the calculated position and the selection of the dataset object. Rendering is used to define 3D objects and calculate marker positions. After the rendering process, the 3D object will be displayed. Using this augmented technology, our students first create their own avatar or augmented version of themselves (Parcell, 2013). They are able to customize their appearance, such as skin tone, face, facial hair, outfit in order to make the avatar unique and represent their interest (Pinon, 2020). The presence of augmented devices allows them to roam the area going to be augmented audited, such as: client warehouse, client store, cash storage. They seem actually walk between rooms and do observation, including ensuring that all inventory items are properly labelled and assessing building security system. Students can also perform audit procedure, such as: recalculation and open augmented part of clients' inventory shelf to examine whether client record correct exact number inventory as stated in their ledger, Students also examine quality of the inventory, is there any obsolete inventory or damaged one, which need to be adjusted. In this augmented reality warehouse has include some subtle but important details that auditors will engaged in real life audit work, such as: open the loading dock door to attract the attention of the auditor. This is definitely realistic chance to develop observation skills.

#### *4.3 Augmented Reality Mechanism in Auditing*

Interests are taken over by the board of directors for the training and further education for testing and risk management. The audit internship experience by the augmented or augmented reality can be implemented through the various industries being audited (Mariani et al., 2017), it has been certain that the augmented or augmented reality were used for testing and risk assessment process. In the common example for banking, the environment will be set as real as the bank branch office. Other example is in the construction industry, auditors and risk management professionals can be dealt with control procedures without going to the actual location, which is sometimes dangerous and have a risk of accidents at work. You can change the design, to examines other assertions, for completeness and obtain the rights and obligations.

Object recognition technologies can be used by auditor during manual inspections, example auditors can already see details and information on parts, taxes such as management number, date of purchase and maintenance records. And since the auditors get their observations, you can easily remove data. Augmented or augmented reality powers can also be used for financial audits and administrative actions. By displaying the financial figures in three-dimensional and not in two-dimensional north diagrams, the humble person can get another perspective. Financial simulations can usually be used to visualize how that may be one of the variables of the organization's view.

#### *4.4 Future Challenge of Use of Augmented Reality in Audit*

Although there are many benefits and admiration for its users, if this technology is to be used continuously, there are several challenges that must be addressed and started to be considered in order to anticipate. The challenges for augmented reality in providing augmented internship experiences for prospective auditor students, according to (Anastacio, 2019) are: Content; Lack of content remains the biggest challenge and obstacle to the widespread use of augmented reality in testing and risk assessment. Although it is already growing, there are still relatively few companies using augmented reality technologies in their operations. This

condition made not so many variations for internship students to learn augmented reality in audit.

Expensive; Technology itself is relatively expensive. Anyone can buy inexpensive VR systems and headsets, but to produce the augmented or augmented reality video contains audit work, it will need collaboration between professional auditor and information technology expert. When it comes to the issue of content, significant resources will always be required to make the content for professional use. This one really need investment, but since this concept is new, not so many people are directly willing to invest in this technology

Sick after use; A number of people experience dizziness, nausea, and even seizures while using augmented reality technologies, even for short term use in video game entertainment. This will be even more so with augmented reality in a job that can take hours. There is the term digital motion sickness, where you can see the movement but your body cannot feel it. It will take time for the technology to really work

Top management conservative mind-set; Many companies are still hesitant to include augmented reality in their business, as they still only look to augmented reality for games and entertainment. The problem is how to change the mind-set of top company management and leaders or partners of the audit firm, that augmented reality is not just a video game. It can also be used for augmented work experience with results no less good than the video game experience. Moreover, millennial students now prefer to learn in combination with games

Hacker attack; it is similar as in all computerized systems threat. Augmented reality is vulnerable to cyber-security attacks by hacker. The information on which augmented reality is based its visualization can be manipulated and destroyed. Ones it is subdued; the augmented internship process will be neglected or stopped in the middle of the process. This will be detrimental to students and also the university where these students study. There will also be a problem with the apprenticeship appraisal, because the internship stops halfway through

Other than several reason explained above, if Covid 19 subdued, then how about if in the near future? People will back to their normal life and left behind the new normal concept. Students will go back internship in real company. Will this augmented reality still have demanded for internship experience? Things like this are also a method that must be considered by technology developer, so this augmented technology demand will remain high even when this pandemic Covid 19 is over.

## 5. CONCLUSION

It is almost unaltered to deny it, because the fact has proven that technology will play a huge role in auditing and risk management. Augmented and augmented reality in particular can make a huge difference. Auditors and risk management professionals can now perform tasks that may not have previously been possible due to safety and health risks, especially because of social distancing in pandemic Covid 19. In a study of risk assessment analysis using augmented reality technology, researchers in information technology and audit field found that they were able to identify a range of risks using a complex augmented reality model rather than document-based assessment using a traditional audit model.

This shows that auditors and risk management professionals shouldn't limit themselves to reviewing and evaluating technology. They also need to know how to properly use technology to conduct audits and risk assessments. Technology not only centered on generalized audit software that has been developed for decades, but has also begun to look at augmented reality technology.

Future studies can use this research as a preliminary research. The next research can discuss the development of features and the widespread use of augmented reality in audit firms around the world, in an international sense. In addition, a paper can also be made about how

large accounting firms, such as the big four audit firms, have started to develop augmented reality technology in recent times.

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