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Corporate Online Learning as Shared Service Based on ADDIE Model

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Abstract. In the digital era, online learning has become increasingly popular among corporate organizations due to its numerous advantages. However, for companies with multiple business units, it is essential to develop an online learning model that caters to diverse users with varying needs and backgrounds. This study aims to construct a shared service model for online learning in corporations using the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) framework. Data was collected through questionnaires, interviews with stakeholders, observations, and literature reviews to determine the most suitable online learning model that can be used as a shared service across the corporation. The proposed model, developed using Use Case diagrams and web layout guidelines created with wire-framing tools, offers a viable solution for organizations seeking cost-effective and efficient corporate online learning. Future research, including a larger sample size and additional corporations with complex business units, will contribute to the development of an enhanced shared services e-learning model tailored to corporations with multiple subsidiaries or business units.

Keywords: Online Learning, Holding Company, Corporate, ADDIE Model, Shared Service

1. Introduction

Today, many companies are willing to invest more money to develop their employees through training because the success of an organization is highly dependent on their skillful employees. Globalization and digitalization give more challenges for a company to survive because of the tight competition. Therefore, building up employee's skills and competence is a must for the company to survive and grow in this era of global competition.

However, because of the covid-19 pandemic that limits the face-to-face meeting as country's regulation give onsite training become impossible. Also, the cost of conducting in-house training or sending employees to a training location are not efficient as there is time and money to waste for transportation and accommodation to and from training location. With the increase of computer technology and internet, it opens opportunity for training to be done with the use of technology which we know as 'online learning'.

According to Elnaga and Imran (Elnaga & Imran, 2013) there are positive impacts recognized when a company is willing to invest in their employees. When an employee recognizes the investment made by the company, they will show their best performance. Farooq and Aslam Khan (Farooq & Aslam Khan, 2011) added that managers who are willing to improve the capabilities of their employees at the end creates better working environment for the organization. And finally it improves the organization branding to the outside, according to Lu, Tjosvold and Shi (Lu et al., 2010).

Walsh (Walsh, 2014) also mention that specifically for online learning in organization, it significantly reduces the time to conduct training, traveling cost and time spent to and for training location. Not to mention the cost for number of training done or trainer invited to perform a training (Kineo, 2012) and at the same time a training can be conducted in a larger scale that more participants can be included (Arth, 2011). Corporate online learning can be used for trainings such as company induction, product knowledge, training and development (Wargnier, 2010) and also as source of knowledge (İlknur, 2013).

In summary there are many reasons for implementing online learning. According to Tai (Tai, 2008) are strategic purpose like developing a candidate of management, easy access, and many more. Accessibility and speed of training will give geographic benefits because online learning can be done everywhere and from anywhere. Finally, it will increase employees' motivation and retention, they will give the best productivity, so the company's investment is not wasteful.

There is many research based on development of learning model using ADDIE like development of statistic material teaching (Widyastuti & Susiana, 2019), development of mobile learning for microeconomic module (Muslimin et al., 2022), designing English website (Su, 2022), instruction design for teaching material (Morales González, 2022) but not yet on designing online learning model for a holding company with many subsidiary companies. Stakeholders interest model approach is important on making the effective design online learning (Achebo et al., 2019), extended ADDIE model with additional one stage which is piloting can improve a distance learning effectiveness (Constancio et al., 2019), using ADDIE approach to have Personalized Learning Environment (PLE) model which give personalization to the user who want to get the most suitable course for them (Ku et al., 2013) prove that ADDIE model is the suitable approach on having the best design online learning model. The challenge in implementation at corporate or holding company is having the acceptable of it as shared service that can be centralized in the holding company with cost effectiveness (Borman & Janssen, 2013; Sousa & Pinto, 2013).

Despite many companies switching to online learning, there is still room for improvement, especially for a corporate who wants to implement this to their business units. To have that improvement success, they need to answer the research question on what is the right online learning model that a corporate can use for the group as shared service. The improvement will significantly help in terms of

managing training better and at the same time training can be organized to accommodate a bigger audience from across business units.

2. Literature Review

According to the study, Website Functionality has no significant effect on students as E-learning users, and the mediating role of Technological Readiness is likewise unable to mediate the effect of Website Functionality on E-learning user satisfaction (Hamzah et al., 2022). Given the importance of online learning during the Covid-19 epidemic, the primary elements influencing students' motivation should be addressed in educational institutions to optimize the learning process. In this context, five key aspects affecting students' motivation at Arab Open University- KSA have been discovered, including student self-regulation, dialogue with instructors, dialogue with students, instructors' activities, and course design. (Belhaj et al., 2022).

The improvement of online learning for a corporate can be made through shared service as it is considered the right solution to improve cost effectiveness of back-office functions without reducing the quality of services (Paagman et al., 2015; Tate et al., 2013). The concept of shared service is made to capture the benefits of centralized and decentralized arrangement where service created by one unit can be replicated to others with relatively minimum efforts (Marciniak, 2013; Sousa & Pinto, 2013). With centralized governance, economical scale and scope can be achieved as procurement of assets and service is done at the broadest level in an organization which is at the group level (Marciniak, 2013; Sousa & Pinto, 2013).

Other benefits from centralized structures are redundant functions can be eliminated (Borman & Janssen, 2013, 2012; Paagman et al., 2015) and at the same time company has bigger control on information. At the business unit level, request related to service can be responded faster (Borman & Janssen, 2013) and it is more flexible to do changes compared when it managed solely at the holding company level (Sousa & Pinto, 2013). Other benefits from shared service are exchange of internal capabilities (Paagman et al., 2015), improve compliance with legislation and standards (Marciniak, 2013; Paagman et al., 2015); and mitigate risk (Paagman et al., 2015).

3. Methodology

In order to answer research question on what is the right online learning model that a holding company can use for the group, the researcher used ADDIE model as this model is the framework most people uses for instructional design (Khodabandelou & Samah, 2012; Maisarah et al., n.d.) especially those related to online learning (Hsu et al., 2014; Muruganantham, 2015; Nadiyah & Faaizah, 2015; Urh et al., 2015). ADDIE model consists of five stages: Analysis, Design, Development, Implementation and Evaluation (Chevalier, 2011).

The first stage of ADDIE is to analyze users' needs. The instruments used for this stage are questionnaires and interviews. The user requirement analysis was done by gathering information from questionnaires sent to 88 employees from 3 different groups of business units in Jakarta. The questionnaire consisted of 25 questions using Likert scale of 5, rated users' expressions on their experience using online learning and the features that they would like to be available. The information gathered was then strengthened with semi-structured interviews done with stakeholders from each company. Around 10 stakeholders representing companies and their business units were asked questions regarding issues around managing learning, online learning and their needs about what functionalities that should be available on the model. Literature review and observation on how the company does online learning internally to their employees was also done as part of analyzing stage in ADDIE model.

The second stage of ADDIE model is designing the model. The model is designed using a use

case diagram to enable you to visualize the different types of roles in a system and how those roles interact with the system. Continuing to the development stage, the model was built using wire-framing tool, the popular tool that easy to visually communicate your ideas and get feedback. At every stage there is always an evaluation with the stakeholders to make sure the model that is being developed is suitable for their needs.

4. Result

Based on the questionnaire done at the analyzing stage, the characteristics of the respondents that provide information and feedback for the models can be described as follows (see Table 1).

Table 1: Respondents Demographics Information

Demographic Information	Description	Percentage
Gender	Male	76%
	Female	24%
Age	21-34 y.o	60%
	35-50 y.o	39%
	> 50 y.o	1%
Organization Type	Holding companies	27%
	Business units	73%
Job Level	Staff	58%
	Manager	40%
	Director	2%
Experience with computer technology	0-5 years	7%
	6-10 years	18%
	> 10 years	75%

As can be seen from Table 1 from 88 employees, majority are male employees in their productive age where most of the employees are working in the business units and the remaining one fourth working at the holding companies. There is a balance of job level for staff and managerial level where most of the employees are computer literate.

Further analysis on those respondents towards their experience with online learning can be seen below (see Table 2).

Table 2: Respondents Experience with Online Learning

Employees Experience	Description	Result
Online learning user	Yes	90%
	No	10%
Online learning was assigned by company	Yes	51%
	No	44%
Location where respondent mostly access online learning	Office	26%
	Home	36%
	Both	38%
Technology used	Computer	58%
	Smartphone	2%
	Both	40%

Based on the questionnaire result seen on Table 2, most employees have experienced online learning before although half of them were a result of corporate assignment as part of employee development. Employees used either computer or a combination of computer and smartphone as their technology media to access online learning either from the office, home or both.

Second part of the questionnaire focuses on the features that should be available for users to access online learning. It consists of 5 dimensions:

- Class related.
- Content related.
- Communication related.
- Tasks related.
- Participants related.

Information collected from the questionnaire shows that the following features related to class such as catalog, curriculum, progress tracking, gamification, score, certificate, and class evaluation is important (see Figure 1).

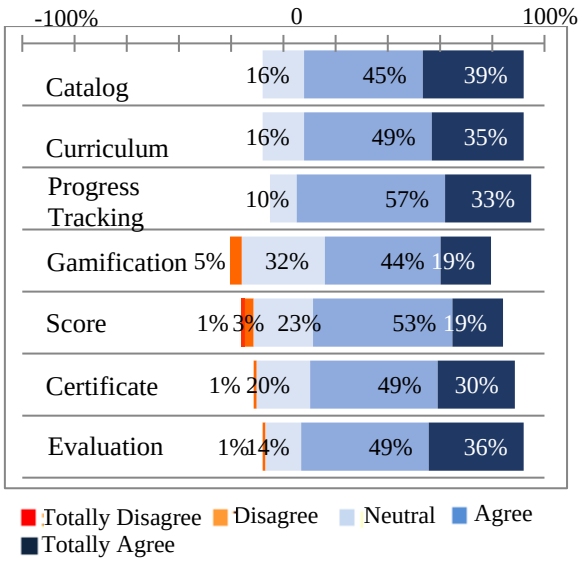

Fig.1: Class Related Dimension of Online Learning

The second dimension of online learning is content related where most users agree that the following features are equally important in online learning for holding companies. The features are training material, multimedia, URL or website link, e-book, case study and other supporting materials (see Figure 2).

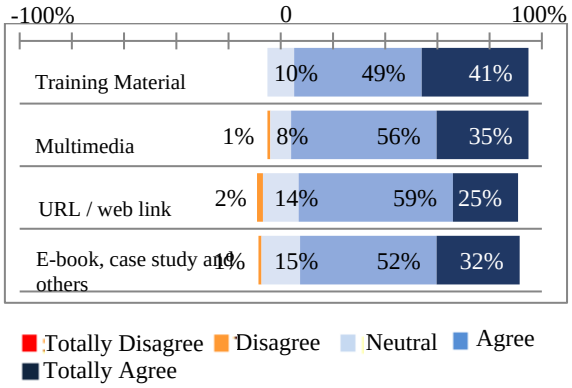

Fig.2: Content Related Dimension of Online Learning

Communication is an important part of online learning as can be seen from information shown on Figure 3. Communication and interaction in online learning can be achieved via discussion forum and web conference.

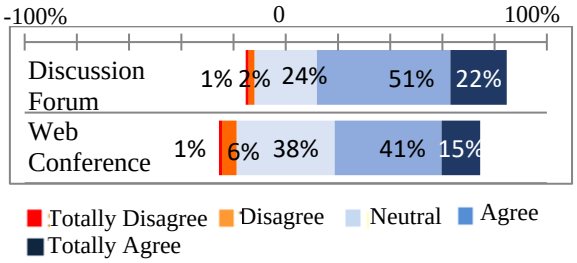

Fig.3: Communication Related Dimension of Online Learning

Quizzes, assignments, and final tests are all considered important to the successfulness of online learning with more than 80% respondents agreeing these features should be available on an online

learning. Further discussion with several stakeholders, they also agree that these features should be available to measure the successfulness of a program compared to investment made by organization (see Figure 4)

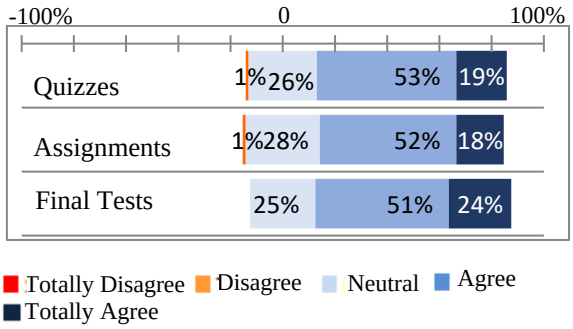

Fig. 4: Tasks Related Dimension of Online Learning

From participant's related perspective or dimension, 90% respondents agree that self-registration to a class is a must in an online learning model. The second feature that should also be available is the ability to update personal information, which 80% of respondents agree to this. Another feature that is nice to have which 60% of respondents agree to is the ability to view personal information of classmates and their presence in online class.

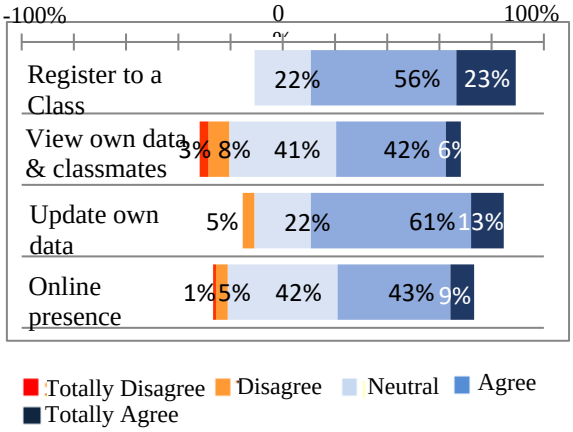

Fig.5: Participants Related Dimension of Online Learning

Besides those five dimensions, Figure 6 below shows other features that should be available in an online learning. Those are score and ranking, presentation of success of a class or program and achievement of each curriculum with more than 80% of respondents agreeing to it.

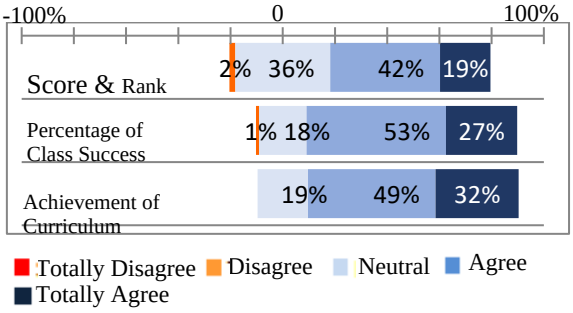

Fig. 6: Other Features of Online Learning

To get more in-depth information about things that are required to build an online learning, interviews were also done with several stakeholders that are responsible in conducting learning in an organization.

There are four points that have been taken into consideration because of the interview.

1. Current condition

Face to face workshop or training is normally done in holding company where employees are required to go to a training site in the head office or outside training center. Onsite training has several things that should be considered:

- Getting the names of employees to be sent to training facility.
- Time availability of trainer and participants and the venue
- Arrangement of accommodation, transportation, and consumption for trainer and participants
- Preparing for hands-out and making sure equipment is ready at the time of event which will take minimum 2 days before the event.
- Participants from regions will spend a minimum of 1 day on transportation.
- Room availability is essential for facilitators as they need to find the right room that can accommodate a certain number of participants which might result in renting spaces outside the office.

2. Stakeholders agreed that online learning can solve several technical issues mentioned such as timing and location. Material for the training is also available in the market making it easier to run online learning in an organization.
3. Although online learning has significant positive impact to organization, there are several things that should be taken into consideration from participants' perspective such as less of interaction between trainer and participants, not enough time to finish all courses, and the challenge to finish the course until the end. Things that should be taken into consideration from facilitator's perspectives include the success of a class, ability to track the progress and accomplishment of each participant across business units.
4. Therefore, the facilitator should be able to monitor the successfulness of training as part of his/her responsibility to management. Based on the interview conducted, some features that should be available for online learning:

- Email notification. This feature is important to remind participants of any updates related to online learning without the need to enter the system. The purpose is to improve the completion of each participant.
- Assignments or quizzes. All respondents agree that these features can be used to measure the success of a training by measuring participants understanding class material.
- Online learning systems can be used as simple knowledge bases to store training material that can be accessed by employees anytime and anywhere.
- Training catalog which consists of several classes available for employees to participate in for them to improve their level of knowledge.
- Training history. This feature is needed to track each employee's development and progress by monitoring training or classes taken.
- Curriculum feature is needed to separate material into several classes. This is required to improve user participation by matching class requirements to levels in organization. Curriculum is useful to build employees' competency and help them grow to the next level.
- Survey is important to get participants' feedback of a class they joined.
- Discussion forum can be used by participants to have discussion of a certain topic with other

members.

- Facilitators can flexibly set up training schedules based on a certain timeframe or leave it open.
- Administrators of corporate should have access to employees' data and training record while administrator of business unit can utilize the same for their own employees.
- Online learning should be available via the internet and accessible via computer or smartphone as part of a way to improve employee engagement to online learning.

From data gathered via questionnaire and interviews done to stakeholders, there are some improvements on online learning that can be used to holding company especially holding company that sees online learning as shared service. Those five certain criteria significance online learning models for holding company are:

- Class sharing
- Administrator role
- Reporting
- Company unique identity segregation
- Single sign on (SSO) segregation

4.1 Class Sharing

From the information gathered, one of the features that is indirectly linked to the creation of the online learning model for a corporate is the ability to enroll to a class. This is in line with the questionnaire result about class enrollment where none of the users disagree or even totally disagree with this feature (see Table 3).

Table 3: Respondents Response to Enrollment Feature

Feature	Ability to enroll to a class
1-Totally Disagree	0%
2- Disagree	0%
3-Neutral	22%
4-Agree	56%
5-Totally Agree	23%

To maintain the momentum of users voluntarily enrolling to a class, a variety of number of classes or class categories should be enough for users to acknowledge that the company is serious about grooming their employees. This number or variety can be accomplished by sharing classes available to other business units. The other way is for the administrator of the holding company to open classes to all business units. It is how holding company creates value to all employees in the group.

Both group admin and business unit admin can add new classes, but the difference is that Group Admin can create classes for employees in the whole group while business unit admin can do it for only for his business unit. Group Admin can monitor classes opened in every business unit and do a review of classes that is useful and might interest more participants. Group admin can clone the class and make it available for a larger audience. Multiplication of classes to more business units resulted in more classes available to be enrolled by employees compared to online learning with no segregation of company. The flow of class sharing scheme can be seen below (see Figure 7).

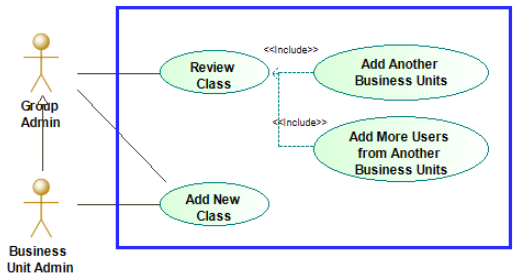

Fig.7: Class Sharing Scheme

The design for Group Admin to add more Company or Users can be seen on Figure 8 below. The administrator will open class information, go to the Company tab, search for the company name that he thinks will benefit from the class and Add to a Course.

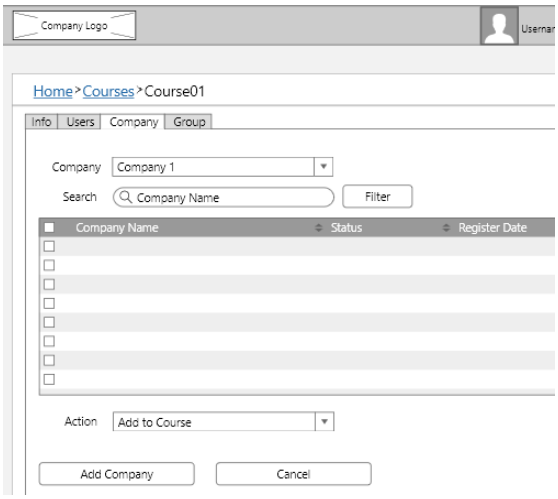

Fig.8: Sharing a Class to Business Units Web Design

4.2 Administrator Role

The concept of shared service is a hybrid of centralized and decentralized structures. In the case of online learning model for holding company, it should capture both elimination of redundant functions and at the same time provides flexibility for business units to be independent in terms of running online learning for their own unit. On interviews done to stakeholders, it was mentioned the administrator of the holding company should be able to manage classes for the whole group while administrator of the business units can only manage classes of his/her company (see Figure 9). The segregation of administrator responsibility is a must for security purposes. As it is an integral part in designing a system where dependability must be taken into account especially confidentiality attribute (Crouzet & Kanoun, 2012). Therefore, the online learning feature should accommodate administrator segregation through role management function.

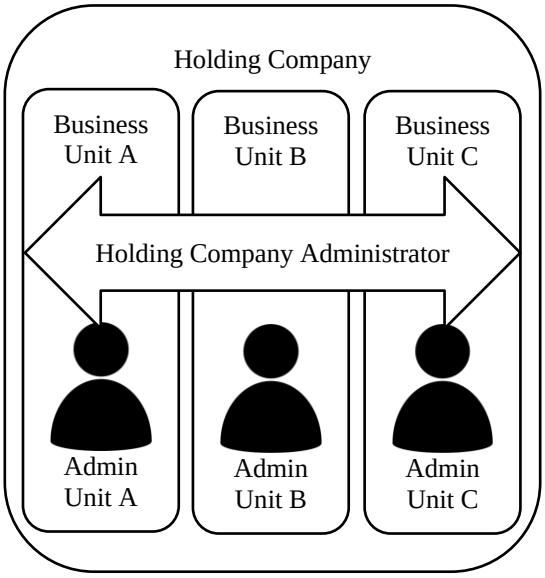

Fig. 9: Segregation of Administrator Role

Role management in online learning is translated into the following web design for online learning model as we can see on Figure 10. This design includes every role required in online learning.

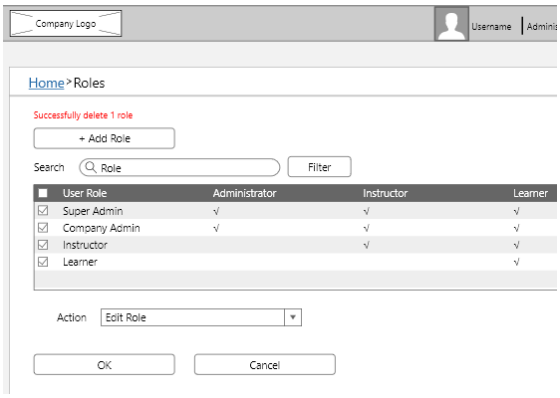

Fig.10: User Roles List

There are four minimum levels of users in online learning for corporate. They are Super Admin who has the highest authority in the system, Company Admin who has the highest authority in his company, Instructor who creates and adds content to a class and Learner who is the employee who enrolls to a class and takes benefits from knowledge improvement through online learning.

Super administrator, in this case group administrator has privileges to all features available in the online learning, while company administrator has the right to information or features related to business units he is in charge with. Information or features that will affect the whole group that should only be available to group administrator only are Roles, Business Units, and Account & Settings. More detailed information of roles and responsibility of administrator can be seen on Figure 11 below. All features come with View, Create, Update and Delete permission available for user to do more advanced role segregation.

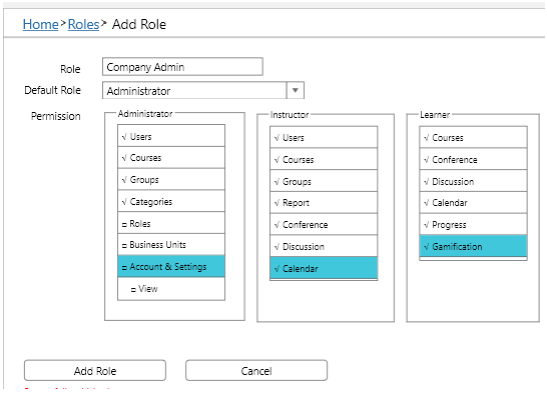

Fig.11: Company Administrator Role

4.3 Reporting

The third feature that should be available in this online learning for holding company is the segregation of reports either via dashboard or generated report. Reporting should also consider dependability characteristic especially confidentiality attribute (Crouzet & Kanoun, 2012). Super administrator will have the visibility of what is going on in all business units while business unit administrator (company admin) has the visibility on his business units. The same concept of segregation of administrator responsibility on Figure 9 is also applied here. The design for the report for an administrator can be seen in Figure 12.

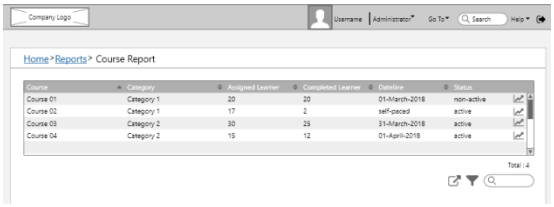

Fig.12: Course Report

Design wises there is no difference between course reports for super administrator and business unit administrator. Both can see the same fields. However, for the purpose of information security, the filtering is run so that holding company or group administrator can see report from all business units while business unit's administrator can only see course report related to the company he is in charge with.

4.4 Company Unique Identity Segregation

Every company, even though they belong to the same group, each has their own unique identity. Therefore, customization of online learning system according to company specific characteristic should be made available. The unique identity of a company consists of color branding, sub domain name, logo and other customization specific to that company. For color branding, online learning models can be made available for administrators to customize specific color in the system to match company's color branding guide. First, administrators can create a new customized theme with specific color for each web item (see Figure 13).

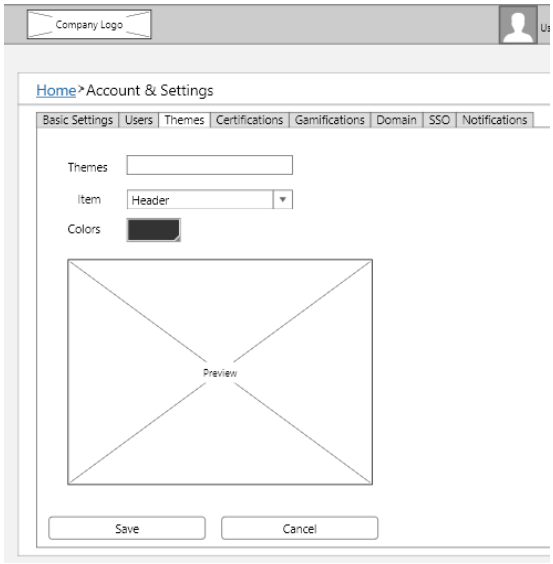

Fig.13: Themes Setup

Then, administrator can apply that theme to specific business unit (see Figure 14).

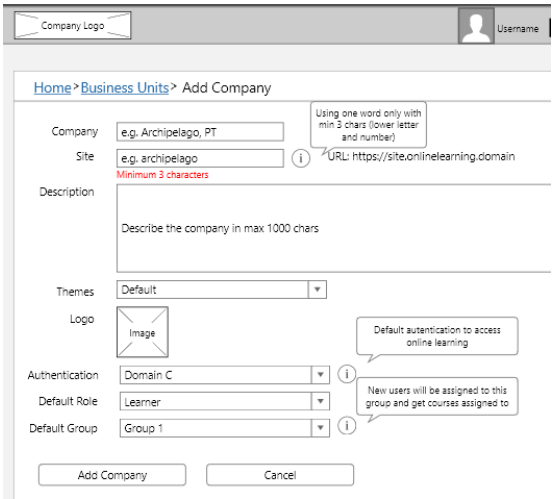

Fig.14: Business Unit Customization

On the same business unit customization page (Figure 14), besides changing the themes to match company unique color branding, there are other fields that can be customized such as site name and logo that is unique to every business unit. The main goal of allowing segregation of brand identity is to get better buy-in voluntarily from each business units to use the service. It also allow employees' to better engage to the system and accrue its benefits even further (Harrigan et al., 2017).

4.5 User Single Sign On (SSO) Segregation

Online learning model for holding company should support implementation of Single Sign On (SSO) for companies that already have Active Directory in place. The purpose of Single Sign On (SSO) is for users to sign in to one or several systems using only one username and password, the same account that they use to access their domain computer. By using the same authentication, it will reduce the barrier for users to access the system because they must remember another set of usernames and passwords. It also minimize the risk of failure to login and support required to help user reset their passwords (Gellert et al., 2017; Stobert & Biddle, n.d.).

The configuration of Single Sign On (SSO) in an online learning model for holding company should be separated based on their domain. The design of Single Sign On (SSO) setup web page can be seen on Figure 15. Administrators should setup Active Directory (AD) configuration to match each business units AD server and its account used for authentication. Authentication using SSO will pass every username and password to an AD server and once it responds back with True flag user can login and start using the application based on the matching role.

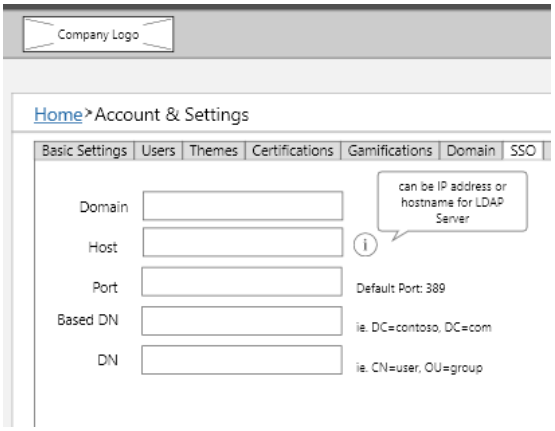

Fig.15: Single Sign On (SSO) Configuration

5. Discussion

Research found the ADDIE model was useful as a source of information extraction since it provided effective pedagogical methods and made the work of educational designers and teachers more efficient (Jonnalagadda et al., 2022; Spatioti et al., 2022) and through the depiction of abstract concepts and the contextualization of concepts in everyday life. ADDIE Model can provide assistance for the application of multimedia, which plays a role in facilitating more meaningful science learning (Baharuddin, 2018). Shared Services, an organizational management paradigm, continue to be applied in enterprises and public administration with the goal of providing services that are collaborative and virtual, supported by a single technological platform, and enterprise architecture that is service-oriented (Sousa & Pinto, 2013) and shared service center can give cost effectiveness that increase the ROI from financial perspective (Rudzioniene & Sakalauskiene, 2014). Therefore, in the practical side, the making of a suitable shared service model that can cover and fulfill all the needs and requirements of e-learning at corporate especially who has many business units will be very needed. It can be used to make various users from different organization and business background sharing their knowledge easily within their organization and satisfied with it.

In this research, utilizing online learning as shared service will significantly help redundancy of work and at the same time still maintaining the quality of service. Shared service-based e-learning can answer management challenges to find e-learning methods that can be put into practice to acquire new duties, become familiar with new workflows, and comprehend ownership (Olsen & Welke, 2019) also according to several different sources, the cost savings that can be achieved through shared service centers range anywhere from 20% to 50% (Enescu & Manuel Ionescu, 2020; Strikwerda, 2006). The result of this study showed that there are five significant functions that answer research questions of what kind of online learning model should be built to support a corporate with many business units using ADDIE model. Those five functions are:

- Class sharing or replication to other business units.

  The goal is to have more classes available for learners to see via catalog, enroll and get the benefit of the study. Reduction or elimination of duplicate function to create a new class can simply be done by cloning the same class and sharing it to other business units. This process can be done instantly with minimum effort (Marciniak, 2013; Sousa & Pinto, 2013)
- Segregation of administrator role.

Segregation of administrator role is important to make sure the system will run properly and improve the level of confidence of business unit to access the same service provided by holding company. Employees' information and control of the class should only be made available for group admin and each company admin. This is in line to dependability factor that is crucial in designing a system especially from confidentiality attribute (Crouzet & Kanoun, 2012).

- Reporting

  Progress report should also follow the same dependability characteristic especially the confidentiality attribute (Crouzet & Kanoun, 2012) where business unit administrator can only see reports made available for his own business units.

- Company unique identity segregation

  Each company is unique with their own name, attributes, color and logo. Allowing business units to customize their own identity is required to make sure to get their involvement in this online learning shared service. Besides that, from employees' perspectives, they will feel more engage to accrue further benefits of the system (Harrigan et al., 2017)

- Single Sign On (SSO)

  The purpose of SSO is to reduce barriers in accessing the system (Gellert et al., 2017; Stobert & Biddle, n.d.). Therefore, the system should be able to accommodate business units with different Active Directory servers.

With those five functions made available to online learning, shared service will no longer be an issue to be implemented to business units.

6. Conclusion

The concept of online learning and online learning for enterprise is no longer something new as the current technology advancing significantly compared to several years ago making online learning easier to be implemented to user. However, to take more benefits from online learning for enterprise, the concept of shared service should come in. The five functions that result from this research are class sharing to other subsidiaries, segregation of administrator role, report, company unique identity segregation and single sign on will contribute to make a suitable model based on ADDIE in holding company. This model can be the foundation of other research to know other possible aspects that need further justification on making advance model that can suit in holding company with many subsidiaries or even a global corporate company. Future research with a greater number of survey participants and other companies that have various business units will empower the making of shared services e-learning model that can suit a holding company with many subsidiaries or business units.

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