

CREATION OF AUTOMATED CONTENT WITH EMBEDDED ARTIFICIAL INTELLIGENCE: A STUDY ON LEARNING MANAGEMENT SYSTEM FOR EDUCATIONAL ENTREPRENEURSHIP

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ABSTRACT

These days, typical content creation media are facing a digital transformation. The downfall of content-based streams concerning learning and educational entrepreneur has constrained distributors to focus their approaches on restructuring the values of online content distributed on the internet by refining the traditional learning management systems. Also, if we emphasize small-sized learning content, we can track down the extra challenge of the lack of entrepreneurs, significant to appropriately display reference systems that increase the number of clicks and advertising effects of content. To train novice teachers to be leaders with entrepreneurship skills and efficacy, educational entrepreneurship is of recent origin and is a relatively new phenomenon. In modern times, social media platforms have an incredible influence in strengthening organizations to plan multimedia-oriented and intelligent content. However, then again, there is a lot more to achieve for intelligent content generation approaches. In this situation, this research aims to focus on intellectual content creation methods that strengthen learning management and should be possible by using embedded artificial intelligence. Artificial intelligence is perhaps one of the most exceptional fields, and it can be utilized effectively. Thus, this study is expected to talk about its potential in improving learning management. In this work, we present a methodology for producing automated content with the assistance of embedded artificial intelligence and semantic strategies. We have focused our examination on modular engineering to offer adaptability to the making of elements that take advantage of learning management systems and with incredible recommendation mechanics. Results for educational entrepreneurs in real-time conditions are promising, improving outcomes concerning traffic redirection and automated content creation.

Keywords: CMS, LMS, Embedded Artificial Intelligence, Automated Content, Educational Entrepreneurship.

INTRODUCTION

Artificial intelligence and automated content creation are set to change learning management systems for good. They help you acquire an upper hand in the packed advanced marketing scene. You can automate various repetitive tasks and put your efforts into the innovative parts of learning management (Ganapathy, 2017).

While 20 years ago, everything looked like sci-fi, today, AI tools can translate your content into different formats. Advanced solutions utilizing NLP can even write the content all by itself. Above all, artificial intelligence and automation assist you with understanding your customers

and build significant relationships with them (Paruchuri, 2015). By making deeply focused on, important, and customized AI content, you support user engagement, conversions, and maintenance. Luckily, advanced content marketers are beginning to understand the significance of artificial intelligence (Ganapathy, 2016).

As per a study (Ahmed et al., 2021), 56.5 percent of content marketers are leveraging AI for content customization. They additionally allocate the greater part of their marketing budgets to analytical analysis, personalized decision making, and content segmentation.

AI-powered learning management has been generally adopted, as it helps the experts' instinct and thinking by working with the control and display of information to help reveal patterns probably not going to be recognized by the expert. Also, regardless of legitimacy issues about the computer-supported methodology's capacity to comprehend the meaning, sentiments, and expressions in content, there is a solid belief that such drawbacks are exceeded by the remarkable quality, time, and money-saving advantages of embedded AI when managing enormous content. Given this compromise between the legitimacy of manual learning management versus the remarkable quality and proficiency of learning management, researchers contend that a crossover of both these methodologies would profit from all advantages.

This paper centers around one sort of content, text, which in itself is unpredictable and requires a critical comprehension of language and human perception. Generally, experts utilized what is currently known as the manual way to deal with completing learning management of text. This includes people manually coding and analyzing the content.

AUTOMATICALLY GENERATED CONTENT BY AI

Artificial intelligence tools that are creating automated content utilize Natural Language Generation (NLG) methodologies. Their primary objective is to change over the information into precise, intelligent, and elegantly written automated content. In particular, NLG is a type of artificial intelligence that creates characteristic language from the information.

An NLG system is able to change numbers into informational and data-driven content. A part of the tools we will specify later even use the relationship between words to enhance the content creation cycle. NLG is somewhat like, yet not the equivalent, to the natural language process (NLP). While NLP is highly responsible for reading the content and converting it into numbers, NLG performs the operation of writing the content.

THE ROLE OF EMBEDDED AI IN LEARNING MANAGEMENT SYSTEMS

If it takes a close look at the learning management systems over the course of events, it will be seen that this field has changed a ton since its introduction to the world (Figure 1).

A survey suggests that more than 2.5 quintillion bytes (Ganapathy, 2015) are generated each day. With the increasing demand for social media networks, this number is believed to be developing. To keep an upper hand, you need to keep up with these changes and this is where artificial intelligence influences the actual learning management. Presently, the role of AI in learning management differs enormously. It can assist you with collecting and managing loads of content data, speed up content creation, and customize user experiences as required.

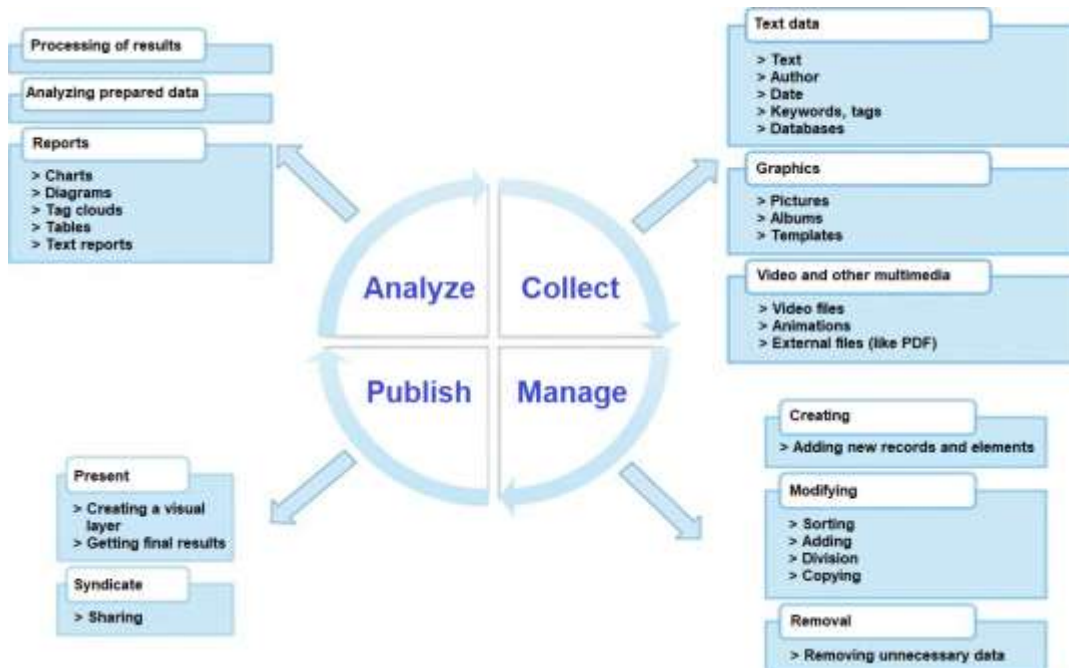


FIGURE 1
THE LIFECYCLE OF CONTENT CREATION

Embedded artificial intelligence and automation assume significant roles to play during the development of an intelligent learning management systems, including:

Automated Content Creation

With artificial intelligence, content creators can automatically create content for the simplest of tasks. You've most likely read content created by an AI algorithm without even knowing it. Numerous big brands are utilizing bots to make automated content. In this way, they figure out how to cover the most recent news and updates quicker. Content automation is an opportunity to focus on more challenging tasks without hurting distributing consistency. We will examine how bots are vital to use with regards to AI content creation in the part below.

Enhanced User Experience with AI Chatbots

Chatbots are computer programs that leverage AI to imitate human behavior with users. A similar example is Facebook Messenger, which utilizes chatbots to do semi discussions with clients, noting inquiries and issues progressively. Chatbots are very helpful in streamlining the customer support process. Rather than having users fill out a complete form, they can simply type in their questions and find a solution in real-time. AI chatbots are programs that leverage AI, machine learning, and natural language processing to imitate a human-like experience (Paruchuri et al., 2021). Accordingly, they come in as an ideal customer support channel. If implemented correctly, they give constant day-to-day assistance, irrespective of users' location or time zone.

Nonetheless, AI chatbots are not only a customer support medium. They frequently can fill up with your content marketing needs, as well. To begin with, chatbots can collect user information through automated and meaningful discussions.

Information-Driven Insights

Today, people are undeniably more tech-savvy and have data-driven approaches. They use different digital mediums, from social media platforms to chatbots. Above all, they have figured out how to analyze, assess, and focus on advanced content.

Nobody needs to sit around reading conventional 500-word articles or unessential emails. Regardless of whether that they lead to your website or your blog, readers require that your content should be customized and related to their particular requirements and needs.

AI assists you with understanding your users and individualized content. It additionally assumes a vital role in leading the scoring process. Likewise, it lets you know where a user is in their buying process.

For instance, marketing to somebody who is still in the thinking stage and a user who is prepared to buy requires two various methodologies. By tracking where a buyer is in the buying process, you will be able to deliver more applicable user experiences.

Predictive Analysis

The predictive analysis makes organizations more productive. It assists them with understanding a user and customize content that resonates with their necessities and interests.

It likewise leverages a lead scoring system to analyze where your prospects are in the purchasing timeline. This scoring system enables advertisers to track the business processes by finding out which users are ideal to change over, depending upon their past practices and history.

As indicated by a new study (Ahmed, 2020), lead scoring can prompt huge ROI for advertisers and bloggers, even, for lower content volumes. Predictive analysis likewise provides content creators with the understanding of which content to focus on which user. When you comprehend where your target audience is in the buyer journey, you can leverage that data to create a certain kind of content they are more likely to connect with.

Content Curation

Content curation is the point at which an individual (or team) reliably finds, sorts out, comments on, and shares the applicable and best digital content on a particular subject for their objective market. Eventually, we don't create content only for making content. We will probably move a reader through the thinking stages, so they are bound to read our content or click on that link to buy our product. Artificial Intelligence assists content creators with making intelligent content for their readers at each phase of the content creation lifecycle.

AI algorithms make it simpler to collect information on the target audience to curate the content accordingly. This may include what might be their reading preference, what sorts of questions they need answers to, and any concern they have about your particular business or subject being discussed. Equipped with this information content creation and curation becomes all the more efficient and easier to addresses their questions. And eventually, this process increases the user engagement and ensures the more likely conversions for any offers you may try to pitch them.

THE MOST-EFFECTIVE APPLICATIONS OF AI IN LEARNING MANAGEMENT

With respect to the most ideal applications of AI in developing high-performing and effective learning management systems that analysts have recently focused on, it is feasible to consider a few applications of intelligence content creation, management, and marketing. Details about such applications are as per the following:

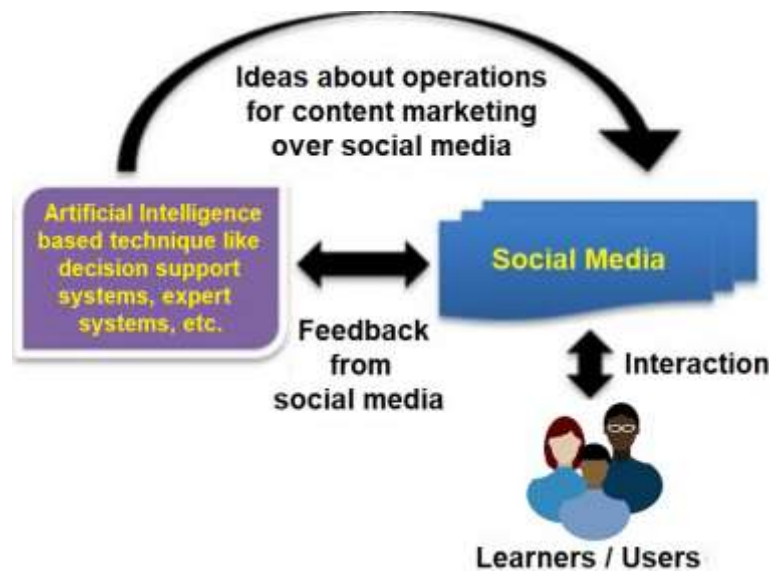


FIGURE 2
SAMPLE MODEL FOR INTELLIGENT EVALUATION OF SOCIAL MEDIA CONTENT

Social media platforms are a solid environment for organizations/brands to keep a consistent touch with users. Starting from there, it is effective to utilize social media platforms to evaluate the content that might be valuable for marketing purposes. Here, we believe that the content creators can leverage the related applications powered by embedded artificial intelligence and improve their social media presence.

It is very much possible to assess inputs over social media platforms and direct online media-based tasks (Ahmed et al., 2013). These advancement cycles might be based on an expert system (Ganapathy, 2016) supported by an AI approach or complex development algorithms leading to something more insightful i.e., the understanding of the page of the organization/brand. Figure 2 represents a short outline for this application.

Self-learning Digital Content

Another perspective of an intelligent learning management systems is connected with the application of a self-learning digital content mechanism. The primary tool of digital content is to refresh/develop by utilizing a few important factors related to its potential interactions with clients. Along these lines, a digital content system that has gotten low input from the targeted users may consider curating something inside it to be more appealing or create content that expands its prominence and may refresh itself to be more adjusted for various internet conditions

(Vadlamudi, 2020). This intelligent framework may have more than one AI method like the blend of artificial neural networks and machine learning methodologies (Paruchuri, 2021).

Insightful Customer/User Trackers

This application of smart content creation is fairly about evaluating users' practices over the internet and what sort of content they are more likely to prefer (Vadlamudi, 2021). It might appear something like spyware obviously, the system on the foundation of this model includes tracking users' activities for some particular focuses while they are browsing on any digital media platform. This model incorporates some sort of mechanism, which empowers insightful programs to track users from starting and toward the end, advice the primary system about which user is more likely to be pulled in. This model may be understood as an intelligent, smart adaptation of cookies used generally over the internet that needs to store related information for the users. However, the methodology of tracking being discussed here is something beyond storing information. This model is an application for certain abilities to track customers/users, collect information while they connect with media objects, web interfaces, different customers/users... and so forth, and analyze this information to give a few ideas for potential content marketing (Sharma, 2020). With the latter ability, this model can be even a contribution to another model, which can make content automatically.

ADVANTAGES OF AI-BASED LEARNING MANAGEMENT SYSTEMS

Content Understanding

For content to deliver the required outcomes in cross-platform methodologies, the style of content must be predictable. However, this is practically a very difficult task, regardless of the rising number of channels available for marketing. The challenge that content creators are facing is the requirement for constant content generation, which stays new, smart, and amazing enough to change over into leads. Nonetheless, there is no secret element or any easy route in accomplishing top results with winning marketing content. With the utilization of AI, however, these issues can be overcome. Organizations and brands can automate their work processes while simultaneously, give content creators continuous experiences on the sort of content that works which will eventually develop a smart understanding of content.

Greater Analytics

The analysis created by the LMS is probably going to turn out to be highly customer-oriented in this way more intelligent. Equipped with collected information on consumer behavior, learning management systems (LMS) will understand and spell out the whole buyer journey beginning to end and predict the kind of content that prompts traffic increase and user engagement.

Improved User Experience

In these exceptionally digitized and serious times, enterprise effectively seeks after a more client-driven way to deal with their productivity and to harvest from competitive advantages. While tech developments enable consumer behavior, artificial intelligence has brought a higher power and an amazing change in user experience. These high-level UX features will be

leveraged by programmers, not only to improve websites but to advance their obstructing presentation.

Most importantly, AI-powered websites will handle data and information in a, particularly complex manner to help end-users according to their interests and consumer practices.

COMBINATION OF EMBEDDED ARTIFICIAL INTELLIGENCE AND LMS

From various perspectives, AI and LMS are a combination that's sure to bring a higher level of productivity - at any rate, for end educational entrepreneurs of a LMS. During all the excitement around AI, one thing is clear: There is a ton of continuous advancement occurring, and no single content creator or system is set to rule the market. In theory, AI can be applied to practically any domain, yet since it learns from past behavior, a specifically trained AI is normally more valuable than a generalized one.

For a LMS vendor to restrict themselves to embedding a single AI into its product suite is preceding the advantages of all the development occurring. All things being considered, LMS ought to be architected to take advantage of any AI as they become helpful and arise as top tier for a specific purpose. Maybe than competing with the global leaders in AI development, LMS vendors should see them as accomplices and spotlight their efforts on conveying a consistent user experience through both adaptable and extensible product design. CMS engineers, in the meantime, should search for CMS structures that don't restrict what AI they can take advantage of for the applications and experiences they are creating (Neogy & Paruchuri, 2014). In the world of CMS, the times of the single-seller suite might be done now, however, the space of the adaptable LMS and AI has quite recently started and will continue to develop and grow.

THE CURRENT STATE-OF-ART OF AI-POWERED LMS

Content is all over the internet and organizations are overflowing in content, which is frequently stored across various systems that don't communicate with others.

Advantages	Disadvantages
Commercial LMS has more technical applications in tasks where traditional options are not sufficient. By paying a certain amount, the subscriber gets any required service/product.	The user of LMS should cover the expenses for its subscription regularly for its support and maintenance. Creators likewise demand additional expenses for extra features and modules, as well as new GUIs.
When the LMS system is developed by a programmer or team, every one of the modules is relatively more flexible and connected.	Handling a LMS system is frequently more troublesome than unpaid options since it depends on unique methods and ideas, it isn't flexible with the standards.
The programmers of LMS systems often have a different way to deal with the users. Bigger organizations provide a guarantee and in the event of any failure, they provide quick assistance and support. The user in that case is sure that the software engineer will solve the issue.	Commercial LMS systems are hard to personalize. Users can see accessible integrations and develop a new page by adding existing resources. On account of LMS solutions normally, programs are written without any training, and the end-product is accessible solely once it's completely finished.
The users can ensure the uniqueness of LMS. While subscribing for an exclusive solution, the subscriber is certain that the GUI or system isn't edited or used by some third-party website over the internet.	For small businesses, systems can't be completely secure, because of the numerous possible outcomes of cyber-attacks and a minimal number of computer networks.

The survey conducted by Doewes et al. (2021) showed practically 75 percent of enterprises wasted time reproducing the content they knew existed, but couldn't find. More than half of those claimed going rogue and utilizing their own systems to store content because the data they required was too complex to even think about finding, or they saw organization authorized tools as too difficult to even consider using. With details like these, it's difficult to ignore the ability AI holds for making it simpler for organizations as well as people to discover the data they need to manage their roles. Fortunately, AI is starting to be utilized in significant and important ways to improve and upgrade learning management. Some of the ways are listed below:

Metadata Enrichment

Metadata – the “data about data” – is a remarkable area for learning management. In early-generation learning management and enterprise content management (ECM) systems, each stored document turned into the point of convergence for invoice processing, claims management, and other enterprise processes. All of those stored documents contained a small portion of metadata attributes, or labels, ordinarily restricted to data like filename, date created, author, and type of content. For most systems, when the metadata patterns were characterized, they typically stayed the same because changes required monotonous improvement work and mass updates to all content related to that metadata.

In an advanced learning management systems (LMS), then again, metadata blueprints are both flexible and extensible. This is greatly incredible when combined with the power of AI, which can significantly speed up the creation and management of metadata attributes. By utilizing an AI-enabled LMS, an organization can identify and extract important attributes at scale, like a project, user contact, term period, and so on. With this kind of automation, extra security controls and solution strategies can likewise be supported all the more speedily.

Custom Trained Artificial Intelligence

Amazon, Google, and different tech giants have developed advanced AI engines, yet these devices depend on publicly accessible datasets, which implies they can't deliver the best results specific to a certain business. Modern-day LMSs empower entrepreneurs to use and make custom AI models dependent on their own datasets, which deliver results that are considerably more specific.

Just imagine you show an image of a truck to one of the conventional AI engines. The system understands that the picture is a truck; it has four wheels, it's blue, and it's a Ford that is parked by a building. The AI will make a sensible classification of arranging and grouping that – interesting, however not too valuable. This is the kind of data required for really useful and business-specific intelligence and automation.

Intelligent Content Classification

As referenced above, openly available AI tools and engines have demonstrated significance in identifying generic and basic content attributes, like the distinction between a contract and a resume. In any case, AI models dependent on information and content specific to an organization can be more significant. Thus, for instance, if your business has to know the distinction between a personal life insurance document and a life annuity document and consequently apply the correct contract language from your security group, this can be combined

into a specifically trained AI model, which will deliver a substantially more specific document than might be possible with conventional AI.

Advanced LMSs with such AI abilities enable organizations to apply this to the mass of content stored in any storage system or cloud (Amin & Vadlamudi, 2021). By utilizing AI classification, it is feasible to rapidly and precisely identify and connect various sorts of content, even at the size of billions of bits of content.

CONCLUSION

In this research, the idea of smart content creation, advertising, and management has been analyzed. Ideas regarding the application of artificial intelligence in order to improve proficiency in learning management have been talked about and have been complemented with some application models of insightful learning management and marketing. Educational entrepreneurship is a relatively new phenomenon that aims to equip inexperienced teachers to be leaders with entrepreneurship skills and efficacy. Teachers can have more insights into AI-supported learning management systems. Moreover, things discussed in the research are some sort of approaches to comprehend the possibilities about the future of learning management. It is additionally referenced that models presented here can be created by utilizing current AI strategies and using them to mainstream social media platforms or online platforms. Hence, future works arranged by the researchers include developed the connected models for a real-time approach, train them for some time, and assess the required outcomes to get adequacy and achievement of smart learning management systems. Furthermore, the authors will likewise keep on dealing with planning and creating alternative intelligent content management models.

REFERENCES

- Ahmed, A.A.A. (2020). Corporate attributes and disclosure of accounting information: Evidence from the big five banks of China. *J Public Affairs*. e2244. <https://doi.org/10.1002/pa.2244>
- Ahmed, A.A.A., Siddique, M.N., & Masum, A.A. (2013). Online Library Adoption in Bangladesh: An Empirical Study. 2013 Fourth International Conference on e-Learning "Best Practices in Management, Design and Development of e-Courses: Standards of Excellence and Creativity", Manama, 216-219. <https://doi.org/10.1109/ECONF.2013.30>
- Ahmed, A.A.A., Paruchuri, H., Vadlamudi, S., & Ganapathy, A. (2021). Cryptography in Financial Markets: Potential Channels for Future Financial Stability. *Academy of Accounting and Financial Studies Journal*, 25(4), 1-9.
- Amin, R., & Vadlamudi, S. (2021). Opportunities and Challenges of Data Migration in Cloud. *Engineering International*, 9(1), 41-50.
- Doewes, R.I., Ahmed, A.A.A., Bhagat, A., Nair, R., Donepudi, P.K., Goon, S., Jain, V., Gupta, S., Rathore, N.K., Jain, N.K. (2021). A regression analysis based system for sentiment analysis and a method thereof. *Australian Official Journal of Patents*, 35(17).
- Ganapathy, A. (2015). AI Fitness Checks, Maintenance and Monitoring on Systems Managing Content & Data: A Study on CMS World. *Malaysian Journal of Medical and Biological Research*, 2(2), 113-118.
- Ganapathy, A. (2016). Speech Emotion Recognition Using Deep Learning Techniques. *ABC Journal of Advanced Research*, 5(2), 113-122.
- Ganapathy, A. (2017). Friendly URLs in the CMS and Power of Global Ranking with Crawlers with Added Security. *Engineering International*, 5(2), 87-96.
- Neogy, T.K., & Paruchuri, H. (2014). Machine Learning as a New Search Engine Interface: An Overview. *Engineering International*, 2(2), 103-112.
- Paruchuri, H. (2015). Application of Artificial Neural Network to ANPR: An Overview. *ABC Journal of Advanced Research*, 4(2), 143-152.

- Paruchuri, H. (2021). Conceptualization of Machine Learning in Economic Forecasting. *Asian Business Review*, 11(1), 51-58.
- Paruchuri, H., Vadlamudi, S., Ahmed, A.A.A., Eid, W., Donepudi, P.K. (2021). Product Reviews Sentiment Analysis using Machine Learning: A Systematic Literature Review. *Turkish Journal of Physiotherapy and Rehabilitation*, 23(2), 2362-2368.
- Sharma, B. (2020). How Does Content Moderation Using AI work?, skyl.ai. <https://blog.skyl.ai/>
- Vadlamudi, S. (2020). Internet of Things (IoT) in Agriculture: The Idea of Making the Fields Talk. *Engineering International*, 8(2), 87-100.
- Vadlamudi, S. (2021). The Internet of Things (IoT) and Social Interaction: Influence of Source Attribution and Human Specialization. *Engineering International*, 9(1), 17-28.