Curriculum Design in an Agricultural Education Program in Nigeria: Towards Advancing Career Readiness

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Abstract

This research explores the effective curriculum design for higher-ed in preparing agricultural education graduates for Nigeria's labor market. The continuing professional education program planning theory serves as the framework guiding this study. The study involves a phenomenological inquiry into the conscientious meaning experience of the faculty and alumni in an agricultural education department. A purposeful sampling method of 14 participants (four professors and 10 alumni) was used to select participants since the study relied on individuals close to the phenomenon. Data was collected using a standardized open-ended questionnaire and the Department's handbook. Three themes emerged: The Department's curriculum design/development; Stakeholder's consultation; and Principles considered while designing the curriculum. Recommendations were made for the Department to continuously review and update the curriculum to reflect the current needs of the industry and students. Lastly, the current study was recommended to be replicated in other main agricultural institutions in Nigeria.

Keywords

Caffarella's Interactive Model, curriculum planning, multidisciplinary model approach

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Introduction and Problem Statement

Agricultural education in Nigeria lacks an effective curriculum despite the belief that Nigerian tertiary institutions possess adequate curricular to teach agriculture (Ibrahim, 2014). A major root of this problem is that many instructional materials originated from developed countries during colonization, which applies to many African countries (Anderson et al. (2019); Ibrahim, 2014). The Nigerian curricula are argued to be non-effective and not meeting the demands of the Nigerian industry, thus resulting in the absence of employable skills to integrate graduates into agricultural career paths in the Nigerian Agrarian workforce (Ajufo, 2013). These adopted curricula are ineffective because they fail to consider the culture of the Nigerian people (Okoroma, 2006). As a result, employers perceive that graduates are not fully prepared for work and believe that academic standards have depreciated over the past decades (Dabalem et al., 2004; Offorma & Onyia, 2011). It is now assumed that having a university degree is synonymous with technical incompetency. The agricultural education curriculum has been described as inadequate in preparing students for the workforce, as it fails to meet the needs of the industry (Ibrahim, 2014). Given this, many college graduates in agriculture are conceived as "half-baked" (Dabalem et al., 2004, p. 3). Therefore, there is a need for "the curriculum and the methodology to be restructured and reformed, which means designing the curriculum in alignment with the principles of production and training for self-dependency" (Ibrahim, 2014, p. 7). Although there are many aspects of the agricultural industry, the agricultural sector in this study refers to agro-based public/private firms with various segments that include human resource management, administration, and production (Egun, 2010).

Theoretical and Conceptual Framework

The theoretical framework guiding this study is the program planning theory by Caffarella (2002). Caffarella (2002) stated that the curriculum is a program that involves many people, and the curriculum planner or developer must involve all these stakeholders in the decision-making of the curriculum. However, the involvement of stakeholders requires the negotiation of power among everyone (e.g., educators, learners, organizations) who bring their beliefs to the planning table (Caffarella, 2002; Cervero & Wilson, 2006).

According to Cervero and Wilson (2006), designing a curriculum requires some planning process, which includes: "assessing the learning needs; developing learning objectives from assessed needs; designing learning content and the instruction format to meet the learning objectives; and evaluating the learning outcomes in terms of whether the objectives were achieved (p. 243)". They termed this planning process as a conventional planning theory, which is also supported by Finch and Crunkilton (1993); these authors emphasized the need for decision-making regarding the content of the curriculum. Caffarella (2002) combines all these concepts into planning a program with an interactive model that explicitly reveals the various stages of planning a program or curriculum, known as a 'guiding map' in the planning process of a program. The model is interactive because it has no beginning or end, and it is made up of

various components and tasks useful for negotiating power (Caffarella, 2002). The interactive model comprises twelve components arranged circularly (see Figure 1).

Figure 1

Caffarella's Interactive Model of Program Planning
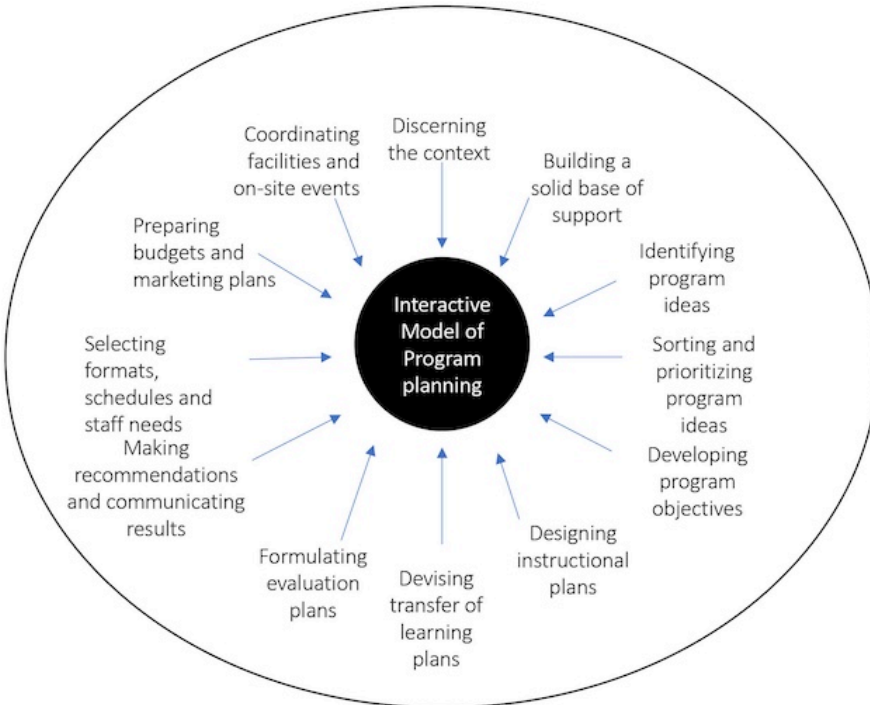
Note. Cafarella's Interactive Model of Program Planning. Reprinted *from Planning Programs for Adult learners: A practical guide for Educators, Trainers and Staff Developers* (p. 21) by R. S. Cafarella, 2002, Jossey-Bass. Copyright 2002 by John Wiley & Sons, Inc. Reprinted with permission.

Depending on the program, planners may elect to work with components simultaneously instead of working with everything at once or following a particular order (Caffarella, 2002). For instance, the needs assessment is the starting point in some programs, followed by the context and objectives. In contrast, other programs may prefer to start with coordinating facilities and on-site events.

According to Caffarella (2002), in identifying the program, the planners should first identify the stakeholders who influence the curriculum. Also, the planner should determine their interest and finally make a judgment about their needs concerning their interest. However, in deciding whose interests' matter, the planner should invite as many stakeholders as possible to the table to assess the educational requirements (Caffarella, 2002). Also, some stakeholders might not necessarily be at the table formally but informally (Cervero & Wilson, 2006).

Educational Situation in Nigeria

The Nigerian curriculum, particularly in the learning delivery, is predicated on a teacher-centered approach, which does not consider the students' needs and, therefore, needs to be restructured (Faboya & Adamu, 2017). The curriculum model used was adopted from the British, and when reconstructed, the essential stakeholders were not usually included in determining what not to adopt (Offorma & Onyia, 2011; Ohiwerei, 2019). According to Offorma and Onyia (2011), selecting a well-rounded strategy for teaching and learning is one of the essential parts of designing a curriculum, which includes a teacher-centered strategy and a student-centered teaching strategy.

The University selected in the current study was one of the three main agricultural universities established by the Nigeria Federal Government in 1988. These three universities were mandated to carry out teaching, research, and extension in agriculture (Fapojuwo, 2015). Each University underwent the approval process of the National Union Commission (NUC), which is a government body under the Federal Ministry of Education (FME) and a regulatory agency that works with the Nigerian Universities in achieving full accreditation status, providing curriculum benchmarks for all the courses offered by universities as well as fostering a partnership between the Nigerian Universities system and the private sector (National Universities Commission, 2022).

Purpose

The purpose of the study was to explore the lived experiences of agricultural education professors who participated in designing the curriculum and alumni who were trained with the curriculum to understand the process involved in designing the curriculum and whether such a process considers the needs of the industry. The following research questions were asked:
1. How were the course descriptions and objectives determined?
2. How did the faculty members develop the instructional plans to address the course descriptions and objectives?
3. What was the role of the industry needs in the planning process?

Methods

This study used a phenomenological inquiry into the professors' conscientious meaning experience and that of the alumni on the design of the curriculum (Patton, 2002, p. 104). To study this phenomenon, we selected samples from the population of professors and alumni in an Agriculture Department in a large-sized federal university in the South-Western region of Nigeria. The researchers chose this population because it is the foremost and pioneer Department of Agricultural Education in Nigeria. As a pioneer, the Department had an established curriculum that has been in use since 2009, which made it suitable for collecting rich data. Moreover, researchers selected the Department because it has produced alumni from 2015. We used a purposive and snowball sampling method to select participants. We

needed individuals close to the phenomenon (i.e., professors involved in designing the curriculum and alumni trained with the curriculum).

The inclusion criteria required professors who: (1) were members of the Department since its inception in 2009, and (2) participated in the design of the curriculum. As a result, only five professors who met these criteria were invited to participate in the study. Of those five, four professors agreed to participate in the study. The head of the Department was among the four professors that participated in the study. The Department's alumni, who were the first cohort of the department, were also invited to participate in the study. The alumni's email addresses were retrieved from the Department's directory. Ten alumni were invited, and they agreed to participate in the study. The final sample comprised 14 participants (n = 14), including four professors and 10 alumni. Seventy-five percent of the professors were males, while 25% were females. The age of the professors ranged from 45-60. All the professors had an organizational tenure of 10 years since the inclusion criteria required members of the department since its establishment in 2009.

Within the qualitative phenomenology method, data were collected through an open-ended questionnaire. In addition, the Department's curriculum (which was contained in the Department's handbook) was used as a secondary source of data. An open-ended questionnaire, rather than interviews, was used to get in-depth information from the professors as well as the alumni of the Department. This is due to the cost that would have been incurred in traveling to the school and the inability of the participants to access stable WIFI or electricity in Nigeria to participate in an online video or audio call (Patton, 2015). Moreover, a standardized open-ended questionnaire is sometimes used to replace an interview to avoid biases (Gafni et al., 2003). The construction of the questionnaire was based on an apriori table created to include the research questions, propositions, and relevant literature. An experienced faculty member on the research team reviewed the questionnaires, and the final questionnaires included 14 questions each for both professors and alumni.

Data were analyzed using a form of text analysis that includes a line-by-line analysis of data to identify excerpts from the text that constitute a complete thought (Corbin & Strauss, 2015), using a software known as Atlas. ti; these excerpts were then translated into codes. The analysis from the professors' data yielded 94 codes, while that of alumni yielded 54 codes. The codes from the open-ended questionnaires were triangulated with the Department's curriculum (gotten from the department handbook) and condensed into themes for further analysis and discussion (Constas, 1992; Creswell, 2013). The researchers were reflexive about their perspectives and biases while presenting participants' meanings of the phenomenon as accurately as possible (Creswell, 2014). To further reduce subjective interpretations, the researchers engaged in intercoder reliability by selecting a "blind" review coder who checked for consistency between code definitions and the data (Marshall & Rossman, 2016). We also asked some of the participants to review and confirm the generated themes to make sure it was in line with their response (Marshall & Rossman, 2016). Participants' names were represented with pseudonyms for confidentiality.

Findings

Three themes emerged from the data analysis: (a) The Department's curriculum design/development.; (b) Stakeholder's consultation; and (c) Principles considered while designing the curriculum. Furthermore, the third theme (i.e., the principles considered while designing the curriculum) was divided into 3 sub-themes: learning objectives, student learning needs, and industrial needs.

Table 1

Summary of Themes and Sub-Themes

Themes/Sub-themes		Sample quotes
1. The Department's curriculum design/development		"The department also has a mandate in conducting cutting-edge research in agricultural management…"
2. Stakeholder's consultation		"The curriculum initially undergoes the review of the curriculum development committee before it is sent to the NUC for approval …"
3. Principles considered while designing the curriculum	3a. Learning objectives	"The focus and scope of the discipline [i.e., department] are obtained from other similar departments …"
	3b. Student learning needs	"The administrative needs of graduates were considered in developing the instructional plan…"
	3c. Industrial needs.	"The department determined the needs of the industries by interacting with the industries in 2012…"

The Department Curriculum Design/Development
The Department's curriculum was contained in the Department's handbook by Fapojuwo (2015). The Department's curriculum showed that the Department was established in 2009. It offers a Bachelor of Science degree (B.Sc.) and a master's degree (MSc.) in Agricultural Administration (a branch of agricultural education) (Fapojuwo, 2015). The Department's curriculum stated that the University was the first University to establish the Department of Agricultural Administration in Nigeria, and it is the only University in Africa that runs this program both at the undergraduate and postgraduate levels (Fapojuwo, 2015). However, the postgraduate level was not established until the 2014/2015 session. The Department is known for its research and instruction in agricultural management, administration, and gender studies (Fapojuwo, 2015). As mentioned by Professor Sodiq, "The department also has a mandate in conducting cutting-edge research in agricultural management, administration, and gender studies and makes such knowledge available for relevant stakeholders in making managerial and policy decisions."

The establishment of the Department was due to the need for administrative skills in the agricultural sector in Nigeria, recognized as a skill gap that the Department intends to bridge (Fapojuwo, 2015). According to one of the alumni, Joe, "It is a unique department with the core values of training students and helps bridge the gaps of organizational challenges in human resources, program planning, and training and development." Another alumnus, Nelson, echoed this point: "This is a department with the core value to bridge the gap of human resources aspect of agriculture in terms of training and development, conflict resolution in the organization, monitoring, and evaluation, to mention a few."

Also, the Department collaborated with other Agriculture Departments to engage students in a one-year farming practice organized by the Community-based Farming Scheme.
As stated by Professor Sodiq:

> [The program involves] a farm year practical called the Community-based Farming Scheme where they [i.e., students] are attached to different agricultural farms to gain practical experience for 12 months, after which examinations are taken to test their skills and practical knowledge.

These farms are not public industries and are owned by the school in different rural locations as opportunities for students to engage in agriculture experiential learning. The annual farm practicum was established to prepare students for farm activities in the crop and livestock section of the University.

The findings also revealed that all the professors responded to only one aspect of the curriculum: the syllabus. According to Prideaux (2003), several believed the curriculum to be just a syllabus. However, the curriculum covers beyond just the syllabus. The curriculum comprises the content, the evaluation process, the teaching and learning strategies, and the assessment process (Prideaux 2003).

The Stakeholders Consultation
Findings revealed that there was a detailed process followed when designing the curriculum. There was a university committee in charge of the curriculum design. In describing the process of designing the curriculum, Professor Obi stated:

> There are processes involved in the university to develop a curriculum. The University has a curriculum development committee which the curriculum has to pass through before approval. After approval, the University Senate gave the final approval before the implementation took off. The Nigerian University Commission also had input in ensuring the relevance of the curriculum before accrediting the department.

The professors explained in detail the input of the Nigerian Government in the process of designing the Department's curriculum. They mentioned that the National University Commission (NUC), established in 1962 by the Nigerian Government, was mandated to promote and ensure quality higher education in Nigeria. Also, Professor Afonja claimed that after certifying the curriculum, the NUC's accreditation team reviews it every five years, using the benchmark academic standard (usually known as B-mark). Every five years, the NUC

compares the implemented curriculum of the Department against the benchmark academic standard to see if the Department has achieved its goals. However, the curriculum initially undergoes the review of the curriculum development committee before it is sent to the NUC for approval.

All the professors also claimed to be involved in gathering information on the curriculum content for the courses offered. However, the development of the curriculum was not limited to the professors, as many alumni claimed to have been involved in various parts of the development of the curriculum. One of the pioneering alumni, Luke, stated: "As a stakeholder in the department, I advocated for an all-inclusive administrative course to enrich the delivery of courses to students, which was implemented about four years after." The same alumnus also reported participating in organizing seminars to showcase the Department's role in bridging the skill gap between Agricultural graduates and managerial demands in the Nigerian workforce. These findings reveal that both the professors and the students were involved in the design of the curriculum.

Principles Considered While Designing the Curriculum
Three sub-themes, which represented the principles considered while designing the curriculum, emerged from the data. These included the learning objectives, student learning needs, and industrial needs.

The Learning Objectives
Many of the professors revealed that the curriculum was designed based on the Department's learning objectives, which were developed in line with the Department's vision and purpose. However, the learning objectives were not limited to the Department but were modeled upon other universities across Africa. Professors Afonja captured this, who stated: "The focus and scope of the discipline [i.e., department] are obtained from other similar departments in universities across Africa." In line with this, one of the professors mentioned that the "department engages in exchange programs with a University in Ghana." Professor Afonja further emphasized this point:

> The development of the learning objectives was further fine-tuned with the aid of an exchange program between the [University] and the University from Ghana (the latter runs a postgraduate program in agricultural administration) in 2012 with the sponsorship of the International Association of Universities (IAU) in France.

Also, some professors stated that some of the learning objectives were developed from the literature. Professor Sodiq mentioned that the learning objectives were developed to promote "the capacity building [of students, to] provide a satisfactory service to the public and private organization."

Many professors also reported that learning objectives had improved their teaching. As explained by one of the professors, Obi: "The objectives have helped to influence my teaching style to some extent, changing my style from being teacher-centered to student-centered." Moreover, professors reported a change in research due to utilizing learning objectives.

According to Professor Obi: "My research focus was greatly influenced, [changing] from research on rural sociology to management and human resource focus area." Another professor, Afonja stated: "My internalization of the department's objectives has given me the impetus to consistently stick to the teaching styles and maintain research focus that is in tandem with the objective."

Student Learning Needs
Many of the professors reportedly stated that the Department put the learning needs of the students into consideration when designing the curriculum. According to Professor Obi:

> The student's learning needs to make them employable are group dynamics, psychology, ICT, conflict management, gender mainstreaming, human resource management, leadership, e.t.c. All these were considered in the development of instructional materials at all levels, especially at the final year stage.

Another professor, Otenaike, added that "the administrative needs of graduates were considered in developing the instructional plan."

When asked how the learning needs of the students were accessed, Professor Sodiq reported that the learning needs of the students were accessed "through seminars, interactions, tests, examinations." Another professor, Afonja stated, "the needs of the graduates are determined by the filling of needs assessment form every semester." Moreover, one of the professors, Otenaike mentioned that the Department goes beyond the school by using "records of graduates who left the department to get feedback from them, which are useful information on needs."

Professors were also asked how often they review their syllabus. All the professors reported that the syllabus is reviewed every five years to reflect the current learning needs of students. However, according to Finch and Crunkilton (1993), the syllabus review should be done on both a short-term and long-term basis.

Meanwhile, when Alumni were asked about the syllabus meeting their learning needs, their response was not totally in line with the professors. While some stated that the syllabus met their learning needs well, others were less positive in their remarks. One of the Alumni, Luke stated it met his needs "averagely well." Another alumnus, Rachel said: "It meets my needs to an appreciable length. Though I started my department course in my final year (500 level)." This statement suggests that Alumni needs were not adequately met because they are only allowed to take courses designed by the Department's curriculum in their final year.

Industry Needs
The professors identified various ways the Department attempts to determine industry needs. Some professors noted that the Department has an ongoing working relationship with industry partners. One of the professors, Sodiq, stated:

> [It is a] constant interaction with the industries through student attachments and practical training at the 400 level. This helps to determine the needs of the industries

and equally dovetail with the modification of the curriculum to meet the changing needs of the industries and produce graduates that will be employable.

Moreover, Professor Afonja echoed this point:

[The industry's needs were determined] by going on a familiarization tour of all the major agricultural establishments in the Southwest of Nigeria with the underlying intent of determining the needs of the industries and consequently accommodating such needs to gear the department curriculum towards addressing them.

However, Professor Afonja did not describe this relationship as ongoing but rather as an event that took place in 2012. He stated: "The department determined the needs of the industries by interacting with the industries in 2012 as part of the exchange program between the [University], and the University from Ghana."

Many professors mentioned that the practical farm program was instrumental to learning about the needs of the industry. The farm practical year is an internship program where students are assigned to farms for one year in their final year at the Department. In addition to learning about the industry needs, this internship program serves as a work experience for students. However, as one of the professors, Otenaike, mentioned, this program does not provide sufficient work experience. The farms do not adequately reflect the wide range of potential industries that graduates are to work on after graduation.

Findings revealed that professors generally favored increased industry partnership despite the farm practical program. One of the professors, Sodiq stated: "there is a curriculum review going on now to ensure that the students spend about three months in the industry." Another professor, Afonja, while echoing the need for increased industry partnership, stated: "The University is putting an arrangement in place to incorporate more industry visits into the existing farm practical period."

Findings also revealed that professors determined industry needs through personal research. Moreover, findings showed that partnership with the industry might have an unintended outcome of maintaining students' interest in the program. According to Professor Afonja: "they are also exposed to excursions to the industries once in a year at least to sustain their interest in the course."

Professors also mentioned that the Department adopts the college curriculum for the first four years of the five-year bachelor's degree. The Department's curriculum becomes effective only in year five (final year). As a result, the curriculum does not fully meet the needs of the students, and it is difficult for students to be specialists in their field.

Moreover, the current study explored how the curriculum might have helped alumni in their respective jobs. To begin, alumni were asked if they worked in the agriculture industry. Surprisingly, all the alumni indicated they currently work in non-agricultural sectors, except for one, Alex whose work contains some elements of agriculture. When asked if he works in an

agriculture-related organization, Alex stated: "not fully, but there is an aspect of the organization that deals with Agriculture."

Also, all alumni, when asked whether the skills they gained from the Department were useful in their current jobs, all answered 'no.' When asked what skills they wished had been taught in their programs, one of them, Luke, stated: "Industrial relations and Nigerian Labor Law." Another alumnus, Daniel, stated: "I would have the desire that the department could include enterprise management and the inclusion of leadership as a separate course with a focus on sustainable development of the Nation and Africa as a whole." These findings showed that students' learning needs were not fully met.

Conclusions, Discussion, and Recommendations

One of the major purposes of this study was to determine whether the curriculum aligns with the needs of the industry. First, we found that the main reason for establishing the Department was to fill the administrative skill gap in the agriculture industry, which is the program idea upon which the objectives are based (Cafarella, 2002). However, from the findings, there was no mention of the direct involvement of industry stakeholders in the planning of the curriculum. This is surprising since the Department's purpose revolves around meeting the needs of the industry. Including the industry stakeholders in the negotiation process might have been beneficial. Also, the findings revealed a discrepancy between the response of the professors and that of the alumni. While professors believed that students' learning needs were considered and met, the alumni maintained that the Department did not meet their learning needs adequately. The alumni proposed new courses that would have helped in their current jobs, including industrial relations and Nigerian labor law, enterprise management, and leadership. The most interesting part of these findings is that all the desired courses mentioned by the alumni are simply not agricultural-related. This shortcoming supports Offorma and Onyia's (2011) argument about the Nigerian institution lacking a multidisciplinary model approach to curriculum that prepares the students for the needs of the industry.

The alumni desired to have the specialized courses in the curriculum available from the first year rather than the final year of their program. The current structure of offering technical courses only in the last year means that students can only take departmental courses for two semesters. The following recommendations are based on the finding of this phenomenological study:

- Continuous careful review and update of the curriculum with the current industry needs (Chugh et al., 2017).
- Further replication of the study should be done in other major agricultural institutions in Nigeria to investigate the degree to which the curriculum meets the needs of the students and industries. Moreover, future studies should explore the extent to which professors' teaching and learning strategies prepare the students for the labor force.

In conclusion, the alumni learning needs are not being met, as most of the alumni still wished that they had taken some courses that would have better prepared them for their current jobs. From the findings, the professors are fully aware of the skill gap between the industry and the educational system by mentioning an ongoing curriculum review. However, the professors did not share the full details of the review. It is a five-year program; therefore, the courses offered by the Department must be spread out across the entire duration of the program (i.e., five years, as opposed to only the final year). Taking the Department's courses in only one year (i.e., two semesters) is not enough time for the student to develop the administrative skills needed for the workforce. There is a need for the student to be intensively taught practical ways to use the managerial skills in the labor force (Offorma & Onyia, 2011).

Author Contribution

Helen Ajao: Contributed to writing, collection of data, analysis of data, interpretation of the result, design of the study, the conceptualization of the research, and draft manuscript preparation.

Dr. Dami Alegbeleye: contributed to the study's conceptualization, proofreading, analysis of the data and design of the study, and draft manuscript preparation.

Dr. Donna Westfall-Rudd: Supervised and proofread the research, reviewed the literature, and designed the study.

All authors approved the final version of the manuscript.

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