STRUCTURAL FUNCTIONAL EVOLUTION IN CONTINUING EDUCATIONS MODELS IN 21ST CENTURY: A CASE STUDY OF WEATHER FORECASTERS TRAINING IN CHINA

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ABSTRACT

In the context of science, technology and society progressing in 21st century, both the title and the context of our jobs changes:
First of all, high-performance computing and artificial intelligence replaces some of the technical work that was originally done by people;
Secondly, in order to add value to the products derived from these numerical models and algorithms, more and more professionals are needed to provide explanation and consultation;
Thirdly, as sci-tech invention give birth to social demand; new profession will be created aiming at serving businesses and consumers.
Therefore, the professionals in labor market are need to be more efficient lifelong learners to keep up with the requirements, at the same time, continuing education needs, functions and content has also changed, so continuing educations models need evolution or even revolution in order to get up with the development of the profession.
Based on the theory of structural functionalism in sociology, this paper analyzes the needs of continuing education social function evolution for better organized in modern society in the 21st century, and hypothesizes the social function of continuing education is shifting from compensation and adaptation to transformation and innovation, such as promoting research and application, cultivate innovation and other development-oriented needs.
This paper taking China's practice of weather forecaster continuing education as an example, to demonstrate how to understand the role of continuing education and how to cope with the changes from the aspects of training need analysis, curriculum development, training organization, training evaluation and so on.

Keywords

Continuing Education Models; Structural Functionalism; Job Competency;
Competency-Based Education; Training Needs; Training Evaluation

1 INTRODUCTION

Through nearly one century of professionalization, together with teacher, nurse, lawyer, accounting etc., Weather Forecaster became one of the typical high sci-tech professionals in modern society. For this kind of job, continuing education plays a critical role in enhancing professional personnel's competencies. Every professionals commit to a 'life-long learning' philosophy that enhances effectiveness, diagnose and more quickly make the consultant, and complete continuing education courses as they progress in their careers.

As 90 percent of the job in labor market are professionalized job, continuing education became an important social functional units for communication among academies, government and business, and always work as an innovative incubator and diffusion platform. Compared with other level of education, continuing education are combined more closely with professional work, and focus more on the application of knowledge and technology.

Structural functionalism is a framework for building theory that sees society as a complex system whose parts work together to promote solidarity and stability. There are four positive functions that education performs, including creating social solidarity, teaching skills necessary for work, teaching us core values, Role Allocation and meritocracy and so on.

Thus, the needs, functions and content have been developing with the society, so continuing educations models need evolution or even revolution in order to get up with the development of the profession. The educational sociology lacks the reflection on the social function of continuing education.

Currently China Meteorological Administration (CMA) has a total of about 5,000 weather forecasters distributed at four levels meteorological departments, in the meanwhile there is a rapidly growing population of business weather service for agriculture, transportation, energy, outdoor sports, retail and other industries. This paper takes China's practice of weather forecaster continuing education as an example to demonstrate how to understand the role of continuing education and how to cope with the changes.

2 HISTORY OF CONTINUING EDUCATION OF WEATHER FORECASTER

2.1 From 1950s to 1980s

Before 1980s, a large number of manual work existed operational weather forecast, the daily work of weather forecaster including sending and receiving telegrams,

mapping, statistics, etc. Meanwhile, the number of weather forecaster is insufficient for operation, and the career requires an undergraduate degree for entry. Therefore, training for weather forecaster is mainly focus on basic knowledge and functional specification， which help them able to be licensed in their states. Training courses are delivered through the division of continuing education or extension school of a college or university.

2.2 From 1980s to 2000s

With the trend of automation and digitizing from 1980s, modern man-machine interactive weather information processing and weather forecasting system was launched in China. Weather forecasters stepped forward from drawing weather map with red-blue pencil to weather analyze and diagnose on computer-based operational platform. Computer skill became required competency of weather forecaster, and the courses of continuing education for weather forecaster are mainly about technological skills, professionals need to stay up-to-date on the new observation data, operational platforms to reinforce the knowledge they have already gained.

2.3 From 2000s to 2010s

The big change is numerical weather forecast became more and more accurate, in order to add value to the products derived from these numerical models and algorithms, more and more trainings are needed to provide explanation and consultation.

Continuing education for weather forecaster became more professional, it is a specific learning activity characterized by both the issuance of a certificate and the acquisition of higher-level positions. Education requirements for weather forecasters' professionals established at national level, and based on the analysis of continuing education needs of forecasters at different levels, a hierarchical and classified curriculum is developed, which is used for as a state continuing education requirements or standard.

3 CHANGING ROLE OF CONTINUING EDUCATION

Based on the theory of structural functionalism in sociology, the needs of continuing education social function evolution for better organized in modern society in the 21st century.the social function of continuing education is shifting from compensation and adaptation to transformation and innovation,

3.1 Compensation and Adaptation

The first type of continuing education is required for the professionals to remain licensed in their states. competency-based education

3.2 Transformation

The second type of continuing education allows them to get more advanced degrees and qualify for higher-level nursing positions. Industries are constantly changing.

Continuing education is required for workers to stay current with the latest developments, skills, and new technologies required for their fields. Weather forecasters together with Nursing, pharmacy, accounting, are additional fields in which professionals must continue to develop the skills necessary for ever-changing environments.

3.3 Innovation

The third type of continuing education aims at promoting research and application, cultivate innovation and other development-oriented needs. As sci-tech invention give birth to social demand; new profession will be created aiming at serving businesses and consumers. Educational Technology such as Massive Open Online Courses which can provide an open educational environment will contribute more in this era.

4 TRAINING FOR WEATHER FORECASTER IN THE FUTURE

This paper taking China's practice of weather forecaster continuing education as an example, to demonstrate how to understand the role of continuing education and how to cope with the changes from the aspects of training need analysis, curriculum development, training organization, training evaluation and so on.

4.1 Analyze Job Competency Requirements

Insist on the whole process of knowledge and skills teaching in the choice of continuing education content, while retaining the teaching of upstream knowledge and skills such as traditional weather analysis, while emphasizing downstream application skills such as numerical forecasting and interpretation; continuing education should be fully integrated into institutional life rather than being often regarded as a separate and distinctive operation employing different staff.

4.2 Innovate curriculum development technology and methods

In accordance with the principles of systematic design to develop one-time all levels and levels forecaster continuing education courses, for all courses related to ensure continuing education content level and forecast business transformation and division of labor;

4.3 training organization and implementation

In terms of training organization and implementation, flexible use of modular courses, mixed teaching, reviewing point teaching and other forms to meet the various levels of forecaster job skills and academic research ability to enhance the needs of the training project into a fostering business innovation Incubator

4.4 training evaluation

The training evaluation platform as a real-time monitoring of training effectiveness of the "barometer" and carry out continuing education teaching research "laboratory", in order to find teaching rules and improve teaching effectiveness to provide advisory

services.

5 CONCLUSIONS

The agreement is already reached that the term continuing education symbolizes reinvention, re-imagination and regeneration. However, in the search for evolving a theoretical orientation of integrating micro and macro levels of education, continuing educators have yet to build upon the various sociological theories, the tension between policy and practice oriented studies and fundamental research-oriented works continues and efforts to build a theoretically firm sociological base have not yet yielded substantial results. Continuing education is not only a means of taking urgent socio-economic measures for giving boost to development, but also the catalyst for the transformation of technology and economy, and an innovative incubator and diffusion platform.

REFERENCES

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