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EVALUATION OF THE INSERVICE EDUCATION ORDINANCE AND PROGRAMS
FOR INDUSTRIAL VOCATIONAL TEACHERS IN THE REPUBLIC OF CHINA

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ABSTRACT. This study inquired into the attitudes of administrators and teachers in the Republic of China Industrial Vocational Schools toward the Inservice Education Ordinance enacted in 1985. It also recommended that adult learning theories and strategies be adopted for implementing inservice education for industrial vocational teachers.

STATEMENT OF THE PROBLEM

Significance

The quality of the teacher has an impact on the success of educational production. Increasing teachers' professional knowledge and enhancing teaching methods through inservice education is an effective approach to improving the outcome of education. To improve teacher inservice education, the Ministry of Education in the Republic of China (R.O.C.) issued the Inservice Education Ordinance for Elementary and Secondary School Teachers (hereafter referred to as the Ordinance) in 1985. The Ordinance has several significant aspects: it is the first statute regarding teacher inservice education, and some important elements are explicitly identified such as types and providers of inservice education.

Literature Review

A review of the inservice education literature clarified various dimensions. It provided the definition that inservice education is a kind of well-planned, goal oriented, continuing education activity designed to improve teachers' performance. Although the review affirmed that teachers' performance, morale and job satisfaction are improved through inservice education, and they are helped to keep pace with changing society and technology, the real significance lies in the fact that the ultimate beneficiaries are the students of these teachers who participate in inservice education.

The review also revealed that the content of inservice education needs to be a combination of practical experiences in occupational knowledge and skills, using learning theories and instructional strategies that encourage and facilitate self-directed learning, inquiry, discovery and decision-making. The most effective inservice education programs were identified as those which incorporate teachers' participation in the planning, designing and implementing while including feedback on participant progress and when conducted in the teachers' own school as well as in "on the spot" corporate settings.

Additionally, because teachers are adult learners when they are involved as participants in inservice education, educators need to utilize theories of adult learning when designing and conducting inservice education programs. Some studies indicate that an andragogical approach (the art and science of helping adults learn) appears to be the most effective in designing and conducting inservice education programs for adults.

Questions Considered

Although inservice education practices in the R.O.C. appeared comprehensive, problems existed such as unequal access, inadequate resources,

ineffective programs and personnel conflicts which gave impetus to developing and enacting the ordinance in 1985. The Ordinance, however, fails to address several problems. Concerned only with elementary and secondary school teachers, it does not address the unique needs of special groups such as industrial vocational teachers. Because of these shortcomings, it is necessary to explore the attitudes of industrial vocational teachers and administrators toward the Ordinance and to trace its implementation and effectiveness in order to recommend amendments to the Ordinance.

The purpose, then, of this study was to evaluate the Ordinance to improve inservice education for industrial vocational teachers in Taiwan. Four questions gave direction to this study:

1. How has the Ordinance been implemented?
2. What are the attitudes of school administrators and teachers regarding the effects of the Ordinance on teachers' participation in inservice education?
3. What kinds of inservice education systems are preferred by school administrators and teachers?
4. How can changes in governmental policy improve inservice education for industrial vocational teachers?

Research Hypotheses

This study was basically descriptive. Previous research indicated that conflicts between administrators and teachers had affected teachers' participation in inservice education. Therefore, two hypotheses related to the second and third research questions, respectively, were tested:

No. 1: There are no significant differences between administrators' and teachers' mean attitude scores toward the effects of the Ordinance on teachers' participation in inservice education.

No. 2: Administrators' and teachers' preference frequencies on inservice education delivery systems are homogeneous.

METHODOLOGY

The Instrument: To answer the aforementioned research questions, the researchers developed a survey instrument, consisting of three sections:

Section I: Demographic data and personal information, such as the subjects' school type, and school location (see Table 1).

Section II: Information regarding the kinds of inservice education preferred by school administrators and teachers. This section included four multiple-choice questions about three topics (see Table 2-4).

Section III: Information regarding the attitudes and opinions of the subjects about the Ordinance. This section was a Likert-type attitude questionnaire containing 28 questions which addressed seven issues (see Table 6).

Populations and sample: One segment of the population surveyed consisted of all school principals (195) and directors of academic affairs (195) in industrial vocational schools in Taiwan. There were 5567 industrial vocational teachers who were teaching occupational courses comprised the second population. Ten percent (556) of the teacher population was selected as the sample. The administrator sample consisted of 374 administrators including 187 principals and 187 directors of academic affairs.

DESCRIPTION OF THE DATA

The nature of respondents in this study is shown in Table 1. The respondents from public and private schools reflected the population who received the questionnaire: 39.7 percent were from public schools and 60.3 percent were from private schools. Of the entire sample, 40.7 percent of the respondents were working for schools located in the northern area. The proportions of the respondents in the middle and southern areas were equal (27

percent). Only 4.6 percent of the respondents were from the eastern area. This response rate also reflected identical proportions of teachers in each geographical area in the total teacher population. The respondents in this study were representative of the population sampled.

Table 1 Nature of Respondents

	Administrator		Teacher		Total	
	N	%	N	%	N	%
Number	267	35.7	480	64.3	747	100
School Type						
Public	109	40.8	190	39.6	299	40.0
Private	158	59.2	290	60.4	448	60.0
Location of School						
Northern	103	38.6	201	41.9	304	40.7
Middle	76	28.5	129	26.9	205	27.4
Southern	75	28.1	129	26.9	204	27.3
Eastern	13	4.9	21	4.4	34	4.6

Administrators and teachers differed very little in their attitudes and opinions about the Ordinance and inservice education delivery methods. Chi-square tests of the responses in Section II of the instrument revealed homogeneity between administrators and teachers, except the designer of short-term inservice education curricula (see Table 2-4).

Table 2 Designers of Short-term Inservice Education Curricula

Item	Adminis-	Teacher	Total	Sig.
	trator			
	%	%	%	.01
1. Curriculum specialists	57.7	41.7	47.4	*
2. Representatives of teachers	44.6	60.2	54.6	*
3. Principals and directors	43.8	33.5	37.2	*
4. College instructors	41.2	35.8	37.8	No
5. Governmental Administrators	14.2	6.9	9.5	*

For designers of short-term inservice education curricula, items selected by administrators were curriculum specialists, representatives of teachers, principals and directors, college instructors, and governmental administrators, ranked in order according to the proportion of respondents selecting the relative item. In the teacher respondents, the items were representatives of teachers, curriculum specialists, college instructors, principals and directors, and governmental administrators. (see Table 2)

Concerning time period for conducting inservice education and reasons for attending inservice education, teachers believed that summer vacation was the best time period to offer inservice education, and that the next most opportune times were weekends and Sundays. They chose "to improve knowledge and skills for instruction" as the strongest reason to attend inservice education. (see Table 3-4)

Table 3 Time Period for Conducting Inservice Education

Time Period	Daytime	Evening	Weekend & Sunday	Summer	Winter	Others
Percent	4.0	8.2	23.0	59.8	1.7	3.3

** Only teachers responded to this question

Table 4 Reasons for Attending Inservice Education

	Eligibility	Salary	Assessment	Knowledge	Others
Percent	14.6	5.9	0.4	67.7	11.4

** Only teachers responded to this question

Use of MANCOVA to analyze the responses in Section III of the instrument revealed that there were no meaningful differences between administrators and teachers. The first research hypothesis was accepted (see Table 5-6).

Table 5 MANCOVA of Differences in Mean Attitude Scores

Wilks Multivariate Tests of Significance

Value	Approx. F	Hypoth. DF	Error DF	Sig. of F
.96407	3.90781	7.00	734	.000 *

Univariate F-tests (DF=1, 740)

Var.	SSb	SSw	MSb	MSw	F	Sig. of F
A	3.207	227.475	3.207	0.307	10.432	.001 *
B	0.085	205.611	0.085	0.278	0.305	.581
C	0.464	211.962	0.464	0.286	1.620	.204
D	0.968	325.060	0.968	0.439	2.203	.138
E	1.710	361.239	1.710	0.488	3.503	.062
F	2.096	235.594	2.096	0.318	6.584	.010 *
G	1.360	374.534	1.360	0.506	2.687	.102

$R^2(A) = .0139$

$R^2(F) = .0088$

Respondents only gave positive scores (slightly more than 3.0) to Issues B and A. This indicates the subjects had slightly positive attitudes toward the incentive policies and the implementation of the Ordinance. The scores of Issue C, D and G were very close to 3.0, indicating that neither groups had strong feelings toward the relations between the teacher's priority to attend inservice education and his or her seniority, the implementation of the teaching certificate renewal policy, as well as how the Ordinance had influenced teachers' participation in inservice education. The mean scores of Issues E, and F were less than 3.0, especially Issue E, indicating the subjects expected that inservice education should be mandatory, and that the government should bear the expenses of inservice education. (see Table 6)

Table 6 Differences of Adjusted Grand Means to 3.0 (No Opinion) and Adjusted Mean Scores on Each Issue

FACTOR	Adjusted Grand Mean	Difference (AGM-3.0)	Adjusted Mean
Variable .. A			
			Administrator 3.381
	3.245	+0.245	Teacher 3.169
Variable .. B			
			Administrator 3.363
	3.385	+0.385	Teacher 3.397
Variable .. C			
			Administrator 2.773
	2.824	-0.176	Teacher 2.853
Variable .. D			
			Administrator 2.891
	2.957	-0.043	Teacher 2.993
Variable .. E			
			Administrator 2.515
	2.416	-0.584	Teacher 2.361
Variable .. F			
			Administrator 2.514
	2.624	-0.376	Teacher 2.685
Variable .. G			
			Administrator 2.802
	2.890	-0.110	Teacher 2.939

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Several conclusions are drawn from the findings of this study:

1. The respondents in this study are representative of the population sampled; therefore the external validity of this study is considered high.
2. Administrators and teachers differ very little in their attitudes and opinions about the Ordinance and inservice education delivery methods.
3. The subjects have no strong feeling about the Ordinance.
4. The respondents have slightly positive attitudes toward the implementation of the Ordinance.
5. Administrators and teachers believe that the effectiveness of the Ordinance's incentive policies is adequate.
6. Similar delivery methods of inservice education are preferred by school administrators and teachers. They believe that teachers who desire to attend the program, curriculum specialists, school administrators, and college instructors should be involved in planning the curricula of short-term inservice education programs. According to the respondents, summer vacations, weekends and Sundays are optimum times to offer inservice education programs. Improved knowledge and skills for instruction is the major reason teachers list for attending inservice education. According to the respondents, the government should pay costs of inservice education.

Recommendations

Based on the findings and conclusions of this study, the investigator makes the following recommendations:

1. The following policies should be incorporated into the Ordinance to strengthen its effects on teachers' participation in inservice education: a) The amount of money budgeted for inservice education should be stated explicitly; b) The government should pay all costs needed for short-term and teaching-related inservice education; c) Policies for rewarding the providers of inservice education should be added to the Ordinance; and d) Standards for rewarding teachers who engage in inservice education should be established.

2. The instructor of inservice education should apply theories of adult education in teaching the participants. The review of literature reveals that by applying the methods of andragogy, the art and science of teaching adults, in industrial training has been more effective in helping adult trainees to obtain management competencies and technical skills.

3. Since this study was conducted only two years after the announcement of the Ordinance, the investigator recommends continuous evaluation of the Ordinance. Furthermore, experimental studies should be conducted to reveal whether andragogy is applicable to inservice education in Taiwan. There are many research findings that indicate andragogy is conducive to inservice education in the United States and other countries; however, it has not been adopted in Taiwan. The investigator, therefore, recommends that experimental studies related to the application of theories of adult education be conducted as soon as possible.

The results of this study are beneficial to the Government of the Republic of China in amending the Ordinance and improving inservice education for industrial vocational teachers. The results also have implications for inservice education policy considerations in other countries.

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