

Characteristics of Agricultural Competence-based Educator

Mahsa Saadvandi^a, Enayat Abbasi^b, Homayoun Farhadian^b, Kiumars Zarafshani^c

^a *Ph.D. Student, Department of Agricultural Extension and Education, Terabit Modares University, Tehran, Iran*

^b *Assistant Professor, Department of Agricultural Extension and Education, Terabit Modares University, Tehran, Iran*

^c *Associate Professor, Department of Agricultural Extension and Education, Razi University, Kermanshah, Iran*

Abstract: Diverse job markets in a constantly evolving agricultural industry have created a need for college graduates who possess different competencies. Competence-based education (CBE) improves students' employability skills in order to empower them to enter the labor market. Educators can play important role in realizing a competency-based education, so the purpose of this study is to determine characteristics of agricultural competence-based educators. This documentary study sought to investigate agricultural educator's characteristics based on competency-based education's principles. A review of literature was conducted among major agricultural education journals yielding 10 related articles. Results were categorized into 12 competencies: knowledge, management, personal skills, considering individual differences, communicational skills, using technology, analytic skills, considering supervised agricultural experience, planning and organizing, considering participatory learning, motivating students and evaluation.

Key words: Education system – Competence – Educator – Agriculture

Introduction

The idea of competencies was introduced in higher education because of the disconnection between what was taught in classes and what was needed in the labor market (Koenen, Dochy, and Berghmans, 2015). In this situation, there was a need to teach the ability to apply knowledge in practice rather than to teach, just so that students would accumulate knowledge (Mulder, 2012). It is expected to better prepare students for the current and future labor market and for society as a whole and to make education more attractive to students in the hope that fewer students will quit before attaining their qualifications. Although there is no consensus about the concept of competence and what exactly it is, Wesslink et al. (2010) stated that "Competence is the integrated performance-oriented capability of a person or an organization to reach specific achievements". They also developed a model that presents eight principles for CBE:

- The competencies on which the program is based are defined.
- Vocational core problems are the organizing unit for (re)designing the curriculum (learning and assessment).
- The competence development of students is assessed before, during and after the learning process.
- Learning activities take place in a range of authentic situations.
- In learning and assessment processes, knowledge, skills and attitudes are integrated.
- Self-responsibility and self-reflection/ reflection are encouraged in students.
- Educators both at school and practice fulfil their roles as coaches and experts equally.
- A basis for students to achieve an attitude of lifelong learning is realized.

This principles has been used to investigate educational programs in the Netherlands (e.g., Wesselink et al., 2010), East Africa (e.g., Mulder, Eppink, & Akkermans, 2011) and in Indonesia (e.g., Nederstigt & Mulder, 2011). These general principles clarify the extent to which study programs can be characterized as CBE, but they don't determine characteristics required for each components of education systems. While it seems that determining characteristics of each components of education systems can improve realizing CBE. Generally education systems include four components; students, educators, content, and environment. This study focused on educators characteristics in CBE.

In CBE, educator roles become more complex (Biemans et al., 2004; Seezink & Poell, 2010; Wesselink et al., 2010). Besides acting as knowledge transmitters, educators are encouraged to act as coaches and as sources of information while interacting with students.

Educators are expected to develop authentic learning tasks, for example, by creating classroom situations that resemble workplace/industrial situations. As educator and student roles in competence based education differ from the traditional educator-center learning, different student perceptions of educator student relationships are to be expected in competence-based learning environments compared with those of non-competence-based learning environments (Misbah et al., 2015). Since educators play an important role in success or failure of an educational system, several studies paid attention to required characteristics for agricultural educator. But it seems that determining characteristics of educators due to CBE's had been neglected. Therefore purpose of this study is to determine characteristics of agricultural competence-based educators based on CBE principles.

Method

This documentary study sought to investigate agricultural educator's characteristics based on CBE's principles. To achieve this objective, a review of literature was conducted among major agricultural education journals yielding 10 related articles. Data was gathered using checklists and researcher made forms and to interpret and analyze the data, descriptive analysis has been used. Method of Gal et al. (1994) was used to analysis the content of documents. In the first step, all documents were studied in detailed and all relative statements with educator's characteristics in CBE were extracted. Then extracted statements were categorized using open coding and axial coding. In open coding, content of documents were analyzed to build categories, next, axial coding was used to develop main categories and their sub-categories. Finally, data were interpreted based on categories and sub-categories.

Finding

In this study, 10 article related to agricultural educator's characteristics were analyzed. Generally 85 characteristic were extracted (Table 1).

Table1. Agricultural Educator's Characteristics

Rows	Agricultural educator's characteristics	Frequency
1	Effective lecturing	9
2	Has excellent knowledge of the subject matter	7

3	Organizing and Planning for lessons	6
4	Demonstrates program-planning skills	6
5	Teaching agri science – integrating science and agriculture	6
6	Using technology in teaching	6
7	Applies appropriate classroom management skills	5
8	Become familiar with the teaching standards	5
9	Discuss with the cooperating educator the appropriate balance between personal and professional responsibilities	5
10	Enjoys teaching and exhibits a positive attitude towards the teaching profession	5
11	Effectively plans for instruction	4
12	Instructional Strategies	4
13	Getting students engaged in learning	4
14	Discussion-based instruction	4
15	Cooperative learning (group projects or assignments)	4
16	Teaching to a variety of different learning styles of students	4
17	Direct student laboratory experiences	4
18	Use interest approaches to motivate students to learn	4
19	Plan, organize, conduct, and evaluate a field trip	3
20	Is knowledgeable of teaching and learning theory	3
21	Active learning strategies	3
22	Questioning techniques	3
23	Using student evaluations to improve teaching	3
24	Supervise students engaged in independent learning activities	3
25	Using Web-based technologies for managing courses	3
26	Encouraging critical thinking skill development	3
27	Teaching in multicultural classrooms	3
28	Communicates well with others	3
29	Has an understanding and supportive spouse/family	2
30	Improves professionally by seeking opportunities for continued learning	2
31	Open-mindedness	2
32	Effective teaching fundamentals	2
33	Demonstrates knowledge of teaching as a profession (e.g., responsibilities and rights of professional educators)	2
34	Distance education basics	2
35	Better teaching through better testing	2
36	Working with teams	2
37	Time management	2
38	Managing student behavior problems	2
39	Teaching large classes	2
40	Demonstrates an ability to work with diverse populations	2
41	Assist students in solving problems associated with their SAE programs	2

42	Using experiential learning	2
43	Visit with other community leaders about the local agriculture program	2
44	Developing an effective public relations program	2
45	Develop and present a program/presentation on agricultural awareness	1
46	Prepare a bulletin board (traditional or electronic) for teaching/learning or motivation	1
47	Survey the agriculture facilities to determine the quantity and quality of tools and equipment by instructional areas	1
48	Is capable of solving problems and multi-tasking	1
49	Demonstrates student-centeredness	1
50	Inventory and evaluate references and instructional aids in the school and community	1
51	Evaluate your cooperating educator's teaching performance	1
52	Have a school district administrator who is responsible for educator evaluation observe your teaching and provide suggestions for improvement	1
53	Uses appropriate assessment strategies to evaluate learning	1
54	Developing performance based assessment instruments	1
55	Is innovative; uses technology; adapts well to change	1
56	Understands how demographics (e.g., culture, ethnicity, and gender) affect the selection of various techniques used to meet student needs	1
57	Demonstrates understanding of how students learn	1
58	Analytic Skills	1
59	Discuss SAE with the cooperating educator and/or administrator	1
60	Participate in administrative duties of the agricultural education program including Perkins reports, FFA program of activities, and Annual FFA and SAE reports.	1
61	Direct students in keeping records of their SAE	1
62	Help students understand how SAE relates to tasks performed by people in agricultural occupations	1
63	Guide students in the selection and/or expansion of their SAE	1
64	Relate classroom instruction to students' SAEs	1
65	Conduct SAE follow-up session	1
66	Work with employers and/or parents to develop students' SAE programs	1
67	Teach two lessons integrating personal finance into SAE	1
68	Developing SAE opportunities for students	1
69	Supervising students' SAE programs	1
70	Develop learning experiences for talented and gifted students	1

71	Utilize students' experiences in the teaching/learning process	1
72	Using assignments that are tied to real-life problems	1
73	Coordinating activities with local agricultural organizations and activities	1
74	Confer with administrators about the qualities they prefer in a good educator and go over important points in interviewing for a teaching position	1
75	Visit one or more other classes	1
76	Visit the county Extension office to gather information about agriculture in the community	1
77	Oral Communication	1
78	Written Communication	1
79	Works well with alumni and advisory groups(Community Relations)	1
80	Effectively recruits new students(Marketing)	1
81	Has rapport with the students	1
82	Ability to motivate and persuade others(<i>Instructional Skills</i>)	1
83	Effectively recognizes achievements	1
84	Takes actions to prevent burnout and to re-energize himself/herself	1
85	Is self-confident	1
	Total	136

After extracting the agricultural educator's characteristics from previous studies, based on semantic relationships between the statements, all characteristics were classified in 12 categories; planning and organizing, knowledge, considering participatory learning, evaluation, Using technology, management, considering individual differences, analytic skills, considering supervised agricultural experience, communicational skills, motivating students and personal skills. Table 2 show categories and their sub-categories.

Table2. Categorization of Agricultural Educator's Characteristics

Categories	Sub-Categories	Frequency
Planning and organizing	Organizing and Planning for lessons	6
	Demonstrates program-planning skills	6
	Effectively plans for instruction	4
	Instructional Strategies	4
	Plan, organize, conduct, and evaluate a field trip	3
	Develop and present a program/presentation on agricultural awareness	1
	Prepare a bulletin board (traditional or electronic) for teaching/learning or motivation	1
	Survey the agriculture facilities to determine the quantity and quality of tools and equipment by instructional areas	1
knowl edge	Has excellent knowledge of the subject matter	7
	Teaching agri science – integrating science and agriculture	6
	Effective teaching fundamentals	2

	Is knowledgeable of teaching and learning theory	3
	Distance education basics	2
	Demonstrates knowledge of teaching as a profession (e.g., responsibilities and rights of professional educators)	2
	Is capable of solving problems and multi-tasking	1
Considering participatory learning	Getting students engaged in learning	4
	Discussion-based instruction	4
	Cooperative learning (group projects or assignments)	4
	Active learning strategies	3
	Working with teams	2
	Demonstrates student-centeredness	1
		Questioning techniques
evaluation	Using student evaluations to improve teaching	3
	Supervise students engaged in independent learning activities	3
	Better teaching through better testing	2
	Inventory and evaluate references and instructional aids in the school and community	1
	Evaluate your cooperating educator's teaching performance	1
	Have a school district administrator who is responsible for educator evaluation observe your teaching and provide suggestions for improvement	1
	Uses appropriate assessment strategies to evaluate learning	1
	Developing performance based assessment instruments	1
Using technology	Using technology in teaching	6
	Is innovative; uses technology; adapts well to change	1
management	Applies appropriate classroom management skills	5
	Using Web-based technologies for managing courses	3
	Time management	2
	Managing student behavior problems	2
considering individual differences	Teaching to a variety of different learning styles of students	4
	Teaching in multicultural classrooms	3
	Teaching large classes	2
	Demonstrates an ability to work with diverse populations	2
	Understands how demographics (e.g., culture, ethnicity, and gender) affect the selection of various techniques used to meet student needs	1
	Demonstrates understanding of how students learn	1
analytic skills	Encouraging critical thinking skill development	3
	Analytic Skills	1
considering supervised agricultural experience	Direct student laboratory experiences	4
	Assist students in solving problems associated with their SAE programs	2
	Using experiential learning	2
	Discuss SAE with the cooperating educator and/or administrator	1
	Participate in administrative duties of the agricultural education program including Perkins reports, FFA program of activities, and Annual FFA and SAE reports.	1
	Direct students in keeping records of their SAE	1
	Help students understand how SAE relates to tasks performed by people in	1

	agricultural occupations	
	Guide students in the selection and/or expansion of their SAE	1
	Relate classroom instruction to students' SAEs	1
	Conduct SAE follow-up session	1
	Work with employers and/or parents to develop students' SAE programs	1
	Teach two lessons integrating personal finance into SAE	1
	Developing SAE opportunities for students	1
	Supervising students' SAE programs	1
	Develop learning experiences for talented and gifted students	1
	Utilize students' experiences in the teaching/learning process	1
	Using assignments that are tied to real-life problems	1
communicational skills	Become familiar with the teaching standards	5
	Discuss with the cooperating educator the appropriate balance between personal and professional responsibilities	5
	Communicates well with others	3
	Visit with other community leaders about the local agriculture program	2
	Developing an effective public relations program	2
	Coordinating activities with local agricultural organizations and activities	1
	Confer with administrators about the qualities they prefer in a good educator and go over important points in interviewing for a teaching position	1
	Visit one or more other classes	1
	Visit the county Extension office to gather information about agriculture in the community	1
	Oral Communication	1
	Written Communication	1
	Works well with alumni and advisory groups(Community Relations)	1
	Effectively recruits new students(Marketing)	1
	Has rapport with the students	1
	motivating students	Use interest approaches to motivate students to learn
Ability to motivate and persuade others(<i>Instructional Skills</i>)		1
Effectively recognizes achievements		1
personal skills	Effective lecturing	9
	Enjoys teaching and exhibits a positive attitude towards the teaching profession	5
	Has an understanding and supportive spouse/family	2
	Improves professionally by seeking opportunities for continued learning	2
	Open-mindedness	2

Takes actions to prevent burnout and to re-energize himself/herself	1
Is self-confident	1

Since the objective of this study was to determine the agricultural educator's characteristics based on the CBE's principles, therefore extracted characteristics adjusted with CBE's principles (Table3).

Table3. Adjusting Agricultural Educator's Characteristics with CBE's Principles

CBE's Principles	Agricultural Educator's Characteristics
Educators both at school and practice fulfil their roles as coaches and experts equally	knowledge, management, personal skills, considering individual differences, and communicational skills
Integrating knowledge, skills and attitudes in learning and assessing process	Using technology, analytic skills, and considering supervised agricultural experience
Encouraging student to self-responsibility	Planning and organizing, considering participatory learning, and motivating students
Assessing student's competencies during and after the learning process	evaluation

Conclusion

According to literature review, 12 agricultural educator characteristics are in line with CBE principles. One of the most important principle that contain five categories of educator's characteristics, is "Educators both at school and practice fulfil their roles as coaches and experts equally". In the traditional education systems, knowledge transfer was the main aim wherein educators had to provide students with lectures. While the aim of CBE is connecting education system and labor market and of course traditional role of educators cannot meet student's needs in such educational system. Therefore educators in CBE should be able to develop student's competencies by coaching and facilitating the learning process. To develop student's competencies, integration of knowledge, skills and attitudes should be considered, moreover students should be responsible in their learning process, and competence- based educators by directing and evaluating students, can play significant role in realizing these aspects of CBE.

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