

PEDAGOGICAL CONTENT KNOWLEDGE (PCK) AMONG PRE-SERVICE TEACHERS AND THEIR INTEREST IN THE TEACHING OF ARABIC

[1] Nor Khalila binti Azizan

[2] Arifin bin Mamat

[3] Muhammad Sabri bin Sahrir

ABSTRACT

Pedagogical content knowledge is a type of knowledge that is unique to teachers, and is based on the manner in which teachers relate their pedagogical knowledge to their subject matter knowledge. The study attempts to examine the perceived level of pre-service teachers' readiness in term of pedagogical content knowledge (PCK) and their interest in the teaching of Arabic. The study employed a survey method to gather the data among purposively selected respondents of thirty (30) final year students of Bachelor Degree in Arabic Language with Education at Universiti Pendidikan Sultan Idris (UPSI), Malaysia. The study adapted several questionnaires as an instrument to collect the data. It was distributed to the respondents and analyzed using Statistical Package for Social Science (SPSS 17.0) software. The results are shown in simple descriptive statistical analysis; percentage, frequency, and mean scores which were used to interpret the data. The findings show that the readiness in terms of PCK among pre-service teachers was at a medium level. Meanwhile, the result demonstrates a high level of interest in the teaching of Arabic language among pre-service teachers. The study also recommends some recommendations to further improve the performance of Bachelor Degree Arabic Language with Education pre-service teachers to enhance the level of readiness during teaching training period.

Keywords: *Arabic language, pedagogy, pedagogical content knowledge, readiness and interest, pre-service teachers*

[1] Universti Sultan Azlan Shah,
Perak, Malaysia
norkhalila1984@gmail.com

[2] Kulliyyah of Education,
International Islamic University
Malaysia
drarifin@iium.edu.my

[3] Kulliyyah of Education,
International Islamic University
Malaysia
muhdsabri@iium.edu.my

INTRODUCTION

Teaching has been one of the challenging professions especially with the increasing demand in the 21st century. According to Brown (1980), teaching is “showing or helping someone to learn how to do something, giving instructions, guiding in the study or something, providing with knowledge and causing to know or understand something”. The teachers are educators who are experts in the change dynamics or even as agents of changes (Fullan, 1993), as they are powerful examples to their students that change actually brings opportunities which should not be neglected (Head and Taylor, 1997). Hence, the major goal of teaching is to enhance students’ understanding and learning and the key to achieve this aim is by readiness in teaching performance.

Teaching effectively has become a crucial issue in facilitating the main goal of teaching. In ensuring effective teaching, the importance of conducting teacher’s training and development throughout the pathway of teaching career seems to be an undeniable necessity. As such, the preservice teacher training is important to nurture qualities of qualified teachers as well as continuous development training among themselves (Komorowska, 2017). It should also begin with the pre-service teachers’ level at universities in building up the characteristics of being an effective teacher in future including the integration of pedagogical content knowledge (PCK) in their training phase and period.

PROBLEM STATEMENT

The investigation of pre-service teachers’ readiness towards teaching-learning process is an extremely important as the teachers carry a huge responsibility to produce an excellent student. In order to attain excellent students, it must come with an effective teaching by teachers during classes and lectures and they should get ready themselves in all matter, which related to the teaching preparation including pedagogical content knowledge (PCK). According to Shulman (1987), teachers need to know the art of teaching, hence, enabling them to transmit the knowledge effectively. This kind of understanding the Pedagogical Content Knowledge (PCK) enables teachers to make ideas accessible to others.

Based on Ryan and Cooper (2010), PCK is teacher’s knowledge about how to deliver certain topics, problems, and issues so that students can understand them. Any lack of PCK would lead to difficulty in implementing teaching methods, selecting the appropriate and suitable learning method based on students’ characteristic and materials among teachers. According to Shulman (1986), teacher needs to possess these three kinds of knowledge; subject matter knowledge, curricular knowledge, and pedagogical content knowledge (PCK). As Shulman (1987) added, teacher who possess the (PCK) will able to aware on aspects of the particular discipline especially difficult or easy for student to learn. As a result, the teacher whom practice (PCK) during classroom might be able to stimulate students’ curiosity, encourages students to go beyond the surface of a topic and gain a depth understanding about the topic and always alert to individual variations in students’ learning (Borich, 2011). Therefore, it can be concluded that a teacher must have the (PCK) clearly due to develop effective teaching strategies and had the capabilities to identify the mistakes of students and address them wisely. The pre-service teachers must get ready with their capabilities in order to discover which pedagogical techniques are most effective in transmitting the knowledge towards students.

According to Norazman and Fazziana (2011), other than having knowledge and skills, interest in teaching the subject is also important and required. This implies that interest will influence the teachers in doing something consciously or unconsciously as reported by Crow (1980) in that teaching process. One very important factor, among several others, is the feeling of interest that becomes a great criterion for teacher of any language as their profession (Faniran & Olatunji, 2011). As stated by Crow (1980), interest in teaching the subject is also important because interest will influence the teachers in doing something consciously or unconsciously. In addition, interest is the main power that maintains someone’s career.

This paper is investigating the pre-service teachers’ perceived level of readiness in PCK in teaching Arabic among final year students of Bachelor Degree in Arabic Language with Education at Universiti Pendidikan Sultan Idris (UPSI), Malaysia and their interest towards teaching of the Arabic language subjects that definitely indicate their readiness to become Arabic teachers later on. The issue is important as it is stressing the importance of reflecting about learning (lesson) as an important activity for teachers in their efforts to improve the quality of learning

process (Iriawan, 2016) including their readiness and interest in applying pedagogical content knowledge (PCK) in the teaching of Arabic such as conducted in Teaching English as Second Language (TESL) by Haliza and Sherena (2010).

OBJECTIVES OF THE STUDY

The objectives of this study are:

1. To examine the perceived level of pre-service teachers' readiness in term of pedagogical content knowledge (PCK) in teaching Arabic.
2. To investigate their level of interest of pedagogical content knowledge (PCK) in the teaching of Arabic.

RESEARCH QUESTIONS

This study embarks on the following research questions:

1. What is the level of readiness in terms of Pedagogical Content Knowledge (PCK) on the teaching of Arabic among pre-service teachers?
2. What is the level of interest among them in terms of Pedagogical Content Knowledge (PCK) on the teaching of the Arabic language?

RESEARCH METHODOLOGY

The details of employed research methodology in this study are as explained below:

a) Research Design and Instruments

This study employs a quantitative research method. Basically, the present study explores the level of pre-service teachers' readiness and interest in terms of Pedagogical Content Knowledge (PCK). A set of questionnaire adapted from Haliza and Sherena (2010) was employed to gather the data due to its similar usability in Teaching English as Second Language (TESL). It consists of 10 modified items to meet the objective of the study. The last part was questionnaire on interest adapted from Norazman and Fazziana (2011). It consists of 11 items and focuses to investigate the level of interest towards teaching Arabic.

b) Sampling Population

The population of the study was the final year undergraduate students of Bachelor Degree in the Arabic language with Education at Universiti Pendidikan Sultan Idris (UPSI). This research is using purposive sampling method among thirty (30) students which involves all of them.

c) Data Analysis

This study used SPSS version 17.0 for data entry and analysis. Meanwhile, a simple descriptive statistical analysis consisting of frequencies, percentages and means was utilized to obtain the scores and significant measurements of the variables. The study used 5-Likert scale; "1" indicates "Strongly Agree" while "5" indicates "Strongly Disagree". The perceived level of readiness in PCK and Interest is classifying into three levels: low, medium, and high levels.

The mean scores are analyzed and interpreted into three levels of PCK and interest as shown below (Mohd Majid & Abdul Fattah, 2002):

Table 1

Mean score and interpretation of PCK level and interest

Mean score	Categories level of PCK
1 - 2.33	Low level of PCK & Interest
2.34 – 3.67	Medium level of PCK & Interest
3.68 – 5.00	High level of PCK & Interest

FINDINGS AND DISCUSSIONS

The findings and discussions in paper this can be categorized into several issues such as the following:

a) Demographic Background

Table 2

Demographic Background of Respondents

Demographic Characteristics	Category	Frequency	Percent
Gender	Male	9	30
	Female	21	70
CGPA	2.00 - 2.50	1	3.3
	3.01 - 3.50	7	23.3
	3.51 and above	22	73.3

Table 2 shows the respondent's demographic background. The highest percentages of respondents are female which is 70% (21 students), and the male is 30% (9 students). The findings concluded that the majority of respondents in this study are female. The second characteristic is the respondent's CGPA. The result shows that the majority of respondents, 73.3% (22 students) had a higher CGPA (3.51 and above).

b) Perceived Level of Readiness towards Pedagogical Content Knowledge (PCK)

Table 3

Perceived level of readiness towards PCK

Items No	Statement	SA	MA	A	MD	SD	M
		% (N)	% (N)	% (N)	% (N)	% (N)	
1	I am able to develop a variety of strategies to present the content of Arabic language.	6.7 (2)	36.7 (11)	56.7 (17)	-	-	2.50
2	I am able to use multiple ways to meet the needs of different learners.	6.7 (2)	33.3 (10)	56.7 (17)	3.3 (1)	-	2.57
3	I have the knowledge on how to judge the needs of students.	3.3 (1)	40.0 (12)	50.0 (15)	-	-	2.53
4	I have the knowledge of how to reflect on one's own performance to increase student learning.	10.0 (3)	40.0 (12)	50.0 (15)	-	-	2.40
5	I have the knowledge of how to reflect on one's own learning process to increase student learning.	-	36.7 (11)	60.0 (18)	3.3 (1)	-	2.67
6	I have the knowledge of how to focus on student understanding as well as the delivery of content.	3.3 (1)	30.0 (9)	60.0 (18)	6.7 (2)	-	2.70
7	I have the knowledge of how to focus on the delivery of content.	20.0 (6)	26.7 (8)	53.3 (16)	-	-	2.30
8	I know how to select effective teaching approaches to guide student thinking and learning in Arabic language.	16.7 (5)	33.3 (10)	46.7 (14)	3.3 (1)	-	2.37
9	I am able to teach the Arabic language skills in an effective way.	6.7 (2)	30.0 (9)	60.0 (18)	3.3 (1)	-	2.60
10	I know how to attract students' interest in thinking and learning in Arabic language.	10.0 (3)	20.0 (6)	66.7 (20)	3.3 (1)	-	2.63

The data from the questionnaire of perceived level of readiness towards PCK was analyzed by using the simple descriptive statistical analysis consists of percentages, frequencies, and mean scores as indicated in Table 2:

Table 3 describes the results of perceived readiness level towards Pedagogical Content Knowledge (PCK) among the final year Bachelor Degree of the Arabic language with Education pre-service teachers. Among all the 10 items, item (7) appears as the most significant result. Generally, it carries 100% of respondents agreed on item (7) "I have the knowledge of how to focus on the delivery of content" with the mean score 2.30. It indicates that the respondents acknowledged that an affective teaching happens when teachers know how to tailor the curriculum and instruction, so that the students will be engaged in a meaningful lesson. At the same time, 46.7% (14) of respondents prefer to agree on item (8) "I know how to select effective teaching approaches to guide student thinking and learning in Arabic language" with the mean score of 2.37. The researcher assumed that they knew exactly the perfect ways to guide their future students thinking and learning in Arabic language. Moreover, the result demonstrated that the pre-service teachers perhaps realized that a high quality teacher preparation makes a difference in student achievement.

Among all the items, the result portrays that the item (10) "I know how to attract students' interest in thinking and learning in Arabic language" shows the highest percentage 66.7% (20) of respondents agree with the statement. It indicates that, possibly the respondents believe that by knowing to attract students' interest in thinking and learning in The Arabic language may lead to a successful teaching. Item (3) and (4) hold the same percentage, 50% (15) of respondents agreed with both statements and carry the mean score 2.53 and 2.40 respectively. It is clear that half of the respondents agreed with the statement "I have the knowledge on how to judge the need of students" and "I have the knowledge of how to reflect on one's own performance to increase student learning". The respondents possibly felt that they are concern about the knowledge of teaching strategies to handle student's needs. In addition, the pre-service teachers may aware that inadequate knowledge of teaching strategies and unsuccessful to handle student's needs may lead to ineffective teaching.

Hence, the respondents may believe that it is crucial and necessary to find out the teaching strategies or teaching styles that work for students. Meanwhile, 50% of the respondents also preferred item (4) "I have the knowledge of how to reflect on one's own performance to increase student learning". The result indicates that the respondents probably have a realistic perception of teaching diverse student. For that reason, the respondents possibly believed that a teacher should be able to respond towards students' performance and always identify ways to help or encourage each student in learning. As for item (1) and (2), 56.7% (17) of respondents hold the same percentage for both statements and carried the mean score 2.50 and 2.57 respectively. Most of the respondents agreed with item (1) "I am able to develop a variety of strategies to present the content of Arabic language". It shows that the pre-service teachers probably have a deep understanding the knowledge of subjects in the Arabic language and having ideas and techniques in teaching delivery. At the same time, a large number of respondents also agreed with item (2) "I am able to use multiple ways to meet the needs of different learners". It may be due to the pre-service teachers concerned about the important of teaching in multiple ways in order to grasp each student has needs and manage a group of diverse students. Moreover, maybe the respondents believed that it is crucial and necessary to accommodate every learner even though it is a tough challenge when planning the lessons and teaching.

The result indicates that 60% (18) of respondents agreed with the item (5), (6), and (9) hold the same percentage. A greater number of respondents decided that they agreed on item (5), "I have the knowledge of how to reflect on one's own learning process to increase student learning". It maybe indicates that they think the knowledge of how to reflect on one's own learning process to increase student learning is important element in teaching-learning process. Majority of the respondents agreed with the item (6) "I have the knowledge of how to focus on student understanding as well the delivery content". This is probably the respondents acknowledge that planning for each student individually may lead to increase learners ability in learning. They agree that the pre-service teachers should have the knowledge of how to focus on the delivery of content. Only 6.7% (2) of the respondents disagree with the statement. Perhaps, the respondents may not have the confidence and may have insufficient knowledge of how to focus on the delivery of content towards learners. The least mean score is in item (6). Concurrently, a big number 60% (18) of respondents agree with item (9) "I am able to teach the Arabic language

skills in an effective way". They probably believed that they have the ability to teach The Arabic language skills (listening, speaking, reading, and writing) in persuasive way.

b) Interpretation of Mean Scores and Readiness Level of PCK

The previous mean score results of readiness towards Pedagogical Content Knowledge (PCK) among the final year Bachelor Degree of the Arabic language with Education pre-service teachers is then interpreted based on three levels of PCK readiness such as follows (Mohd Majid & Abdul Fattah, 2002):

Table 4

Mean Scores and Readiness Level of PCK

Items	Mean Scores	Readiness Level of PCK
P1	2.50	Medium
P2	2.57	Medium
P3	2.53	Medium
P4	2.40	Medium
P5	2.67	Medium
P6	2.70	Medium
P7	2.33	High
P8	2.37	Medium
P9	2.60	Medium
P10	2.63	Medium
Overall	2.53	Medium

Table 4 above shows the mean scores and levels of readiness for Pedagogical Content Knowledge (PCK). Based on the result above, only the item (7) "I have the knowledge of how to focus on the delivery of content" carried the high level of readiness among undergraduate Bachelor Degree in the Arabic language with Education pre-service teachers. It shows that the respondents have high confidence that they can deliver the content of Arabic language. The average mean of all responses lies at medium level, 2.53 of mean score. Therefore, the result of findings shows that the readiness in terms of Pedagogical Content Knowledge (PCK) among the final year Bachelor Degree of the Arabic language with Education pre-service teachers in the teaching of the Arabic language was at a medium level.

c) Level of Interest on the Teaching of Arabic Language

Table 5 below indicates the findings of the second research question as the following:

Among the 11 items based on previous table, it can be seen that the highest mean was from item (5) "I will attempt to upgrade my knowledge and skills in The Arabic language in order to become an effective The Arabic language teacher" with a mean score of 1.73. All of them 100% (30) respondents agree with that item. It proves that the respondents probably have the courage to upgrade their knowledge and skills in The Arabic language in order to become an effective The Arabic language teacher. It was assumed that all the respondents were very passionate in the teaching of Arabic language.

Two items hold the mean of 1.77 namely the item (1) and (2). Majority of the respondent agree with the item (1) "I like teaching profession". It can be implied that the pre-service teachers have a deep interest of being an educator. They probably noticed that a positive feeling towards profession is necessary in order to maintain someone career. However, 26.7% (8) of respondent decided moderately disagree with the item (1). Possibly, the pre-service teachers were still confused in choosing the job. Meanwhile, all respondents 100% (30) described that they agree with the statement in item (2) "My dream is to be an excellent teacher".

Table 5
Interest on the Teaching of Arabic

Items No	Statement	SA % (N)	MA % (N)	A % (N)	MD % (N)	SD % (N)	M
1	I like teaching profession.	46.7 (14)	30.0 (9)	23.3 (7)	26.7 (8)	-	1.77
2	My dream is to be an excellent teacher.	50.0 (15)	23.3 (7)	26.7 (8)	-	-	1.77
3	I like reading any materials in Arabic language.	26.7 (8)	46.7 (14)	26.7 (8)	-	-	2.00
4	I am eager to teach The Arabic language subjects in school.	26.7 (8)	50.0 (15)	23.3 (7)	-	-	1.97
5	I will attempt to upgrade my knowledge and skills in The Arabic language in order to become an effective The Arabic language teacher.	40.0 (12)	46.7 (14)	13.3 (4)	-	-	1.73
6	I will perform my duties and responsibilities honestly and sincerely.	30.0 (9)	43.3 (13)	26.7 (8)	-	-	1.97
7	I will always discuss with other colleagues and senior teachers about my teaching.	30.0 (9)	46.7 (14)	23.3 (7)	-	-	1.93
8	I will attempt to find new teaching resources pertaining to the Arabic language in order to use as teaching aids.	30.0 (9)	40.0 (12)	30.0 (9)	-	-	2.00
9	I will show my high commitment towards my duties and my responsibilities as a teacher.	26.7 (8)	60.0 (18)	13.3 (4)	-	-	1.87
10	I am ready to accept any advice from the senior teachers and principals if I were committed any mistake.	40.0 (12)	40.0 (12)	20.0 (6)	-	-	1.80
11	I am willing to spend my time to help my students in upgrading their learning pertaining to Arabic language.	33.3 (10)	43.3 (13)	23.3 (7)	-	-	1.90

The statement illustrates a desired outcome driven by a sense of mission like developing students or helping them to achieve success. The pre-service teachers perhaps believed that a teacher, as a role model should inspire the learners to be successful people. These were followed by the item (10) and (9) with value of means 1.80 and 1.87 respectively. All respondents, 100% (30) agree with the item (10) "I am ready to accept any advice from the senior teachers and principals if I were committed any mistake". It indicates that they are ready to accept any

advice from the senior teachers if they make any mistake. The finding also proves that all respondents, 100% (30) possess high desire towards teaching profession by referring to the statement in item (9) "I will show my high commitment towards my duties and my responsibilities as a teacher". It can be interpreted that all respondents are aware that teachers' commitment has been identified as one of the most critical factors for the future success of education and schools. Items (4) and (6), share the same value of means 1.97. The result shows that all the respondents, 100% (30) give positive answer to these statements. Item (4) "I am eager to teach The Arabic language subjects in school" describes that the pre-service teachers' have a keen interest to teach The Arabic language in schools. At the same time, all pre-service teachers 100% (30) also agree with item (6) "I will perform my duties and responsibilities honestly and sincerely". It may be a clear indication that they are wholeheartedly accepted their future career as a teacher. The result also draws a strong connection between teacher commitment and the very intimate element of passion for the work of teaching. Besides that, the lowest mean was 2.00. There were two items hold the same mean namely; items (3) and (8). However, these values of mean were still fall at a high level. Generally, the finding demonstrates that all the respondent 100% (30) agree with the item (3) "I like reading any materials in Arabic language". The result suggests that the pre-service teachers' have high interest in teaching Arabic language. Moreover, it was in line with their belief that by reading types of materials in The Arabic language may increase and broaden their knowledge of the subject area. At the same time, statement in the item (8) "I will attempt to find new teaching resources pertaining to the Arabic language in order to use as teaching aids" also illustrates the positive result. It indicates that respondents realized that teaching The Arabic language in various ways could attract and reinforce students' desire towards learning Arabic language. Furthermore, the respondents may have the strong believed that a good teacher must keep improving and upgrading their teaching styles. They should deal with numerous teaching aids to attract learners in learning Arabic language.

d) Interpretation of Mean Scores and Interest Level of PCK

The previous mean score results of interest towards Pedagogical Content Knowledge (PCK) among the final year Bachelor Degree of the Arabic language with Education pre-service teachers is then interpreted based on three levels of PCK interest such as follows (Mohd Majid & Abdul Fattah, 2002):

Table 6

Mean Scores and Interest Level of PCK in the Teaching of Arabic Language

Items	Mean Scores	Level of Interest
11	1.77	High
12	1.77	High
13	2.00	High
14	1.97	High
15	1.73	High
16	1.97	High
17	1.93	High
18	2.00	High
19	1.87	High
110	1.80	High
111	1.90	High
Overall	1.88	High

Table 6 above shows the mean scores and level of interest in the teaching of Arabic language. The findings show that the overall values of mean for all items were at a high level. Therefore, it can be concluded that all undergraduate Bachelor Degree in the Arabic language with Education pre-service teachers possessed deep interest in teaching of Arabic language. It can be seen that the average mean of all responses lies at a high level, which is 1.88. It indicates that the level of interest in the teaching of The Arabic language among pre-service teachers were at a high level.

DISCUSSIONS OF FINDINGS

The study reveals that the level of pre-service teachers' readiness of PCK was at medium level (M=2.53). In contrast, it was found that the level of interest on the teaching of the Arabic language was at high level (M=1.88). The study reveals that the element of being a teacher was still at average level of readiness. Therefore, the pre-service teachers of the Arabic language final year students of Bachelor Degree in Arabic Language with Education at Universiti Pendidikan Sultan Idris (UPSI), Malaysia must put high attention on PCK of Arabic language.

The finding of the study also recommends that pre-service teachers of the Arabic language should equip themselves with the Arabic language proficiency for the sake of professional development for teachers. The pre-service teachers of the Arabic language also must cope with pedagogical content knowledge properly. It is because the art of teaching of the subjects are different from one to another. Moreover, the Arabic language is as a foreign language in Malaysia. Therefore, the pre-service teachers must adequate themselves with PCK in teaching-learning process in the schools. At the same time, there must be kind of empowerment micro teaching in order to train pre-service teachers with the appropriate method of teaching Arabic, as the Arabic language is a foreign language in Malaysia.

CONCLUSION

This article reports on the perceived level of pre-service teachers' readiness in term of pedagogical content knowledge (PCK) and their interest in the teaching of Arabic among Arabic language final year students of Bachelor Degree in Arabic Language with Education at Universiti Pendidikan Sultan Idris (UPSI), Malaysia. This research may be applied to other settings and different samplings which possibly leads to variety of findings.

BIBLIOGRAPHY

- Brown, H. D. (1980). The optimal distance model of second language acquisition. *TESOL Quarterly* 14: 157-164
- Borich, G.. (2011). *Effective Teaching Methods*. Texas: PEARSON.
- Crow, L. D. (1980). *Psikologi Pendidikan Untuk Perguruan*. Kuala Lumpur: Dewan Bahasa dan Pustaka.
- Faniran, A. O. & Olatunji, S. O. (2011). *The Place of Interest in Pre-servive English Teachers' Choice of Occupation: A Study of Selected Nigerian College of Education Students*. Department of Mass Communication and Media Technology Lead City University, Ibadan Oyo State Nigeria.
- Fullan, M. (1993). *Change Forces: Probing the Depths of Educational Reform*. London: The Falmer Press
- Haliza, J. and Shreena, S. (2010). Lecturers' And Tesl Teacher Trainees' Perceptions Towards The Level of Readiness in Performing Teaching Practice. *Journal of Educational Social Science*, 4 . ISSN 2231-7333
- Head, K. & Taylor, P. (1997). *Readings in Teacher Development*. Oxford: Heinemann English Language Teaching.
- Iriawan, S. B. (2016). *Appropriate teaching method as a source of students' success in learning. Global and Stochastic Analysis*. Vol. 3, No. 3, 203-214. MUK Publications.
- Komorowska, H. (2017). Quality Assurance in Teacher Education. *GLOTTODIDACTICA XLIV/1*, Adam Mickiewicz University Press Poznań.
- Mohd Majid K., Abdul Fatah A. M. (2002). *Memahami penyelidikan pendidikan*, Selangor. Penerbit Universiti Putra Malaysia.
- Norazman A. M. & Fazziana A. (2011). *Investigating TESL Trainees' Perception on The Level of Readiness In Teaching English For Science and Technology Subject in School*. Universiti Teknologi Malaysia.
- Heath, R. R. (2010). Ensuring preservice teachers' readiness to teach standards-based curricula. *North Carolina Middle School Journal*, 25 (2), 1-9.
- Ryan, K. & Cooper, J. M. (2010). *Those Who Can Teach*. Boston: WADSWORTH CENGAGE Learning.
- Shulman, L. (1986). Those Who Understand: Knowledge Growth in Teaching. *Educational Researcher*, 15(2), 4-14.