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Instructional Alignment of Workplace Readiness Skills in Marketing Education

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ABSTRACT

This study examined high school marketing education teachers' knowledge of workplace readiness skills and whether that knowledge had an impact on student workplace readiness skill achievement. Further, this study examined the usage of Virginia's 13 Workplace Readiness Skills curriculum and identified the teaching methods and instructional strategies used to disseminate the skills to students. Three sets of data were used for this study: teacher workplace readiness skills data, teacher survey data, and student workplace readiness skills post-test data. Pearson's correlation was used to determine whether teacher knowledge of workplace readiness skills had an impact on student attainment of the same. The results showed that while overall teacher scores did not show a statistical significance on overall student scores, there were four individual skill areas in which there was a relationship between teacher and student scores.

Keywords: Marketing Education, Shortage, Skills Curriculum, Student Attainment, Technical Skills, Workplace Readiness Skills

INTRODUCTION

The United States faces a skills shortage that goes beyond academic and technical skills. The shortage is of workers who lack the skills employers have identified as “soft skills,” such as communications and interpersonal skills (Holdsworth & Gearhart, 2002; ACT, Inc., 2006; White, 2013). Employers have been and continue to be concerned about the gap which exists between skill readiness and those exhibited by potential employees (Conference Board, 2006; Martin, Carrier, & Hill, 1997; National Center on Education and the Economy, 2008; Prichard & Kaz, 2013; Rider & Klaeyen; 2015). Students around the world have outperformed even the top American students on comparative assessments that measure competence in 21st century skills (Greenberg, 1996; Partnership for 21st Century Skills, 2006; Zargari, 1997). According to the

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Conference Board (2006) most young people entering the U.S. workforce lack critical skills essential for success and “These skills are in demand for all students, regardless of their future plans, and will have an enormous impact on our students’ ability to compete” (p. 7). The ability of the United States to stay competitive in the 21st century is dependent upon the preparedness and skill levels of its workforce. Additionally, more than half of 768 executives in one survey admitted their employees are “average” at best in critical thinking, creativity, collaboration, and communication skills (AMA, 2012).

This gap has a direct impact on local businesses as they try to fill the employment void with less qualified workers than their global competitors. In essence, if our students are not learning how to problem-solve, work in teams, and learn to clearly communicate ideas, then the United States economy will suffer as more and more industries will be short of qualified employees and be forced to move manufacturing plants overseas (Friedman, 2005).

There is a disconnect between what is taught in schools and what is needed in the workplace (ACT, 2006; Prichard & Kaz, 2013; Rider & Klaeyesen; 2015). The increase in educational accountability measures for student achievement have driven states and local school divisions to re-focus their attention on what and how students are taught (Partnership for 21st Century Skills, 2011; Wagner, 2008), moving from a curricula of discovery to one of test-prep. Now more than ever, leading corporate managers expect states and local school divisions to do a better job of teaching technical education, professionalism, and work ethic (National Research Center for Career and Technical Education, 2010). Therefore, in order to better prepare students for life after high school, educational leaders need to re-align their policies and curricula in order to facilitate student transition from K-12 to postsecondary education and the workforce.

PURPOSE

This study was designed to examine high school marketing education teachers’ knowledge of workplace readiness skills and whether that knowledge had an impact on student workplace readiness skill achievement. To guide this study the following research questions were established:

1. To what extent are marketing education teachers knowledgeable of workplace readiness skills?
2. What teaching methods and instructional strategies did teachers report to deliver the workplace readiness skills?
3. How successful were the students in obtaining competence in workplace readiness skills?
4. Is there a correlation between teacher knowledge and student attainment of workplace readiness skills?

DELIMITATIONS

This study included only high school marketing education teachers and students from one Virginia school district. The medium for testing student achievement on workplace readiness skills was limited to the online assessment via the National Occupational Competency Testing Institute (NOCTI). Finally, this study examined the success of the curriculum in part by the students’ post-test scores on the National Occupational Competency Testing Institute assessment on Virginia’s 13 Workplace Readiness Skills.

ASSUMPTIONS

It was assumed that teachers participating in this study had taken the workplace readiness skills assessment. It was also assumed that teachers participating in this study used Virginia's 13 Workplace Readiness Skills curriculum as the means for student achievement/competency attainment of the workplace readiness skills. Additionally, it was assumed that teachers participating in this study did not alter their responses to the survey questions in order to 'please' the researcher and support their study; this social desirability poses a risk to internal validity.

BACKGROUND

The marketing education teachers in this study attended two training sessions in the use of the workplace readiness skills curriculum. The training sessions were conducted by the district office staff and the workplace readiness skills curriculum writers and were offered over a two-year period. Both training sessions incorporated the use of whole group and small group instruction. For small group discussion, teachers were grouped according to program area, i.e., Marketing Education, Technology Education, Business and Information Technology, Family and Consumer Sciences, and Trade and Industrial Education. This grouping allowed teachers to share content knowledge as well as any work experience in their field with the other members. Each training session provided teachers the opportunity to interact with curriculum and data. The facilitators concluded the training sessions by asking each participant to complete an exit ticket and training evaluation form. The first two-hour training session provided information on the updated course requirements and competencies; emphasizing the new essential competency *Demonstrate Virginia's Workplace Readiness Skills in course activities* (CTE Resource Center, n.d.). Training facilitators shared the research which led to the identification of Virginia's 13 Workplace Readiness Skills, the development of the curriculum, the teaching methods and instructional strategies used to incorporate workplace readiness skills into each CTE course using Virginia's 13 Workplace Readiness Skills curriculum, and training on the use of the support resources referenced within each skill area in the curriculum; including the use of pre- and post-test assessments developed by NOCTI. The second two-hour training session focused on interpreting pre-test data to adjust instruction for student achievement. Teachers were guided through an analysis of their students' pre-test data to determine the low lying skill areas. Teachers worked in small groups to plan and strategize on how to adjust teaching methods and instructional strategies to address those areas. Students were post-tested six months after the pre-test as a means to measure growth in the skill areas.

METHODS

Several methods of data collection were used in this study; Virginia's 13 Workplace Readiness Skills assessment – teacher and student, and a teacher survey. CTE high school marketing education teachers were asked to take an online assessment to determine their knowledge of workplace readiness skills. This first method of data collection was an assessment developed by the researcher to measure teacher knowledge of Virginia's 13 Workplace Readiness Skills. The teacher assessment was created using questions found at the end of each skill section of Virginia's 13 Workplace Readiness Skills curriculum developed by Opportunity, Inc. (2006); and contains 100 multiple choice questions measuring each of the 13 skill areas. Each skill area was weighted identical to the student assessment and included the same number of questions

per skill area as the student assessment, see Table 1. The weight and number of questions per skill area for the student assessment was determined by NOCTI.

The teacher assessment was validated by a panel of experts who reviewed for content and format. The researchers contacted five reviewers to provide feedback on content and one reviewer to provide feedback on format and question development. The content reviewers represent career and technical education and/or workforce development and hold positions at a university or state education agency in which they are responsible for the improvement of career and technical education and/or workforce development in their respective states. The construct/format reviewers' expertise is in psychometrics; holding a doctorate degree in Industrial-Organizational Psychology with a vast working background in business and industry. Each reviewer was sent two forms of the assessment and a rating form developed by Landon (2009) via email. Results of the review process found the teacher assessment to be an appropriate measure to assess knowledge of workplace readiness skills as outlined within the research questions guiding this study, including content validity, construct validity, and criterion-related validity. Key (1997) identifies three basic approaches to the validity of tests and measures - content validity, construct validity, and criterion-related validity. According to Key (1997), content validity measures the degree to which the test items represent the domain of the trait being measured and is best determined by the use of a panel of experts from the field of study. Construct validity is evaluated by investigating what qualities a test measures, that is, by determining the degree to which certain explanatory concepts or constructs account for performance on the test. Criterion-referenced validity is concerned with detecting the presence or absence of one or more criteria considered to represent traits or constructs of interest.

The teacher assessment was checked for reliability by using an alternate-form reliability measure. The researchers created a large set of questions that addressed the same construct and then selected questions for both assessments, dividing the questions so that each assessment measured the same content in similar formats. The reviewer who evaluated the assessment

Table 1. Skill area weights for Virginia's workplace readiness skills teacher and student assessment

Areas covered	Weight	Number of Questions
Reading	5%	5
Math	9%	9
Writing	8%	8
Speaking and Listening	8%	8
Computer Literacy	6%	6
Reasoning, Problem-Solving, and Decision Making	7%	7
Understanding the Big Picture	6%	6
Work Ethic	6%	6
Positive Attitude	8%	8
Independence and Initiative	8%	8
Self Presentation	13%	13
Attendance	6%	6
Team Member	10%	10
Total	100%	100

for construct and format also paralleled the two forms for consistency. The researchers made adjustments to the two forms according to the feedback received from the reviewer. Both forms were used independent of each other and given to the participants to assess their knowledge of Virginia's 13 Workplace Readiness Skills. The alternate-form reliability of an assessment helps to overcome the "practice effect." This method is viewed as superior to the retest method because a respondent's memory of test items is not as likely to play a role in the data received (Key, 1997). Although this study only required teachers to take the assessment once, the researchers wanted to ensure reliability of the assessment and to prepare for future research.

The purpose of the second assessment, the teacher survey, was to obtain information on whether the teachers used the workplace readiness skills curriculum, specifically which teaching methods and instructional strategies and resources were used to deliver instruction on the skills. The methods and strategies included in the survey were derived from a review of related literature concerning teaching workplace readiness (career and employability) skills in the classroom (Manley, 2008). The survey was reviewed by a panel of experts in the field of career and technical education. The survey was modified from a previous study (Manley, 2008).

The third instrument, the student assessment, was developed by the National Occupational Competency Testing Institute (NOCTI). The assessment was created based on the information included in Virginia's 13 Workplace Readiness Skills curriculum developed by Opportunity, Inc. (2006); which was written based on industry standards provided by experts in the field. The assessment was administered online and consisted of 100 multiple choice questions. NOCTI requires their assessments be administered by a trained proctor, someone other than the classroom teacher, to protect against influence. The assessment is given in a secured environment free from distractions. Students had 90-minutes to complete the assessment.

An item analysis was conducted on the student assessment by experts in the field to ensure the appropriateness and accuracy of each question. The assessment was designed to measure competency in the thirteen workplace readiness skill areas – reading, math, writing, speaking and listening, computer literacy, reasoning, problem-solving and decision making, understanding the 'big picture', work ethic, positive attitude, independence and initiative, self presentation, attendance, and being a team member. The student assessment was checked for reliability by using an alternate-form reliability measure. Additionally, the student assessment was pilot tested prior to being available to all school divisions in the Commonwealth of Virginia in 2002.

DATA COLLECTION

The teacher sample for this study was determined by the course level the teacher taught; i.e., whether the teacher taught a 2nd-year course as compared to an introductory course (N=19, n=10), and whether the students in their second year course took the workplace readiness skills assessment (N=151). The researchers identified the teachers by reviewing course schedules and student post-test data. The researchers sent the identified teachers an email requesting participation in the study. Teachers who were interested in participating were given contact information of the 3rd-party who served as the proctor in this study. A proctor was used, rather than the researchers, to eliminate bias and to maintain teacher anonymity. Teachers provided the third party a four-digit numeric code which was used as an identifier for both the assessment and survey. The teacher names and corresponding codes were kept with the third party during the study. The third party emailed each participant two separate web links; one for the survey and one for the assessment. The results of the teacher assessments were sent to an electronic drop box which was accessed by the researchers.

In addition to taking the assessment, the teachers were asked to complete a survey. The purpose of the survey was to obtain information on whether teachers were using Virginia's 13 Workplace Readiness Skills curriculum to teach the skills, to garner information on teacher perceptions of the skills, and to determine which teaching methods and instructional strategies were used to deliver instruction on workplace readiness skills. The survey was administered online. The teachers were emailed a link to the survey and given a due date of when the survey had to be completed. Once teachers logged into the survey, they entered their unique numeric code. This code served as an identifier to the researchers and linked the survey results to the assessment results. The survey consisted of 22 questions; multiple choice and open-ended questions. The completed surveys were sent to an electronic drop box which was accessed by the researchers.

The student post-test assessment data represented students who were enrolled in an advanced marketing course. The assessments were administered by a trained NOCTI proctor hired by the school division. Once the student completed the online test, he or she submitted the responses electronically and the assessment was immediately scored and results were printed for each student, their teacher, and the proctor. The results were presented in chart form which reflected each skill area individually as well as providing an overall combined average score for the 13 skills; thus arriving at a passing or non-passing score. The assessment was normed using the past three years of student data and a passing score of 75% was determined by NOCTI (G. Creasy, personal communication July 7, 2009).

FINDINGS

For this study, 19 marketing education teachers were eligible to participate. The conditions of eligibility included whether the teacher (1) taught a second year course in marketing education; i.e., Advanced Marketing and/or Advanced Fashion Marketing, and (2) administered the workplace readiness skills post-test to their second year students. Of the nineteen teachers, 10 positively responded to an email request to participate. All ten teachers completed the workplace readiness skills online assessment and the survey.

The teacher participants' average years of teaching experience is 15, with 5 teachers having 10 or fewer years in the classroom and 3 having 25 or more years of classroom experience. All ten teachers hold a Virginia teaching license; four have a Masters' degree, six have a Bachelor's degree. Eight of the 10 teachers have professional work experience in their discipline; fashion marketing and/or marketing, with an average of 1.7 years of experience. The student group consisted of 151 second year marketing education students; 43 male and 108 female. Demographics of the student group with a comparison to the state enrollment in advanced marketing and fashion courses are illustrated in Table 2. The statistics are consistent between the local student group used in this study and the state enrollment in the same courses.

The first research question focused on the teachers' knowledge of Virginia's 13 Workplace Readiness Skills. Table 3 shows the results of the teacher assessment, including the mean and standard deviation for each of the thirteen skill areas. Ten teachers took the assessment; all 10 scored above 80% overall, resulting in a 'passing' score. It is important to note that this passing score was set higher than the student passing score of 75 because the researchers felt the teachers should have a higher level of knowledge on Virginia's 13 Workplace Readiness Skills. The three highest skill area averages were work ethic, independence and initiative, and self-presentation. The lowest skill area averages were Reasoning, Problem-Solving, and Decision Making, Computer Literacy, and Math. The mean score for the teacher workplace readiness skills assessment was an 87.

Table 2. Comparison of demographic characteristics of student participants - local and state

Ethnicity	Total	Percentage	
		Local	State
Unspecified	8	5.3%	1.6%
African American	38	25.1%	28.8%
Caucasian	88	58.3%	59.8%
Hispanic	5	3.3%	4.7%
American Indian	1	.7%	.2
Asian	11	7.3%	4.8%
Hawaiian	0	0	.1%
Total	151	100%	100%

Table 3. Means and standard deviation for Virginia's 13 workplace readiness skills teacher assessment

Skill Area	M	SD
Reading	82	18
Math	81	14
Writing	93	10
Speaking and Listening	84	13
Computer Literacy	80	10
Reasoning, Problem-Solving, and Decision Making	71	16
Understanding the Big Picture	83	16
Work Ethic	98	5
Positive Attitude	89	11
Independence and Initiative	96	6
Self-Presentation	97	5
Attendance	90	12
Team Member	85	11

To examine the second research question, teachers completed a survey to self-report the usage of Virginia's 13 Workplace Readiness Skills curriculum, their perceptions on the workplace readiness skills as it relates to their course content, and the types of teaching methods and instructional strategies used to disseminate workplace readiness skills. The survey consisted of 22 questions; the first 10 questions garnered information pertaining to the teacher's professional background; including whether they had any professional work experience outside of teaching. The remaining questions sought to discover the teacher's perceptions of Virginia's 13 Workplace Readiness Skills and to categorize the teaching methods and instructional strategies used to disseminate the skills.

All ten teachers responded workplace readiness skills are equally important as the teaching of technical skills; two teachers responded they only teach the workplace readiness skills relevant to their course, while eight reported they teach all thirteen skills. The teachers were asked to rank Virginia’s 13 Workplace Readiness Skills in order of importance, see Figure 1. Work ethic was ranked the highest, 95.3%; followed closely by reading skills (94.7%), writing skills (94.5%), and positive attitude (94%). When asked when a student should be exposed to workplace readiness skills, 40% of the teachers reported the skills should be taught in the first year course, 60% reported students should be exposed to them in both first year and second year courses. Fifty percent of the teachers reported they teach the skills at various planned times during the school year, 40% whenever it seemed appropriate, and one teacher reported that they concentrate on the skills towards the beginning of the year.

Teachers were asked a series of questions that focused on teaching methods and instructional strategies used to disseminate workplace readiness skills. The first question in the series asked, “Since the implementation of Opportunity, Inc.’s Virginia’s 13 Workplace Readiness Skills educational program in fall 2006, have you changed the way you teach workplace readiness skills to your students?” Seventy percent of the teachers reported they have changed the way they teach the skills; using one or more of Virginia’s 13 Workplace Readiness Skills curriculum supplementary resources to teach the skills (see Table 4) in addition to developing their own teaching tools. Examples of self-created teaching tools included Power Point (slides), displays, brochures, and a student developed board game to reinforce team work and problem solving skills.

Teachers were given a list of methods and strategies to choose from that best identifies what they used to incorporate workplace readiness skills into their curriculum (see Table 5). The developer of the survey instrument, Manley (2008), included teaching methods and instructional

Figure 1. Teacher ranking of Virginia’s 13 Workplace Readiness Skills by percentage of importance

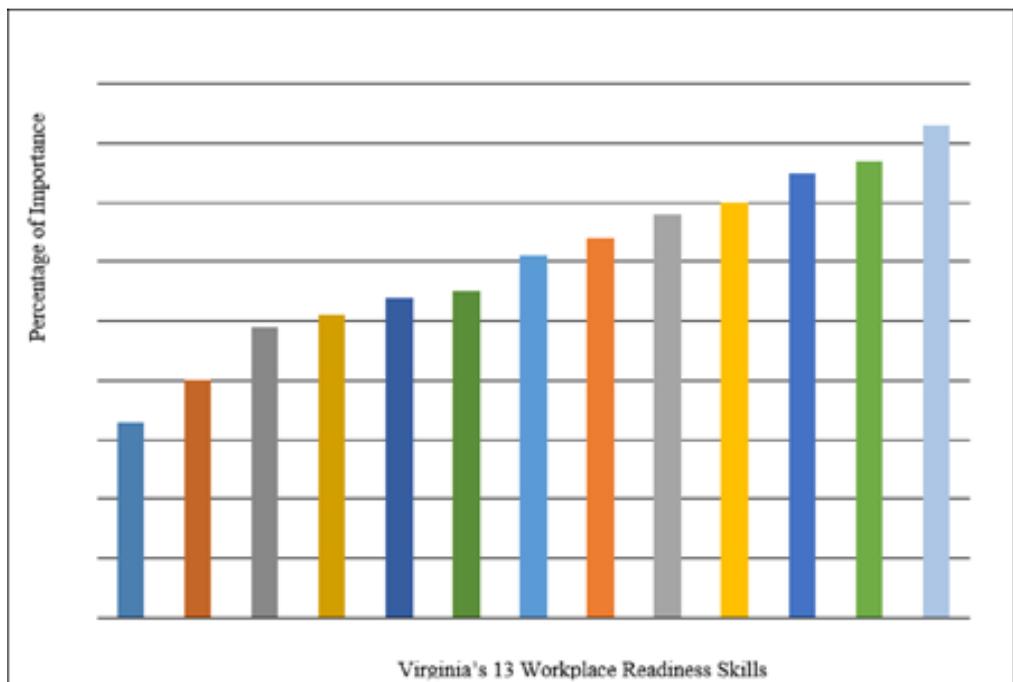


Table 4. Teacher reported use of Virginia's workplace readiness skills curriculum supplementary resources

Resources	Number of Teachers Using the Resource (n=10)			
Activities	9			
Handouts	10			
Lesson Plans	7			
Assessments	4			
Power Points	5			

Table 5. Teaching methods and strategies used to incorporate Virginia's workplace readiness skills into curriculum

Method/Strategy	Number of Teachers Using the Method/Strategy (n=10)
Devote entire class time to teaching the skills	5
Maintain a workplace readiness skills portfolio	0
Projects or assignments for each of the 13 skills	3
Project or assignments for teacher identified skills	5
Separate lessons for each skill	1
Maintain a video or audio library	0
Work in teams or groups	7
Participate in games that re-enforce the skills	4
Bring in professionals from the workplace	9
Mention the skills during lectures	8
Assign a professional mentor	0

strategies which were derived from a review of related literature concerning teaching workplace readiness (career and employability) skills in the classroom. The methods and strategies most often used were bringing in professionals from the workplace in to the classroom to discuss workplace readiness skills with the students (90%), mentioning the workplace readiness skills during lectures and/or activities when it seemed appropriate (80%), and having students work in teams or groups to accomplish workplace readiness skills assignments, projects, and/or activities (70%). None of the teachers selected having the students develop and maintain a workplace readiness skills portfolio, maintain a video or audio library of their workplace readiness skills accomplishments or assigning each student a professional mentor to help teach the workplace readiness skills. The last question on the survey asked the teachers to check all of the workplace readiness skills covered or reiterated this year with this school year's potential set of completers. All ten teachers responded they covered each of the thirteen skill areas with their students.

The third research question concerned student success in obtaining competency in workplace readiness skills. Of the 151 students reported in this study, 120 students scored above the pre-determined pass rate of 75%. Table 6 shows the results of the student assessment, including

Table 6. Means and standard deviation for Virginia's 13 workplace readiness skills student assessment

Skill Area	M	SD
Reading	83	17
Math	73	24
Writing	82	19
Speaking and Listening	78	15
Computer Literacy	61	16
Reasoning, Problem-Solving, and Decision Making	79	18
Understanding the Big Picture	84	17
Work Ethic	92	12
Positive Attitude	80	15
Independence and Initiative	84	17
Self-Presentation	87	13
Attendance	96	10
Team Member	77	13

the means and standard deviation for each of the 13 skill areas. The mean score for the student workplace readiness skills assessment was an 82. The three highest skill area averages were Attendance, Work Ethic, and Self-Presentation. The lowest skill area averages were Computer Literacy, Math, and Team Member.

Finally, the researchers wanted to determine whether there was a relationship between teacher knowledge of the workplace readiness skills and student attainment of the same. A Pearson's correlation coefficient (r) was used to examine whether there was a relationship between teacher scores on a workplace readiness assessment and student scores on the same. According to Levin and Fox (2006), Pearson's correlation coefficient (r) can "determine the strength and the direction of the relationship between X and Y variables," (p. 333). Green and Salkind (2005) state, "behavioral sciences, correlation coefficients of .01, .03, and .05, irrespectively of sign, are by convention, interpreted as small, medium, and large coefficients, respectively," (p.256). The researchers chose a p value of less than .05 for significance. The results of an obtained r , ($r = .067, p < .05$) indicates there is no statistically significant relationship between overall teacher scores and overall student scores on the workplace readiness skills assessment in the population from which the sample was taken.

A closer look at the thirteen individual skill areas showed a statistical significance between teacher scores on Speaking and Listening and student scores on the same, ($r = -.185, p < .05$); teacher scores on Problem-Solving and student scores on Math, ($r = .163, p < .05$); teacher scores on Big Picture and student scores on Team Member ($r = .196, p < .05$); and teacher scores on Self-Presentation and student scores on Speaking and Listening ($r = -.214, p < .05$) (see Table 7).

CONCLUSION

The skill area that had the highest number of teachers scoring below a 75 and the lowest mean score (71), was Problem-Solving. Further review of the assessment questions pertaining to

Table 7. Correlations among four of the 13 Virginia’s workplace readiness skill scores – teacher and student

	Student		
	Speaking and Listening	Math	Team Member
Teacher			
Speaking and Listening	-.185*		
Problem-Solving		.163*	
Big Picture			.196*
Self-Presentation	-.214*		

*. Correlation is significant at the 0.05 level (2-tailed).

problem-solving showed that teachers were not successful on the questions that sought information on the problem-solving process. So while the student assessment showed a mean score of 79, there is a concern in whether the teachers possess the knowledge of and the ability to model the problem-solving process when engaging students in classroom activities. Research on the skills and attributes deemed most important by employers cites problem-solving as one of the most important skills graduates need in order to succeed in the workplace (Conference Board, 2006, Martin, J., Carrier, A., & Hill, E.S., 1997, Opportunity Inc., 2006; Rider & Klaeyesen, 2015; White, 2013). Although content is important, the *process* of how students learn is equally important. The need to provide professional development in this particular area is warranted by both the research on the skills and attributes deemed necessary by business and industry presented in this study as well as by the teacher assessment scores from this research.

The teaching methods and instructional strategies most often used by teachers to disseminate the workplace readiness skills were bringing professionals from the workplace into the classroom, i.e., guest speakers, teachers mentioning the skills during classroom instruction, and having the students work in teams. Only four of the ten teachers reported using the assessments included in the workplace readiness skills curriculum as a resource. The research of Wiggins & McTighe (2005) found supporting evidence that emphasize the importance of student’s understanding the ‘big ideas’ or concepts of the curricula. These ideas and concepts are determined at the onset of curriculum development and are based on what students are expected to know, understand, and be able to do after instruction. Methods and strategies used to reinforce the big ideas, such as bringing in guest speakers from the field, allow students to make the connection between what is being taught in school and what is expected in the workplace. Assessments should measure student understanding; therefore, when designing curriculum and implementing instruction teachers should create instruction with the outcomes or assessment already determined, i.e., begin with the end in mind. Professional development in the area of using on-going assessments and assessments to drive instruction is warranted by the results of this study and the literature (National Research Center for Career and Technical Education, 2010).

The student mean score for the workplace readiness skills assessment was an 82. Of the 151 students used for this study, 120 of them passed, resulting in a pass rate of 79.4%, with a mean score of 85.9. Further review of the individual scores showed students were less successful in computer literacy with a mean score of 61. Though it seems students of the technology generation would have scored much higher on this skill area, this was not supported by this study. According to NOCTI, the assessments are geared more toward measuring a student’s knowledge of basic

processes including the identification and use of terminology and tools (NOCTI, 2006). This leads the researchers to conclude that while students can maneuver in and out of applications with ease; i.e., Internet searches, instant messaging, and email; they may not be knowledgeable of the terminology or the “why” behind the use of specific applications. The researchers were not granted access to the online student assessment to review the questions for content; rather, the researchers were given the blueprint and sample questions of the assessment. It is the policy of NOCTI that teachers are not to view the assessment in order to keep the integrity of the test intact. It is also worthy to note that using multiple-choice questions to assess a student’s ability to demonstrate knowledge through application is very difficult.

This study showed there was no correlation between overall teacher knowledge of the workplace readiness skills and overall student attainment of the same. Though it seems logical that teacher knowledge would have an impact on student achievement, this was not found in this sample. The size of the teacher sample could be a contributing factor in this finding. Of the nineteen teachers eligible to participate in this study, only ten volunteered. The overall student assessment showed a mean score of 82. So while the analysis results of this study showed no correlation between teacher knowledge and student attainment, the students are learning the skills somewhere. It is possible that they learned the skills in their first year course, in which they might have had a different teacher. Another possibility is that the students are learning the skills via a work-based learning experience; i.e., cooperative education method of instruction. If these factors had any bearing on student achievement, they were not confirmed by this study.

DISCUSSION

According to a Conference Board survey, “Three-quarters (75.6 percent) of employer respondents say that K-12 schools should be responsible for providing the necessary basic knowledge and applied skills for their new entrants,” (2006, p. 54). More recently, over half of 768 manufacturing executives in one survey admitted their employees are “average” at best in critical thinking, creativity, collaboration, and communication skills (AMA, 2012). These are bold statistics that put significant workforce development pressures in the hands of educators. The ultimate goal of public education is to provide a strong foundation on which students are to build their knowledge and skills in order to become productive members of society; generators of knowledge rather than merely consumers. In order for that to happen, educational leaders must provide well planned and executed professional development opportunities for teachers, not only in their content areas but in the skills identified by business and industry as necessary for success in the workforce.

Professional development is critical to ensuring that teachers keep up with changes in statewide student performance standards, become familiar with new methods of teaching in the content areas, learn how to make the most effective instructional use of new technologies for teaching and learning, and adapt their teaching to shifting school environments and an increasingly diverse student population (Lawless & Pellegrino, 2007, p. 575).

Career and technical education administrators need to assist teachers in creating their professional development plans in order to design a plan that supports the individual needs of the teacher in maintaining content knowledge as well furthering their knowledge and understanding of the soft skills necessary for students to succeed in the workplace. Professional development should also focus on the use of assessment as a means to improve instruction and student achievement (National Research Center for Career and Technical Education, 2010).

Virginia’s career and technical education courses are based on state-mandated competencies identified through a DACUM process (Virginia’s CTE Resource Center, 2015). The number one

competency for each CTE course is *Demonstrate Virginia's workplace readiness skills in course activities* (CTE Resource Center, n.d.). Virginia's 13 Workplace Readiness Skills Curriculum is one resource that teachers can use to disseminate workplace readiness skills instruction to students. Additionally, implementing the use of the Understanding by Design framework (Wiggins & McTighe, 2005) to embed and connect workplace skills to career and technical education content enables not only the teacher, but also the student to grasp where CTE content fits into the 'big picture' of education.

Covey (1998) is known for his phrase "begin with the end in mind" (p. 98). Measuring teacher and student knowledge on workplace readiness skills is vital to instruction of the same. Gathering information on what the teachers and students already know will help gauge where professional development for teachers should start and where adjustment to instruction should begin for students. NOCTI's *Virginia's 13 Workplace Readiness Skills* assessment and/or their newly developed *21st Century Skills for Success* assessment can be used to measure student knowledge of workplace readiness skills. The data provided from both assessments can be used to adjust instruction so that students may obtain competence in these skills.

Future studies should focus on additional factors that may have an impact on student attainment of workplace readiness skills; i.e., using the cooperative education method of instruction, and course history; i.e., whether or not the student was enrolled in additional CTE courses throughout their high school career. As additional research is conducted to refine the skills and attributes most sought after by employers, continued research in the area of curriculum implementation, not only in career and technical education, but also in the core subject areas, should be conducted.

Additional research on workplace readiness skills and attributes continues, both within the education field and through private business organizations (Partnership for 21 Century Skills, 2006, 2007, 2011). The researchers recommend further study in the area of social responsibility, specifically in the area of sustainability. If public education, specifically career and technical education, is charged with providing students the skills necessary to not only succeed in the workforce, but compete in a global market, then not only must they learn the intrinsic skills but also obtain an awareness of their place and impact on the world.

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