

## **Current Career and Technical Education Teacher Perceptions of VoCATS (Vocational Competency Achievement Tracking System)**

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### **Abstract**

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*The purpose of this study was to compare the perceptions of Career and Technical Education (CTE) teachers ages thirty-five (35) and older to those of teachers thirty-four (34) and younger towards VoCATS, one of the major assessment systems used by CTE teachers for their programs in North Carolina. The particular teaching area for the teachers was not a contributing factor in this study; nor was the level at which they taught. The population was made up of CTE teachers from the secondary level, the high school level, Community College teachers, and University teachers. The sample was made up of CTE teachers 35 years of age and older (N = 894) and the CTE teachers 34 years of age and younger (N = 290) in North Carolina during the 2014 – 2015 academic year. There were significant differences between the perceptions of these two age groups for 14 of the 35 survey questions.*

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**Key Words:** Career, Technical, Education, Assessment

### **1. Introduction**

Studies have been completed in the past in North Carolina and other states comparing the perceptions of VoCATS between groups of CTE teachers in particular areas of study; however, to the author's knowledge, no study has been completed to compare the perceptions of VoCATS between different age groups of CTE teachers. It should also be noted that Community College instructors and University instructors have not been included in these previous studies.

Some important background information about the inception of VoCATS is as follows. McCaslin and Headley (1993) reported on a national study which examined the performance measures and standards that had been approved in each of the 50 states, Puerto Rico, Guam, the Virgin Islands, and the District of Columbia according to the 1990 Perkins Act. More than 30 states had developed a single set of measures to assess both basic and advanced academic skills only at the secondary level. Rabinowitz (1995) pointed out that flexible systems for assessing job readiness need to be used in conjunction with national skill standards projects. The North Carolina staff in the Career & Technical Education Division of the Department of Public Instruction, then called Workforce Development Division, developed an instructional and accountability system as a means for assessing the competencies being acquired by students enrolled in classes from those particular programs of study in North Carolina. The system was named the Vocational Competency Achievement Tracking System (VoCATS). The purpose of VoCATS was to aid teachers in planning and conducting classroom instruction and to allow a means for teachers to document student achievement through the use of pre/interim/post assessments. Each VoCATS test consists of a series of evaluation measures generated from a computerized competency/test item bank. CTE teachers, then called Workforce Development teachers, were hired by the State Department to develop the items within the test item banks.

The Public Schools of Robeson County website (2015-2016) says that "in the VoCATS system, the course blueprint determines the instructional content, the teacher determines the sequence of instruction, and the starting point of instruction for each student should be individualized. Assessment of student competence occurs prior to, during, and following instruction."

As stated above, VoCATS is competency-based and the following items are included in the model: 1) setting goals and objectives, 2) Pre-assessing, 3) Lesson planning, 4) Goals and Objectives must be taught, 5) Reviewing feedback, and 6) Post-assessing. Once again from the Public Schools of Robeson County website (2015-2016), it is necessary to quote the following facts. “Each course blueprint identifies core learning outcomes that are basic to the course. These core outcomes are identified to ensure that essential information is covered regardless of the geographical location. All blueprint competencies and objectives contain measurable outcome behaviors. It is important that the teacher be able to recognize outcome behaviors and use them as a basis for aligning teaching and assessing.”

The evolution of VoCATS from its’ inception to the present is making it feasible for local personnel to better manage the instructional environment of competency-based CTE programs, with the potential of positive results in student learning.

## **2. Purpose and Objectives of the Study**

The purpose of this study was to compare the perceptions of Career and Technical Education (CTE) teachers ages thirty-five (35) and older to those of teachers thirty-four (34) and younger towards VoCATS, the major assessment system used by CTE teachers for their programs in North Carolina. The objectives were addressed by examining the following research questions:

Is there a significant difference in the perceptions of Career and Technical Education (CTE) teachers ages thirty-five (35) and older to those of teachers thirty-four (34) and younger

1. towards the need to continue the VoCAT system?
2. towards the need to train all teachers on the utilization of the VoCAT system?
3. towards the need to make the technology utilized with the VoCAT system more available to CTE teachers and students?
4. towards the recommendation to the VoCATS Long Range Task Force to utilize the VoCATS pre/post assessments as official evaluation instruments for students enrolled in CTE courses?
5. towards the appropriateness of utilizing VoCATS as a tool to assist with the integration of core academic and CTE courses?
6. regarding the development and delivery of VoCATS materials?
7. towards identifying who should be providing the leadership for development of VoCATS materials?
8. regarding whether the implementation of VoCATS has resulted in an improvement in the instructional program of CTE classes?

## **3. Procedures**

The population for this study was made up of CTE teachers from the secondary level, the high school level, Community College teachers, and University teachers. The sample was further made up of CTE teachers 35 years of age and older (N = 894) and the CTE teachers 34 years of age and younger (N = 290) in North Carolina during the 2014 – 2015 academic year. The secondary and high school CTE teachers were identified by obtaining a set of address labels for all North Carolina CTE teachers. Since the study was looking at age and the author could not obtain that information from the State Department, teachers were contacted and asked if they were willing to be part of a research group, and if so, were they willing to share their age if they were chosen for the random sample. The Community College and University CTE teachers were identified by obtaining a list from the State Department of those teaching the area classes needed by students to become CTE public school teachers in North Carolina. As with the public school CTE teachers, each had to be contacted and asked if they were willing to give their age and serve in the random research sample if chosen. Random samples of ( $\underline{n}$  = 317) of those 35 years of age and older and ( $\underline{n}$  = 165) of those 34 and younger were selected by a computer generated random selection process. Cochran’s Formula for Sampling for Proportions with a confidence level of .95 and a .50 population proportion was used to determine the sample size needed (Cochran, 1977).

A data collection instrument was developed for this study to determine the perceptions of North Carolina CTE teachers 35 years of age and older (N = 894) and the CTE teachers 34 years of age and younger (N = 290) in North Carolina of the VoCATS system during the 2014 – 2015 academic year for their particular area of study. A committee of experts assessed the content validity of the instrument. The instrument was field-tested with 20 randomly selected teachers from each age group.

The individuals selected to participate in the field test were members of the research population who were not selected to be included in the research sample and they were asked to review the instrument and to make necessary comments or suggestions to improve the clarity of the instrument. Minor editorial changes were made based on the recommendations of the field-test respondents.

Data was collected via e-mail where possible. If the email address was not available, a hard copy of the survey was sent to the teacher at their school address. Past research has shown that late responses have been found to be very similar to non-respondents. Therefore, follow-up emails and/or mailings were sent to those members of the samples who failed to respond to the first email and/or mailing. The surveys returned by the late respondents were kept separate from those received after the first attempt. A total of 149 responses were received from the 35 and older age group with the first attempt and 32 additional responses were received with the follow-up. The responses from the follow-up group were statistically compared on all variables with the initial responses using Hotelling-Lawley Trace statistics to compare to the responses received first and no significant differences were found ( $F = 1.188$ ,  $p = 0.255$ ). Since no statistically significant differences between early and late respondents were found, the data sets were combined for statistical purposes and were assumed to be representative of the population of the 35 and older age group of North Carolina CTE teachers during the 2014-2015 academic year. The combined total usable response from the 35 and older age group of CTE educators was 181 or 57.1%. A total of 104 responses were received from the 34 and younger age group with the first attempt and 35 additional responses were received with the follow-up. The responses from the follow-up group were statistically compared on all variables with the initial responses and no significant differences were found ( $F = 0.877$ ,  $p = 0.662$ ). Since no statistically significant differences between early and late respondents were found, the data sets were combined for statistical purposes and were assumed to be representative of the population of the 34 and younger age group of North Carolina CTE teachers during the 2014-2015 academic year. The combined total usable response from the 34 and younger age group of CTE educators was 139 or 84.24%.

#### **4. Analysis of Data**

Interval data were collected on each of the dependent variables in the study. The data were analyzed by descriptive and inferential statistical procedures. Descriptive statistics were utilized for all items in the study and frequencies, means and standard deviations were reported. Hotelling-Lawley Trace statistics were used to compare the perceptions of the two groups of instructors towards the 53 questions on the survey instrument and ANOVA procedures were used to determine the questions for which the two groups of teachers had significantly different perceptions. An alpha level of .05 was selected as a priori for the study.

#### **5. Results**

The purpose of this study was to compare the perceptions of Career and Technical Education (CTE) teachers ages thirty-five (35) and older to those of teachers thirty-four (34) and younger towards VoCATS, the major assessment system used by CTE teachers for their particular programs in North Carolina. Thirty-five (35) questions were used on the survey to obtain perceptions of both, the 35 and older age group and the 34 and younger age group of CTE teachers toward the VoCATS being utilized by all CTE personnel in North Carolina. The instructors were asked to rate each of the statements on the data collection instrument according to the following scale: 1 = Strongly Disagree (Respondent disagreed with the statement without exception); 2 = Disagree (Respondent disagreed with the statement, but was not 100% opposed to the statement); 3 = Slightly Disagree (Respondent disagreed with some elements of the statement, but not the whole statement); 4 = Slightly Agree (Respondent agreed with some elements of the statement, but not the whole statement); 5 = Agree (Respondent agreed with the statement, but not 100% supportive of the statement); or 6 = Strongly Agree (Respondent agreed with the statement without exception).

Hotelling-Lawley Trace statistics revealed a significant difference ( $F = 2.114$ ,  $p = 0.005$ ). Follow-up ANOVA procedures indicated that there were significant differences between the perceptions of the 35 and older age group compared to the 34 and younger age group toward 14 of the 35 survey questions. Those items on the survey where there was a significant difference between the age groups were: 1) VoCATS should be number one priority, 2) Local teacher inservice on VoCATS, 3) An interactive on-line testing approach, 4) An interactive on-line learning approach, 5) Technology for special population students, 6) Recognize pre/post assessments, 7) Academic/CTE test-item banks, 8) Electronic competency crosswalk, 9) Material development should be on-going, 10) Use current and cost-effective technology, 11) Update Program of Studies annually, 12) Businesses serve in an advisory capacity, 13) Responsibility for specialized course materials, and 14) Involvement of personnel from other agencies.

Generally, it was interpreted that both age group instructors tended to agree that the VoCATS should be continued. Both groups tended to agree that state level personnel should arrange for group purchase prices, that a state-level technical assistant should be employed, and that at least one VoCATS coordinator should be employed by every local school system to coordinate and monitor the VoCATS program. They agreed that the VoCATS communication network should be expanded to include principals, superintendents, and school board members at the secondary level and appropriate personnel at the post-secondary level. Both groups of instructors also indicated that the Department of Community Colleges and the Universities with CTE certification programs should be encouraged to develop a continuum of the VoCATS process for post-secondary articulation. While both groups of instructors felt that VoCATS should be continued, they both slightly disagreed with the concept that VoCATS should be continued as the number one priority of CTE personnel in North Carolina. Perceptions of the 34 and younger age group ( $M = 2.80$ ,  $SD = 1.52$ ) were significantly lower ( $F = 10.81$ ,  $p = <.05$ ) than perceptions of the 35 and older age group ( $M = 3.039$ ,  $SD = 1.66$ ) regarding the need to continue to identify VoCATS as the number one priority of CTE in North Carolina.

There was a significant difference in the perceptions of the two age groups towards the need to train all teachers on the utilization of the VoCATS system. It appears that both groups of instructors are of the opinion that all teachers should be trained to use the technology and materials which make up the VoCAT system. They agree that all new teacher training provided by the CTE personnel within the State Department of Public Instruction should continue to include an introduction to the VoCAT systems. They also perceive that teacher educators should provide preservice training on VoCATS for future CTE teachers, by respective program area, to ensure their initial competence upon entering the classroom. However, the perceptions of the 35 and older age group were significantly stronger, ( $F = 4.88$ ,  $p = <.05$ ), than the perceptions of the 34 and younger age group regarding the need for the training to remain a priority for personnel development activities completed by local VoCATS Coordinators.

Both age groups agree that the technology utilized with VoCATS should be made available to all CTE students in the state. They stated that every CTE teacher should have reasonable access to generate interim tests, scan tests, and utilize test results for instructional management and that there should be computerized learning stations in every North Carolina CTE classroom to be used with VoCATS.

Even though the mean scores indicated that both age groups of instructors agreed with making the technology utilized with the VoCAT system more available to CTE teachers and students, there were significant differences in the perceptions of the instructors towards the need to do so. The perceptions of the 35 and older age group were significantly stronger than those of the 34 and younger age group towards providing interactive on-line learning ( $F = 12.62$ ,  $p = <.05$ ) and testing ( $F = 23.96$ ,  $p = <.05$ ) for the teaching/learning process in every CTE classroom. The perceptions of the 35 and older instructors were also significantly stronger than those of the 34 and younger instructors towards providing technology and software for on-line teaching and testing of each special populations student in North Carolina ( $F = 8.86$ ,  $p = <.05$ ).

There was a significant difference ( $F = 8.15$ ,  $p = <.05$ ) in the perceptions of the 35 and older age group towards utilizing the VoCATS pre/post assessments as official evaluation instruments for students enrolled in CTE courses. The 34 and younger age group slightly disagreed ( $M = 3.19$ ,  $SD = 1.69$ ) that VoCATS pre/post assessments should be recognized by the State Board of Education as official evaluation instruments for student achievement documentation for CTE courses while the 35 and older age group of instructors indicated that they slightly agree ( $M = 3.69$ ,  $SD = 1.56$ ) with the recommendation. This disagreement may be due to the fact that both groups indicated that they feel priority should be given to expanding the VoCATS test-item banks to include additional performance based items. Both groups also tended to agree that portfolios and portfolio assessment should be part of the VoCATS process to be included in exit evaluation for every CTE student in North Carolina. They agreed that the implementation of VoCATS had resulted in improved validity of student grades.

They also feel that every student should be provided a profile of his/her CTE competencies mastered upon exiting the program, and that these profiles should also be made available to potential employers and post-secondary educational institutions.

There were significant differences in the perceptions of both age groups of instructors toward the appropriateness of utilizing VoCATS as a tool to assist with the integration of core academic and CTE courses.

The perceptions of the 35 and older instructors were significantly stronger than the perceptions of the 34 and younger instructors towards providing every local education agency with integrated academic/CTE test-item banks for use by all secondary teachers and instructional specialists ( $F = 9.08, p = <.05$ ). Perceptions of the 35 and older instructors were also significantly stronger towards making an electronic crosswalk between CTE and academic competencies identified in the Standard Course of Study available through on-line dissemination ( $F = 6.75, p = <.05$ ).

Both age groups agree that VoCATS materials should be coordinated with the state-adopted textbooks for the various CTE courses and that the material should be aligned with CTE student organization competitive events when feasible. However, the perceptions of the 35 and older instructors were significantly stronger than the perceptions of the 34 and younger instructors towards making the development and delivery of complete, standardized, competency-based curriculum packages an on-going process ( $F = 5.75, p = <.05$ ). Perceptions of the 35 and older age group were also significantly stronger towards disseminating the materials through the most current technology available, ( $F = 9.19, p = <.05$ ). The 35 and older age group instructors were significantly stronger than the perceptions of the 34 and younger instructors towards updating the Program of Studies Guide for CTE Development annually or as curriculum packages are delivered rather than every five years ( $F = 5.24, p = <.05$ ).

There were significant differences in the perceptions of the 35 and older age group of instructors towards identifying who should be providing the leadership for development of VoCATS materials. Both groups agreed that VoCAT materials should be developed and disseminated by the CTE personnel within the State Department of Public Instruction unless local school systems offered specialized courses. Then both groups agreed that it should be the responsibility of the local education agencies that offer specialized courses to develop appropriate VoCATS materials for such courses. However, the perceptions of the 35 and older instructors were significantly stronger than the perceptions of the 34 and younger age group towards requiring local school systems who offer specialized courses to assume the responsibility for developing VoCAT materials for those courses ( $F = 7.98, p = <.05$ ). The two groups also differed significantly in their perceptions, with the 35 and older age group of instructors indicating the strongest commitment towards using businesses to serve in an advisory capacity for the VoCATS process ( $F = 9.09, p = <.05$ ).

The 35 and older age group of instructors also had a significantly stronger commitment towards involving personnel from divisions other than that of CTE within the State Department of Public Instruction in the development and implementation of VoCAT materials ( $F = 7.05, p = <.05$ ). However, it appears that both groups favor involving individuals from Local Education Agencies other than CTE personnel and individuals from other related agencies in the development and implementation of the materials.

There were no significant differences between the perceptions of the 35 and older age group and the 34 and younger age group regarding whether the implementation of VoCATS has resulted in an improvement in the instructional program of CTE classes. However, both groups slightly agreed that the implementation of VoCATS had improved their instructional programs, resulting in a greater understanding of classroom expectations by students, and improved the levels of achievement by their students.

## **6. Conclusions and/or Recommendations**

Based on the findings of this study, it is concluded that both the 35 and older and the 34 and younger age groups of instructors in North Carolina tend to support the continuation of VoCATS. They support employing a VoCATS Coordinator for every local school system as well as a state-level technical assistant. They also feel the implementation of the VoCATS process should continue in the community colleges of the state in order to provide more articulated curricula between the secondary and post-secondary levels. Therefore, it is recommended that a state-level consultant be employed to serve as a technical assistance person for local education agencies and that every local school system be encouraged to employ at least one VoCATS coordinator. Community college CTE personnel should also be trained on the utilization of VoCATS and be encouraged to implement the process at the post-secondary level.

Neither the 34 and younger age group nor the 35 and older age group of instructors support continuing to place VoCATS as the number one priority for the CTE Program in North Carolina. This would indicate that these two groups of instructors expect the CTE personnel at the state level to broaden their efforts and to provide services that go beyond curriculum development and instructional assessment.

Both age groups of instructors that were studied in North Carolina perceive a need to train all secondary level teachers on the utilization of the VoCAT system. Therefore, CTE teachers and personnel from within the State Department of Public Instruction should continue to provide preservice and inservice training on VoCATS by respective program area. Local VoCATS Coordinators should also provide personnel development activities for all teachers in their school systems that are not comfortable with using the VoCATS materials.

The 35 and older age group feels that the technology utilized with the VoCAT system should be made readily available to CTE teachers and students, including special hardware and software, when needed, for special populations students. Therefore, CTGE personnel at the state level should take the necessary steps to provide state-level consultation for local education agencies that have questions about VoCATS and they should arrange for group purchase prices for the various VoCATS products.

Instructors from both age groups perceive that the implementation of VoCATS has improved validity of student grades. However, the 34 and younger age group disagreed with the recommendation that VoCATS pre/post assessments should be recognized by the State Board of Education as official evaluation instruments for student achievement documentation for CTE courses. Both groups agree that portfolios and portfolio assessment should be a part of the VoCATS process to be included in exit evaluation for every CTE student in the state. A profile of the CTE competencies mastered by each student should be available to the student and potential employers and post-secondary institutions upon the exit of the students from the secondary program. Therefore, it is recommended that state-level CTE personnel develop guidelines and procedures for developing and assessing portfolios and that templates be developed for standardizing the reporting of competencies mastered by secondary level CTE students.

While both groups of instructors indicate that they feel coordinated planning efforts between CTE and non-CTE instructors have only improved slightly with the implementation of VoCATS, it appears that they feel that VoCATS has the potential of being a good tool for improving the integration of CTE and non-CTE instruction. Based on the responses of the instructors in this study, both age groups feel that a state-wide effort should be made to provide every local education agency with integrated academic/vocational test-item banks for use by all secondary level teachers and instructional specialists. They also feel that an electronic crosswalk between CTE and academic competencies should be developed and made available to every local school system. Based on these conclusions, it is recommended that local VoCATS Coordinators work with all the teachers in their units to educate them on the potential use of VoCATS as a tool for improving the integration of CTE and non-CTE instruction.

Both groups of instructors believe that VoCATS materials should be developed and disseminated by state level CTE personnel unless local school systems opt to offer specialized courses. They feel it is the responsibility of the local school systems to develop appropriate VoCATS related materials for specialized courses if they opt to include them in their local curricula. Based on the findings and conclusions of this study, it is recommended that when teams are put together to develop VoCATS materials, an effort should be made to compose those teams with individuals from business and industry, state and local level education personnel, and individuals from other related agencies. While the majority of the team members should be individuals with a working knowledge of the instructional content being considered, an effort should be made to also involve education personnel who do not work directly with CTE.

North Carolina instructors from both age groups agree that the implementation of VoCATS has improved their instructional programs, resulting in a greater understanding of classroom expectations by students, and improved the levels of achievement by their students. Therefore, efforts should be made to keep the VoCATS materials up-to-date and in place for the CTE courses offered in North Carolina.

## References

- Career and Technical Education Section. (2016). 2016 Update–Public Schools of Robeson County Website. North Carolina Department of Public Instruction, [www.robeson.k12.nc.us](http://www.robeson.k12.nc.us)
- Cochran, W. G. (1977). Sampling Techniques. New York: John Wiley and Sons.
- McCaslin, N. L. & Headley, W. S. (1993). A National Study of Approved State Systems of Performance Measures and Standards of Vocational Education. Ohio State University.
- Miller, L. E. & Smith, K. L. (1983). Handling Nonresponse Issues. Journal of Extension, 45-50.
- Rabinowitz, S. N. (1995). Beyond Testing: A Vision for an Ideal School-to-Work Assessment System. Vocational Education Journal, 70(3), 27-29, 52.