

**A DELPHI STUDY OF TEACHERS' AND PROFESSIONALS' PERCEPTIONS  
REGARDING THE IMPACT OF THE NO CHILD LEFT BEHIND LEGISLATION  
ON SECONDARY AGRICULTURAL EDUCATION PROGRAMS**

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**Abstract**

*The objective of this study was to identify the perceptions of secondary agriculture teachers and education professionals of Illinois regarding the potential impacts of the No Child Left Behind legislation on secondary programs. The Delphi technique for obtaining group consensus was employed to accomplish the stated objective of the study. A panel of 20 agriculture teachers and in-service education professionals were purposively selected to serve as the expert participants in the study. The panel received a series of four mailed questionnaires including a free response question, a Likert-type questionnaire, and two questionnaires indicating levels of agreement with specific themes. The impacts of the No Child Left Behind legislation as identified by secondary agriculture teachers and education professionals were: the certification of provisional agricultural teachers, core academic accreditation, budget constraints, loss of agriculture teachers, decrease of agricultural courses taught, loss of Perkins funding, loss of state career and technical education funding, elimination of career and technical education programs, career and technical education courses being raised to same level as core academic credit, students being discouraged to take agricultural courses, and more application of core academics in the agricultural classroom.*

**Introduction/Theoretical Framework**

Public education in the United States, from its earliest roots in the Civil War era, to its current status of rapid access of information to all in the Information Age, has evolved dramatically with the needs of a changing nation. The goals of education and the defining characteristics of an "educated" person have continued to evolve as well. Educational reform and legislative efforts have had lasting impacts on what and how educators teach, and true to this end, current reform efforts are impacting the status of education in the United States. No Child Left Behind is an example of one such effort.

The No Child Left Behind (NCLB) legislation, signed by President Bush in 2001, was designed with the ultimate goal of

holding all students to the same academic standards. In order to meet these new standards, the federal government will be "requiring stronger school accountability, more stringent qualifications for teachers, and an emphasis on programs and strategies with demonstrated effectiveness" (Reeves, 2003, p. 1). Accountability will be enforced primarily through yearly standardized testing to measure student performance. Schools will be monitored by their students' results and the standards set by the legislation. If schools fail to meet the performance benchmarks, they will face the possibility of a reduction in funding, while schools that meet or exceed the benchmarks will receive additional funds.

Another measure of the NCLB legislation that ensures school accountability is the required set of qualifications teachers

will be forced to meet. Teachers will have to become "highly qualified" in each academic area that they teach. "Highly qualified" by the NCLB legislation definition means meeting state requirements for certification in a respective content or subject area. "States have until 2005 to ensure that all teachers are 'highly qualified' according to NCLB definitions" (Jimerson, 2004, p. 4). In Illinois, approximately 75% of agriculture teachers teach courses that are offered for credit in the academic subjects of math, science, social science, language arts, or consumer education (Illinois State Board of Education, 2003). As such, the recruitment of students in agriculture programs as well as the preparation of highly qualified agriculture teachers could be greatly impacted by NCLB.

While career and technical education (CTE) is not specifically mentioned in the legislation, further discussions of NCLB suggest that CTE will be impacted greatly. Wilhelm (2003) asserted that agricultural education was deemed unnecessary in the NCLB legislation. It has been noted that the repercussions of this legislation to career and technical education, and agricultural education as a career and technical education area, are yet to be investigated (Ruhland & Bremer, 2003). Further, the NCLB legislation invigorates the ongoing debate of the role of academics in career and technical education (Association of Career and Technical Education, 2003). In a speech given by Carol D'Amico, former assistant secretary for vocational and adult education, the role of career and technical education within NCLB was outlined. "Vocational education will maintain its indispensable place within the larger American educational establishment. It can achieve greater integration with, and prominence within, that larger framework, as it aggressively embraces the challenge to raise the bar of academic achievement" (D'Amico, 2002, p. 3). Susan Sclafani, U. S. Department of Education's acting chief of Career and Technical Education, asserted that NCLB will challenge CTE programs to integrate academics with career skills training giving students a more well rounded secondary education (Association of Career and Technical Education, 2004).

While some administrators and policy makers portray bright pictures of the opportunities for career and technical education within NCLB, little is known regarding the impacts of NCLB at the local level. What are the perceptions of the educators and professionals who must effectively cope with the legislation in practice? An understanding of the impacts of NCLB as perceived by local educators can help professionals responsible for delivering professional and in-service education to assist teachers in coping with the realities of educational reform.

### **Purpose and Objective**

The purpose of the study was to analyze the perceived effects of the NCLB legislation on secondary agriculture programs. The objective of the study was to identify the anticipated implications of the NCLB legislation on secondary agriculture programs as identified by agricultural education teachers and professionals.

### **Methods**

This study was conducted in Illinois to identify the perceptions of secondary agriculture teachers and professionals regarding the implications of the NCLB legislation. The Delphi technique was implemented to more accurately gather and interpret the perceptions of the population. The Delphi technique is a group process to solicit expert responses toward reaching consensus on a particular problem, topic, or issue (Delp, Thesen, Motiwalla, & Seshadri, 1977). As such, the population for this study consisted of a purposively selected group of secondary agriculture teachers as well as state agricultural education in-service professionals. A panel of experts in agricultural education at the state's land grant university identified the agricultural teachers and education professionals to serve as the Delphi participants. Agriculture teachers were identified based upon having exemplary programs as identified by state indicators of a quality program, as well as involvement in state and national professional associations purported to give them a pulse on current educational issues.

Agricultural education professionals were identified that serve as state in-service educators and representatives to state agricultural education efforts on various statewide legislative committees. Twenty participants including 15 secondary agriculture teachers and five agricultural education professionals served as the purposively selected experts for the study. Dalkey (1969) stated that when the group size for a Delphi study is larger than 13, the reliability is higher than .80.

The study used a series of four mailed questionnaires to reach group consensus. The first round of the study included an email questionnaire with an open-ended question, "What impacts do you perceive that the NCLB Legislation will have on secondary agriculture programs?" This question was utilized to generate an array of response categories that were reduced and coded into 14 themes, which served as items for the second round questionnaire.

The second questionnaire was a mailed instrument, reviewed by a panel of 3 experts in agricultural teacher education for content validity. On the second questionnaire, participants rated the items identified in round one on a five-point Likert-type scale (1 = Strongly Disagree, 2 = Disagree, 3 = Uncertain, 4 = Agree, 5 = Strongly Agree). From the second-round responses, the list of categories was reduced to 13 by consensus. Consensus was defined as those categories that earned a mean Likert-type scale score between 2.5 and 5.0 (Uncertain, Agree, or Strongly Agree). Those responses that earned a mean Likert-type scale score of below 2.5 (Disagree or Strongly Disagree) were excluded from the study.

The purpose of the third mailed questionnaire was to determine group consensus. Panel members were asked to agree or disagree on each of the thirteen statements and to provide comments if they could not agree with findings. Consensus, which consisted of those statements

reaching 66.6% or above agreement rate, was reached on 10 of the 13 items, therefore, a fourth and final questionnaire was mailed to reach consensus on the remaining three items.

The fourth and final mailed questionnaire, similar to the third questionnaire, asked participants to indicate their agreement or disagreement with the 13 items as modified from round three of the study. In this round, consensus was reached on the remaining items.

Data were analyzed using descriptive statistics. Likert-type scales were reported as means and standard deviations, and nominal data were reported as frequencies and percentages.

### **Findings**

The objective of the study was to identify the major implications of the NCLB legislation on secondary agricultural programs as identified by agricultural education teachers and professionals. To accomplish this objective, the Delphi technique of obtaining group consensus was used. The first round of the study used an e-mail questionnaire with an open-ended question to facilitate the generation of a wide range of responses. The response rate was 100%. Fourteen categories of themes were identified within the responses in the first round (Table 1). The most frequent response was the theme of core academic accreditation followed by: decreased enrollment, no effect, budget constraints, provisional certification, and students encouraged to take core academic courses. The application of academics in the classroom, elimination of programs, raising standards, loss of state funding, loss of Perkins funding, decrease in courses taught, loss of teachers, and little effects were also identified as themes regarding the perceived impacts of the NCLB legislation.

Table 1  
*Round One: Themes and Frequencies Regarding the Perceived Impact of NCLB (n = 20)*

Effect Category	<i>n</i> <sup>a</sup>
Core academic accreditation	9
Decrease of enrollment in agriculture classes	5
No effect	5
Budget constraints	4
Certification of provisional agriculture teachers	4
Students encouraged to take more core academic courses	4
More application of core academics in the agriculture classroom	2
Elimination of career and technical education programs	1
Career and technical education raised to same level as core academics	1
Loss of state career and technical funding	1
Loss of Perkins funding	1
Decrease of number of agriculture classes taught	1
Loss of teachers	1
Little effect	1

<sup>a</sup> Respondents could include more than one effect on their email questionnaire

Nineteen of 20 agricultural education teachers and professionals responded to round 2 (95% response rate). In this round, participants were asked to rate the 14 responses identified in round one on a Likert-type scale (1 = Strongly Disagree, 2 = Disagree, 3 = Uncertain, 4 = Agree, 5 = Strongly Agree). Respondents provided comments to clarify their responses. Results of this round of responses are displayed in Table 2. Respondents agreed or were uncertain on 13 items that were initially identified as effects of the NCLB legislation. One item was rated "Strongly Disagree." The item, no effect on secondary

agricultural programs, was eliminated from further rounds as a theme regarding the impacts of the NCLB legislation. Items with the highest means were: students being encouraged to take more core academic courses, certification of provisional agricultural teachers, budget constraints, more application of core academics in the agriculture classroom, decrease of agricultural courses, core academic accreditation, decrease of enrollment in agricultural courses, elimination of career and technical education programs, and loss of agricultural teachers.

Table 2  
*Round Two: Level of Agreement with Ranked Themes Regarding the Perceived Impact of NCLB (n = 19)*

Theme	<i>M</i> <sup>a</sup>	<i>SD</i>
Students being encouraged to take more core academic courses	4.10	0.99
Certification of provisional agriculture teachers	4.00	0.94
Budget constraints	3.94	0.91
More application of core academics in the agriculture classroom	3.89	0.73
Decrease of agriculture courses taught	3.78	1.08
Core academic accreditation	3.73	1.15
Decrease of enrollment in agriculture classes	3.63	1.16
Elimination of career and technical education programs	3.57	0.83
Loss of agriculture teachers	3.57	1.22
Loss of state career and technical education funding	3.42	0.83
Loss of Perkins funding	3.21	0.85
Career and technical education courses raised to same level as core academic credit	2.94	0.97
Little effect on secondary agriculture programs	2.60	1.50
No effect on secondary agriculture programs	1.47	0.61

<sup>a</sup> Strongly Disagree = 1.00-1.49, Disagree = 1.50-2.49, Uncertain = 2.50-3.49, Agree = 3.50-4.49, Strongly Agree = 4.50-5.00

Fifteen out of 20 agricultural education teachers and professionals responded in round 3 (75% response rate). In round three, respondents were sent their panel results from round 2 and asked to provide comments on the results. They were also asked to provide comments if they did not agree with the summary findings. Table 3 contains summary findings for round 3. More than three-fourths of the respondents agreed that certification of provisional agricultural teachers, core academic accreditation, students being encouraged to

take more core academic courses, more application of core academics in the agricultural classroom, budget constraints, decrease of agricultural courses taught, elimination of career and technical education programs, and decrease of enrollment in agricultural courses were some of the effects that NCLB legislation would have on secondary agricultural programs. By contrast, less than one-half of the respondents agreed that the NCLB legislation would have little effect on secondary agricultural programs.

Table 3

*Delphi Study Round Three: Level of Agreement with Impacts Identification (n = 15)*

Theme	Agree (%)	Disagree (%)
Certification of provisional agriculture teachers	86.6	13.4
Core academic accreditation	86.6	13.4
Students encouraged to take more core academic courses	86.6	13.4
More application of core academics in the agriculture classroom	86.6	13.4
Budget constraints	80.0	20.0
Decrease of agriculture courses taught	80.0	20.0
Elimination of career and technical education programs	80.0	20.0
Decrease of enrollment in agriculture classes	80.0	20.0
Loss of Perkins funding	66.6	33.4
Loss of agriculture teachers	66.6	33.4
Loss of state career and technical education funding	60.0	40.0
Career and technical education courses raised to same level as core academic credit	53.3	46.7
Little effect on secondary agriculture programs	20.0	80.0

To reflect comments from the respondents in earlier rounds, items were modified and mailed as statements in a fourth-round questionnaire. Sixteen out of twenty agricultural education teachers and professionals returned the questionnaires for a final round response rate of 80%. Table 4 contains the results of this round. At least two-thirds of the participants agreed that core academic accreditation, loss of Perkins funding, elimination of career and technical education programs, students being discouraged to take agricultural courses, more application of core academics

in the agricultural classroom, certification of provisional agricultural teachers, budget constraints, loss of agriculture teachers, decrease of agricultural courses taught, loss of state career and technical education funding, and career and technical education courses being raised to same level as core academic credit were some of the effects that NCLB legislation would have on secondary agricultural programs. Less than 15% of respondents agreed that the NCLB legislation would have little effect on secondary agricultural programs.

Table 4

*Delphi Round Four: Level of Agreement with Effects Identification (n = 16)*

Statement	Agree (%)	Disagree (%)
Agricultural teachers will face challenges gaining academic credit in science for certain agricultural courses due to the No Child Left Behind legislation.	93.8	6.2
<u>Perkins</u> funding is in jeopardy as a result of the No Child Left Behind legislation because current Career and Technical Education programs either will or may not meet the standards set forth within the No Child Left Behind legislation.	81.3	18.7
Career and Technical Education programs will face elimination if they do not meet the standards set forth within the No Child Left Behind legislation.	81.3	18.7
Students will be discouraged to take agriculture courses due to an <u>increased</u> emphasis on core academics set forth by the No Child Left Behind legislation.	81.3	18.7
There will be an increase in the application of core academics in the agricultural classroom due to the standards that will be set forth by the No Child Left Behind legislation.	81.3	18.7
Provisional agricultural teachers will either lose their provisional certification or be required to get standard agricultural certificate as a result of the No Child Left Behind legislation.	78.6	21.4
Secondary agriculture programs will face budget constraints because of the loss of funding at the district level due to the No Child Left Behind legislation.	68.8	31.2
The No Child Left Behind legislation will result in the loss of secondary agricultural teachers due to the budget constraints that will occur from the No Child Left Behind Legislation.	68.8	31.2
The No Child Left Behind legislation will cause districts to decrease the number of agriculture courses being taught due to budget constraints.	68.8	31.2
The No Child Left Behind legislation will require Career and Technical Education courses to meet the state's core academic course goals for learning.	68.8	31.2
The No Child Left Behind legislation will have little effect on secondary agricultural programs.	12.5	87.5

## Conclusion

It was concluded that secondary agricultural educators and in-service professionals perceived that the NCLB legislation would negatively impact secondary agriculture programs. The perceived negative impacts were: The certification of provisional agricultural teachers will be adversely affected because of the NCLB legislation's requirement for highly qualified teachers. The expert panelists indicated that because agricultural education does not meet the core academic accreditation requirement of the state, schools will devalue the agricultural courses' educational worth. Further, panelists agreed that schools and local programs will face budget constraints because the NCLB legislation mandates a monetary incentive and punishment for school district's performance. It was perceived that budget constraints will lead to the loss of agriculture teachers due to the lack money in the school district. The budget constraints perceived to be caused by the NCLB legislation will lead to a decrease in the number of agricultural courses taught. Agricultural education teachers and in-service professionals perceived that there will be a threat of losing Perkins funding at the federal level because of agricultural education's lack of educational value as defined by the NCLB legislation, and that the NCLB legislation will lead to a loss of state career and technical education funding due to monetary constrictions as well. The participants agreed that there will be an elimination of career and technical education programs at the local level because of the requirements and effects of the NCLB legislation. Career and technical courses will be forced to rise to same level as core academic credit in the school districts so that they are educationally relevant to the school. Further, the participants agreed that students will be discouraged from taking agricultural courses because they do not meet core academic credit or the NCLB legislation's educational mandates. Finally, the experts reached consensus on the perception that there will be more application of core academics in the agricultural classroom to help fulfill

the NCLB legislation's educational requirements.

## Implications & Recommendations

While career and technical education professionals have outlined the position of career and technical education within the NCLB reform efforts as indispensable (D'Amico, 2002), agricultural education professionals in this study perceived the impacts of NCLB on secondary agricultural education programs as less than positive. Nine of the 13 items on which the panel reached consensus revealed potential negative impacts of NCLB. The implication of these findings is that agriculture teachers and in-service professionals at the secondary level perceive the legislation as a threat to local programs. It is recommended that future in-service programs be conducted to educate teachers regarding NCLB, its threats *and* opportunities, and how teachers can improve programs at the local level to minimize threats and capitalize upon the opportunities associated with this reform effort.

Four of the 13 statements on which the panelists reached consensus regarding the impacts of NCLB legislation on secondary agriculture programs were directly related to funding issues, budget constraints, or loss of funding. These findings imply that the existence of career and technical education programs as "non-academic" areas will need to be justified for continued funding support under current reform efforts. It is recommended that further research be conducted regarding the academic success of students enrolled in secondary agriculture and other career and technical education programs.

Agricultural teacher education could be impacted due to the potential need to prepare agriculture teachers to meet the demands of becoming highly qualified to teach agriculture courses that count for academic credit. Currently, in Illinois, 75% of secondary agriculture programs offer at least one course that counts for academic credit in math, science, social science, language arts, or consumer education (Illinois State Board of Education, 2003). For teachers to be considered highly

qualified to teach such academic courses under recent interpretations of NCLB, they could be required to receive endorsements in each academic area that they teach. It is recommended that teacher preparation programs nationwide examine curriculum requirements to prepare highly qualified agriculture teachers for NCLB.

A final implication that could be derived from the findings of this study is the increased presence of academic themes in agricultural and career and technical education in general. Alignment with core academic learning goals, loss of students due to an increased emphasis on core academic subjects, and threats to agriculture classes gaining academic credit for science were all identified as perceived impacts of NCLB on agricultural education. It is recommended that pre-service teacher educators continue to stress the connection between core academics and agriculture within teacher education programs. The findings from this study reveal that teachers are in fact concerned about the impact of No Child Left Behind on secondary agricultural education programs in Illinois.

### References

Association for Career and Technical Education. (2003). *The debate continues over the role of academics in CTE*. Retrieved October 21, 2003, from [http://www.acteonline.org/members/news/frontpage\\_news/frontpage101703.cfm](http://www.acteonline.org/members/news/frontpage_news/frontpage101703.cfm)

Association for Career and Technical Education. (2004). *CTE can support NCLB*. Retrieved August 4, 2004, from [http://www.acteonline.org/members/news/frontpage\\_news/sclafani\\_nclb.cfm](http://www.acteonline.org/members/news/frontpage_news/sclafani_nclb.cfm)

Dalkey, N. C. (1969). *The Delphi method: An experimental study of group*

*opinion*. Santa Monica, CA: The Rand Corporation.

D'Amico, C. (2002). *Association for Career and Technical Education conference breakout session – excerpt*. Retrieved October 21, 2003, from <http://www.ed.gov/about/offices/list/ovae/pi/cte/actespeech.doc>

Delp, P., Thesen, A., Motiwalla, J., & Seshadri, N. (1977). *Delphi: System tools for project planning*. Columbus, OH: National Center for Research in Vocational Education, The Ohio State University.

Illinois State Board of Education. (2003). *The power of partnering: Illinois agricultural education report*. Retrieved July 1, 2004, from <http://www.agricultural-education.org>

Jimerson, L. (2004). *Special challenges of the "No Child Left Behind" Act for rural schools and districts*. Retrieved March 25, 2004, from <http://www.ruraledu.org/docs/nclb/jimerson.pdf>

Reeves, C. (2003). *Implementing the No Child Left Behind Act: Implications for rural schools and districts*. Retrieved December 10, 2003, from [http://www.ncrel.org/policy/pubs/html/implicate/NCLB\\_PolicyBrief.pdf](http://www.ncrel.org/policy/pubs/html/implicate/NCLB_PolicyBrief.pdf)

Ruhland, S. K., & Bremer, C. D. (2003). Perceptions of traditionally and alternatively certified career and technical education teachers. *Journal of Vocational Education Research*, 28(3), 285-302.

Wilhelm, A. (2003). NCLB, standards, and the future of agricultural education. *The Agricultural Education Magazine*, 76(3), 18-19.

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