Journal of STEM Teacher Education

Volume 42
Issue 4 *JITE Winter*

Article 5

December 2005

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Technology education provides its students with opportunities to explore and study theories and concepts that relate to the technological world. Typically, technology education students not only learn about these theories and concepts in an academic sense, but also put them into practice in a laboratory environment. These laboratory experiences are crucial to providing students with examples that associate technology topics with reality (Polette, 1995).

Support for providing students with hands-on experiences to complement their studies can be traced back to John Dewey (1933), who revealed that there was an enormous difference between learning that students accept conditionally and that which they understand. Dewey stated that "it is assumed too frequently that subject matter is understood when it has been stored in memory and can be reproduced upon demand" (p. 148). Dewey maintained that when someone conditionally accepts an idea, he or she is able to recognize it; however, when an individual understands an idea, then he or she possesses the ability to apply it. It was Dewey's belief that genuine understanding can be achieved through "cut and try" or by "doing" (p. 148). Cardon (2000) also noted value in offering students hands-on learning opportunities. In his study, Cardon found that at-risk students in technology education classes became intrinsically motivated to remain in school because of the positive hands-on experiences they had in their technology classes. Through hands-on methods, which could be adapted to individual learning styles, these classroom experiences allowed students to apply the technological principles they learned in class to the real world as well as to their own lives. Cardon

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concluded, "Technology education curriculum should continue to include hands-on learning methods associated with problem-solving activities" (p. 55).

One way to encourage technology education students to apply knowledge is through the use of laboratory project methods. Dewey (1933) noted that project methods need to meet certain conditions in order to be effective in assisting students to grasp concepts and ideas. One condition is that the student must be able to relate to the project. Another is that the project should provide something that will be of value to the student later in life. The project should also entice the student intellectually, and the student should recognize that the project offers him or her opportunities to gain new knowledge.

Historically, technology education has combined classroom teaching with laboratory experiences. The laboratories in which these technology education experiences occur can be configured in a variety of different ways. Two of these configurations are modular laboratories and conventional laboratories. During the past decade, there has been discussion among many technology education professionals concerning both of these lab types (Polette, 1995; Rogers, 2000; Weymer, 2000; Brusic & LaPorte, 2000; Cardon, 2000; Helgeson & Schwaller, 2003). However, only limited studies have dealt with the secondary teacher's perspective pertaining to modular and conventional laboratory environments.

Conventional vs. Modular Laboratories

Both conventional and modular laboratory set-ups can allot time for students to work in groups while they complete problem-based projects. Both methods can, as well, be formatted to meet the individual needs of the students. So what is the difference between a conventional and a modular technology education laboratory? The answer lies in the delivery method of the laboratory instruction. While a conventional approach to teaching in the technology laboratory allows students, usually working in groups, to learn about technology by creating and solving problems using a hands-on approach, it is the teacher who is the primary source for instruction and guidance in the conventional laboratory. Due to its teacher-based format, in a conventional laboratory most often the entire class works on the same project or lesson at the same time.

On the other hand, in a modular technology laboratory environment, while students also work in groups on problem-based, hands-on projects, they do so in a self-directed manner with the aid of multi-media and instructional books rather than through direct instruction by the teacher. A typical modular setting consists of several modules, or stations, arranged throughout the laboratory. Each module contains different subject matter and project assignments. In this format the students move from module to module, learning about different topics at each station. This type of approach is self-directed by the learner, and no two student groups are necessarily working on the same lesson or project at the same time.

Cardon (2000) found that problem-solving and hands-on activities were beneficial to students in technology education. Other studies have shown that the method of delivery used in the laboratory may also affect the achievement levels of students in technology education. Weymer (2000) discovered that some students appeared to be better suited to learning in the modular technology laboratory setting than did other students. Weymer revealed that students' "verbal ability and prior knowledge" were two primary predictors of success in the modular technology education laboratory (p. 2). In Weymer's study, the more competent the students were in verbal ability and the greater their prior knowledge, the higher their chances for success in the modular technology laboratory. This study also found that "non-analytical and unmotivated students" tended to do poorly in the modular learning environment (p. 2). Students who "lack ability, and/or the will, to navigate the multimedia lessons and directions provided" were at a disadvantage in a modular laboratory (p. 2). How students are grouped together during the module rotation can also affect student achievement in the modular laboratory. In their 2003 study, Helgeson and Schwaller reported that gifted or high achieving students could be hindered in some ways if they are paired with a student with special needs.

Rogers (2000) examined learning achievement in the areas of industrial technology education, drafting, manufacturing, construction, and power/energy technology in three different types of instructional laboratories currently being implemented in the field of technology education. These laboratory types were traditional laboratories, conventional laboratories, and modular laboratories. All participants in the Rogers study were attending middle schools in the mid-west. According to Rogers, the conventional laboratory setting provided a higher rate of learning in all of the subject areas when compared to the modular technology approach.

Although both conventional and modular technology education laboratories provide students opportunities to gain hands-on experiences that help them discover and expand their knowledge of technology, the two methods employ different instructional methods. Each of these methods has its advantages and disadvantages and there are pros and cons to each of these two laboratory arrangements.

Teachers' Perceptions of Modular Laboratories

The studies cited above have examined the effects different technology laboratory formats have on student achievement in technology education classes. However, it is technology education teachers who are on the front line in technology education laboratories in school systems across the nation. To identify the benefits and shortcomings of different laboratory settings, it is useful to take into account the teachers' perceptions of their technology education laboratories.

In a study conducted of secondary technology education teachers in Virginia, Brusic and LaPorte (2000) established that teachers found a variety of benefits to the modular technology laboratory approach, which is widely used in secondary technology classrooms in Virginia. Using data collected through a survey, Brusic and LaPorte found that teachers felt the primary benefit of using a modular technology approach instead of a conventional hands-on approach was that it "promoted universal skills and abilities or was more reflective of current technology" (p. 7). The study revealed that the majority of teachers surveyed in Virginia agreed that there were relative advantages to modular technology: (a) It made observing students' behavior and progress easier; (b) it gave freedom in the classroom; (c) modules were cost and time effective; (d) it was appropriate for secondary school students; and (e) it was educationally sound. Virginia technology teachers also reported that it took them less time to prepare lessons for use in the modular laboratory, and that with the modular arrangement they had fewer discipline problems. The Virginia teachers also expressed some negative perceptions of modular technology education (MTE). Brusic and LaPorte (2000) stated that a majority of teachers disagreed that modules had a high level of "compatibility, complexity, and/or trialability" (p. 9), thus making the modules difficult to mainstream with some programs. The study also found that only 2.5% of teachers believed that modular labs increased student motivation to learn.

In a follow-up study, Brusic and LaPorte (2002) compared the views of technology teachers and technology teacher educators in Virginia concerning modular technology laboratories. The teacher educators and teachers polled both agreed that "a broader range of students (e.g., females, minorities, gifted, special needs) found modular technology education labs to be appealing and interesting" (p. 3). However, the follow-up study also found that there was a substantial amount of disagreement between teachers and teacher educators on the use of modular laboratories in the technology education classroom. In the 2002 study, Brusic and LaPorte reported that while 66% of the sampled teachers "clearly like the approach as well or more than they did when they started" (p. 3), 64% of the sampled teacher educators "expressed dislike for MTE" (p. 3). They stated that this disagreement could be due to the fact that many teacher educators have not taught secondary students for a significant period of time and therefore do not have practical experience dealing with modules in a secondary setting. The researchers concluded that "further data collection and analyses are necessary in order to formulate specific recommendations on the most effective and efficient means to address MTE in technology teacher education" (p. 5).

Study Purpose

The purpose of this study was to examine teachers' perceptions concerning the modular technology approach to teaching technology education in Georgia. The results of this study were designed to assist technology education professionals to better understand and/or to improve modular technology education laboratories in Georgia. The study results may also assist in identifying the benefits and shortcomings of modular technology education laboratories as experienced by the classroom teacher. The study addressed the following basic research question: What do teachers in Georgia perceive to be the main advantages and drawbacks to teaching technology education in a modular environment compared to a conventional environment?

Methodology

The survey instrument used in this study was based upon Rogers's attributes of innovations (1995), which examined how new innovations become accepted in our culture. Rogers identified five attributes of innovation: relative advantage, compatibility, complexity, trialability, and observability. Rogers' attributes of innovation were integrated into the survey instrument in order to determine how Georgia technology education teachers perceived modular technology education laboratories with regard to these five attributes. The study instrument was designed by Brusic and LaPorte (2000) to collect data concerning teacher perceptions about modular technology education. It was not altered to conduct this study. Brusic and LaPorte (2000) validated the instrument by conducting a pilot study of 12 teachers and teacher educators. Permission was obtained in August of 2003 from both Brusic and LaPorte for use of the instrument.

In the current study, the survey asked participants 13 questions concerning their overall perception of modular, as compared to conventional, technology education laboratories. It investigated as well their perceptions concerning the developmental appropriateness and the time and cost effectiveness of modular laboratories. Survey participants answered the questions using a Likert-type scale with possible responses of strongly agree, agree, disagree, and strongly disagree.

The study population consisted of all technology education teachers in each of the 120 school districts in Georgia. A list of technology education teachers in Georgia was obtained from the

Georgia Department of Education. To ensure equal representation among schools, two teachers from each district were randomly chosen to participate in this study; therefore, surveys were sent to a total of 240 teachers. Of the 240 surveys mailed, eight were undeliverable and were returned to the researcher. Of the remaining 232 teachers who received the research instrument, 80 (34%) responded to the survey.

Findings

Demographic Data

In addition to responses to the research instrument, demographic data was also collected from the study subjects. The participants were asked in what type of technology laboratory they were currently teaching. Frequencies and percentages for laboratory type are shown in Table 1. Of the 80 technology teachers who responded to this question, 17 (21%) taught strictly in conventional laboratories; 53 (66%) taught strictly in modular laboratories; and 10 (13%) taught in a combination of modular and conventional laboratory settings. The 17 participants who taught only in conventional laboratories were dismissed from the study since they are not currently teaching in a modular technology education laboratory. As a result, 63 teachers were included in the study and comprised the study sample.

Table 1
Georgia Technology Education Laboratory Type
N = 80

Laboratory Type	*n*	%
Conventional	17	21.25
Modular	53	66.25
Combination	10	12.50

In order to understand the background and level of experience of the survey respondents, participants were asked how their initial teaching licensure in technology education was obtained. Twenty-nine (49%) respondents indicated that their initial licensure was in technology education or its historical equivalent such as industrial arts, while 10 participants (17%) indicated that they earned their licensure in technology education after earning licensure in another field. Eight (14%) specified that they earned licensure in technology education after earning a degree in a non-teacher preparation field. Six participants (10%) indicated they had licensure in nother teaching field, but were

Table 2
Areas of Licensure
N = 63

Area of Licensure	*n*	%
My initial licensure in technology education came as a result of my undergraduate degree in technologyeducation (or its equivalent).	29	46.0
I earned licensure in technology education after earning licensure in another teaching field.	10	15.9
I earned licensure in technology education after earning a degree in a non-teacher preparation field.	8	12.7
I have licensure in another teaching field and am working toward licensure in technology education.	6	9.5
I have an undergraduate degree in a non-teaching field and am working toward licensure in technology education.	2	3.2
I am teaching technology education on an “emergency basis" due to the technology teacher shortage and have no intention of becoming licensed in technology education	4	6.3
No response	4	6.3

Percents may not add to 100 due to rounding.

working toward licensure in technology education. Two participants indicated that they had an undergraduate degree in a non-teaching field and were working toward licensure in technology education. Four (7%) specified that they were currently employed under an emergency license due to the technology teacher shortage. These same four participants indicated that they did not intend to become licensed in technology education. Another four (7%) did not respond to this survey item. Frequencies and percentages for the initial licensure are shown in Table 2.

Participants were also asked to indicate their total years of teaching experience in technology education. In addition, they were also asked to indicate how many of those years had been spent teaching in a modular laboratory. The 63 respondents reported that they had a total of 872 years of experience in technology education and/or industrial arts. Of this total, they had spent 511.5 years teaching in a modular laboratory. On average the 63 study participants had 13.8 years of technology teaching experience and 8.1 years of modular laboratory teaching experience (see Table 3).

Table 3
Teaching Experience
N = 63

Teaching Experience	*n*	Average years
Total years teaching technology education and industrial arts (counting this school year)	872	13.8
Total years teaching in a modular laboratory (counting this school year)	511.5	8.1

Participants were also asked to identify the grade level they were currently teaching. Frequencies and percentages for the grade levels taught by participants are shown in Table 4. Results showed that 34 (54%) of the participants were teaching technology education at the middle school level (grades six through eight), 26 (41%) were teaching at the high school level; and three (5%) were teaching at both the middle and high school levels.

Table 4
Grade Level Taught by Georgia Technology Education Teachers
N = 63

Grade Level	*n*	%
Middle school	34	53.9
High school	26	41.3
Combination	3	4.8

Percents may not add to 100 due to rounding.

Another demographic item asked participants to indicate how the modular laboratory they are currently using originated. Frequencies and percentages for the source of the modular laboratory are shown in Table 5. Of the 63 respondents, 21 (33%) reported that the laboratory was in place prior to their employment; 19 (30%) indicated it was initiated by the administration with teacher input; 12 (19%) indicated the laboratory was teacher initiated; and five (8%) participants indicated the laboratory was initiated by the administration without teacher input. Six respondents (10%) did not indicate the origin of their modular laboratory.

Survey Results

The survey asked participants to indicate what they believed to be the principal advantage to teachers of a modular laboratory in comparison to a conventional laboratory. Participants were given the choices of (a) promotes universal skills/abilities, (b) less frequent behavior problems, (c) manage class with less preparation time, (d) enables teacher to deliver content that is much more reflective of current state of technology, (e) increases other peoples' interest in program, and (f) other advantages. Participants were told to choose only one answer. Frequencies and percentages for the teachers' perceptions of the principal advantage of modular laboratory to teachers are shown in Table 6.

Table 5
Origin of Modular Laboratories in Georgia
N = 63

Source	*n*	%
Administration initiated with teacher input	19	30.2
Administration initiated without teacher input	5	7.9
Teacher initiated	12	19.0
Lab already in place	21	33.3
No response	6	9.5

Percents may not add to 100 due to rounding.

Of the 63 survey participants, 38 specified their perceptions concerning the principle advantage of modular laboratories. The 25 subjects who did not provide a response were not included in the data calculations for this survey item. The tabulated results show that 13 (34%) of the 38 who responded to this question believed the principal advantage was that the modular laboratory promotes universal skills/abilities. Eight (21%) indicated a modular laboratory allowed them to deliver content which was more reflective of the current state of technology. Seven (18%) believed that the modular laboratory enabled them to manage their classes with less preparation time while three (8%) selected less frequent behavior problems as the principal advantage. Two (5%) of the participants indicated the principle advantage was that modular laboratories increased other people's interest in the technology education program. Five (13%) of the participants listed a variety of other reasons that did not correspond with any of the above categories.

The survey also asked the participants to specify what they believed to be the principal advantage for students of a modular laboratory in comparison to a conventional laboratory. Possible responses were (a) higher motivation to learn, (b) learning concepts and skills more reflective of the current state of

Table 6
Principal Advantage of Modular Laboratories to Teachers
N = 38*

Principal Advantage to Teachers	*n*	%
Promotes universal skills/abilities	13	34.2
Less frequent behavior problems	3	7.9
Manage class with less preparation time	7	18.4
Enables teacher to deliver content that is much more reflective of the current state of technology	8	21.1
Increases other peoples interest in program	2	5.3
Other	5	13.1

Percents may not add to 100 due to rounding.
* Participants who did not respond concerning their perceptions were not included in the sample total.

technology, (c) content is more appealing and interesting to wider range of students, (d) students are developing more universal skills and abilities, and (e) other advantages. Again, participants were asked to choose only one answer. Table 7 shows the frequencies and percentages for the teachers' perceptions of the principal advantage of modular laboratories to students.

Thirty-eight of the survey participants responded to this survey question. Of these, 16 (42%) perceived the principal advantage to be that in modular laboratories the content is more appealing and interesting to a wider range of students, including females and minorities, those identified as gifted, and/or those having special needs. Ten respondents (26%) selected "students are developing more universal skills and abilities such as teamwork, problem-solving, and self-directed learning" as the principal advantage to students of modular laboratories. Five (13%) felt the principal advantage was that students are learning concepts and skills that are more reflective of the current state of technology, and three participants (8%) chose "a higher level of motivation to learn" as the principal advantage. Four (11%) listed a variety of other reasons that could not be placed in any of the above categories.

Table 7
Principal Advantage of Modular Laboratories to Students
N = 38*

Principle Advantage to Students	*n*	%
Higher motivation to learn	3	7.8
Learning concepts and skills more reflective of the current state of technology	5	13.1
Content is more appealing and interesting to a wider range of students	16	42.1
They are developing more universal skills and abilities.	10	26.3
Other	4	10.5

Percents may not add to 100 due to rounding.
* Participants who did not respond concerning their perceptions were not included in the sample total.

Research Question

To address the research question, survey subjects were asked to indicate their degree of agreement or disagreement with 13 statements concerning their perceptions of modular technology education laboratories in comparison to conventional laboratories. The number of participants who responded to each of the 13 items ranged from 37 to 41. Percentages and mean values for each survey statement were calculated based on the number of participants who responded to that questionnaire item. The statements and their corresponding frequencies, percentages, and number of responses can be found in Table 8.

Table 8
Teacher Perceptions of Modular Technology Education Laboratories as Compared to Conventional Technology Education Laboratories

Teacher Perceptions	Strongly Disagree	Disagree	Agree	Strongly Agree	*n**	*M*
Overall a modular laboratory is better.	2 (5%)	4 (11%)	21 (55%)	11 (29%)	38	3.07
I have the freedom to use as much or as little of the modular laboratory as I wish.	2 (5%)	5 (13%)	15 (40%)	16 (42%)	38	3.18
A modular laboratory is more consistent with my values, past experience, and need	1 (3%)	5 (14%)	23 (62%)	8 (22%)	37	3.03
It is relatively easy to implement the Georgia Curriculum through a modular laboratory.	1 (3%)	5 (13%)	23 (58%)	11 (28%)	40	3.1
A modular laboratory is more developmentally appropriate to the students.	3 (8%)	4 (10%)	26 (65%)	7 (18%)	40	2.9
The results of a modular laboratory are readily visible to others.	1 (3%)	8 (21%)	22 (58%)	7 (18%)	38	2.9
A modular laboratory is better for middle schools.	1 (3%)	9 (24%)	20 (53%)	8 (21%)	38	2.9
Teacher Perceptions	Strongly Disagree	Disagree	Agree	Strongly Agree	n*	M
A modular laboratory is better for high schools.	2 (5%)	8 (21%)	21 (55%)	7 (18%)	38	2.9

A modular laboratory is more educationally sound.	2 (5%)	6 (15%)	24 (62%)	7 (18%)	41	2.9
A modular laboratory is equally appropriate for all students in grades 6-12.	2 (5%)	12 (29%)	19 (46%)	8 (20%)	41	2.8
A modular laboratory is more time and cost effective.	2 (5%)	14 (35%)	21 (53%)	3 (8%)	40	2.6
A modular laboratory is easier to try out on a limited basis to see if I like it.	7 (19%)	14 (38%)	13 (35%)	3 (8%)	37	2.3
A modular laboratory is easier for me to understand and use	4 (11%)	16 (42%)	13 (34%)	5 (13%)	38	2.5

Percents may not add to 100 due to rounding.
* Participants who did not respond concerning their perceptions were not included in the sample total.

In order to provide an overall summary of the teachers' perceptions for each survey statement, the Likert-scale ratings were assigned the following numerical values: strongly disagree = 1, disagree = 2, agree = 3 and strongly agree = 4. Mean values of the teachers' perceptions for each statement were calculated using these values and are also recorded in Table 8. A higher mean value for a survey item indicates teachers tended more towards agreement with that particular survey statement. For the purpose of this study, participants were viewed as in agreement on survey statements with mean value scores above 2.5. For statements with mean values below 2.5, participants were deemed in disagreement.

Survey results indicated that 31 participants (84% of those who responded to the item) agreed that modular laboratories were more consistent with their past experiences, values, and needs. However, when participants were asked if the modular laboratory was easier for them to understand, no consensus was found. The mean value for this item was 2.5. More respondents disagreed than agreed that a modular laboratory was easier to try out on a limited basis. This item received a mean value of 2.3, the lowest mean value of all the items on the survey. However, a majority (76% of participants who responded to the item) was in agreement that the results of a modular laboratory are readily visible to others. Thirty-one (82%) of the teachers who responded to the item regarding the freedom allowed in a modular laboratory agreed that they had the freedom to use as much or as little of the modular laboratory as they wished. Of the participants responding to the statement concerning the use of modular laboratories in middle schools, 74% believed that a modular laboratory, as opposed to a conventional laboratory, is better for middle school students. Similarly, 73% of the participants who responded to the item regarding the use of modular laboratories, as opposed to conventional laboratories, in high schools agreed that modular labs are better. In addition, 66% agreed that a modular laboratory is equally appropriate for all students in grades six through twelve. To the statement that a modular laboratory is more educationally sound in comparison to a conventional laboratory, 80% of teachers who responded to the item either strongly agreed or agreed with the statement. However, the Georgia teachers did not overwhelming agree concerning the time and cost effectiveness of modular laboratories in comparison to conventional laboratories. The mean value for "a modular laboratory is more time and cost effective" was 2.6, showing only slight agreement with this statement. There was agreement among the teachers who responded to the statement concerning the developmental appropriateness of modular laboratories. Of the respondents to this item, 83% were in agreement that a modular laboratory is more developmentally appropriate to the students in comparison to conventional technology education laboratories. Teachers were also in agreement on the ease of implementing the Georgia curriculum into a modular technology laboratory. Eighty-six percent of the teachers responding to the statement agreed that it is relatively easy to implement the Georgia curriculum through a modular laboratory. Teachers were also asked if they believed a modular laboratory is better, compared to a conventional laboratory. An overwhelming number (32 or 84%) of the teachers who responded to this item believed that a modular laboratory is better than a conventional laboratory in technology education.

Discussion

This study found that Georgia technology teachers who were familiar with teaching in modular laboratories tended to have a positive perception of modular technology education laboratories. Overall, in comparison to conventional technology laboratories, the teachers felt that modular laboratories are better, both for themselves and for their students. The fact that the technology teachers found that the modular laboratory format provided specific advantages to themselves may be a factor in their favorable attitude toward modular laboratories. Among the perceived advantages for teachers of a modular laboratory format were that the modular laboratory allowed them the freedom to use as much or as little of the lab as they wished. Another advantage cited by the respondents was that it was easy to implement the Georgia curriculum though the use of a modular laboratory. Teachers also agreed that modular laboratories were more consistent with their values and needs. The responding teachers' relatively long exposure to working in modular laboratory settings may in part explain this finding. Since the teachers who participated in this study had an average of eight years experience in the use of modular laboratory formats, it is possible that these Georgia teachers had, in that time, become accustomed to the labs and had successfully adapted them to their classroom needs.

Another factor that might have influenced the positive findings of this study is that only teachers currently teaching in modular laboratories participated in the study. Because teachers who responded to the survey but who taught only in conventional technology laboratories were dismissed from the subject sample, the generally favorable opinion of modular laboratories found in this study might have been skewed by limiting responses to teachers who have embraced the modular laboratory configuration. It is likely that teachers with less positive views of modular laboratories include some whose dislike has led them to resist the modular laboratory format. The selection of subjects for this study would have eliminated them, and thus their negative views, from the survey sample.

The Georgia technology teachers who taught in modular laboratories also reported that the modular lab set-up benefited their students, both at the high school and middle school level. The fact that teachers felt that modular labs were more developmentally appropriate and more educationally sound than conventional laboratories may be due, at least in part, to the more student-focused aspect of the modular laboratory format, which accords with pedagogical theories that encourage small group and self-directed learning.

Teachers' opinions were either evenly split or negative on only two items in the questionnaire. Both of these items dealt with the ease of use of a modular laboratory. Teachers did not perceive modular labs as easier to try out on a limited basis as compared to conventional laboratories, nor did they find modular laboratories easier to understand and use. The new and complex technology that is often part of a modular laboratory setting might explain why teachers found modular laboratories less than "user-friendly." Because modular laboratories may incorporate multimedia equipment that involves highly technical and perhaps unfamiliar components, teachers may require additional training to fully master all aspects of a modular laboratory.

Technology changes at an exponential rate and, to keep abreast of it, technology education changes and adapts as well. One adaptation has been the switch from conventional to modular technology education laboratories by many school systems. Since modular laboratories are being widely used, further study should be conducted regarding their advantages and disadvantages. Although some research has been completed on modular technology education laboratories, more research is needed to help clarify different perspectives of modular technology education laboratories and to help to determine their effectiveness in technology education. The author suggests that more research on modular technology education is needed. Specifically the author suggests

(a) This study should be replicated in other states.
(b) A nationwide study should be conducted to explore the different ways in which states configure their technology education laboratories.
(c) A longitudinal study should be conducted tracking technology teachers' perceptions of modular laboratories from pre-service through their first 5 years of employment.
(d) A study should be conducted comparing standardized test scores of students who were exposed to modular technology education laboratories with those who were exposed to conventional laboratories.
(e) A study of technology teacher education institutions should be conducted to determine the extent to which pre-service teachers are being prepared to teach in modular technology education laboratories.

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