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The Effect of an Interest Approach on Knowledge, Attitudes, and Engagement of High School Agricultural Science Students

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The purpose of this study was to examine the effects of using an interest approach at the beginning of a lesson on student knowledge, attitudes, and engagement in an agricultural science classroom. A total of four classes were randomly assigned and administered one lesson with an interest approach and one lesson without an interest approach. Following each lesson, the students' knowledge and attitude were assessed. During each lesson, student engagement was measured. The content of the lessons was adapted from the LifeKnowledge curriculum (National FFA Organization, 2004). The conclusions of this study were contradictory. Overall, there was no difference in knowledge from the students who were exposed to interest approaches to those who were not. In addition, as a whole, there was no difference in attitude between the students who received exposure to an interest approach and those who did not. However, having an interest approach at the beginning of a lesson did make a difference in student engagement throughout a lesson, with students receiving an interest approach being more engaged. Recommendations and implications are provided.

Keywords: interest approach, engagement, teaching methods

Introduction

Teachers are frustrated about unmotivated students (Hidi & Harackiewicz, 2000) and their displeasure is often expressed through statements such as *these kids are not motivated, they do not care, I cannot get them to do anything*, or *they are not interested in anything*. Although expressions of frustration are abundant today, they are likely not new to education. Educators have long espoused the importance of stimulating student interest to enhance learning through activities referred to as a/an *set induction* (Schuck, 1970), *anticipatory set* (Hunter, 1982), or *interest approach* (Newcomb, McCracken, Warmbrod, & Whittington, 2004). These activities are used to stimulate interest and focus the learner's attention (Oman, 2002). The term interest approach was used in the current study.

The literature advocating the use of interest approaches is plentiful. However, with the notable exception of the work of Robert Schuck (1970, 1971, 1981, 1982, 1985), empirical evidence of the effects of interest approaches is limited. Examining this topic in the context of high school agricultural science education has received even less attention. Given the presumed importance of interest approaches, this study sought to begin filling that void.

Theoretical Framework

This study was framed using social cognitive theory as the framework to examine how learners interact with their environment (Bandura, 1977). Central to this theory is the precept that there is a dynamic interaction between the person (P), the environment (E), and their behavior (B). Additionally, the concept of interest, as it relates to learning, was used to further frame this study (Dewey, 1913; Renninger, Hidi, & Krapp, 1992). Student interest can take two forms. *Individual interests*

(Krapp, Hidi, & Renninger, 1992) are dispositional in nature and deeply imbedded in the person and thus would be a personal variable in Bandura's (1977) model of triadic reciprocal determinism. *Situational interest*, on the other hand, is created by external conditions, objects, or circumstances (Krapp et al., 1992). Consequently, Bandura (1977) would refer to situational interest as an environmental variable. The literature supports using this framework for examining the effects of learner interest (Hidi, Renninger, & Krapp, 1992).

Applying this framework, the current study sought to examine how an interest approach (situational interest, environmental variable) affected learner attitudes (personal variable), knowledge (behavioral variable), and engagement (behavioral variable). Attitudes are considered a personal variable because they are internal to the learner and not easily observed. Even though knowledge is internal to the person, knowledge and engagement would be considered behavioral variables because they are expressed through an action (behavior). Conceptually, this relationship could be depicted by the model proposed in Figure 1. Does the presence of an environmental variable (interest approach) influence a personal variable (attitudes) and behavioral variable (knowledge and engagement)?

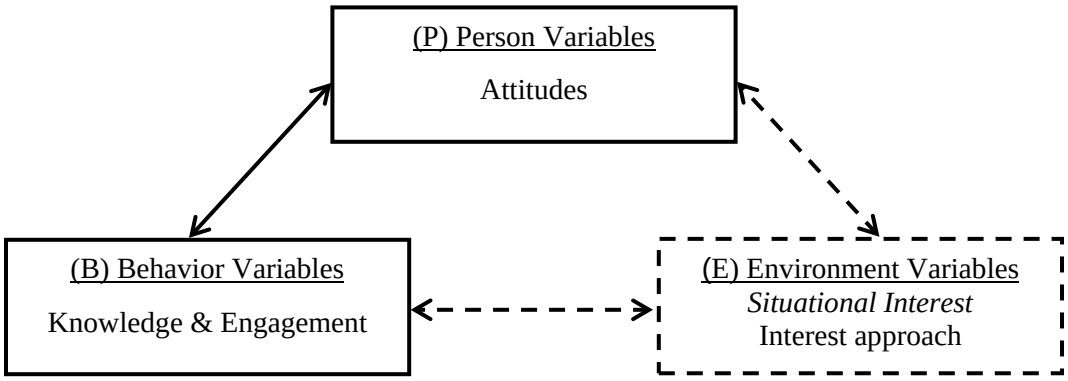

Figure 1. Conceptual model of the relationships between interest approach, knowledge, attitudes, and engagement.

Research has shown that situational interest can be increased when learners experience a novel situation or when learners realize the relevance of new information (Schraw, Flowerday, & Lehman, 2001). As applied in agricultural science education, the former is typically advocated. Newcomb and his colleagues (2004) equated an interest approach to experiencing a provocative situation. Interestingly, when studying university teaching methods courses in agricultural science education, Ball and Knobloch (2005) found that only 7.5% of the courses included an assignment specifically related to interest approaches. It is plausible that interest approaches were imbedded in to other assignments, such as lesson plans and microteaching, which were each included in 90% of the courses.

It would appear that agricultural science teachers are taught to use interest approaches. In a study of Illinois agricultural science teachers, Osborne and Hamzah (1989) found that teachers often use an interest approach at the beginning of a new topic; while Martin and Odubiya (1991) reported that Iowa agricultural science teachers agreed that it was important to develop an interest approach that would motivate students. Empirical evidence of the effectiveness of interest approaches in agricultural science classes could not be found. However, limited research in other Career and Technical Education areas can be insightful. In 2002, Oman examined the impact of interest approaches on student interest in technology education. The results of the study suggest that interest approaches are favored by educational technology students.

The most systematic examination of interest approaches in general education was conducted by Robert F. Schuck from the University of Pittsburg. In 1985, Schuck investigated the use of interest approaches and its effect on student knowledge retention. He concluded that students taught by teachers trained to use interest approaches will have greater achievement and attainment than those taught by teachers not receiving training for the implementation of interest approaches into a lesson. In studies from 1981 and 1982, Schuck reported similar observations. In 1970 and 1971, Schuck examined the use of interest approaches by student teachers and found that when given instruction on how to implement interest approaches, this group of teachers was able to teach their students in ways that led to greater knowledge gain and retention.

Purpose of Study

Agricultural science educators are taught to implement interest approaches at the beginning of a lesson. Theory and previous research in general education support this practice. However, there is very little empirical evidence about interest approaches in agricultural science education. The purpose of this study was to examine the effects of using an interest approach at the beginning of a lesson on student knowledge, attitudes, and engagement in an agricultural science classroom. Three null hypotheses were used to guide this investigation:

Ho_1: There is no difference in students' knowledge when using an interest approach.

Ho_2: There is no difference in students' attitudes when using an interest approach.

Ho_3: There is no difference in students' engagement levels when using an interest approach.

Methodology

This study used a quasi–experimental design to test the effects of using an interest approach at the beginning of a lesson. The interest approach was the independent variable in this study. The dependant variables were knowledge, attitude, and engagement. A post–test control group design was implemented (Campbell & Stanley, 1963).

Population and Sample

The population for this study was all students enrolled in an introductory agricultural education course in Texas (N = approximately 20,000). The reason for choosing an introductory course was in order to attempt to alleviate the probability for prior knowledge of the subject matter that was being measured. A convenience sample was purposely selected based on the following criteria: proximity to Texas A&M University, teachers who had at least one year of experience teaching the introductory agricultural education course, and availability of two sections of the course at each school. The study was conducted as a part of normal class activities.

The sample contained a total of four classes; two from school one and two from school two. The sample included a total of 58 subjects. Each class was observed twice. All four classes received one lesson with the treatment and one lesson without. A summary of the four classes is as follows (Table 1).

Table 1
Summary of Sample

	Gender		Protocol	
			Lesson 1	Lesson 2
	Male	Female	Personal Growth	Career Success
School 1				
Class 1 (N = 18)	10	8	Treatment	Control
Class 2 (N = 14)	7	7	Control	Treatment
School 2				
Class 1 (N = 12)	8	4	Control	Treatment
Class 2 (N = 14)	5	9	Treatment	Control

School 1/Class 1

Applied agricultural science and technology class with students from ninth to twelfth grade; 18 students participated in both the experimental and control group. This class consisted of ten (10) male students and eight (8) female students. This class received an interest approach with lesson one and no interest approach with lesson two.

School 1/Class 2

Applied agricultural science and technology class with students from ninth to twelfth grade; 14 students participated in both the experimental and control group. This class consisted of seven (7) male and seven (7) female students. This class received an interest approach with lesson two and no interest approach with lesson one.

School 2/Class 1

Applied agricultural science and technology class with students from ninth to tenth grade; 12 students participated in both the experimental and control group. This class consisted of eight (8) male students and four (4) female students. This class received an interest approach with lesson two and no interest approach with lesson one.

School 2/Class 2

Applied agricultural science and technology class with students from ninth to twelfth grade; 14 students participated in both the experimental and control group. This class consisted of five (5) male students and nine (9) female students. This class received an interest approach with lesson one and no interest approach with lesson two.

Procedures

The lessons used in this study were adapted from the LifeKnowledge curricula (National FFA Organization, 2004). The lessons were formatted so that each section of students would be exposed to one lesson with an obvious interest approach and one without. The lesson plans for the control and treatment were identical, with the exception of the interest approach.

One lesson was dealing with the topic of personal growth. The objective of the lesson was that students would be able to define personal growth and be able to describe the importance of personal growth. The interest approach for that lesson was described as a time machine activity. The purpose of the activity was to have the teacher step out of the room and return moments later in full official dress in the role of an FFA officer. The instructor would then play the role of a guest speaker and talk about their own personal growth through their involvement in the FFA. The other lesson was on the topic of career success. The objective for that lesson was that the students would be able to define career success and identify skills necessary to create career success. The interest approach for that lesson involved assessing color pictures of professionals in attire and discussing if they were “dressed for success” in their career.

The researcher met with the teachers participating in the study to insure proper implementation/delivery of the protocol. At this meeting, each lesson was discussed in order to

insure feasibility and ownership of the lessons by the teachers. Also, at this meeting, the treatment was randomly assigned to the classes in such a manner that each class would receive one lesson with an interest approach and one without and also that each lesson would be delivered to one class with an interest approach and the other without (Figure 2).

School 1	Lesson 1	Lesson 2
Class 1	R X O	R O
Class 2	R O	R X O
School 2		
Class 1	R O	R X O
Class 2	R X O	R O

Figure 2. Quasi–experimental design

Prior to data collection, the researcher visited the classes in order to minimize any situations that would fall under the Hawthorne Effect (Gall, Gall, & Borg, 2003). Upon data collection in participating classrooms, the researcher made sure to place herself in the same location in the classroom as she did during the observatory visit. This was done in effort to minimize any extraneous variables.

In addition, prior to any data collection, all subjects were informed of the study and what to expect during the days of data collection. Each student was provided appropriate consent paperwork to be completed by their parents. All subjects were given the opportunity to ask questions pertaining to the study and were also allowed to decline participating in the study without penalty. All participating subjects for this study turned in a document, signed by themselves and a parent/guardian, allowing the researcher to collect and publish data gathered during the research study.

Implementation

During each lesson, the researcher observed the class to verify protocol implementation. At the conclusion of each lesson, student knowledge and attitude were assessed. Knowledge was assessed using adaptations of the assessment tool included in the LifeKnowledge curricula. Knowledge assessments were scored on a scale from 0 to 100. For lesson one, Personal Skills, the knowledge assessment consisted of eight matching questions that included a word bank. For lesson two, Career Success, the knowledge assessment had five questions that included multiple choice and ranking items. These instruments were deemed valid due to the LifeKnowledge development process. The number of multiple choice items in each knowledge assessment (8 items in the Personal Skills Assessment and 3 items in the Career Success Assessment) did not allow for using internal consistency as a measure of reliability. However, treating total knowledge scores on the Personal Skills assessment and Career Success assessment as parallel forms yielded a correlation of .81.

The attitude instrument was developed by the researcher. It was adapted from the Biology Attitudes Scale (Russell & Hollander, 1975). The original instrument had 14 items. Wording of several items was adjusted to meet the needs of the current study and items deemed unnecessary were omitted. The instrument version used in the current study consisted of seven items accompanied by five–point a summated rating scale of 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. Content and face validity were determined by a panel review of university agricultural educators not directly involved in the study. Post–hoc reliability analysis yielded Cronbach's alpha values of .86.

Engagement data were collected by visual observation by the researcher. Students were placed in assigned seats during all data collection classes to allow for easy identification. The researcher attempted to make as little eye contact as possible with participants as well as not draw any attention to herself. There was also no verbal communication made between any of the subjects and the researcher. Based on visual appraisal, the researcher coded each student's engagement level in four minute intervals. The codes used included: level 0: zero engagement; examples are sleeping, unrelated conversations with peers, level 1: slight engagement; examples are texting, drawing, reading off–topic book, writing notes, level 2: mild engagement; examples are quietly and partially talking with friends, partially daydreaming, level 3: moderate engagement; examples are listening to teacher but not involved in or participating in discussions or activities, level 4: engagement; participating in discussions and activities because asked or instructed to and asking knowledge based questions, level 5: active engagement; examples are asking thought–provoking questions, eager to participate in activities, showing signs of wanting to understand the information at high Bloom's levels (Bloom, 1956).

Observation of each class revealed that each teacher attempted to follow the protocols for proper implementation with the following exceptions: (a) school one, class one, lesson one – the class was unable to complete the "Taking it to The Streets" portion of the lesson before the assessment due to time constraints; (b) school one, class two, lesson one – the instructor showed less enthusiasm during implementation; (c) school two, class one, lesson two – the definition of career success was left on the front board during the assessment; and (d) school two, class two, lesson one – the instructor failed to properly implement the planned lesson by not wearing the official dress when acting out the role playing interest approach at the beginning of the lesson. These inconsistencies in implementation could have played a role in the variation of knowledge and attitude and are discussed in the conclusions section of this study.

Data Analysis

Given that two different knowledge assessments were used, the data taken from the knowledge assessments were converted into *T*–scores for the paired samples analysis to allow for accurate comparisons. Differences in knowledge and attitudes were examined by calculating independent samples *t*–tests. Comparisons were made for each lesson at each school and then by comparing all the data. Effect sizes were also calculated.

For engagement levels, data were summarized using descriptive statistics. Comparisons between groups were accomplished by using repeated measures analysis of variance. When comparing data from a control group (no interest approach) to a treatment group (interest approach), the timing of observations was aligned to account for the amount of time it took for the interest approach. This process allowed for four comparable points at which engagement was measured.

Results

Ho_1: There is no difference in students' knowledge when using an interest approach.

When comparing knowledge scores of different classes taught the same lesson (with and without treatment), raw scores were used in the tables (Table 2). School one/Class one had a mean of 85.71 for the control with a standard deviation of 18.25 and a mean of 81.25 for the treatment with a standard deviation of 18.84. The $t = -.61$, $p = .55$ and effect size for this class was .12. School one/Class two had a mean of 86.81 for the control with a standard deviation of 14.52 and a mean of 91.96 for the treatment with a standard deviation of 13.52. The $t = 1.03$, $p = .31$ and effect size for this class was marked at .18. For the control lesson of School two/Class one, the mean was 58.33 with a standard deviation of 26.23 and the treatment lesson had a mean of 58.57 with a standard deviation of 21.43. The $t = .03$, $p = .98$ and effect size for this class was .01. School two/Class two had a control mean of 74.29 with a standard deviation of 18.28 and a treatment mean of 60.00 with a standard deviation of 18.15. The $t = -2.02$, $p = .04$ and effect size for this class was .37. This class also had a significance value of .04 which indicates a statistical difference. When comparing all the control groups to the treatment

groups, the control group had a mean of 77.63 with a standard deviation of 21.72 and the treatment group had a mean of 71.77 and a standard deviation of 22.78. The $t = –1.42$ and $p = .16$. Accordingly, the null hypothesis was not rejected.

Table 2
Differences in Knowledge

	Control			Treatment					
	n	*M*	*SD*	*n*	*M*	*SD*	*t*	*p*	*Effect Size*
Lesson 1/School 1	14	85.71	18.25	12	81.25	18.84	–.61	.55	.12
Lesson 1/School 2	18	86.81	14.52	14	91.96	13.52	1.03	.31	.18
Lesson 2/School 1	12	58.33	26.23	14	58.57	21.43	.03	.98	.01
Lesson 2/School 2	14	74.29	18.28	18	60.00	18.15	–2.02	.04	.37
Overall	58	77.63	21.72	58	71.77	22.78	–1.42	.16	.13

Note. Scale ranged from 0 to 100.

Ho_2: There is no difference in students' attitudes when using an interest approach.

As depicted in Table 3, school one/Class one had a mean of 3.26 for the control with a standard deviation of 1.10 and a mean of 3.91 for the treatment with a standard deviation of .82. The $t = 1.72$, $p = .10$ and effect size for this class was .33, therefore classifying this effect size as small. School one/Class two had a mean of 4.00 for the control with a standard deviation of .56 and a mean of 3.79 for the treatment with a standard deviation of .73. The $t = –.96$, $p = .35$ and effect size for this class was marked at .17. For the control lesson of School two/Class one, the mean was 3.83 with a standard deviation of .7 and the treatment lesson had a mean of 3.16 with a standard deviation of .83. The $t = –2.19$, $p = .04$ and effect size for this class was .41, therefore classifying this effect size as small. This class also had a significant difference ($p = .04$). School two/Class two had a control mean of 3.54 with a standard deviation of .59 and a treatment mean of 3.81 with a standard deviation of .52. The $t = 1.38$, $p = .18$ and effect size for this class was .24. Overall, the control group had a mean of 3.68 and a standard deviation of .79. The treatment group had a mean of 3.67 and a standard deviation of .76. The $t = –.03$ and $p = .97$. The effect size was 0. Accordingly, the null hypothesis was not rejected.

Table 3
Differences in Attitudes

	Control			Treatment					
	n	*M*	*SD*	*n*	*M*	*SD*	*t*	*p*	*Effect Size*
Lesson 1/School 1	14	3.26	1.10	12	3.91	.82	1.72	.10	.33
Lesson 1/School 2	18	4.00	.56	14	3.79	.73	-.96	.35	.17
Lesson 2/School 1	12	3.83	.70	14	3.16	.83	-2.19	.04	.41
Lesson 2/School 2	14	3.54	.59	18	3.81	.52	1.38	.18	.24
Overall	58	3.68	.79	58	3.67	.76	-.03	.97	.00

Note. Scale ranged from 1 = strongly disagree to 5 = strongly agree.

Ho_3: There is no difference in students' engagement levels when using an interest approach.

As depicted in Table 4, comparisons were made between classes taught the same lesson. Repeated measures Analysis of Variance was used to examine differences across multiple points in time. School 1, Class 1, Lesson 1 (treatment) had an interval 1 engagement mean of 2.89 and a standard deviation of .74. The interval 2 engagement mean was calculated as 3.74 with a standard deviation of .56. The engagement mean for interval 3 was 4.00 with a standard deviation marked at .00. Interval 4 showed an engagement mean of 2.79 with a mean of .79. School 1, Class 2, Lesson 1 (control), showed and interval 1 mean of 2.43 and a standard deviation of .85. Interval 2 had an engagement mean of 4.00 with a standard deviation of .00. Interval 3 had an engagement mean of 1.43 with a standard deviation of .94 and interval 4 had a mean for engagement at 3.00 with a standard deviation of 1.18. Comparing the two classes to each other offered up the conclusion that there was a significant difference (p = .00), and had an F ratio of 14.87 with an effect size (partial eta squared) of .32.

Table 4
Differences in Engagement

	Interval						
	1	2	3	4			
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*	*F*	*p*	η_p^2
Lesson 1/School 1							
Class 1 (Treatment)	2.89 (.74)	3.74 (.56)	4.00 (.00)	2.79 (.79)	14.87	.00	.32
Class 2 (Control)	2.43 (.85)	4.00 (.00)	1.43 (.94)	3.00 (1.18)			
Lesson 1/School 2							
Class 1 (Control)	2.83 (.58)	2.92 (.29)	2.50 (.52)	2.83 (.84)	.32	.58	.01
Class 2 (Treatment)	3.57 (.85)	2.71 (.83)	2.71 (.47)	2.50 (.52)			
Lesson 2/School 1							
Class 1 (Control)	2.79 (.71)	3.16 (.96)	3.53 (.70)	2.74 (1.82)	9.11	.01	.23
Class 2 (Treatment)	3.36 (1.28)	4.14 (.36)	3.86 (.36)	3.29 (.73)			
Lesson 2/School 2							
Class 1 (Treatment)	4.24 (.45)	4.17 (.84)	3.42 (.79)	4.00 (.00)	7.71	.01	.24
Class 2 (Control)	3.50 (1.02)	2.79 (1.42)	3.36 (1.01)	3.64 (.50)			
Overall							
Control	2.88 (.87)	3.22 (.98)	2.78 (1.16)	3.03 (1.27)	16.97	.00	.13
Treatment	3.44 (.99)	3.68 (.86)	3.54 (.68)	3.08 (.82)			

Note. Scale = 0: zero engagement, 1: slight engagement, 2: mild engagement, 3: moderate engagement, 4: engagement, 5: active engagement

School 2, Class 1, Lesson 1 (control) had an interval 1 engagement mean of 2.83 and a standard deviation of .58. The interval 2 engagement mean was 2.92 with a standard deviation of .29. The engagement mean for interval 3 was 2.50 with a standard deviation marked at .52. Interval 4 showed a calculated engagement mean of 2.83 with a mean of .84. School 2, Class 2, Lesson 1 (treatment), showed and interval 1 mean of 3.57 and a standard deviation of .85. Interval 2 had an engagement mean of 2.71 with a standard deviation of .83. Interval 3 had an engagement mean of 2.71 with a standard deviation of .47 and interval 4 had a mean for engagement at 2.50 with a standard deviation of .52. Comparing the two classes to each other offered up the conclusion that there was no significant difference (p = .58), and had an F ratio of .32 with an effect size (partial eta squared) of .01.

School 1, Class 1, Lesson 2 (control) had an interval 1 engagement mean of 2.79 and a standard deviation of .71. The interval 2 engagement mean was 3.16 with a standard deviation of .96. The engagement mean for interval 3 was calculated at 3.53 with a standard deviation marked at .70. Interval 4 showed an engagement mean of 2.74 with a mean of 1.82. School 1, Class 2, Lesson 2 (treatment), showed and interval 1 mean of 3.36 and a standard deviation of 1.28. Interval 2 had an engagement mean of 4.14 with a standard deviation of .36. Interval 3 had an engagement mean of 3.86 with a standard deviation of .36 and interval 4 had a mean for engagement at 3.29 with a standard deviation of .73. Comparing the two classes to each other offered up the conclusion that there was a significant difference (p = .01), and had an F ratio of 9.11 with an effect size (partial eta squared) of .23.

School 2, Class 1, Lesson 2 (treatment) had an interval 1 calculated engagement mean of 4.24 and a standard deviation of .45. The interval 2 engagement mean was 4.17 with a standard deviation of .84. The engagement mean for interval 3 was 3.42 with a standard deviation marked at .79. Interval 4 showed an engagement mean of 4.00 with a mean of .00. School 2, Class 2, Lesson 2 (control), showed and interval 1 mean of 3.50 and a standard deviation of 1.02. Interval 2 had an engagement mean of 2.79 with a standard deviation of 1.42. Interval 3 had an engagement mean of 3.36 with a standard deviation of 1.01 and interval 4 had a mean for engagement at 3.64 with a standard deviation of .50. Comparing the two classes to each other offered up the conclusion that there was a significant difference (p = .01), and had an F ratio of 7.71 with an effect size (partial eta squared) of .24.

Overall, when comparing the control group engagement levels to the treatment group engagement levels, there was a significant difference (p = .00). Accordingly, the null hypothesis was rejected. Overall control data can be described as interval 1 with an engagement mean of 2.88 with a standard deviation of .87. Interval 2 had an overall calculated engagement mean of 3.22 with a standard deviation of .98. Interval 3 had an overall engagement mean calculated at 2.78 with a standard deviation mean of 1.16 and interval 4 had an overall engagement mean of 3.03 with a standard deviation of 1.27. The overall treatment group data showed that interval 1 had an engagement level of 3.44 with a standard deviation of .99. Interval 2 showed an average engagement level of 3.68 with a standard deviation of .86. Interval 3 had an engagement level of 3.54 with a standard deviation of .68 and interval 4 held an average engagement level of 3.08 with a standard deviation of .82. The F ratio for this comparison was 16.97 and the effect size (partial eta squared) was marked at .13.

Conclusions

Based on the results of this study, several conclusions can be drawn. The first null hypothesis focused on the effect of using an interest approach at the beginning of a lesson on students' knowledge. It was concluded that the use of an interest approach at the beginning of a lesson had no effect on the students' knowledge. This finding contradicts the theory that situational interest can impact learning (Schraw et al., 2001) and that this environmental variable does not impact this behavioral variable (Bandura, 1977). Theoretically speaking, it is thought that if a student is interested and becomes meaningfully engaged at the very beginning of a lesson and can positively apply the given information to their lives, then their attitudes with be positive towards the lesson. This, subsequently, will affect the student's level of knowledge. Results from the current study also contradict Schuck's (1970, 1971, 1981, 1982, 1985) body of work. The variance in implementation, or inconsistencies of the protocol, could account for the incongruence between observations and theory. For example, during lesson 1 (personal growth), the teacher was not able to complete the entire lesson for the treatment group, which had lower knowledge scores than the control group.

The second null hypothesis of this study tested the effect of using an interest approach at the beginning of a lesson on students' attitudinal perspectives towards the lesson. It was also concluded that an interest approach has no effect on student attitudes. This conclusion contradicts the theoretical importance of interest approaches (Dewey, 1913; Renninger et al., 1992) and the work of Oman (2002). However, as indicated above, implementation deviations of protocol may explain why no difference was found. For

example, during the first lesson (personal growth), one of the teachers did not fully implement the interest approach protocol for the treatment group, but this group still managed to have slightly higher attitude scores than the control group.

The third null hypothesis of this study tested the effect of using an interest approach at the beginning of a lesson on students' engagement levels throughout a lesson. It was concluded that having an interest approach at the beginning of a lesson makes a difference in student engagement throughout a lesson. However, this conclusion should be read with some caution due to the deviations from the protocol noted earlier. The results of this study, do however, support many theoretical constructs. Theoretically speaking, it is thought that if a student becomes engaged in a lesson at the very beginning, their engagement will remain high throughout the lesson. The conclusions would then fall in line with many educational and methodological beliefs and would then be consistent with past studies by Schuck (1970, 1971, 1981, 1982, & 1985) and Oman (2002).

Recommendations and Implications

Although theory would support the use of an interest approach in a classroom in order to improve student knowledge and attitude, the data from this study does not support this. Upon analysis of the measured data on attitude and knowledge levels of the participants, the researchers recommend that further data be collected in efforts to further examine the findings of this study. The sampling procedures used in this study limit the generalizability of the findings. The study should be replicated numerous times to see if similar findings hold true. Additionally, given the inconsistency in implementation of the protocol, researchers who elect to conduct similar studies are encouraged to provide greater training to teachers before teaching the lessons.

The conclusions about engagement provide some evidence that supports theory (Bandura, 1977; Schraw et al., 2001). An obvious set induction at the beginning of the lesson should prove helpful as a mental shifting agent, in the strict terms of engagement of students, and as a way to keep students actively participating throughout the remainder of the lesson therefore, enabling a better opportunity to transfer new knowledge and make schematic connections.

As different subjects and topics are taught and measured, and different approaches to gain interest are used, subsequent studies may show differences. The information from this study and further studies could prove to be very useful to teacher preparation programs and educator in–service programs alike. Even though the data from the current study do not show effects for using interest approaches, at this point, the researchers are not comfortable making recommendations to teacher educators to suspend teaching about interest approaches.

On another note, the researchers would recommend that due to the nature of this study, further research be implemented on the effects of an interest approach on student motivation. Also, researchers would recommend a similar study in another location in an effort to support or disprove and similarities of the data found in this study. There is an extensive amount of literature available to support a study of that nature.

References

Ball, A. L., & Knobloch, N. A. (2005). A document analysis of the pedagogical knowledge espoused in agriculture teaching methods courses. *Journal of Agricultural Education, 46*(2), 47–57. doi: 10.5032/jae.2005.02047

Bandura, A. (1977). *Social learning theory*. Upper Saddle River, NJ: Prentice Hall.

Bloom, B. S. (ed.). (1956). *Taxonomy of educational objectives. Vol. 1: Cognitive domain.* New York, NY: McKay.

Campbell, D. T., & Stanley, J. (1963). *Experimental and quasi–experimental designs for research*. Boston, MA: Houghton–Mifflin.

Dewey, J. (1913). *Interest and effort in education*. Boston, MA: Houghton Mifflin Company.

Gall, M. D., Gall, J. P., & Borg, W. R. (2003). *Educational research: An introduction* (7th ed.). Boston, MA: Allyn & Bacon.

Hidi, S., & Harackiewicz, J. M. (2000). Motivating the academically unmotivated: Critical issues for the 21st century. *Review of Educational Research, 70*(2), 151–179. doi: 10.3102/00346543070002151

Hidi, S., Renninger, K. A., & Krapp, A. (1992). The present state of interest research. In. K. A. Renninger, S. Hidi, & A. Krapp (Eds.), *The role of interest in learning and development* (pp. 433–446). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Hunter, M. (1982). *Mastery teaching.* El Segundo, CA: TIP Publications.

Krapp, A., Hidi, S., & Renninger, K. A. (1992). Interest, learning, and development. In. K. A. Renninger, S. Hidi, & A. Krapp (Eds.), *The role of interest in learning and development* (pp. 3–25). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Martin, R. A., & Odubiya, A. O. (1991). Perceptions of Iowa vocational agriculture teachers regarding methods used in agricultural education. *Journal of Agricultural Education, 32*(1), 13–17. doi: 10.5032/jae.1991.01013

National FFA Organization (2004). LifeKnowledge curriculum. Indianapolis, IN.

Newcomb, L. H., McCracken, J. D., Warmbrod, J. R., & Whittington, M. S. (2004). *Methods of teaching agriculture* (3rd ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Oman, J. M. (2002). *Student perceptions of interest approaches in technology education* (Unpublished Master's thesis). University of Wisconsin, Stout, WI.

Osborne, E. W., & Hamzah, R. (1989). Use of problem solving teaching among secondary agriculture teachers in Illinois. *Journal of Agricultural Education, 30*(3), 29–36. doi: 10.5032/jae.1989.03029

Renninger, K. A., Hidi, S., & Krapp, A. (Eds.). (1992). *The role of interest in learning and development.* Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Russell, J., & Hollander, S. (1975). A biology attitude scale. *The American Biology Teacher, 37*(5), 270–273.

Schraw, G., Flowerday, T., & Lehman, S. (2001). Increasing situational interest in the classroom. *Educational Psychology Review, 13*(3), 211–224. doi: 10.1023/A:1016619705184

Schuck, R. F. (1970). Interest approach as an instructional strategy for science educators. *The Science Teacher Journal, 37*(5), 63–65.

Schuck, R. F. (1971). Effects of interest approach upon pupil achievement retention and assessment of effective teaching in units on respiration and circulation in the BSCS curricula. *The Journal of Science Education, 55*(3), 403–415.

Schuck, R. F. (1981). The impact of interest approach on student achievement and retention. *Journal of Educational Research, 74*(4), 227–232.

Schuck, R. F. (1982). The impact of interest approach in a quasi–classroom setting. *Teacher Educator, 18*(1), 19–29.

Schuck, R. F. (1985). An empirical analysis of the power of interest approach and systematic questioning as instructional strategies. *Journal of Teacher Education. 36*(2), 38–43.

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