Assessing Instructional Confidence of Secondary Health Educators in Illinois: Implications for Curricular and Policy Development

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Abstract

To assess the relationship between the training/preparation of physical education teachers and their perceived instructional confidence levels across major topic areas established by the Illinois State Board of Education as critical content areas. In total, 283 individuals participated and were included in the data analysis. The participants surveyed were currently enrolled or recently graduated from physical education or kinesiology departments at (1.) the University of Illinois at Urbana-Champaign, (2.) Illinois State University, and (3.) Eastern Illinois University. Data were collected via in-person and email surveys using the HECS 18 item survey instrument. Analysis demonstrated a statistically significant difference exists between the perceived instructional confidence of current students and recent graduates regarding major health topic areas. Further work with this population is required to determine if the results seen in the state of Illinois are consistent. The next proposed sample area will be the state of Colorado and its three main Universities (University of Colorado, Colorado State University, Metropolitan State University of Denver) and their health and physical educators (HPE).

Keywords: college curriculum, physical education, health education, confidence

1. Introduction

Based on recent Youth Risk Behavioral Surveillance Survey (YRBSS) data and CDC projections, it is believed that children born on or after the year 2000 have a 1 in 3 chance of becoming overweight or obese in their lifetime (Centers for Disease Control [CDC], 2017). Compared with 1990, more than double the number of adolescents are overweight and nearly triple the number of teenagers. Without multiple levels of intervention, the quality of life and life expectancy in the United States will decrease in the coming generations CDC, 2018; Peterson, 2005; I.S.B.E. 2016). The reason for the shortened lifespan of young adults and the growing number of health issues affecting them is a topic that is often debated among health professionals. Many researchers believe that the ever-changing landscape of health education may be a sizable contributor to these health disparities (Castro, 2009; Porter, McGrath, & Costello, 2008).

A recent development within health education over the years is that, due to budget constraints, the individuals in charge of providing K-12 health information are primarily trained as physical education instructors (Wilson, 2001, Dennis, McKenzie, and Chen, 2012; Manross, 2015). While on the surface this may not appear to be a significant issue, most parents and students do not realize that health educators have different curricular standards from county to county and from state to state (Schulte, 2008; Snyder, 2005). These variations can make adequate preparation of future instructors all the more difficult. What is also a concern is that for more than a century the United States of America has been operating physical and health education courses without any national standards or mandatory curricula (Education Portal, 2018; Gaudreault and Woods, 2012; NASPE, 2013).

At nearly all major four-year universities, those individuals interested in becoming health educators typically need only to take introductory level courses in health education to meet state health endorsement standards to teach health along with their chosen discipline. The particular courses recommended for certification at major four-year institutions are typically the lowest course levels in the health education sequence and are typically designed for

freshmen in their first semesters of collegiate work (I.S.B.E., 2018; Manross, 2015; UK College of Education, 2018; University of Illinois, 2018)).

The concern with this trend is that future instructors trained in physical education or other disciplines are not required to have exposure to any particular health topics in a depth that would be deemed significant by health education literature or health education experts (Jones, 2011; M. Simon, 2010). Most health education experts agree, if an individual desires to teach health in addition to another course, they should be required to have a solid background in health education so that they feel some mastery of the subject matter and can enter the classroom with greater confidence at all K-12 levels (Castro, 2009; Davidson, 2008; Journal of Physical Education, Recreation & Dance [JOPERD], 2012).

Using health education as the focus, this study sought to assess the relationship between the training/preparation of physical education teachers and their confidence in delivering health education information to high school students. High school students (Grades 9-12) were chosen because at this level the students are typically exposed to a more complete picture of adult health habits and behaviors (CDC, 2017).

This study is of interest because no prior research had been conducted to assess the quality and/or ability of physical education instructors from the perspective of health education. While curricular satisfaction and teacher preparedness are somewhat common areas for research, the focus on the modern transition of physical educators to become health educators and their confidence levels regarding this transition was an uncharted area of inquiry.

2. Method

The primary goal of this study was to determine the confidence levels of upperclass students in the process of becoming physical educators and health educators and comparing them with the confidence levels of recent graduates of the same institutions, who are currently employed as health and physical educators (HPE). It should be noted that confidence levels were measured via survey and that questions assessing this confidence cover broad topic areas familiar to all health educators. Specifically, instructional confidence was measured on the topics of physical fitness, obesity prevention methods, nutrition, illicit drug use, and human sexuality. These topic areas were chosen based on the yearly YRBSS, the CDC health behavior surveys, and the Illinois Department of Education health endorsement standards criteria.

2.1 Participants

For this study upperclass (Junior or Senior standing) adult males and females enrolled in Kinesiology/Physical Education at one of the three study institutions were surveyed (The University of Illinois at Urbana-Champaign, Illinois State University, and Eastern Illinois University). All data for upperclassmen was collected during class time, and the classes chosen at the three institutions were selected in conjunction with the department heads and faculty members teaching those courses. Ultimately, the decision was made to administer the survey to the students enrolled in courses for students planning to pursue careers as K-12 HPE instructors or courses that assist students in earning the health endorsement from the Illinois State Board of Education.

In total 162 surveys from upperclassmen across all three study institutions were collected and analyzed.

Graduates of the past two years from these institutions were the second group of interest for this study. However, this group provided the added complication of communication and tracking. With the aid of the department heads, an email list for each school was provided for recent graduates who majored in physical education. The initial goal was to have only emails of graduates who achieved state health endorsement provided, but due to unforeseen complications with alumni associations, all graduates of the three physical education programs were provided. In order to qualify for participation in this study, all participants were required to be currently employed at a secondary school or high school at the time of survey admission and must be teaching both physical education and health education.

In total 120 surveys from working graduates across all three study institutions were collected and analyzed.

2.2 Instrument

In order to determine if there was a difference between current students and recent graduates' confidence levels, the *Health Education Confidence Survey* (HECS) was constructed (see Form A & Form B). The HECS was developed by the lead author using a combination of existing and proven survey instruments from the Illinois State Board of Education (ISBE), the Youth Risk Behavioral Surveillance Survey (YRBSS)**,** surveys constructed by Snyder (2005), and the 35 competencies developed by the National Commission for Health Education Credentialing (NCHEC).

The HECS consists of 18 questions and on average took no student more than 10 minutes to complete. Questions 1-6 were modified from Snyder's (2005) survey assessing satisfaction and overall confidence regarding current health educators in Indiana, their curricula, and their level of professional support. Questions 7-11 consist of items aimed at assessing the individuals' perceived instructional confidence level for the given topic area. The questions were derived from a combination of the following: (1) the YRBSS and their results indicating the areas of most need for adolescent and young adult issues, (2) the ISBE secondary level health education endorsement standards, and (3) the NCHEC core competencies. Utilizing these three accepted sources, it was hoped to assess the participants' confidence in developing a lecture of the listed topic areas to high school level students. The listed objectives underneath each of the questions were displayed to remind the participants of what was expected under each indicated topic area. Finally, questions 12-18 collect anonymous demographic information to allow for a deeper analysis.

While numerous studies have demonstrated the reliability and validity of the YRBSS and BRFSS, the HECS is entirely new, and all of the questions have been modified to suit this study (Furlong, Bates, Sharkey, and Smith, 2004; Nelson, Holtzman, Bolen, Stanwyck, & Mack, 2001). Efforts were made to assess the reliability and validity of the HECS. Specifically, the reliability of the HECS was examined through a test – retest analysis. This test – retest took place in the fall semester and consisted of eleven individuals from the projected participant pool taking the survey in a timed interval of 5 minutes, waiting approximately 50 minutes, and then taking the survey again. Upon completion, it was found that their answers were statistically consistent (R = .896) with their first test and that the survey was deemed reliable for this preliminary study regarding instructional confidence.

In terms of validity, experts in the fields of health education, physical education, and survey methodology were asked to assess the content validity of the HECS. These experts examined each item on the survey to determine readability, soundness, and accuracy of the material, and the appropriateness of scale and scope. All experts consulted stated the HECS was a sound instrument for the proposed study. The HECS contains 18 items in total with 12 using a Likert-type scale (1-5) and the remaining 6 using dichotomous responses or ordinal data (e.g., yes – no).

Q1-Q6 assessed the confidence of each individual that their curricular program was meeting their expectations, as well as, the professional standards developed by the state. These measures cover curriculum, content exposure, coursework depth, and job preparation. All questions, except for Q1 (Health Endorsement), used a Likert-type scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. For Q1 *Are you working towards a health teaching endorsement* the responses choices were Yes - No - Unsure. For the five questions that assessed confidence, a Likert-type scale was used to allow the participant to indicate a range of perceived instructional confidence for the given topic areas. The measures obtained from Q7-Q11 of the HECS covered the following topic areas; Physical Fitness, Obesity Prevention, Nutrition, Licit & Illicit Drug Use, and Human Sexuality. Each confidence question was worded as follows: *Based on training from my Health Endorsement coursework, I would feel confident teaching a lesson (Grades 9-12) regarding (insert specific topic area)*. Participants response choices ranged from 1 = Strongly Disagree to 5 = Strongly Agree, meaning lower values represented a lower feeling/sense of confidence for disseminating information for the given topic area and higher values represented a higher level of perceived confidence regarding the specific topic area. Q12-Q18 collected demographic information regarding the participants' gender, anticipated or achieved graduation date, major, and professional organization involvement. It should be noted that on the recent graduate's survey there was an additional question added to determine if the survey participant was working in an abstinence-only school district (see Form B).

2.3 Procedures

Survey administration took place prior to the end of the fall and spring semesters. The three college sites were chosen both for their proximity to one another and for the size of their physical education programs in relation to other nearby institutions. Further, as required by IRB protocol, all participants were provided with a consent form, stating that the survey was entirely optional, completely anonymous, and that participation with this study would not affect their educational or professional status at any point. Those individuals who chose to provide consent were asked to complete the survey instrument.

Since upperclassmen surveys were given firsthand by the lead author, the above methodology was carried out consistently at each testing site. However, for the recent graduates, surveying in person was not possible, so those individuals were contacted via email. The email addresses for recent graduates were obtained from department heads at all three institutions. Again, in keeping with IRB protocol, all potential participants were emailed a consent form explaining the purpose of the study, that they would remain anonymous, and their participation would in no way affect their professional status or employment either now or in the future. Upon receiving digital confirmation of

their consent, the survey instrument was emailed to the participants with the caveat of a 24-hour return time. Ideally, the acceptance and return of the survey instrument would have been the same predetermined time used for the currently enrolled students, but due to varying schedules of professionals, this was not possible. Confidentiality of recent graduates was assured through the deletion of all of the contacts information following survey collection and data analysis.

3. Results and Discussion

Out of a possible 35 upperclassmen health endorsement seeking physical education (HPE) students at the University of Illinois, 33 participated, resulting in a 94.3% return. The courses surveyed at Illinois State University comprised 100% of the upperclassmen HPE students, of which 53 or 82.8% participated, and at Eastern Illinois University HPE students were surveyed in courses, which again allowed for 100% of the study population to be eligible. Out of a possible 82 students enrolled in HPE coursework at EIU, 76 (or 92.6%) participated.

This first subsection of the survey focused on curricular satisfaction and/or preparedness to determine if any findings of significance exist. An analysis of **Q2** (Overall Curricular Satisfaction) revealed that current students (N=163) had an above average response (M = 3.987, SD = .947) which was statistically significant *(p* = .0037*)* when compared to recent graduates (N=120) (M = 3.643, SD = 1.04) with the greatest university mean separation found between current ISU and EIU students *(p* = .0258*)*. In examining **Q3** (Health Endorsement Satisfaction), no significant difference could be found between current students and recent graduates. **Q4** (Future Employment), however, did result in a statistically significant difference between current students (M = 3.653, SD = .953) and recent graduates (M = 4.042, SD = .844) which resulted in *(p* = .0004*)*.

Q5 (Continuing Education) was found to be statistically different between current students and recent graduates *(p* <.0001*)*. Current students indicated a much higher perceived support level (M = 3.809, SD = .906) versus recent graduates who indicated a perceived support as (M = 2.508, SD = .996). In **Q6** (Recommend Program) both current students and recent graduates of their programs indicated above average means of (M = 4.18, SD = .957) and (M = 4.06, SD = .807), indicating that the respondents do believe their programs are appropriate for those desiring to teach physical education in addition to health education at the 9-12 level.

For **Q12** (Coursework Depth) it was found that the responses between the two groups were significantly different *(p* = .0065*)*. This finding may be an anomaly when compared to the responses from Q3**,** which asked participants to indicate how well they felt the health education coursework they had taken had prepared them for teaching health education at the 9-12 levels. Within this question was an additional significant finding comparing the mean responses of recent UIUC graduates (M = 2.619, SD = .740) and recent EIU graduates (M = 3.621, SD = .933, *p* <.0001*)* which were found to be significantly different. The final topical analysis occurred on **Q13** (More Coursework Needed) which found that the current students indicated mean of (M= 3.043, SD = 1.09) was significantly higher than the mean of recent graduates (M = 2.483, SD = 1.21, *p* <.0001*)* indicating current students believe more coursework should be required during undergraduate training.

To test the consistency of the responses between current students and recent graduates for variance, a Levene's *t*-test was conducted on all of the instructional confidence questions. Based on the findings below, the null hypothesis could be rejected that either pre-service or in-service health instructors would indicate inconsistent levels of instructional confidence. Below are the results of the analyses:

Levene's *t*-Test for Homogeneity	
Q7 = *p* = .3021	Q10 = *p* = .0192
Q8 = *p* = .8084	Q11 = *p* = .9741
Q9 = *p* = .3459	

The Levene test confirmed that variance is not a significant factor across the tested sample for the questions designed to assess instructional confidence. Using these results, we then looked to the second research question to ultimately find out if the primary hypothesis of this study was achieved.

A two-way ANOVA was the primary test conducted due to the variable of interest, which was perceived instructional confidence across the two factors; universities (x3) and student status (x2). In addition, an unequal means – equal variance T-Test was used to support/reject the ANOVA findings, as well as to provide an additional test of the main hypothesis which found that pre-service and in-service physical educators do in fact have instructional confidence levels that were found to be statistically different and lacking in variation *(p* <.0001*)*.

Below are the results of the two-way ANOVA with pre-service/in-service status being tested and a *t*-test comparing the means of pre-service and in-service physical educators (see Table 1 – 5 and Table 11-12):

Q7-Q11.   (F' *<.0001)* Satterthwaite *t*-test *(p <.0001)*

Q7. (Confidence in teaching Physical Education)…… …Two-Way ANOVA *(p = .6788)*

Q8. (Confidence in teaching Obesity Prevention)……….Two-Way ANOVA *(p <.0001)*

Q9. (Confidence in teaching Nutrition Education)………Two-Way ANOVA *(p <.0001)*

Q10. (Confidence in teaching Drug Prevention)………….Two-Way ANOVA *(p <.0001)*

Q11. (Confidence in teaching Human Sexuality)…………Two-Way ANOVA *(p <.0001)*

Table 1. Two-Way ANOVA with Interaction for University and Student Status
Dependent Variable Question 7: Confidence Teaching Physical Fitness

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	6.2032592	1.2406518	1.65	0.1470
Error	277	208.3126418	0.7520312		
Corrected Total	282	214.5159011			

R-Square		Coeff Var	Root MSE	Question 7 Mean	
0.028917		20.78043	0.867197	4.173145	

Source	DF	Type I SS	Mean Square	F Value	Pr > F
University	2	3.36646403	1.68323202	2.24	0.1086
Student Status	1	0.82511075	0.82511075	1.10	0.2958
Universit^Student Status	2	2.01168443	1.00584222	1.34	0.2642

Source	DF	Type III SS	Mean Square	F Value	Pr > F
University	2	3.84501480	1.92250740	2.56	0.0794
Student Status	1	0.12919178	0.12919178	0.17	0.6788
Universit^Student Status	2	2.01168443	1.00584222	1.34	0.2642

Notes:

* University = University of Illinois + Illinois State University + Eastern Illinois University

** Students Status = Current Students + Recent Graduates

*** Universit^Student_St = University + Student Status

Table 2. Two-Way ANOVA with Interaction for University and Student Status
Dependent Variable Question 8: Confidence Teaching Obesity Prevention

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	55.5347823	11.1069565	14.15	<.0001
Error	277	217.3839456	0.7847796		
Corrected Total	282	272.9187279			

R-Square		Coeff Var	Root MSE	Question 8 Mean	
0.203485		23.29958	0.885878	3.802120	

Source	DF	Type I SS	Mean Square	F Value	Pr > F
University	2	4.47769332	2.23884666	2.85	0.0594
Student Status	1	44.56596916	44.56596916	56.79	<.0001
Universit^Student Status	2	6.49111983	3.24555991	4.14	0.0170

Source	DF	Type III SS	Mean Square	F Value	Pr > F
University	2	6.27311116	3.13655558	4.00	0.0194
Student Status	1	35.36532588	35.36532588	45.06	<.0001
Universit^Student Status	2	6.49111983	3.24555991	4.14	0.0170

Notes:

* University = University of Illinois + Illinois State University + Eastern Illinois University

** Students Status = Current Students + Recent Graduates

*** Universit^Student_St = University + Student Status

Table 3. Two-Way ANOVA with Interaction for University and Student Status

Dependent Variable Question 9: Confidence Teaching Nutrition Information

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	78.3029348	15.6605870	20.50	<.0001
Error	277	211.5769238	0.7638156		
Corrected Total	282	289.8798587			

R-Square	Coeff Var	Root MSE	Question 9 Mean		
0.270122	25.71021	0.873965	3.399293		

Source	DF	Type I SS	Mean Square	F Value	Pr > F
University	2	4.05033668	2.02516834	2.65	0.0723
Student Status	1	71.59200903	71.59200903	93.73	<.0001
Universit^Student Status	2	2.66058913	1.33029457	1.74	0.1771

Source	DF	Type III SS	Mean Square	F Value	Pr > F
University	2	3.67579780	1.83789890	2.41	0.0920
Student Status	1	52.56628324	52.56628324	68.82	<.0001
Universit^Student Status	2	2.66058913	1.33029457	1.74	0.1771

Notes:

* University = University of Illinois + Illinois State University + Eastern Illinois University

** Students Status = Current Students + Recent Graduates

*** Universit^Student_St = University + Student Status

Table 4. Two-Way ANOVA with Interaction for University and Student Status

Dependent Variable Question 10: Confidence Teaching Drug Prevention

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	141.3532733	28.2706547	35.66	<.0001
Error	277	219.5937232	0.7927571		
Corrected Total	282	360.9469965			

R-Square	Coeff Var	Root MSE	Question 10 Mean		
0.391618	27.15242	0.890369	3.279152		

Source	DF	Type I SS	Mean Square	F Value	Pr > F
University	2	6.7068522	3.3534261	4.23	0.0155
Student Status	1	125.9277632	125.9277632	158.85	<.0001
Universit^Student Status	2	8.7186579	4.3593289	5.50	0.0046

Source	DF	Type III SS	Mean Square	F Value	Pr > F
University	2	8.36865859	4.18432929	5.28	0.0056
Student Status	1	98.99838270	98.99838270	124.88	<.0001
Universit^Student Status	2	8.71865787	4.35932894	5.50	0.0046

Notes:

* University = University of Illinois + Illinois State University + Eastern Illinois University

** Students Status = Current Students + Recent Graduates

*** Universit^Student_St = University + Student Status

Table 5. Two-Way ANOVA with Interaction for University and Student Status
Dependent Variable Question 11: Confidence Teaching Human Sexuality

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	53.8550781	10.7710156	11.82	<.0001
Error	277	252.5053460	0.9115716		
Corrected Total	282	306.3604240			

R-Square	Coeff Var	Root MSE	Question 11 Mean		
0.175790	26.99279	0.954763	3.537102		

Source	DF	Type I SS	Mean Square	F Value	Pr > F
University	2	13.71051568	6.85525784	7.52	0.0007
Student Status	1	24.87498083	24.87498083	27.29	<.0001
Universit^Student Status	2	15.26958155	7.63479078	8.38	0.0003

Source	DF	Type III SS	Mean Square	F Value	Pr > F
University	2	15.30505433	7.65252717	8.39	0.0003
Student Status	1	16.16098200	16.16098200	17.73	<.0001
Universit^Student Status	2	15.26958155	7.63479078	8.38	0.0003

Notes:

* University = University of Illinois + Illinois State University + Eastern Illinois University

** Students Status = Current Students + Recent Graduates

*** Universit^Student_St = University + Student Status

Table 6. Testing the Equality of Means for Current Students and Recent Graduates
Question 7: (Confidence Teaching Physical Fitness)

Student Status	N	Mean	Std Dev	Std Err	Minimum	Maximum	
Current	163	4.2209	0.8680	0.0680	1.0000	5.0000	
Recent	120	4.1083	0.8773	0.0801	2.0000	5.0000	
Diff (1-2)		0.1125	0.8719	0.1049			

Student Status	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Current		4.2209	4.0866	4.3551	0.8680	0.7829	0.9740
Recent		4.1083	3.9498	4.2669	0.8773	0.7786	1.0049
Diff (1-2)	Pooled	0.1125	-0.0939	0.3190	0.8719	0.8054	0.9505
Diff (1-2)	Satterthwaite	0.1125	-0.0944	0.3194			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	281	1.07	0.2842
Satterthwaite	Unequal	255.02	1.07	0.2851

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	119	162	1.02	0.8935

Notes:

* If Folded F P-Value >.05 then must use Pooled or Equal Variance

** If Folded F P-Value <.05 then must use Satterthwaite or Unequal

Table 7. Testing the Equality of Means for Current Students and Recent Graduates

Question 8: (Confidence Teaching Obesity Prevention)

Student Status	N	Mean	Std Dev	Std Err	Minimum	Maximum
Current	163	4.1411	0.8453	0.0662	1.0000	5.0000
Recent	120	3.3417	0.9744	0.0890	1.0000	5.0000
Diff (1-2)		0.7994	0.9022	0.1085		

Student Status	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Current		4.1411	4.0104	4.2718	0.8453	0.7624	0.9486
Recent		3.3417	3.1655	3.5178	0.9744	0.8648	1.1161
Diff (1-2)	Pooled	0.7994	0.5858	1.0131	0.9022	0.8334	0.9836
Diff (1-2)	Satterthwaite	0.7994	0.5810	1.0179			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	281	7.37	<.0001
Satterthwaite	Unequal	234.51	7.21	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	119	162	1.33	0.0929

Notes:

*   If Folded F P-Value >.05 then must use Pooled or Equal Variance

** If Folded F P-Value <.05 then must use Satterthwaite or Unequal

Table 8. Testing the Equality of Means for Current Students and Recent Graduates

Question 9: (Confidence Teaching Nutrition Information)

Student Status	N	Mean	Std Dev	Std Err	Minimum	Maximum
Current	163	3.8282	0.8861	0.0694	1.0000	5.0000
Recent	120	2.8167	0.8791	0.0803	1.0000	5.0000
Diff (1-2)		1.0116	0.8831	0.1062		

Student Status	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Current		3.8282	3.6912	3.9653	0.8861	0.7992	0.9943
Recent		2.8167	2.6578	2.9756	0.8791	0.7802	1.0070
Diff (1-2)	Pooled	1.0116	0.8025	1.2207	0.8831	0.8158	0.9627
Diff (1-2)	Satterthwaite	1.0116	0.8026	1.2205			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	281	9.52	<.0001
Satterthwaite	Unequal	257.69	9.53	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	162	119	1.02	0.9334

Notes:

*   If Folded F P-Value >.05 then must use Pooled or Equal Variance

** If Folded F P-Value <.05 then must use Satterthwaite or Unequal

Table 9. Testing the Equality of Means for Current Students and Recent Graduates

Question 10: (Confidence Teaching Drug Prevention)

Student Status	N	Mean	Std Dev	Std Err	Minimum	Maximum
Current	163	3.8466	0.9531	0.0747	1.0000	5.0000
Recent	120	2.5083	0.8696	0.0794	1.0000	5.0000
Diff (1-2)		1.3383	0.9187	0.1105		

Student Status	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Current		3.8466	3.6992	3.9940	0.9531	0.8597	1.0695
Recent		2.5083	2.3511	2.6655	0.8696	0.7718	0.9961
Diff (1-2)	Pooled	1.3383	1.1208	1.5558	0.9187	0.8486	1.0015
Diff (1-2)	Satterthwaite	1.3383	1.1237	1.5528			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	281	12.11	<.0001
Satterthwaite	Unequal	268.37	12.28	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	162	119	1.20	0.2902

Notes:

*   If Folded F P-Value >.05 then must use Pooled or Equal Variance

** If Folded F P-Value <.05 then must use Satterthwaite or Unequal

Table 10. Testing the Equality of Means for Current Students and Recent Graduates

Question 11: (Confidence Teaching Human Sexuality)

Student Status	N	Mean	Std Dev	Std Err	Minimum	Maximum
Current	163	3.7853	1.0107	0.0792	1.0000	5.0000
Recent	120	3.2000	0.9924	0.0906	1.0000	5.0000
Diff (1-2)		0.5853	1.0030	0.1206		

Student Status	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Current		3.7853	3.6289	3.9416	1.0107	0.9116	1.1342
Recent		3.2000	3.0206	3.3794	0.9924	0.8808	1.1367
Diff (1-2)	Pooled	0.5853	0.3478	0.8228	1.0030	0.9265	1.0934
Diff (1-2)	Satterthwaite	0.5853	0.3484	0.8222			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	281	4.85	<.0001
Satterthwaite	Unequal	259.13	4.86	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	162	119	1.04	0.8379

Notes:

*   If Folded F P-Value >.05 then must use Pooled or Equal Variance

** If Folded F P-Value <.05 then must use Satterthwaite or Unequal

Table 11. Scale Reliability for Question 7 – Question 11

Cronbach Coefficient Test

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
Question_7	283	4.17314	0.87218	1181	1.00000	5.00000
Question_8	283	3.80212	0.98377	1076	1.00000	5.00000
Question_9	283	3.39929	1.01388	962.00000	1.00000	5.00000
Question_10	283	3.27915	1.13135	928.00000	1.00000	5.00000
Question_11	283	3.53710	1.04230	1001	1.00000	5.00000

Cronbach Coefficient Alpha

Variables	Alpha
Raw	0.783113
Standardized	0.779602

Cronbach Coefficient Alpha with Deleted Variable

Deleted Variable	Raw Variables Correlation with Total	Alpha	Standardized Variables Correlation with Total	Alpha
Question_7	0.372234	0.795743	0.374781	0.795979
Question_8	0.596666	0.730429	0.596292	0.724325
Question_9	0.633975	0.717150	0.626620	0.713855
Question_10	0.624753	0.719733	0.617056	0.717174
Question_11	0.570711	0.738645	0.565186	0.734896

Notes:

* $\geq$ .70 considered acceptable

**   Raw = Based upon item correlation. The stronger the items are inter-related, the more likely the test is consistent

*** Standardized = Based upon item covariance. The higher the correlation coefficient the higher the covariance.

Table 12. Testing the Equality of Instructional Confidence Means for Current Students and Recent Graduates

Student Status	N	Mean	Std Dev	Std Err	Minimum	Maximum
Current	163	3.9644	0.7490	0.0587	1.0000	5.0000
Recent	120	3.1950	0.4388	0.0401	2.2000	4.2000
Diff (1-2)		0.7694	0.6364	0.0765		

Student Status	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Current		3.9644	3.8486	4.0803	0.7490	0.6755	0.8404
Recent		3.1950	3.1157	3.2743	0.4388	0.3895	0.5027
Diff (1-2)	Pooled	0.7694	0.6187	0.9201	0.6364	0.5878	0.6937
Diff (1-2)	Satterthwaite	0.7694	0.6296	0.9093			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	281	10.05	<.0001
Satterthwaite	Unequal	268.76	10.83	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	162	119	2.91	<.0001

Notes:

*   If Folded F P-Value >.05 then must use Pooled or Equal Variance

** If Folded F P-Value <.05 then must use Satterthwaite or Unequal

The results of the two-way ANOVA test were found to be consistent when compared with the same data undergoing a standardized *t*-test comparing Current Students to Recent Students. In addition, the Folded F Statistic, a label of sample variance used within *SAS,* means if the F statistic (F') is >.05, then the variance is equal and the Pooled *t*-test result is valid. If F' is <.05 then the variance is unequal and the Satterthwaite *t*-test result is valid.   The results of the analyses can be found below (see Tables 6-10):

Q7.   (F' = .8935) Pooled *t*-test *(p = .2842)*   Q10.   (F' = .2902) Pooled *t*-test *(p <.0001)*

Q8.   (F' = .0929) Pooled *t*-test *(p <.0001)*   Q11.   (F' = .8379) Pooled *t*-test *(p <.0001)*

Q9.   (F' = .9334) Pooled *t*-test *(p <.0001)*

Additionally, those students who listed their major as K-12 education displayed the highest overall levels of instructional confidence across the selected health topics (*M* = 3.863, *SD* = 1.02) and those who listed their majors as Coaching Administration displayed the lowest overall levels of instructional confidence across the selected health topics (*M* = 3.167, *SD* = 1.50).

4. Conclusion and Recommendations

While the findings of this study cannot be generalized across the entire physical education population, or even the complete physical education population in Illinois, there is sufficient evidence to support the argument that students who are currently enrolled in pre-service physical education courses do have instructional confidence levels that are significantly different than their in-service physical education peers. The findings in this study also support previous studies conducted by Schulte (2008), Snyder (2005), Renn (2008), and Yingling (2000) that currently enrolled students, regardless of discipline, will display higher levels of confidence than their recently graduated peers.

As shown in the analysis of Q2 (Overall Curricular Satisfaction), current students had an above average mean response which was found to be significantly different when compared to recent graduates responses *(p = .0037)*. These findings also support the research of Schulte (2008) and Taylor (1990), who found that currently enrolled students displayed higher levels of satisfaction and confidence than their in-service counterparts. While the case for instructors teaching outside of their chosen discipline is uncommon in most fields, for K-12 physical education instructors it is becoming the norm (JOPERD, 2012; Sirna, Tinning, & Rossi, 2010). With that knowledge and these preliminary findings, a case could be made for curricular revision that not only addresses the physical education pedagogy aspects, but also emphasizes the health education pedagogy aspects across the most current salient topics. Additionally, the ANOVA findings for Q7 should not be seen as an anomaly as the students and graduates being surveyed were primarily trained in physical education. With Q7 asking participants, "Based on my training from my Health Endorsement coursework, I would feel confident teaching a lesson (Grades 9-12) regarding physical fitness." It is expected that participants who are primarily trained as physical education instructors would feel the most confident with this subject matter, hence the reason why it was statistically non-significant in both tests.

While the topics chosen for this survey are the broadest and most commonly used in state and federal testing, there are many other areas of health education that were not addressed (bullying, environmental health, etc.), and it is likely that these topics will come to be of greater interest as the years progress. Instructors entering the classroom with a false sense of confidence in their teaching abilities may also help to explain the rise in social norms serving as a primary source of information for adolescents and young adults (Centers for Disease Control, 2009; Jones, 2011; Wright, 2007). However, this study and its findings should not be construed as anything more than preliminary. Further testing using the HECS will need to occur at other universities throughout the country to support these early findings.

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Forms

Form A.

Health Education Confidence Survey (HECS) Current Students

University of Illinois at Urbana- Champaign

Confidence Survey

Directions:

This survey is entirely optional. I would like your feedback on how well you believe your Kinesiology/Physical Education and/or Health Endorsement curriculum has prepared you for your work as a health educator.   Please review and answer the following questions to the best of your ability.

Please rate your agreement with the following statements about your Kinesiology & Physical Education program and/or Health Endorsement coursework
on a scale of 1 to 5 <u>with</u> 1 being strongly disagree and 5 being strongly agree:

STATEMENT
(Q1) Are you working towards a health education teaching endorsement (Illinois State Board of Education Health Endorsement: A health endorsement is a statement appearing on a certificate that identifies the specific subject (in this case Health Education) and/or grade level that the certificate holder is authorized to teach based on specific health education coursework completed.) Yes –- No – Not Sure
(Q2) My curriculum will expose me to all of the content (Physical Fitness, Obesity Prevention, Nutrition, Illicit Drug Use, Human Sexuality) I will need to teach health education effectively in grades 9-12 1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree
(Q3) I feel confident that my Health Endorsement coursework will prepare me to teach health education (9-12) effectively 1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree
(Q4) I have a good idea of what health education jobs I might be able to obtain when I complete the Kinesiology/Physical Education program

1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree

(Q5) My undergraduate Kinesiology/Physical Education program has provided

continuing education to me as a health educator

1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree

(Q6) For those interested in teaching school (K-12) health education,

I would recommend my Kinesiology/Physical Education program

1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree

(Q7) Based on training from my Health Endorsement coursework,

I would feel confident teaching a lesson (Grades 9-12) regarding physical fitness

(Expected Learning Objectives: Apply Concepts Related To

Moving, Physical Fitness, and Foster Lifelong Physical Fitness Aspirations, etc.)

Pangrazi, R. (2009). *Dynamic Physical Education for Elementary School Children (16th Edition).*

1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree

(Q8) Based on training from my Health Endorsement coursework,

I would feel confident teaching a lesson (Grades 9-12) regarding obesity prevention

(Expected Learning Objectives: Understanding the Health Outcomes of Overweight/Obesity at all Ages,

Explaining Safe Methods of Weight Management, etc.)

McKenzie, J. (2007). An Introduction to Community Health (6th Edition).

1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree

(Q9) Based on training from my Health Endorsement coursework,

I would feel confident teaching a lesson (Grades 9-12) regarding nutrition

(Expected Learning Objectives: Explain Benefits of Healthy Foods vs. Less Healthy,

Develop Skills Needed For Informed Nutritional Choices, etc.)

Wardlaw, G. (2010). Contemporary Nutrition (7th Edition).

1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree

(Q10) Based on training from my Health Endorsement coursework,

I would feel confident teaching a lesson (Grades 9-12) regarding the dangers of illicit drug use

(Expected Learning Objectives: Current Levels of Licit & Illicit Drug Use, Development of Peer-Refusal Skills,

Consequences of Drug Use Licit or Illicit, etc.)

Levinthal, C. (2010) Drugs, Behavior, and Modern Society (7th Edition).

1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree

(Q11) Based on training from my Health Endorsement coursework,

I would feel confident teaching a lesson (Grades 9-12) regarding human sexuality

(Expected Learning Objectives: Explain how HIV and other STDs are Transmitted, Develop Peer-Refusal Skills,

Explain Proper Contraception Usage, etc.)

Rathus, S. (2010). Human Sexuality in a World of Diversity (8th Edition).

1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree

(Q12) I feel that the health topics covered in my health education courses are presented in sufficient depth and detail to adequately prepare me to teach health education in (Grades 9-12) school settings

(See Above For Examples of Learning Objectives)

1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree

(Q13) I feel more health education courses should be required to earn a health teaching endorsement

1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree

Q14) Are you a member of one or more of the following organizations (SHES, APHA, AAHPERD, IAHPERD

Yes –- No – Other (Please List →)

(Q15) Your Gender

Female – Male

(Q16) As a Kinesiology/Physical Education major, my primary focus is…

K-12 Teaching – Physical Education – Health Education – Biomechanics – Coaching/Administration – Undecided – Other

(Q17) What year do you plan to graduate

2012 – 2013 – 2014 – 2015 – 2016

Form A Cont.

(Q18) Do you feel there should be more health education topic areas discussed than just Q7 – Q11?
(Physical Fitness, Obesity Prevention, Nutrition, Illicit Drug Use, Human Sexuality)

Yes – No

If You Answered Yes to the Last Question (Q18),

Please Elaborate Which Topics You Believe Should Be Included In Health Education Curricula

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Thank you for completing this survey!

*** If you would like a copy of this survey or would like to express any feelings regarding this survey please contact:*

Form B.

Health Education Confidence Survey (HECS) Recent Graduate_____

University of Illinois at Urbana- Champaign

Confidence Survey

Directions:

This survey is entirely optional. I would like your feedback on how well you believe your Kinesiology/Physical Education and/or Health Endorsement curriculum has prepared you for your work as a health educator.   Please review and answer the following questions to the best of your ability.

Form B Cont.

Please rate your agreement with the following statements about your Kinesiology & Physical Education program and/or Health Endorsement coursework
on a scale of 1 to 5 <u>with</u> 1 being strongly disagree and 5 being strongly agree:

STATEMENT
(Q1) Do you currently hold a health education teaching endorsement (Illinois State Board of Education Health Endorsement: A health endorsement is a statement appearing on a certificate that identifies the specific subject (in this case Health Education) and/or grade level that the certificate holder is authorized to teach based on specific health education coursework completed.) Yes –- No – Not Sure
(Q2) My curriculum exposed me to all of the content (Physical Fitness, Obesity Prevention, Nutrition, Illicit Drug Use, Human Sexuality) **I needed to teach health education effectively in grades 9-12** 1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree
(Q3) I feel confident that my Health Endorsement coursework **prepared me to teach health education (9-12) effectively** 1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree
(Q4) I had a good idea of what health education jobs I might be able to obtain **when I complete the Kinesiology/Physical Education program** 1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree
(Q5) My undergraduate Kinesiology/Physical Education program has provided **continuing education to me as a health educator** 1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree
(Q6) For those interested in teaching school health education, **I would recommend my Kinesiology/Physical Education program** 1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree
(Q7) Based on training from my Health Endorsement coursework, **I feel confident teaching a lesson (9-12) regarding physical fitness** (Expected Learning Objectives: Apply Concepts Related To Moving, Physical Fitness, and Foster Lifelong Physical Fitness Aspirations, etc.) Pangrazi, R. (2009). *Dynamic Physical Education for Elementary School Children (16th Edition).* 1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree
(Q8) Based on training from my Health Endorsement coursework, **I feel confident teaching a lesson (9-12) regarding obesity prevention** (Expected Learning Objectives: Understanding the Health Outcomes of Overweight/Obesity at all Ages, Explaining

Safe Methods of Weight Management, etc.)
McKenzie, J. (2007). An Introduction to Community Health (6th Edition).
1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree
(Q9) Based on training from my Health Endorsement coursework,
I feel confident teaching a lesson (9-12) regarding nutrition
(Expected Learning Objectives: Explain Benefits of Healthy Foods vs. Less Healthy,
Develop Skills Needed For Informed Nutritional Choices, etc.)
Wardlaw, G. (2010). Contemporary Nutrition (7th Edition).
1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree
(Q10) Based on training from my Health Endorsement coursework,
I feel confident teaching a lesson (9-12) regarding the dangers of illicit drug use
(Expected Learning Objectives: Current Levels of Licit & Illicit Drug Use, Development of Peer-Refusal Skills,
Consequences of Drug Use Licit or Illicit, etc.)
Levinthal, C. (2010) Drugs, Behavior, and Modern Society (7th Edition).
1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree
(Q11) Based on training from my Health Endorsement coursework,
I feel confident teaching a lesson (9-12) regarding human sexuality
(Expected Learning Objectives: Explain how HIV and other STDs are Transmitted, Develop Peer-Refusal Skills,
Explain Proper Contraception Usage, etc.)
Rathus, S. (2010). Human Sexuality in a World of Diversity (8th Edition).
1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree
(Q12) I feel that the health topics covered in my health courses were presented in sufficient depth and detail
to adequately prepare me to teach health education in (9-12) school settings
(See Above For Examples of Learning Objectives)
1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree
(Q13) I feel more health education courses should be required to earn the health endorsement
1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree
Q14) Are you a member of one or more of the following organizations (SHES, APHA, AAHPERD, IAHPERD)
Yes –- No – Other (Please List)
(Q15) Your Gender
Female – Male

(Q16) As a Kinesiology/Physical Education major, my primary focus was in…

K-12 Teaching – Physical Education – Health Education – Biomechanics – Coaching/Administration – Undecided – Other

(Q17) What year did you graduate

2005 – 2006 – 2007 – 2008 – 2009 – 2010 – 2011

(Q18) Does your current employer require you teach Abstinence-Only sexual education?

Yes – No – Uncertain

(Q19) Do you feel there should be more health education topic areas discussed than just Q7 – Q11?
(Physical Fitness, Obesity Prevention, Nutrition, Illicit Drug Use, Human Sexuality)

Yes – No

If You Answered Yes to the Last Question (Q18),
Please Elaborate Which Topics You Believe Should Be Included In Health Education Curricula

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Thank you for completing this survey!

** If you would like a copy of this survey or would like to express any feelings regarding this survey please contact: