General Education Program

Center for Assessment and Research Studies

Cluster 5:
Individuals in the Human Community

Assessment Report
Fall 2013 – Spring 2015 Cohort

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STRUCTURE OF CLUSTER 5

Since Fall 2003, students have been expected to complete Cluster 5 General Education course requirements by completing 3 credit hours (1 course) in each of the two Cluster 5 domains. Courses can be taken in any order with the expectation coursework is completed by the end of sophomore year. The two domains within Cluster 5 are the Sociocultural (SC) domain and the Wellness and Health (WH) domain. Course options for the SC domain include GPSYC101: General Psychology, GPSYC160: Life Span Human Development, and GSOCI140: Microsociology: The Individual in Society. Course options for the WH domain include GHTH100: Personal Wellness, and GKIN100: Lifetime Fitness and Wellness.

In the following sections, for each domain of Cluster 5, the goals and objectives agreed upon by domain faculty are reviewed, and assessment results from the Fall 2013 cohort of students are examined. These students completed assessments just before their first semester at JMU, in August of 2013, and then again after completing 40-75 credit hours (2nd semester of sophomore year) in February 2015. Fall 2013, Spring 2015, and change scores are examined throughout this report.

SC-I. SOCIOCULTURAL GOALS AND OBJECTIVES

After completing the SC component of the Cluster 5 course requirements, students should be able to know, think and do the following objectives, subsumed under three general goals:

Goals		Objectives		Item Numbers
1	Understand how individual and sociocultural factors interact in the development of the beliefs, behaviors, and experiences of oneself and others.	**a**	Identify multiple causes for the adoption of particular beliefs and behaviors.	STPA2 (all)
		b	Identify how worldviews affect the adoption of particular beliefs and behavior.	STPA2 (all)
		c	Identify possible consequences or implications of the adoption of particular beliefs and behaviors.	STPA2 (all)
2	Discern the extent to which sources of information about the socio-cultural domain are reputable and unbiased.	**a**	Recognize the criteria that constitute reputable sources	SDA7: 1, 2, 10, 12, 26, 29
		b	Discriminate between reputable and non-reputable sources of information	SDA7:
		c	Identify potential bias in sources of information	SDA7:
		d	Recognize potential for a group/individual's perspectives (biases) to influence their selection of sources of information	SDA7: 21
3	Evaluate the extent to which the approach to, and uses of, psychosocial research are ethical and appropriate.	**a**	Identify if the research methods used in a study were the most suitable for answering the research questions posed	SDA7: 3, 6, 23
		b	Identify if and what improvements could be made to a study's design to strengthen the inferences made from the study's results	SDA7: 4, 7, 9
		c	Identify procedures for protection of participant well-being	SDA7: 11, 16, 19, 22, 24, 27
		d	Discern populations/situations to which findings may be generalized	SDA7: 18, 20, 25

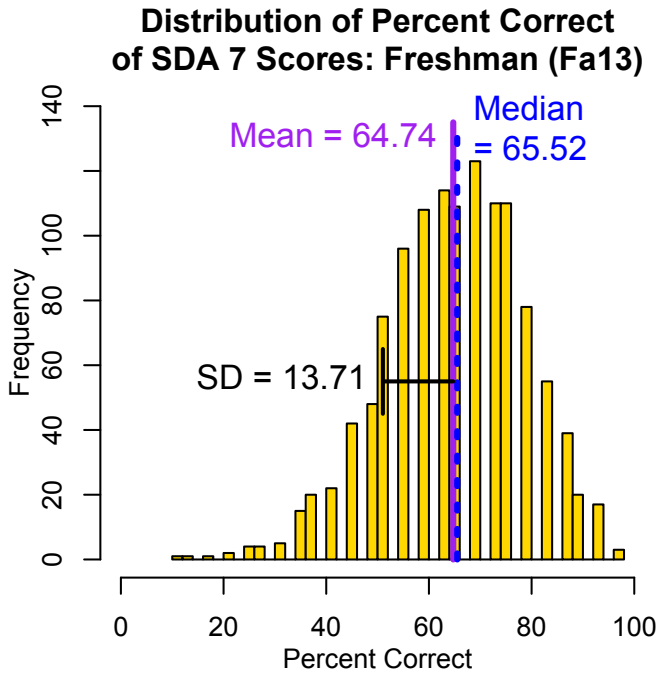
SC-II. SDA ADMINISTRATION HISTORY

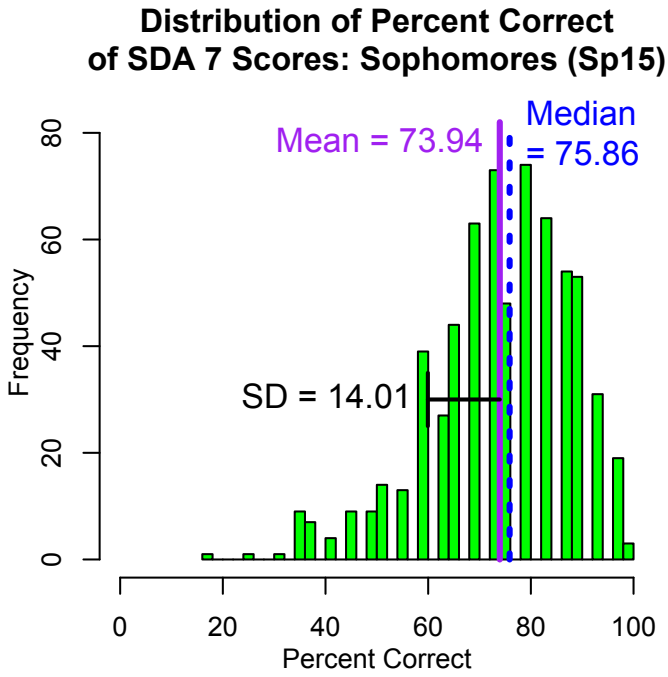
The goals and objectives of the SC domain map onto two assessment instruments: the Sociocultural Domain Assessment – Version 7 (SDA7, a multiple choice test), and the newly adapted Sociocultural Thought Process Assessment – Version 2 (STPA2, a short essay test). The SDA7 captures SC Domain Goals 2 and 3, whereas the STPA2 addresses the first goal. The STPA2 was not administered in Fall 2013, and thus will not be discussed in this year's report. For brevity, only the last eight years of the administration history of the SDA is shown below. Note the numbers of students who were administered the SDA7 in Fall 2013 and Spring 2015 are highlighted in yellow.

Administration	Sample	# Items	SDA Version	# of Students
Fall 2006	Incoming Freshmen	44	SDA5	1089
Spring 2007	2nd semester Sophomores	44	SDA5	570
Fall 2007	Incoming Freshmen	44	SDA5 MGUDS –72 MASQUE	1273 441 301
Spring 2008	2nd semester Sophomores	44	SDA5	828
Fall 2008	Incoming Freshman	32 10 31 8	SDA6 BFS SEE STPA	1014 999 943 46
Spring 2009	2nd semester Sophomores	44	SDA5 MGUDS –72 MASQUE	839 660 562
Fall 2009	Incoming Freshmen	32 10 31 6	SDA6 BFS SEE STPA2	910 887 874-892 54
Spring 2010	2nd semester Sophomores	32 10 31 8	SDA6 BFS SEE STPA	883 877 882 44
Fall 2010	Incoming Freshmen	32 40	SDA6 GPI	962 963
Spring 2011	2nd semester Sophomores	32 10 31 40 8	SDA6 BFS SEE GPI STPA2	742 742 742 286 106
Fall 2011	Incoming Freshmen	32	SDA6	903
Spring 2012	2nd semester Sophomores	32	SDA6	811
Fall 2012	Incoming Freshmen	29	SDA7	2402
Spring 2013	2nd semester Sophomores	32	SDA6	804
Fall 2013	Incoming Freshmen	29	SDA7	1039
Spring 2014	2nd semester Sophomores	29	SDA7	1287
Fall 2014	Incoming Freshmen	29	SDA7	1222
Spring 2015	2nd semester Sophomores	29	SDA7	660

SC-III. SDA7 SCORES FOR FA13-SP15 COHORT

The scores from each occasion of measurement are plotted below. On the left is the distribution of scores (percentage correct out of 29 items) from the $N = 1039$ students administered the SDA7 in August of 2013, just before their first semester at JMU. On the right is the distribution of scores from the $N = 660$ students who completed the SDA7 in February 2015. Note that some of these students are the same as in the fall sample, and some are not, because at each time point students are randomly chosen for each Assessment Day instrument.





In the histograms, incoming freshman get approximately 65% of the SDA7 items correct on average. The large standard deviation indicates there is a lot of variation between students in test scores. Scores from the same cohort of students in their second semester of sophomore year also have a large standard deviation. Note that as sophomores, students tend to perform better on the SDA7 than as incoming freshmen. Sophomores answered approximately 74% of the items on the SDA7 correctly.

These plots include both students who have satisfied the Cluster 5 course requirements and students who have not. Thus, we cannot conclude that SC courses aid in facilitating the student learning objectives linked to the SDA7 just yet. However, in general, students are improving on the SDA7 from just before freshmen year to the end of sophomore year.

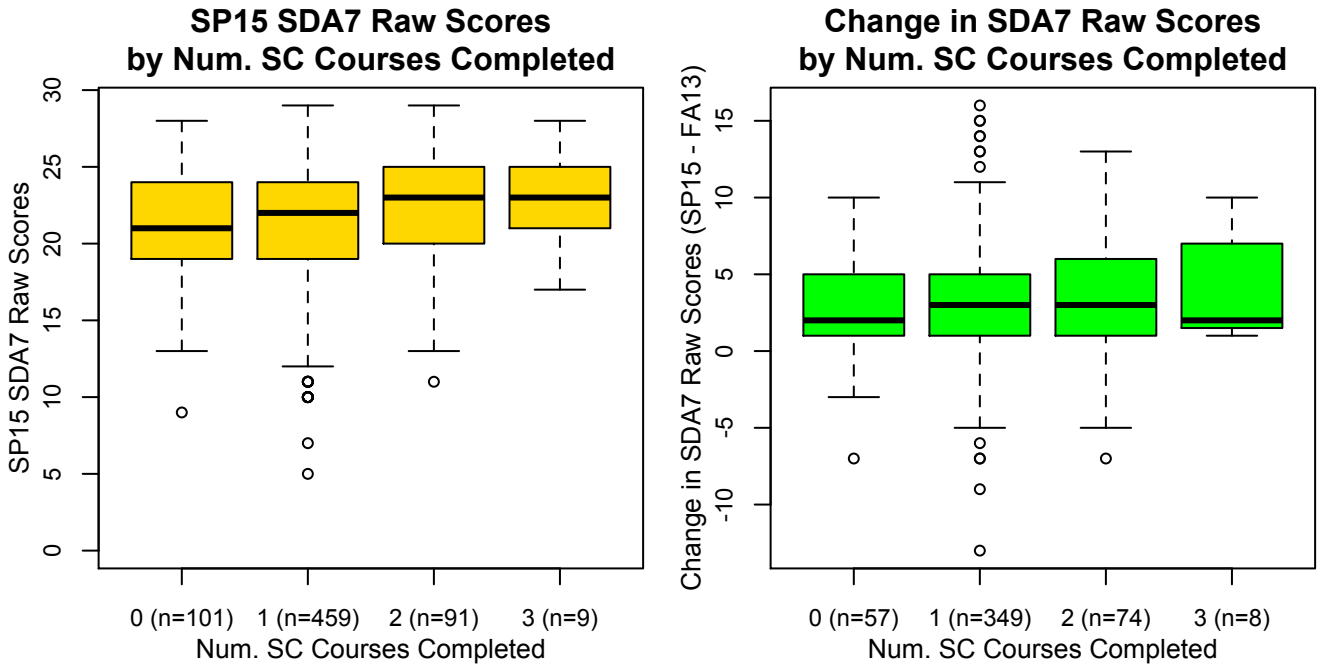
SC-IV. SDA7 SCORES BY NUMBER OF SC COURSES COMPLETED

To better understand how SC courses contribute to student gains on the SDA7, two sets of scores were examined. First, Spring 2015 scores on the SDA7 were examined to determine where students "end up" in their sophomore year, and how this differs by the number of SC courses they've taken.

Second, change scores were calculated for each student with SDA7 data at both measurement occasions (as incoming freshmen and again as 2nd semester sophomores). For each student, a change score was calculated as: SDA7 Score in Spring 2015 – SDA7 Score in Fall 2013. For example, if Sally received a

20 on the SDA7 as an incoming freshman and then received a 25 upon retaking the test in the 2nd semester of her sophomore year, her change score would be 5. In other words, she answered 5 more items correctly.

Both Spring 2015 scores and change scores are plotted by the number of SC courses completed below.



Each box represents a distribution of scores. For example, the left-most gold box in the plots above represents the distribution of Spring 2015 SDA7 scores for students who did not take any SC courses during the first three semesters of college. The thick black line in the middle of the box represents the median, the lower edge of the box indicates where the 25th percentile is (25% of scores are lower than this), the upper edge indicates where the 75th percentile is, and the "whiskers" represent the maximum and minimum scores without outliers. Any points beyond the whiskers are potential outliers. These plots allow us to see differences in medians between groups of people while visualizing the variance or spread in each distribution.

Looking at the plot on the left, we see the median SDA7 score earned in Spring 2015 increases with the number of SC courses taken. Students who have completed more SC courses by the second semester of their sophomore year earn higher scores on average than students who take less SC courses. This information is also summarized as means, medians, and standard deviations in the table below. The mean SDA7 score in Spring 2015 increases with the number of SC courses completed, although this increase is very small (much smaller than a standard deviation for any of the groups).

# SC Courses Completed	N	SP15: SDA7 Raw Scores		
		Mean	Median	SD
0 Courses	101	20.95	21.00	3.66
1 Course	459	21.30	22.00	4.20
2 Courses	91	22.55	23.00	3.66
3 Courses	9	23.00	23.00	3.57

The plot on the right displays the same information, but for change in SDA7 scores. The left-most green box indicates on average, students who do not complete any SC courses before the second semester of their sophomore year answer 2 to 3 more SDA7 items correctly in the second semester of their sophomore year compared to just before their freshman year.

The same information is reported as means, medians, and standard deviations in the following table. Students who have completed more SC courses by the second semester of their sophomore year evidence slightly larger gains, on average, than students who complete fewer SC courses; however this trend is very slight, and any differences between groups are much smaller than the group standard deviations. Also note that the distribution of scores for the group of people who completed three SC courses is skewed, likely because of the small number of people in this group. Thus, the mean for this group is not as precise as the means of the larger groups, and any comparisons made with this group should be interpreted with caution.

# SC Courses Completed	N	Change: SDA7 Raw Scores		
		Mean	Median	SD
0 Courses	57	2.67	2.00	3.41
1 Course	349	2.71	3.00	3.80
2 Courses	74	3.23	3.00	3.94
3 Courses	8	4.00	2.00	3.63

**Note.* Change score = SP15 score – FA13 score

SC-V. RELATIONSHIPS BETWEEN SDA7 SCORES AND SC COURSE GRADES

If course grades and SDA7 scores are measuring the same things, such as the SC Domain objectives, then these scores should be positively and moderately related. Correlations between Spring 2015 SDA7 raw scores (number correct) and course grades in each of the three SC courses are reported in the left hand side of the table below.

Correlation coefficients, denoted *r*, can range from -1, indicating a perfect inverse relationship (individuals with high course grades have low SDA7 scores), to +1, indicating a perfect positive relationship (individuals with high course grades have high SDA7 scores). The closer the value of the correlation is to +/-1, the stronger the relationship between the two sets of scores. If the correlation value is close to zero, the relationship is very weak. In the table below, *r* denotes the correlation values, *N* is the number if individuals with both course grades and SDA7 scores, and *p* denotes the statistical significance of the correlation. R2 is the correlation coefficient squared. This value tells us what proportion of variance the two sets of scores share. For example, course grades in GPSYC 101 explain 6% of the variance in SDA7 scores.

The correlations between SC course grades and Spring 2015 SDA7 scores are all positive, indicating students with higher course grades in each of the three SC courses also have higher SDA7 scores. The correlation values are moderate for GPSYC 101 and 160 grades and the value for GSOCI 140 is high, although this must be interpreted with caution given the low group size. This evidence supports the idea that SC course grades and SDA7 scores are both measuring approximately the same, or at least similar skills and knowledge.

	Correlation: Course Grades and SP15 SDA7 Scores				Correlation: Course Grades and SDA7 Change Scores			
Course	***r***	***N***	***p***	***R²***	***r***	***N***	***p***	***R²***
GPSYC 101	.25	149	.01	.06	-.03	130	1.00	.00
GPSYC 160	.24	336	<.01	.06	.01	272	1.00	.00
GSOCI 140	.45	37	.02	.20	.22	30	1.00	.05

Also of interest is the relationship between SC course grades and change scores on the SDA7, calculated as SDA7 Score Spring 2015 – SDA7 Score Fall 2013. If these correlation coefficients are positive, it indicates that students with higher SC course grades also improve more on the SDA7 from Fall

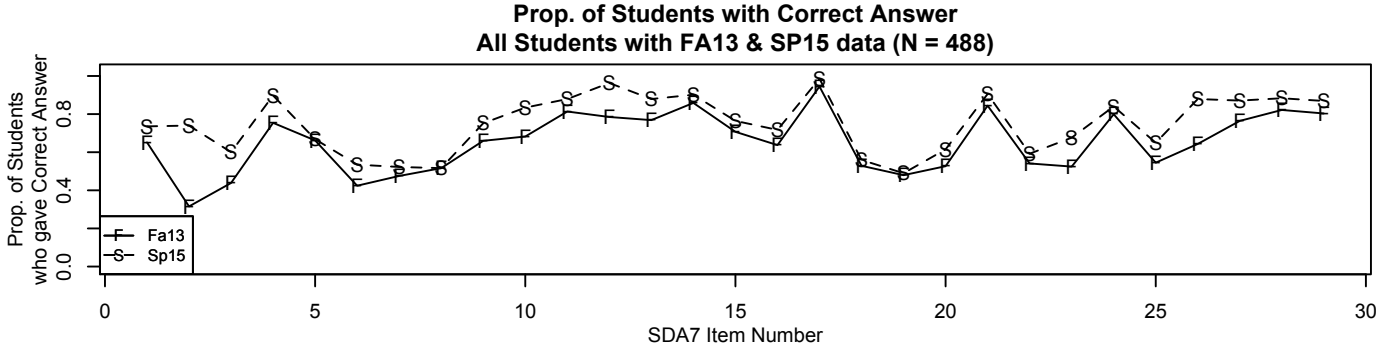
2103 to Spring 2015. For GPSYC 101 and 160, these values are near zero, indicating no relationship between SC course grades and improvement on the SDA7. For GSOCI 140, course grades are moderately related to change scores on the SDA7, however, given the small number of students contributing to this correlation, this value may not be as accurate as the other correlation coefficients.

SC-VI. SDA7 FA13 VS. SP15 PERFORMANCE: INFORMATION FOR COURSES

A.) All Students with Fall 2013 and Spring 2015 Data

Data for all students that were administered the SDA7 in both Fall 2013 and Spring 2015 is plotted below. SDA7 items, by item number, are along the x-axis, and proportion of students who answered each item correctly (out of 488) is along the y-axis. There are two lines on the plot. The solid line with points denoted by the letter "F" represents the proportion of the 488 students who took the SDA7 in Fall 2013 and answered each item correctly. For example, approximately 65% of the students answered item 1 correctly in Fall 2013. The dashed line with points denoted by the letter "S" represents the proportion of the same 488 students who answered each item correctly in Spring 2015. For example, approximately 75% of the students answered item 1 correctly in the spring semester. In other words, an additional 10% of students answered the first item on the SDA7 correctly in the second semester of their sophomore year, compared to the beginning of their freshman year. This type of plot allows us to quickly identify which items students are improving on, and whether their spring scores are as high as faculty would like them to be.

Note that the plot below includes students who have completed 0, 1, 2, and 3 SC courses. In the following subsections (B, C, D, E, F, and G), these results are divided by course. Sections B, C, and D examine similar results for students who have completed GPSYC 101, GPSYC 160, and GSOCI 140, respectively. Sections E, F, and G examine results for students who have taken combinations of these courses. First strengths and weaknesses common to all SC courses are discussed below.



Some strengths and weaknesses are evident for all three SC courses. **For a particular item to indicate a *strength* of a course, there must be reasonable gain on that item from Fall 2013 to Spring 2015.** For example, there is a large increase in proportion of students answering item 2 correctly from Fall to Spring across all courses. Thus, item 2 indicates a strength of all SC courses. Looking at the content of that item will help determine what type of content and knowledge the SC courses are addressing well. **For an item to indicate a *weakness* of a course, there must be at most a small amount of gain for that item, and performance across Fall and Spring must remain at or below 60% of students answering the item correctly.** For example, on item 7, there is little to no increase in the proportion of students answering the item correctly from Fall 2013 to Spring 2015 across courses, and both Fall and Spring percentages are at or below 60% across courses. Thus, item 7 indicates a weakness of all SC courses. Again, examining the content of item 7 will aid in determining what knowledge or content is not being covered as effectively as desired in these courses.

Common strengths and weaknesses across all SC courses:

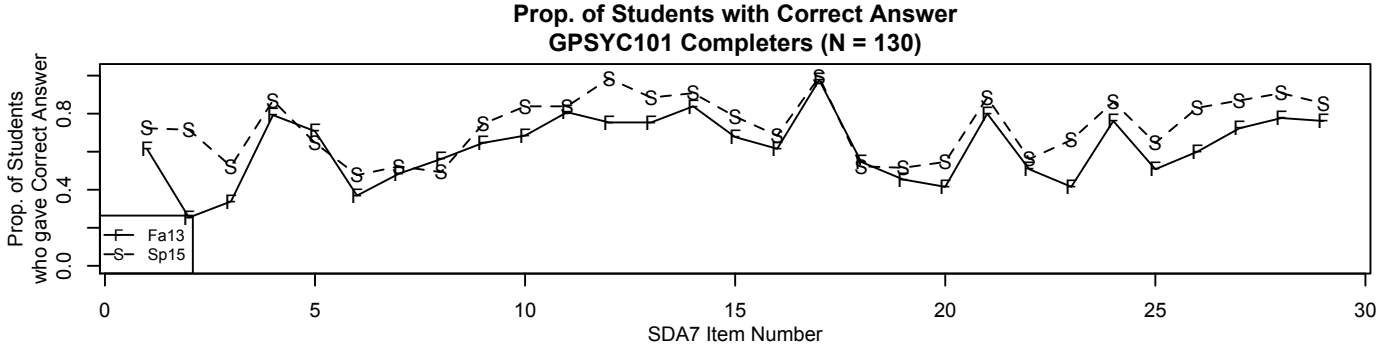
Strengths: All SC Courses	
SDA7 Item #	**Content Area**
2	Sources of information (e.g., credibility of source, choosing best source, etc.)
3	Correlation does not imply causation
10	Sources of information (e.g., credibility of source, choosing best source, etc.)
12	Sources of information (e.g., credibility of source, choosing best source, etc.)
26	Sources of information (e.g., credibility of source, choosing best source, etc.)

Weaknesses: All SC Courses	
SDA7 Item #	**Content Area**
6	Research design (e.g., strengths and weaknesses, operationalization, etc.), and Correlation does not imply causation
7	Research design (e.g., strengths and weaknesses of, operationalization, etc.)
8	Forming effective hypotheses
19	Ethical research practices with human participants
22	Ethical research practices with human participants

In general, all three SC courses are particularly effective at teaching students about choosing the best, most credible, and scientifically rigorous sources of information. Across classes, there are gains of approximately 20% or more from Fall 2013 to Spring 2015 on these items. That is, compared to Fall 2013, an addition 20% or more of students answer these items correctly in Spring 2015, after completing any of the three SC courses. All courses are also very effective in helping students to correctly answer the item that most clearly has to do with the idea that correlation does not imply causation. Approximately an additional 40% of students answered this item correctly in Spring 2015 compared to Fall 2013 across all three courses!

All three SC courses also share a few weaknesses in terms of SDA7 responses. Approximately 60% of students or less answered five items correctly in Spring 2015, and there was little to no increase in the proportion of students who answered these items correctly from Fall 2013 to Spring 2015. Two of these items pertained to research design, one pertained to forming effective hypotheses, and two pertained to the ethical treatment of human participants in research.

B.) Students who Completed GPSYC 101 Before the Spring 2015 Semester



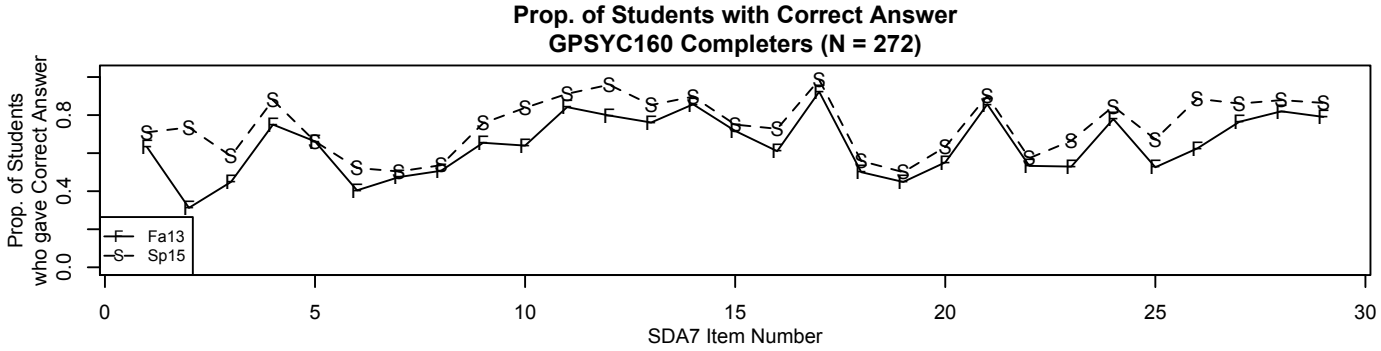
The propotion of students providing the correct answer to each SDA7 item among students who completed GPSYC 101 before Spring 2015 is plotted above. These students may have completed GPSYC 101 alone, or incombination with another SC course. In additional to the general strengths and weaknesses of SC courses, including GPSYC 101, discussed above, there were some strenghts and weaknesses specific to GPSYC 101. These are listed in the tables below.

Strengths Specific to GPSYC 101	
SDA7 Item #	**Content Area**
20	Research design, Generalization of results
23	Research design, Correlation does not imply causation
25	Generalization of results
27	Ethical research practices with human participants
28	Drawing conclusions, Correlation does not imply causation

Weaknesses Specific to GPSYC 101	
SDA7 Item #	**Content Area**
18	Research design, Generalization of results
20	Research design, Generalization of results

In addition to the general strengths and weaknesses of all SC courses, GPSYC 101 is also effective in helping students to correctly answer questions about research design, specifically those pertaining to the generalization of results and the idea that correlation does not imply causation, as well as an item about ethical research practices. The weaknesses specific to GPSYC 101 are associated with items on the generalization of results and aspects of research designs that allow generalization to occur. Note that item 20 is listed as both a strength and a weakness for GPSYC 101. This is because there is a reasonable increase in the proportion of students who have completed GPSYC 101 that answer item 20 correctly from Fall 2013 to Spring 2015; however, even in Spring 2015, this proportion is still under 60%. Note also that there are two items pertaining to the generalization of results in the strengths table for GPSYC 101 and two items pertaining to the same topic in the weaknesses table. Thus, students completing GPSYC 101 seem to retain some knowledge about generalizing results, but fail to retain other pieces of knowledge in this content area.

C.) Students who Completed GPSYC 160 Before the Spring 2015 Semester



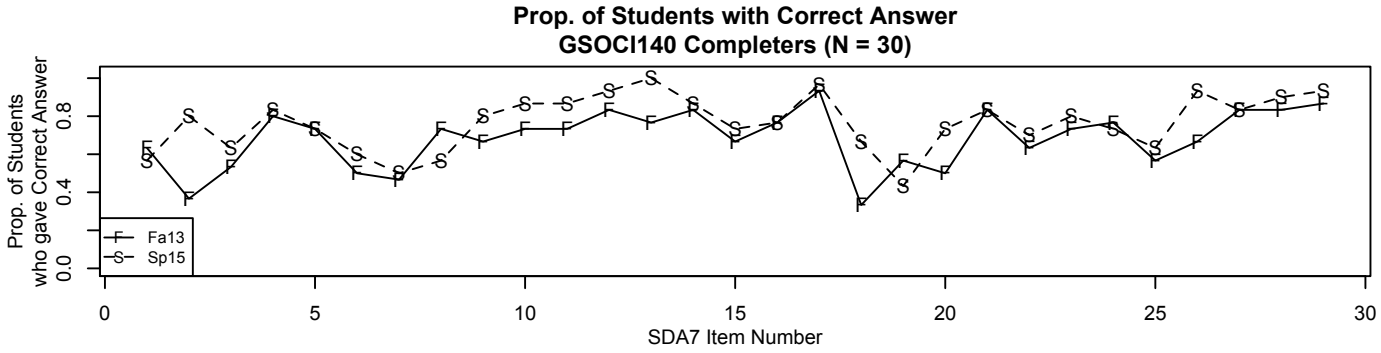
The proportion of students answering each SDA7 item correctly among students who completed GPSYC 160 before Spring 2015 is plotted above. These students may have completed GPSYC 160 alone, or incombination with another SC course. In additional to the general strengths and weaknesses of SC courses discussed above, there were some strenghts and weaknesses specific to GPSYC 160. These are listed in the following tables.

Strengths Specific to GPSYC 160	
SDA7 Item #	**Content Area**
16	Ethical research practices with human participants
23	Research design, Correlation does not imply causation
25	Generalization of results

Weaknesses Specific to GPSYC 160	
SDA7 Item #	**Content Area**
18	Research design, Generalization of results
20	Research design, Generalization of results

In addition to the general strengths and weaknesses of all SC courses, GPSYC 160 is also effective in helping students to correctly answer three questions, one about ethical research practices, one about correlation and causation, and one about generalizing results. The weaknesses specific to GPSYC 160 are the same as those specific to GSPYC 101, and associated with items on the generalization of results and aspects of research designs that allow generalization to occur. Overall, GPSYC 160 appears to have a variety of strengths, but students do not seem to retain the breadth of knowledge on generalization of results that the SDA7 assesses.

D.) Students who Completed GSOCI 140 Before the Spring 2015 Semester



Among students who completed GSOCI 140 before Spring 2015, the proportion of students providing the correct answer to each SDA7 item is plotted above. These students may have completed GSOCI 140 alone, or incombination with another SC course. There were some strenghts specific to GSOCI 140, in additional to the general strengths of SC courses discussed above. These are listed in the following table. There were no notable weaknesses specific to GSOCI 140. Rather, any weaknesses of GPSYC 140 were also weaknesses of the other two SC courses. Note that only 30 students with data from Fall 2013 and Spring 2015 completed GSOCI 140. Thus, any inferences drawn must be weighed cautiously.

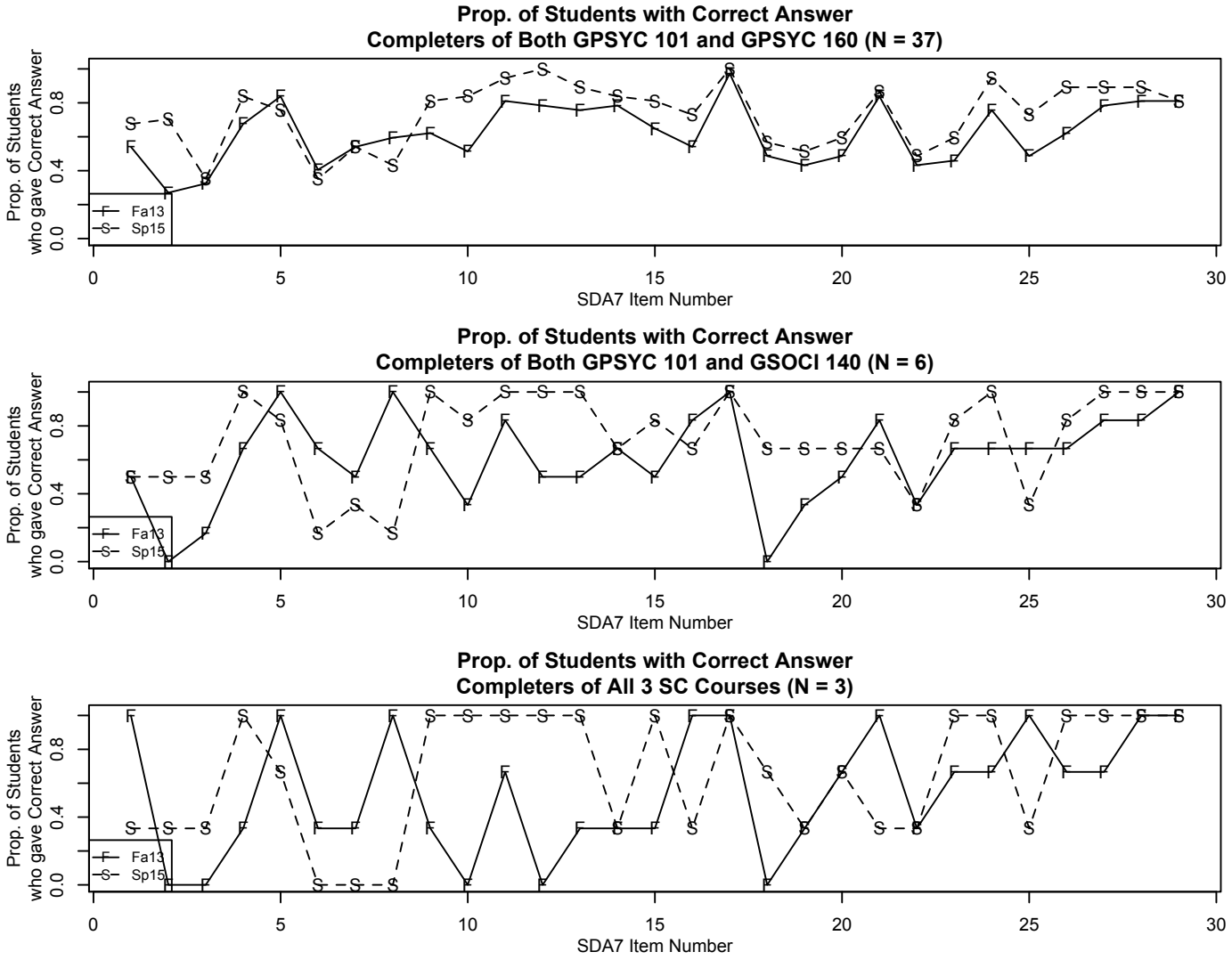
Strengths Specific to GSOCI 140	
SDA7 Item #	**Content Area**
18	Research design, Generalization of results

While item 18 indicated a weakness of both GPSYC 101 and 160, it was a strength of GSOCI 140. Thus, completing GSOCI 140 is related to better retention of the knowledge about generalizing results addressed by item 18, knowledge covered in Goal 3, Objective d for the SC domain.

E.) Students who Completed Various Combinations of SC Courses Before the Spring 2015 Semester

Some students completed each of a variety of combinations of SC courses before the Spring 2015 semester. For example, 37 students completed both GPSYC 101 and 160, with or without any other SC coursework. Three students completed all three SC courses. The proportions of each of these groups of students that aswered each SDA7 item correctly are plotted in the next three figures. It is difficult to infer

much from these plots, as each plot contains information about two or more courses. In addition, the number of students represented in each plot is small (37 or less). Thus, these plots are provided for reference, but are not discussed in any further detail.



SC-VII. OTHER SC ASSESSMENT PROGRESS

After reviewing the SC Domain goals and objectives, SC faculty set out to find an assessment instrument that measures the skills and knowledge articulated in the objectives under Goal 1: Students will understand how individual and sociocultural factors interact in the development of the beliefs, behaviors, and experiences of oneself and others. The SC faculty returned to an instrument they had used in the past, the Sociocultural Thought Process Assessment – Version 2 (STPA2). This measure contains six open-ended short essay response items that prompt students to consider, explain, and support why individuals may hold particular beliefs, beliefs that may differ from their own. The STPA2 was administered in Fall 2014. Thus, the second occasion of STPA2 data will be collected in Spring 2016 for that cohort.

In order to assign some sort of number to each response, the essays must be graded according to a rubric. After reviewing the previously used rubric for the STPA2 and testing it on STPA2 essay responses from a previous cohort, the SC Domain faculty decided to revise the rubric. The new version of the rubric is easier for raters to use, better matches the objectives under SC Goal 1, and allows for several qualities of

STPA2 responses to be examined separately. SC faculty tested this new version on the same essays used to test the original rubric. Reliability of the ratings was sufficient to move forward with this new version of the rubric.

SC-VIII. NEXT STEPS FOR SC

Once STPA2 data is collected in Spring 2016, we will have a complete data set of two occasions of STPA2 essays on a single cohort of students (the Fall 2014 cohort). To test for growth in the skills and knowledge measured by the STPA2 rubric, we will need to rate all of the essay responses from both Fall 2014 and Spring 2016. Thus, the next step for the SC Domain faculty is to develop a rater training program. Raters will need to be trained on the new STPA2 rubric, and each essay response will need to be rated by at least one rater. Discussions are currently underway to determine the resources necessary to set up such a training program. The SC faculty should be commended on the substantial time and effort they have invested and continue to invest in this complex process.

SC-IX. TAKE HOME POINTS FOR SC FACULTY

SDA7 Total Scores Summary

→ Students who completed more SC courses on average had slightly higher Spring 2015 SDA7 scores and improved slightly more on the SDA7 from Fall 2013 to Spring 2015 than those who completed less.

→ Higher SC course grades were related to higher Spring 2015 SDA7 scores for all SC courses.

SC Course Strengths and Weaknesses

→ Item Content Areas that are Strengths (+) and Weaknesses (-) of all SC Courses:

+ Choosing the best, credible sources of information (4 items), **Goal 2**
+ Correlation does not imply causation (1 item), **Goal 3**
- Research design and forming hypotheses, **Goal 3**
- Ethical treatment of human participants, **Goal 3**

→ GPSYC 101 and GPSYC 160 had performance gains on a variety of items, but both had low performance and no or little gains on two items about generalizing results (**Goal 3, Objective d)**.

→ GSOCI 140 had performance gains on one of the generalizing results items that was a weakness for GPSYC courses (**Goal 3, Objective d)**.

Other SC Activity and Next Steps

→ Excellent work from SC faculty in improving the STPA2 rubric! The new rubric better matches SC Domain objectives *and* is easier for raters to use.

→ Next step is to develop and implement a rater training program for the first cohort of data that will be complete in Spring 2016. The training program and first set of ratings will take place after Spring 2016.

WH-I. WELLNESS AND HEALTH GOALS AND OBJECTIVES

After completing the WH component of the Cluster 5 course requirements, students should be able to know, think and do the following objectives, subsumed under four genera goals:

Goals		Objectives		Item Numbers
1	Students will be able to understand the dimensions of wellness, the various factors affecting each dimension, and how dimensions are interrelated.	**a**	Identify the dimensions of wellness.	KWH8: 19, 22, 23, 29
		b	Identify factors (such as genetic, environmental, lifestyle behaviors) that influence each dimension of wellness.	KWH8: 4, 18, 27, 30
		c	Recognize how dimensions of wellness are interrelated.	KWH8: 3, 17, 24, 31
2	Students will be able to understand the relationship between personal behaviors and lifelong health and wellness.	**a**	Recognize the importance of lifestyle in disease prevention.	KWH8: 15, 16, 21, 26
		b	Recognize the relationship between personal health behaviors and wellness.	KWH8: 1
		c	Discriminate between reputable and non-reputable sources of health information.	KWH8: 2, 8, 11, 12
		d	General Goal 2 Items (not associated with an objective)	KWH8: 20, 23
3	Students will assess their own levels of health and wellness and understand how these levels impact their quality of life.	**a**	Assess one's levels of health and wellness.	KWH8: 5, 9, 13, 25
		b	Evaluate how one's levels of health and wellness compare to recommended levels.	KWH8: 7, 14, 28
		c	Identify how one's health and wellness impacts their quality of life.	KWH8: 6, 10
4	Students will identify and implement strategies to improve their wellness.	**a**	Identify a realistic and adjustable personal wellness plan.	
		b	Recognize strategies that can be used to maintain a healthy lifestyle.	
		c	Participate in a greater number of health and wellness-related activities.	HWBA

WH-II. KWH ADMINISTRATION HISTORY

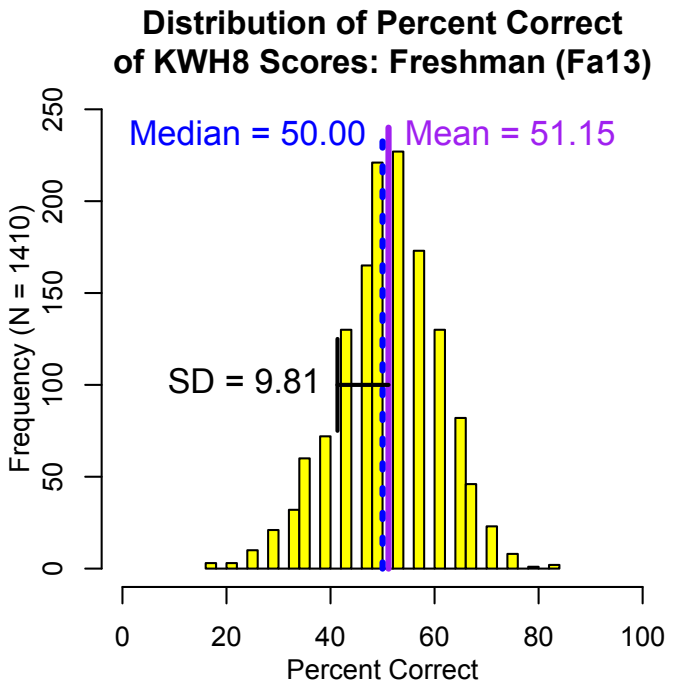
The goals and objectives of the WH domain map onto two assessment instruments: Version 8 of the Knowledge of Wellness and Health test (KWH8, a multiple choice test), and the Health and Wellness Behavior Assessment (HWBA, a self-report survey). The latter was created by Todd Sabato as part of a six-week Assessment Fellowship with the Center for Assessment and Research Studies during the summer of 2012. The HWBA is most closely linked to Wellness Domain Goal 4, Objective c, whereas the KWH8 spans Goals 1, 2, and 3. The past eight years of the administration history of the KWH and HWBA is

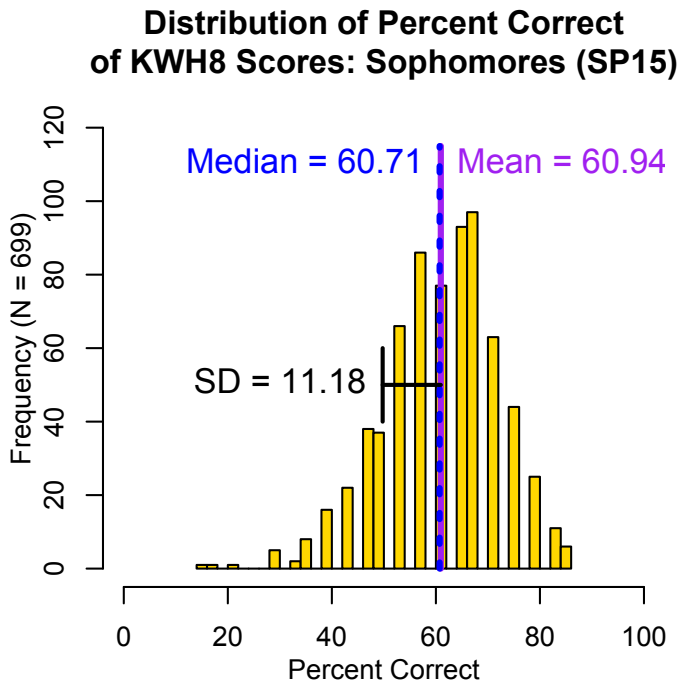
shown below. The cohorts of students contributing to this report, who were administered the KWH8 and HWBA in Fall 2013 and Spring 2015, are highlighted in yellow.

Administration	Sample	# Items	Test & Version	# of Students
Fall 2006	Incoming Freshmen	60 15	KWH3 HWQ2 – Part 1	835 824
Spring 2007	2nd semester Sophomores	60 15	KWH3 HWQ2-Part 1	928* 929*
Fall 2007	Incoming Freshman	60 15	KWH3 HWQ2-Part 1	1790 1776
Spring 2008	2nd semester Sophomores	60 15	KWH3 HWQ2-Part 1	780 764
Fall 2008	Incoming Freshman	44 13 19	KWH4 HWQ3-Part 1 HWQ3-Part 3	1007 1003 959-994
Spring 2009	2nd semester Sophomores	60 15	KWH3 HWQ2-Part 1	695 665
Fall 2009	Incoming Freshman	44 13 25	KWH5 HWQ4-Part 1 HWQ4-Part 3	864 855 807-856
Spring 2010	2nd semester Sophomores	44 13 19	KWH4 HWQ3-Part 1 HWQ3-Part 3	839 831 ~830
Fall 2010	Incoming Freshman	44 13 25	KWH5 HWQ4-Part 1 HWQ4-Part 3	962 956 942-958
Spring 2011	2nd semester Sophomores	44 13 25	KWH5 HWQ4-Part 1 HWQ4-Part 3	699 697 697
Fall 2011	Incoming Freshman	31 13 25	KWH6 HWQ4-Part 1 HWQ4-Part 3	905 893 871-903
Spring 2012	2nd semester Sophomores	44 13 25	KWH5 HWQ4-Part 1 HWQ4-Part 3	812 810 786-810
Fall 2012	Incoming Freshman	31 44	KWH7 HWBA	609 609
Spring 2013	2nd semester Sophomores	31 13 25	KWH6 HWQ4-Part 1 HWQ4-Part 3	807 806 783-807
Fall 2013	Incoming Freshman	28 44	KWH8 HWBA	1410 1410
Spring 2014	2nd semester Sophomores	31 44	KWH7 HWBA	449 449
Fall 2014	Incoming Freshman	28 44	KWH8 HWBA	
Spring 2015	2nd semester Sophomores	28 44	KWH8 HWBA	669 669

WH-III. KWH8 SCORES FOR FA13-SP15 COHORT

Assessment scores from each occasion of measurement are plotted below. The left histogram depicts the distribution of scores (percentage correct out of 28 items) from the $N = 1410$ students who completed the KWH8 in August of 2013, just before their first semester at JMU. The histogram on the right displays the distribution of scores from the $N = 669$ students who completed the KWH8 in February 2015. Note that some of these students are the same as in the fall sample, and some are not, because at each time point students are randomly chosen for each Assessment Day instrument.





According to the histogram on the left, incoming freshman on average get approximately 51% of the KWH8 items correct. The large standard deviation indicates there is a lot of variation between students in test scores. In the second semester of sophomore year, students on average perform better on the KWH8 than they did as incoming freshmen, answering approximately 61% of items correctly. Again, there is a large amount of variation in these scores.

These histograms include both students who have satisfied the Cluster 5 course requirements and students who have not. Thus, we cannot conclude WH courses aid in facilitating the student learning objectives linked to the KWH8 from these plots alone. However, in general, from just before freshmen year to the end of sophomore year, students are improving on the KWH8.

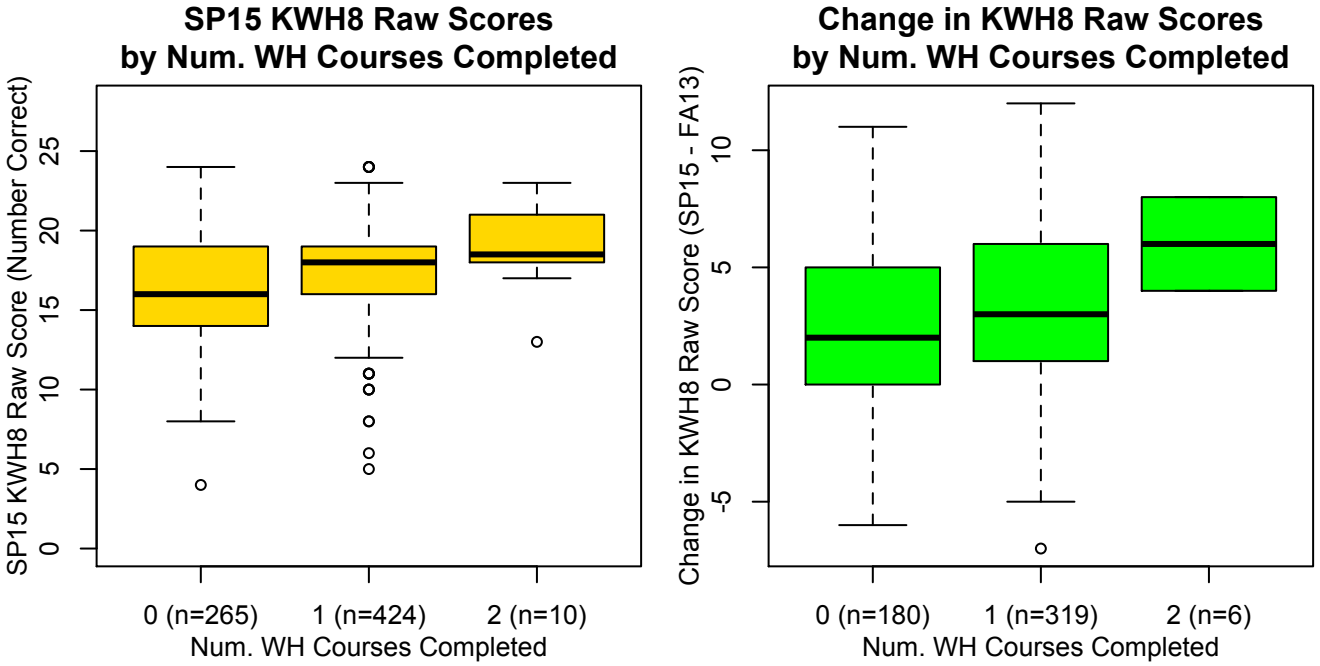
WH-IV. KWH8 SCORES BY NUMBER OF WH COURSES COMPLETED

Two sets of scores were examined visually to better understand how WH courses relate to student gains on the KWH8. Spring 2015 scores on the KWH8 were examined to determine where students "end up" sophomore year in terms of wellness and health knowledge, and how this differs by the number of WH courses they've taken.

Additionally, change scores were calculated for each student from the two occasions of KWH8 scores (one scores from incoming freshmen and another from 2nd semester sophomores). For each student,

change in wellness and health knowledge was calculated as: KWH8 Score in Spring 2015 – KWH8 Score in Fall 2013. For example, if Bob received a 20 on the KWH8 as an incoming freshman and then received a 25 upon retaking the test in the 2nd semester of his sophomore year, his change score would be 5, because Bob answered 5 more items correctly as a sophomore.

Both Spring 2015 scores and change scores are plotted by the number of WH courses completed below.



Each box represents a distribution of scores. For example, the left-most gold box in the plots above represents the distribution of Spring 2015 KWH8 scores for students who did not take any WH courses during the first three semesters of college. The thick black line in the middle of the box represents the median, the lower edge of the box indicates where the 25th percentile is (25% of scores are lower than this), the upper edge indicates where the 75th percentile is, and the "whiskers" represent the maximum and minimum scores without outliers. Any points beyond the whiskers are potential outliers. These plots allow us to see differences in medians between groups of people while visualizing the variance or spread in each distribution.

Looking at the thick black lines on the leftmost plot, we see the median KWH8 score earned in Spring 2015 increases with the number of WH courses taken. Students who have completed more SC courses by the second semester of their sophomore year get more KWH8 correct on average than students who take less WH courses. This information is also summarized in the table below as means, medians, and standard deviations. The mean KWH8 score in Spring 2015 increases with the number of WH courses completed. Each additional WH course completed, on average, is associated with getting one additional item correct on the KWH8 in the second semester of sophomore year.

# WH Courses Completed	N	SP15: KWH8 Raw Scores		
		Mean	Median	SD
0 Courses	265	16.30	16.00	3.31
1 Course	424	17.50	18.00	2.92
2 Courses	10	18.80	18.50	2.74

The plot on the right displays the same information, but for change in KWH8 scores. The left-most green box indicates on average, students who do not complete any WH courses before the second semester

of their sophomore year answer 2 more KWH8 items correctly in their sophomore year compared to just before their freshman year.

The same change score information is reported as means, medians, and standard deviations in the following table. Students who completed more WH courses by the second semester of their sophomore year evidence larger gains, on average, than students who complete fewer WH courses. Note that only six of the students who were administered the KWH8 in both Fall 2013 and Spring 2015 completed two (both) WH courses by Spring 2015. Thus, the results for that group are not interpreted here. Students who completed one WH course by Spring 2015 on average answered 3 or 4 (3.5) additional questions correctly on the KWH8 the second time they took the assessment, whereas students who did not complete any WH courses only answered an addition 2 or 3 questions correctly on average. This difference is small, but in the desired direction.

# WH Courses Completed	N	Change: KWH8 Raw Scores		
		Mean	Median	SD
0 Courses	180	2.51	2.00	3.35
1 Course	319	3.51	3.00	3.15
2 Courses	6	6.00	6.00	1.90

WH-V. RELATIONSHIPS BETWEEN KWH8 SCORES AND COURSE GRADES

If KWH8 scores and WH course grades are both measuring the WH Domain objectives, then these scores should be positively and moderately related. Correlations between Spring 2015 KWH8 raw scores (number correct) and course grades in each of the two WH courses are reported in the left hand side of the table below.

Correlation coefficients, denoted *r*, can range from -1, indicating a perfect inverse relationship (individuals with high course grades have low KWH8 scores), to +1, indicating a perfect positive relationship (individuals with high course grades have high KWH8 scores, which is desirable under these circumstances). The closer the value of the correlation is to +/-1, the stronger the relationship between the two sets of scores. If the correlation value is close to zero, the relationship is very weak. In the table below, *r* denotes the correlation values, *N* is the number if individuals with both course grades and KWH8 scores, and *p* denotes the statistical significance of the correlation. R^2 is the correlation coefficient squared. This value tells us what proportion of variance the two sets of scores share. For example, course grades in GKIN 100 explain 7% of the variance in KWH8 scores.

All the correlations between WH course grades and Spring 2015 KWH8 scores are positive, indicating students with higher course grades in either of the WH courses also have higher KWH8 scores. The correlation value is moderate for GKIN100 and low-moderate for GHTH 100, supporting the idea that WH course grades and KWH8 scores are both measuring approximately the same, or at least similar, skills and knowledge.

	Correlation: Course Grades and SP15 KWH8 Scores				Correlation: Course Grades and KWH8 Change Scores			
Course	***r***	***N***	***p***	***R^2***	***r***	***N***	***p***	***R^2***
GKIN 100	.27	101	.01	.07	-.11	101	.56	.01
GHTH 100	.16	230	.01	.03	-.01	230	.88	<.01

Also of interest is the relationship between WH course grades and how students change on the KWH8, calculated as KWH8 Score Spring 2015 – KWH8 Score Fall 2013. Positive correlation values

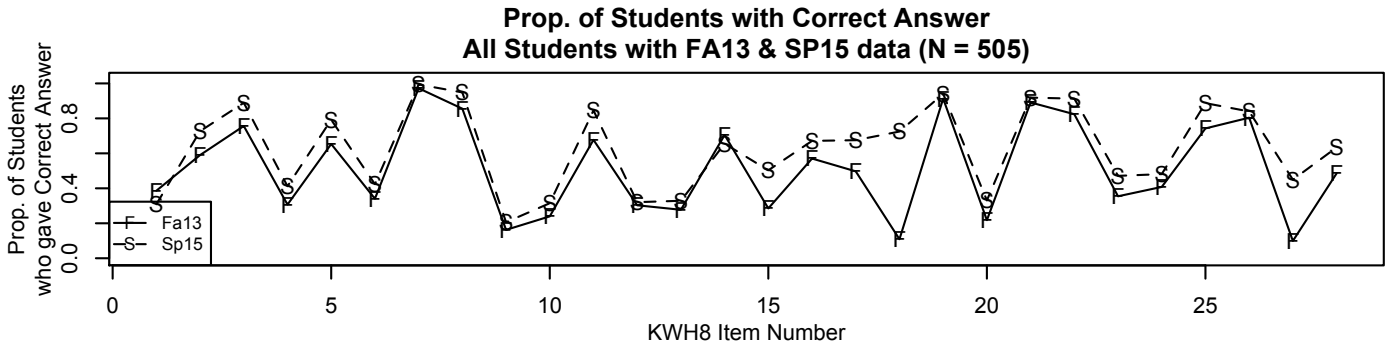
would indicate students with higher WH course grades also improve more on the KWH8 from Fall 2103 to Spring 2015. For GHTH 100, this value is approximately zero, indicating no relationship between WH course grades and improvement on the KWH8. For GKIN 100, course grades are slightly negatively related to change scores on the KWH8, however, this relationship is weak and thus is not much cause for concern. Note that these correlation values do not take into account how recently students completed each course.

WH-VI. KWH8 FA13 VS. SP15 PERFORMANCE: INFORMATION FOR COURSES

A.) All Students with Fall 2013 and Spring 2015 Data

Data for all students that were administered the KWH8 in both Fall 2013 and Spring 2015 is plotted below. The KWH8 items, by item number (1-28), are along the x-axis, and the proportion of students who answered each item correctly (out of 505) is along the y-axis. There are two lines on the plot. The solid line with points denoted by the letter ”F” represents the proportion of the 505 students who took the KWH8 in Fall 2013 and answered each item correctly. For example, approximately 60% of the students answered item 2 correctly in Fall 2013. The dashed line with points denoted by the letter “S” represents the proportion of the same 505 students who answered each item correctly in Spring 2015. For example, approximately 70% of the students answered item 2 correctly in the spring semester. In other words, an additional 10% of students answered the second item on the KWH8 correctly in the second semester of their sophomore year, compared to the beginning of their freshman year. This type of plot allows us to quickly identify which items students are improving on, and whether their spring scores are as high as faculty would like them to be.

Note that the plot below includes students who have completed 0, 1, and 2 WH courses. In the following subsections (B, C, D), these results are divided by course. Sections B and C examine similar results for students who have completed GKIN 100 and GHTH 100, respectively. Section D displays results for students who have completed both of these courses. First, strengths and weaknesses common to both WH courses are discussed below.



Some strengths and weaknesses are evident across both WH courses. **For a particular item to indicate a *strength* of a course, there must be reasonable gain on that item from Fall 2013 to Spring 2015.** For example, there is a large increase in proportion of students answering items 17 and 18 correctly from Fall to Spring across both courses. Thus, items 17 and 18 indicate strengths of all WH courses. Looking at the content of that item will help determine what type of content and knowledge the WH courses are addressing well. **For an item to indicate a *weakness* of a course, there must be at most a small amount of gain for that item, and performance across Fall and Spring must remain at or below 60% of students answering the item correctly.** For example, on item 1, there is little to no increase in the proportion of students answering the item correctly from Fall 2013 to Spring 2015 across courses, and both

Fall and Spring percentages are at or below 60% across courses. Thus, item 1 indicates a weakness of all WH courses. Again, examining the content of item 1 will aid in determining what knowledge or content is not being covered as effectively as desired in these courses.

Common strengths and weaknesses across all WH courses:

Strengths: All WH Courses	
KWH8 Item #	**Content Area**
2	Choosing sources of information
3	Relationships between wellness dimensions
5, 17, 18, 27	Wellness dimensions, Characteristics of wellness dimensions
11, 28	Evaluating weight loss programs, weight loss techniques

Weaknesses: All WH Courses	
KWH8 Item #	**Content Area**
1, 9	Risk factors for heart disease
4, 6, 13	Cholesterol readings and ratios
12	Tests that must be performed by a health professional
14, 20	Characteristics of wellness dimensions
24	Recommended physical activity

Both WH courses are appear to be particularly effective at teaching students about the dimensions of wellness and characteristics of these dimensions. Across classes, there are gains of approximately 20% or more from Fall 2013 to Spring 2015 on these items. That is, compared to Fall 2013, an addition 20% or more of students answer these items correctly in Spring 2015, after completing any of the WH courses. Note, however, that although there are sizable gains across courses in the proportion of students answering item 27 correctly, performance in Spring 2015 on this item is still lower than desired for students who completed GKIN 100. Thus, GHTH 100 seems to be more effective in conveying the information contained in this item than GKIN 100. Both WH courses also result in adequate retention of information on weight loss programs and effective weight loss techniques, choosing sources of information, and the relationships between wellness dimensions.

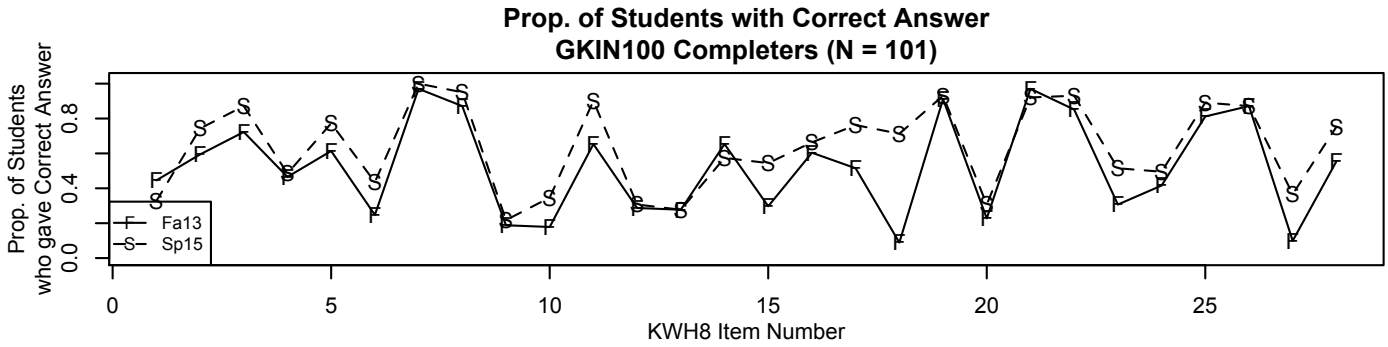
The WH courses also share a few weaknesses in terms of KWH8 responses. Approximately 60% of students or less answered eight of the KWH8 items correctly in Spring 2015, and there was little to no increase in the proportion of students who answered these items correctly from Fall 2013 to Spring 2015. Three of these items pertained to cholesterol levels and ratios. Thus, students appear to have a particularly difficult time retaining this information after completing one or both WH courses. Two of these items were about characteristics of wellness dimensions. While the WH courses are particularly effective that conveying information about the dimensions of wellness and their characteristics in KWH items 5, 17, 18, and 27, the low numbers of correct responses on items 14 and 20 indicate that not all of this category of knowledge is being retained by students. Last, low numbers of students answered the items about risk factors for heart disease, tests that must be performed by a health professional, and recommended physical activity correctly.

In general, the WH courses appear to be effective in teaching students about the wellness dimensions and their characteristics, as well as weight loss programs and techniques, and students retain this information into the second semester of their sophomore year. Students are not adequately retaining information on the major risk factors of heart disease or how to interpret cholesterol readings and ratios.

B.) Students who Completed GKIN 100 Before the Spring 2015 Semester

The proportion of students answering each KWH8 item correctly among students who completed

GKIN 100 before Spring 2015 is plotted below. These students may have completed GKIN 100 alone, or incombination with another WH course.



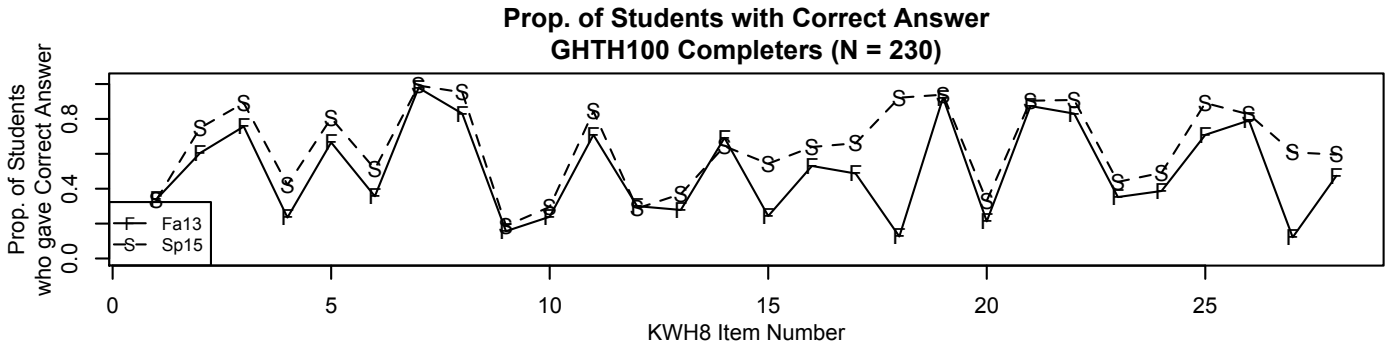
In additional to the general strengths and weaknesses of WH courses discussed above, there were some strengths and weaknesses specific to GKIN 100. These are listed in the following tables. Note that the same two items are listed as both strengths and weaknesses of GKIN 100. Of the students who completed GKIN 100 either alone or in combination with the other WH course by Spring 2015, a substantially larger portion answered items 10 and 23 correctly in Spring 2015 compared to Fall 2013. These results suggest GKIN 100 is effective at conveying the information contained in these items, pertaining to choosing sources of information on wellness and health and risk factors for heart disease. However, despite substantially larger numbers of students answering these items correctly after compelting GKIN 100, overall, less than 60% of students answer these items correctly in both Fall 2013 and Spring 2015. Thus, although a resonable proportion of students seem to learn this information from GKIN 100, not enough students have learned this information by second semester of their sophomore year to consider these items stand-alone strengths. The information within these items could possibly be conveyed more effectively.

Strengths Specific to GKIN 100	
KWH8 Item #	**Content Area**
10	Choosing sources of information
23	Risk factors for heart disease

Weaknesses Specific to GKIN 100	
KWH8 Item #	**Content Area**
10	Choosing sources of information
23	Risk factors for heart disease

C.) Students who Completed GHTH 100 Before the Spring 2015 Semester

The proportion of students answering each KWH8 item correctly among students who completed GHTH 100 before Spring 2015 is plotted below. These students may have completed GHTH 100 alone, or incombination with another WH course.



In additional to the general strengths and weaknesses of WH courses discussed above, there were some strengths and weaknesses specific to GHTH 100. These are listed in the following tables.

Strengths Specific to GHTH 100	
KWH8 Item #	**Content Area**
8	Self-assessment of health and wellness
16	Characteristics of wellness dimensions, Relationships between wellness dimensions
25	Characteristics of wellness dimensions

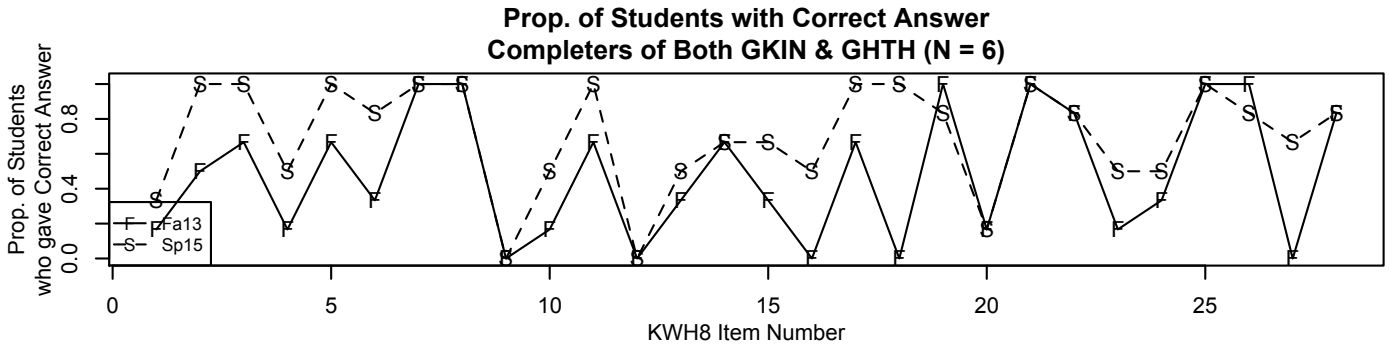
Weaknesses Specific to GHTH 100	
KWH8 Item #	**Content Area**
10	Choosing sources of information
23	Risk factors for heart disease

Note several of the items that indicate strengths common to both WH courses pertain to dimensions of wellness, characteristics of these dimensions, and relationships among these dimensions. In addition to these, two additional items on the wellness dimensions, their characteristics, and the relationships among dimensions indicate strengths of GHTH 100. This course appears to be particularly effective at conveying this content on the wellness dimensions and how they are related to students. A substantially higher proportion of students who complete GHTH 100 by the second semester of their sophomore year also answer item 8 correctly, pertaining to the self-assessment of health and wellness.

The weaknesses specific to GHTH 100 involve content on choosing sources of information and risk factors for heart disease. These two items were both strengths and weaknesses of GKIN 100. For GHTH 100, these items indicate weaknesses alone, not strengths, as less than 60% of students answered items 10 and 23 correctly in both Fall 2013 and Spring 2015, and there was little to no increase in the number of students who answered these items correctly out of GHTH 100 completers.

D.) Students who Completed Both GKIN 100 and GHTH 100 Before the Spring 2015 Semester

A very small group of students ($N = 6$) completed both of the WH courses before the Spring 2015 semester. The proportions of each of these groups of students that aswered each KWH8 item correctly are plotted in the next figure. It is difficult to infer much from this plot, given the small number of students represented. Thus, this figure is provided for reference, but is not discussed in any further detail. Note that the N of 6 in the following figure indicates that only 6 of the students in the previous plots had completed both GKIN 100 and GHTH 100. The other students represented in each of the previous plots only completed one WH course, either GKIN 100 or GHTH 100.



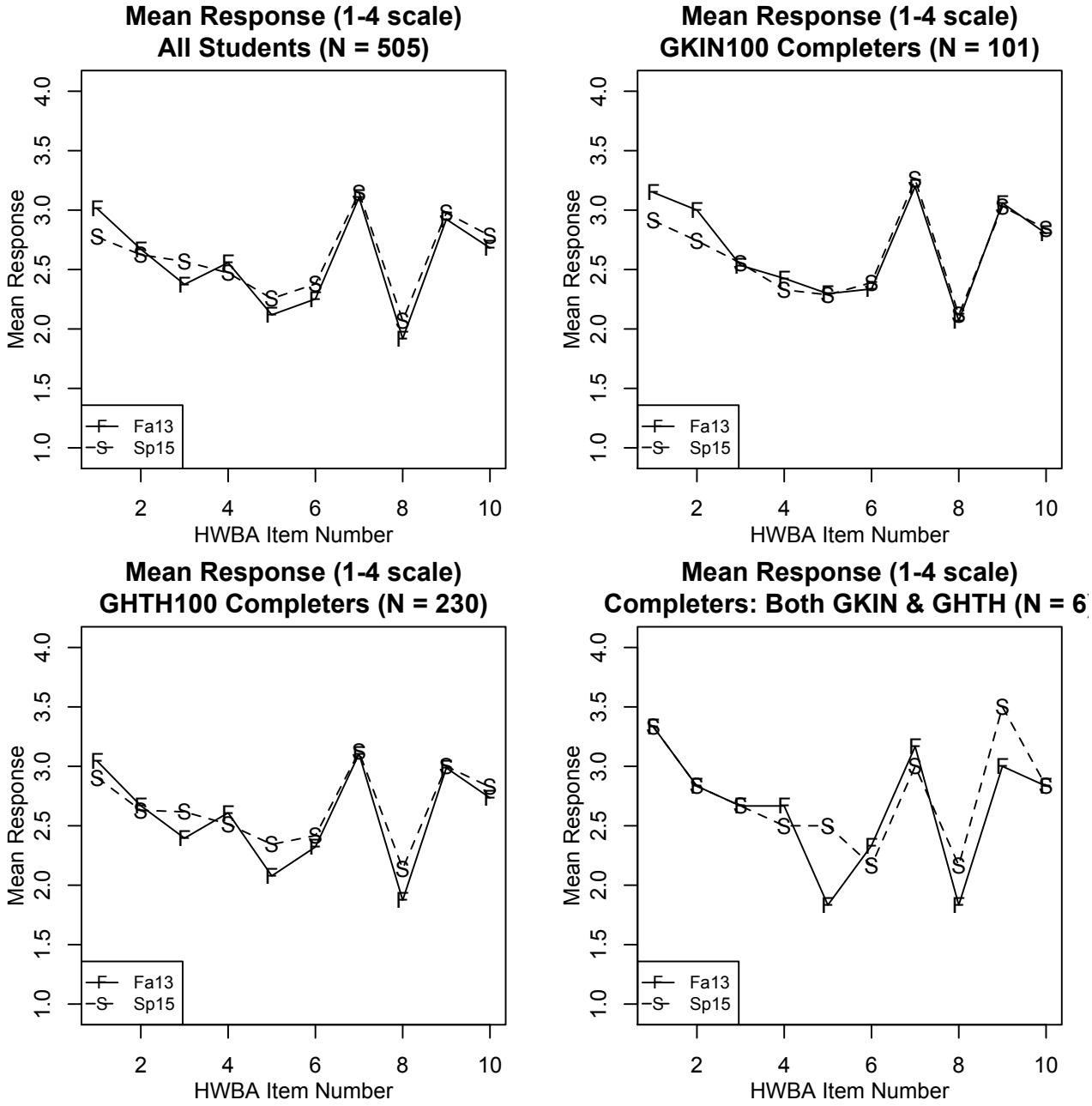
WH-VII. HWBA FA13 VS. SP15 PERFORMANCE: INFORMATION FOR COURSES

A.) First 10 HWBA Items

The HWBA consists of 44 items. The first 10 of these are administered with a 4-point Likert-type scale. For each behavior (item), students indicate how often they complete the behavior over the past 6 months with the following response categories: 1 = Never (0 times per week), 2 = Sometimes (1 to 3 times per week), 3 = Often (4 to 6 times per week), and 4 = Frequently (7 or more times per week). The last 34 items of the HWBA also measure a variety of health-related behaviors and habits; however, these items are administered with a different response scale and thus are discussed separately. The information presented below pertains only to the first 10 items of the HWBA.

Data for all students that were administered the HWBA in both Fall 2013 and Spring 2015 is plotted below. The first 10 HWBA items, by item number (1-10), are along the x-axis, and the mean response on the 1-4 response scale is along the y-axis. There are two lines on the plot. The solid line with points denoted by the letter ”F” represents the mean response of the 505 students who took the HWBA in Fall 2013. For example, the mean of all the student responses to item 1 in Fall 2013 was approximately 3.0. The dashed line with points denoted by the letter “S” represents the mean response of the same 505 students in Spring 2015. For example, in Spring 2015, the mean response to item 1 drops to approximately 2.75. In other words, the average frequency with which students report engaging in the behavior included in item 1 is lower in the second semester of their sophomore year, compared to just before they start classes. On average, students engage slightly less frequently in this behavior in Spring 2015 than in Fall 2013. This type of plot allows us to quickly identify which items students are improving on, and whether their spring scores are as high as faculty would like them to be.

In the plots below, the top left plot includes students who have completed 0, 1, and 2 WH courses, the top right plot includes students who completed GKIN 100 either alone or in combination the other WH course, the bottom left plot includes students who completed GHTH 100 either alone or in combination the other WH course, and the bottom right course includes students who completed both GKIN 100 and GHTH 100 by Spring 2015. Each WH course appears to have its own strengths and weaknesses. Thus, no common strengths and weaknesses are discussed, rather only course-specific details are provided.



For a particular item to indicate a *strength* of a course, there must be reasonable gain on that item from Fall 2013 to Spring 2015. For example, in the top left and bottom left plots, the average response to item 3 is higher in Spring 2015 by about 0.25 compared to Fall 2013. Thus, item 3 indicates a strength for WH courses, particularly for GHTH 100, given there is little to no gain for GKIN 100. Looking at the content of that item will help determine what type of content and knowledge the WH courses are addressing well. **For an item to indicate a *weakness* of a course, there must be at most a small amount of gain for that item, and performance across Fall and Spring must remain at or below a mean response of 2 (engaging in the behavior 1 to 2 times per week).** For example, on item 8, there is little to no increase in mean response from Fall 2013 to Spring 2015 for GKIN 100, and for both courses the Fall and Spring average responses are at approximately 2.0 or lower. Thus, item 8 indicates a weakness of all WH courses, although there is some gain on this item for GHTH 100. Again, examining the content of item 8 will aid in determining what knowledge or content is not being covered as effectively as desired in these courses. There appear to be few, if any, common strengths and weaknesses among WH courses, and thus course-specific details are discussed below rather than common results across courses.

GKIN 100

For the 101 students who completed GKIN 100 (6 of whom also completed GHTH 100) by Spring 2015, there do not appear to be any substantial gains in performance on any of the first 10 HWBA items. Items 7 and 9, pertaining to drinking enough water and making wise dietary choices, have high means both before and after course completion; however, students do not appear to improve on any of the items from the beginning of freshman year to the end of sophomore year. These items, along with items suggesting potential weaknesses of GKIN 100, are listed in the tables below.

One item exhibited low performance, with a means score at or below approximately 2.0, in both Fall 2013 and Spring 2015. This item pertained to completing exercises meant to increase range of motion. Additionally, there was a noticeable decline in performance on the first two items, which referred eating breakfast and exercising, respectively. On average, students completed these activities less frequently in Spring 2015 than they did in Fall 2013.

Pseudo-Strengths: GKIN 100	
HWBA Item #	**Content Area**
7*	Wise dietary choices (drink water)
9*	Wise dietary choices

*No increase in performance, but very high scores in both Fall 2013 and Spring 2015

Weaknesses: GKIN 100	
HWBA Item #	**Content Area**
1*	Wise dietary choices (breakfast)
2*	Exercise
8	Exercise (range of motion)

*Noticeable decrease in performance.

In summary, students who completed GKIN 100 on average had high scores on two dietary items both before and after completing the course. Mean performance on one dietary item and one exercise item decreased from before to after completing the course, and performance on one exercise item was low both before and after completing the course.

GHTH 100

Two hundred and thirty students completed GHTH (6 also completed GKIN 100) before the Spring 2015 semester. Items representing strengths and weaknesses of GHTH 100 are reported in the tables below. The two dietary choices items that exhibited high mean scores at both assessment occasions for GKIN 100 showed the same pattern for GHTH 100. In addition, there was a noticeable gain in performance on three items. One of these pertained to dietary choices and the other two pertained to aspects of exercise. Note that item 8, a weakness for GKIN 100, had higher mean scores in Spring 2015 than Fall 2013 for GHTH 100 completers. Thus, students who completed GHTH 100 on average reported making generally wise dietary choices, using warm up and cool down exercises, and participating in range of motion exercises more often after completing GHTH 100 than before taking the course.

Strengths: GHTH 100	
HWBA Item #	**Content Area**
3	Wise dietary choices
5	Exercise (warm up and cool down)
8	Exercise (range of motion)
7*	Wise dietary choices (drink water)
9*	Wise dietary choices

*No increase in performance, but very high scores in both Fall 2013 and Spring 2015

Weaknesses: GHTH 100	
HWBA Item #	**Content Area**
1*	Wise dietary choices (breakfast)

*Noticeable decrease in performance.

One item appeared to be a weakness of GHTH 100, not because there was low performance on it in both Fall 2013 and Spring 2015, but because performance decreased on this item from before taking GHTH 100 to after completing the course. The item pertained to eating breakfast. This item was also a weakness for GKIN 100, with a more severe decline in performance for GKIN 100 than GHTH 100.

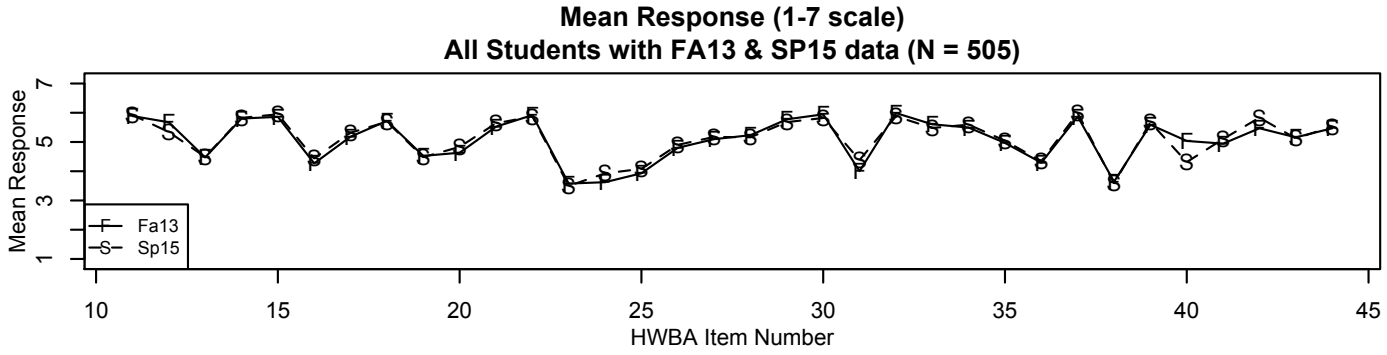
In summary, students who completed GHTH 100 before the Spring 2015 semester on average reported more frequently making wise dietary choices, using warm up and cool down techniques, and using range of motion exercises, but reported eating breakfast less frequently after completing the course.

B.) Last 34 HWBA Items

The HWBA consists of 44 items. The last 34 of these (items 11-44) are administered with a 7-point Likert-type scale. For each behavior (item), students indicate how true that item is of them on a 1-7 scale with the following descriptions for three of the scale points: 1 = Not at all true of me, 4 = Somewhat true of me, and 7 = Very true of me. The information presented below pertains only to the last 34 items of the HWBA.

Data for all students that were administered the HWBA in both Fall 2013 and Spring 2015 is plotted below. The last 34 HWBA items, by item number (11-44), are along the x-axis, and the mean response on the 1-7 response scale is along the y-axis. There are two lines on the plot. The solid line with points denoted by the letter ”F” represents the mean response of the 505 students who took the HWBA in Fall 2013. For example, the mean of all the student responses to item 11 in Fall 2013 was approximately 6.0. The dashed line with points denoted by the letter “S” represents the mean response of the same 505 students in Spring 2015. For example, in Spring 2015, the mean response to item 11 remains the same at approximately 6.0. On average, students report item 11 being equally true of themselves in Fall 2013 and Spring 2015, suggesting little or no change. This type of plot allows us to quickly identify which items students are improving on, and whether their spring scores are as high as faculty would like them to be.

The first plot below includes all students, regardless of how many WH courses they have completed (0, 1, or 2). The next three plots include students who completed GKIN 100 either alone or in combination the other WH course, students who completed GHTH 100 either alone or in combination the other WH course, and students who completed both GKIN 100 and GHTH 100 by Spring 2015, respectively.



Strengths and weaknesses common to both WH courses are discussed below, and strengths and weaknesses specific to each WH course are noted. Normally, for an item to indicate a strength of a course, there must be reasonable gain on that item from Fall 2013 to Spring 2015. However, only one item

exhibited noticeable gain (item 42), and this gain was small. **Thus, for a particular item to indicate a *strength* of a course, the mean response at Spring 2015 must be at or above a 6.0. For an item to indicate a *weakness* of a course, there must be at most a small amount of gain for that item, and performance across Fall and Spring must remain at or below a mean response of 4, the midpoint of the response scale (indicating the item is "Somewhat true" of the student) Additionally, any item with a substantial decrease in mean response was marked as a weakness of one or both WH courses.** Strengths and weaknesses of WH courses on the last 34 items of the HWBA are displayed in the following tables.

Common strengths and weaknesses across all WH courses:

Weaknesses: All WH Courses	
HWBA Item #	**Content Area**
11, 18, 32, 39	Interpersonal skills: listening, correcting behavior, apologizing, considering other views
14, 42*	Evaluating careers for personal reasons (not finances)
15, 37	Good work habits: responsible, punctual, etc.
22	Enjoy surroundings
30	Support system

*Very small gain across all courses

Weaknesses: All WH Courses	
HWBA Item #	**Content Area**
23	Make decisions easily
38	Spiritual activities
40*	Engage in community events

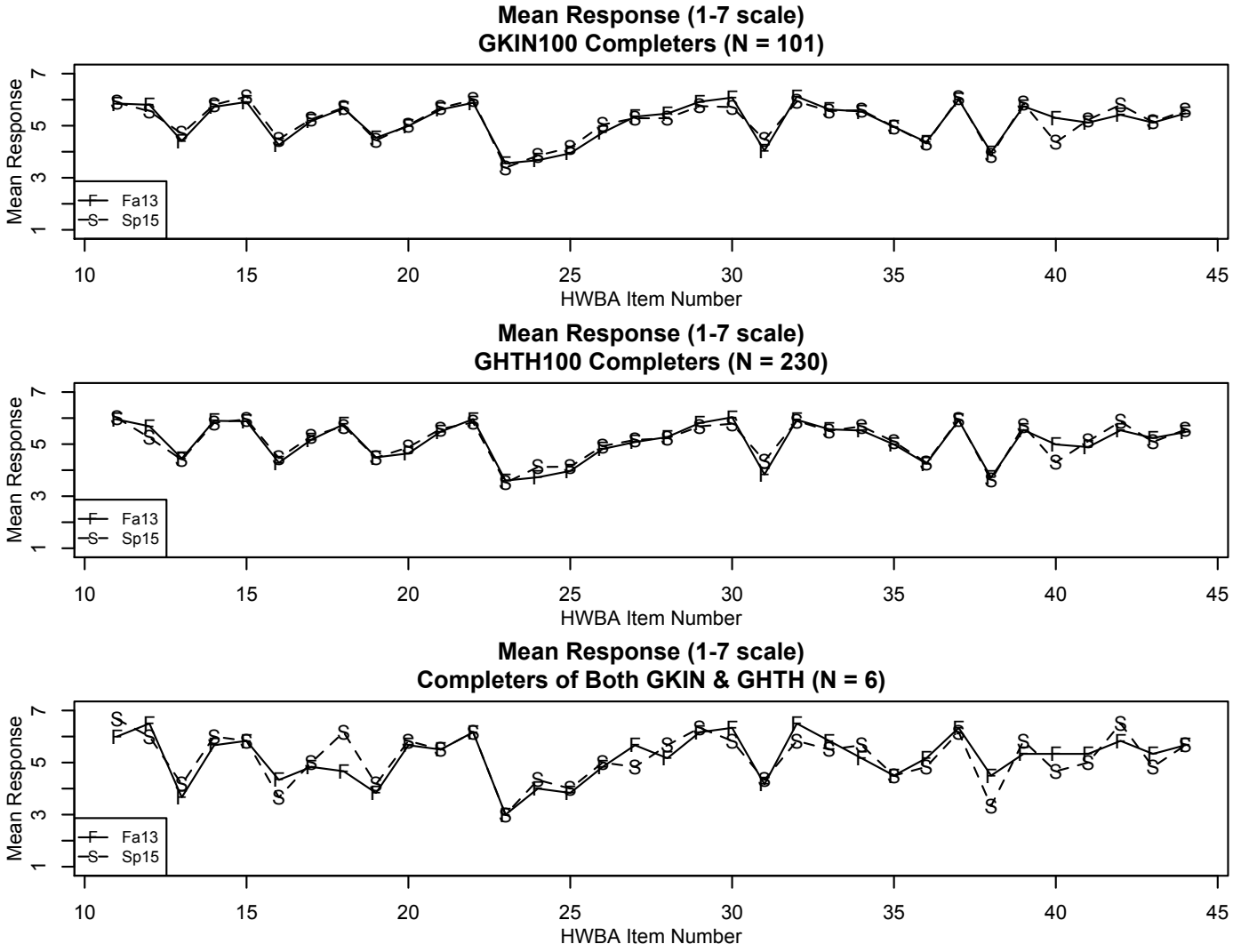
*Substantial decrease across all courses

For the last 34 HWBA items, there were no course-specific strengths and weaknesses. All courses had the same strengths and weaknesses. The only item that demonstrated noticeable, though small, gain from Fall 2013 to Spring 2015 was item 42, pertaining to career evaluation by non-financial standards. Aside from this gain for both WH courses, students also remained at a very high mean response across Fall 2013 and Spring 2015 on several items. Although on average students performed the same on these items before and after completing any WH courses, mean responses remained high on these items after completing any combination of WH courses (0, 1 or 2 courses). This indicates that the WH courses do not hinder performance on these items. This could also indicate that WH courses help students to remain at desirable response levels on these items; however, more information is needed to conclude this definitively. Four of these items, representing *potential* strengths of WH courses, pertained to interpersonal skills, two items represented career evaluation by non-financial standards, two pertained to good work habits, one represented enjoying one's surroundings, and one referred to aspects of social support systems.

Two items had mean responses at or below approximately 4.0 in both Fall 2013 and Spring 2015, indicating poor performance both before and after completing any of the WH courses. One item pertained to making decisions easily, without stress. The other item referred to spiritual activities. Thus, on average, when students enter JMU, they experience some stress when making decisions and they do not engage in many spiritual activities. At the end of the second semester of sophomore year, on average, these students have not improved on these two items. They continue to experience some stress in making decisions and do not engage in many spiritual activities. In addition to these two items, a third item was particularly alarming. Item 40, pertaining to engagement in community activities, exhibited a substantial decreased in mean student performance from Fall 2013 to Spring 2015. Thus, students are reporting less engagement in community activities during the end of their sophomore year than they reported just before their freshman year. Note that there are multiple possible reasons for this decrease. It could be students really are engaging in community activities less often, perhaps because they are spending more time on academics. It could

also be that students have learned about more opportunities for community engagement consequentially perceiving and reporting their own engagement as being at a lower level, even though they are demonstrating the same amount of engagement as in Fall 2013. More dense information, such as that provided by focus groups, would be necessary to determine why this decrease in performance exists.

There appear to be no course-specific strengths and weaknesses on the last 34 items of the HWBA. Thus, the course-specific plots are provided below but not discussed further.



WH-VIII. OTHER WH ASSESSMENT PROGRESS

Aside from the Assessment Day instruments the WH Domain faculty have chosen and use with each cohort, the faculty have also continued the daunting task of implementing in-class assessment instruments, a valued method in the assessment and measurement research fields. This technique takes a lot of time and effort from faculty to develop quality instruments and assignments that apply to one or more WH courses and that provide relevant, useful information to faculty. Additionally, creating instruments and assignments that both match one or more domain objectives and fit well into course content is no small feat. This is an ambitious task that has the potential to greatly benefit the WH Domain of Cluster 5.

WH-IX. NEXT STEPS FOR WH

As the Assessment Day instruments for the WH Domain have been well established, the next steps for WH faculty revolve around the newly developed in-class assessments. Ideally, faculty will decide which WH objectives best align with each instrument or assignment. Then, ideally, faculty will examine the data from the assessments to determine how well students are performing on content related to WH objectives in each WH course. If students on average are performing poorly on one or more aspects of an assignment, faculty can identify curriculum components that should be modified to improve performance. If students are performing well or growing substantially on one or more aspects of an assignment, these content areas can be championed as strengths of WH courses. The WH faculty should be commended on their efforts in developing and implementing these in-class instruments.

WH-X. TAKE HOME POINTS FOR WH FACULTY

KWH8 Total Scores Summary

→ Students who completed more WH courses on average had higher Spring 2015 KWH8 scores and improved slightly more on the KWH8 from Fall 2013 to Spring 2015 than those who completed less.

→ Higher WH course grades were related to higher Spring 2015 KWH8 scores for both WH courses.

WH Course Strengths and Weaknesses: KWH8

→ Item Content Areas that are Strengths (+) and Weaknesses (-) of all WH Courses:

+ Wellness dimensions, characteristics, relationships among dimensions (5 items), **Goal 1**
+ Choosing reputable sources of information (1 item), **Goal 2, Objective c**
+ Evaluate weight loss programs and techniques (2 items), potentially Goals 2 or 3
- Risk factors for heart disease (2 items), cholesterol ratios (3 items), tests that must be performed by a health professional (1 item), and recommended physical activity (1 item), **Goal 2**
- Wellness dimension characteristics (2 items), **Goal 1**

→ GKIN 100 also had performance gains on two items: choosing reputable sources of information (**Goal 2, Objective c**), and risk factors for heart disease (**Goal 2**), although Spring 2015 scores were still low.

→ GHTH 100 had gains on two wellness dimension items (**Goal 1**), and one item on self-evaluation of health and wellness (**Goal 3**). GHTH 100 had low performance and no gain on an item about reputable sources of information (**Goal 2, Objective c**) and another on heart disease risk factors (**Goal 2**).

WH Course Strengths and Weaknesses: HWBA (Goal 4)

→ Item Content Areas that are Strengths (+) and Weaknesses (-) of all WH Courses:

+ Increase in evaluating careers by personal (non-financial) criteria
+ No increase, but general high performance on interpersonal skills and good work habits
- Decrease in community engagement
- No decrease, but general low performance on stress-free decision-making and spiritual activities

→ GKIN 100 also had a decrease in two behaviors: eating breakfast and regular exercise.

→ GHTH 100 had an increase in wise dietary choices, warm up/cool down exercises, and range of motion exercises. This course had a decrease in students eating breakfast.

Other WH Activity and Next Steps

→ Excellent work from WH faculty in developing and implementing in-class assessments!

→ Next step is to match these assessments to WH domain objectives and eventually evaluate performance.