

***Oregon University System
One Year Later Survey:
Methodology Report***

Survey Conducted June, 2008

July 23, 2008

Prepared by the Survey Research Lab at Portland State University

Portland State University Survey Research Lab

1600 SW 4TH AVE. SUITE 900

PORTLAND, OR 97201

TELEPHONE: 503-725-9541

FAX: 503-725-4180

srl@pdx.edu

www.srl.pdx.edu

Table of Contents

I. INTRODUCTION	3
II. SURVEY PROGRAMMING, INTERVIEWER TRAINING AND DATA COLLECTION OVERSIGHT	3
III. SAMPLING PLAN AND SAMPLE MANAGEMENT	4
A. INSTITUTIONAL OVERSAMPLING	6
B. PREPARING THE SAMPLES FOR CALLING AND COMPLETING THE SURVEYS	8
C. DISPOSITION OF CALLS	9
D. RESPONSE RATE AND SAMPLING ERROR	13
IV. WEIGHTING AND ANALYSIS	15
A. INCOME FORMULA	16
V. RECOMMENDATIONS FOR FUTURE OYL SURVEYS.....	18

I. Introduction

This report is a summary of the methodology employed by the Portland State University's Survey Research Lab (SRL) for the "One Year Later: The Status of OUS Bachelor's Degree Recipients" survey. It is a biennial survey of the Oregon University System's (OUS) bachelor's degree recipients conducted during the spring following their graduation. It has been conducted five times, beginning in 1995 when it surveyed graduates from 1993-94. The purpose of the survey is to learn about the activities of graduates within a year of completing college and to gain insight into their assessment of their college experience from that perspective.

Survey calling on the OUS One Year Later survey began on April 3rd and concluded April 29th, 2008, for a total data collection period of 27 days. The Oregon University System consists of seven institutions located throughout the state. These institutions are:

- ♦ Eastern Oregon University, *La Grande*
- ♦ Oregon Institute of Technology, *Klamath Falls*; OIT Metro Campus, *Portland*
- ♦ Oregon State University, *Corvallis*; Cascades Campus, *Bend*
- ♦ Portland State University, *Portland*
- ♦ Southern Oregon University, *Ashland*
- ♦ University of Oregon, *Eugene*
- ♦ Western Oregon University, *Monmouth*

This 2008 survey contacted graduates from the Class of 2007.

II. Survey Programming, Interviewer Training and Data Collection Oversight

Before conducting the survey, the SRL finalized all questions with OUS. The finalized survey instrument was then programmed in the Voxco Virtual Call Center (VCC)¹ software and internal pre-testing was conducted to ensure the appropriate wording of questions, the correct functioning of all skip patterns, and the accurate recording of data.

The SRL uses Computer Assisted Telephone Interviewing (CATI), is equipped with 10 CATI calling stations, and is part of the extensive PSU Local Area Network (LAN) with high-speed access to the Internet. The SRL stations are fully computerized using Voxco software, as well as a range of software for word processing, database management, spreadsheet preparation, graphics presentations, and statistical analysis. The SRL data and software are stored on secure servers set aside for the sole purpose of conducting the SRL's confidential surveys and securely storing the gathered data.

¹ <http://www.voxco.com>

A total of 21 interviewers were trained on conducting the survey. The project training included an OUS staff person, the SRL Project Manager, the SRL Research Assistant, the SRL Interview Coordinators, and all interviewers. The OUS representative gave an overview of the background and purpose of the survey to provide the interviewers with the context within which the survey was being conducted. This was followed by a round-table review of the entire survey in order to review the survey items, discuss idiosyncratic issues related to the population being surveyed and clarify any data needs. Interviewers also had the opportunity to ask the client specific questions about the meaning of the items. Finally, interviewers participated in on-line practice of the survey before going live.

Calls were made during afternoon and evening hours, Monday through Sunday. Interview Coordinators provided on-site monitoring and supervision during all calling hours to ensure the highest quality data collection, as well as accurate data entry. For quality assurance purposes, the interview coordinators frequently monitored interviewers, with the level of monitoring varying depending upon the individual needs of each interviewer. The interview monitoring was live and involved the coordinator patching into the telephone conversation to listen to the interviewer conducting the survey, as well as viewing interviewer's input of the data being collected. The CATI software allowed the Coordinators to pull up the live interview on their computer screen to view the real-time typing away from the interviewer's view for reduced distraction. Additional quality assurance checks were conducted repeatedly at the beginning of calling and continually through survey calling. These included the Project Manager reviewing the collected data and the Interview Coordinators continuously monitoring the data collection process. Any issues that came up during the survey were quickly resolved with the OUS staff.

III. Sampling Plan and Sample Management

To determine the minimum sample size that will be representative of a population of interest for a survey requires some estimates and assumptions. The estimated sample size is based on: (1) the level of accuracy we want to have in our results, that is, how much *sampling error* (also called "margin of error") can be tolerated; (2) the *confidence* we would like to have that the data gathered from the sample is representative of the entire population; and (3) *how varied* we think the population is related to a characteristic of interest, gathered by a two-answer question in the survey (e.g., a yes/no item) (Kraemer & Thiemann, 1987²; Dillman, 2000³; Fowler, 1993⁴). For this survey, the *sampling error* was set at plus or minus 3 percent (denoted $\pm 3\%$) for the university system and $\pm 7.5\%$ at the institution level. The typical *confidence interval* used in survey research is 95%, which is the value that has been requested for both the system-wide and institution levels. The *maximum variation* in a yes/no item is 50/50; whereas less variation would be 80/20 or 90/10. For the current survey, maximum variation (i.e. 50/50) was used to calculate the minimum sample sizes.

² Kraemer, H.S. & Thiemann, S. (1987). *How many subjects?* Newbury Park, CA: Sage.

³ Dillman, D.A. (2000). *Mail and internet surveys: The tailored design method*. NY: Wiley.

⁴ Fowler, F.J., Jr. (1993). *Survey research methods* (2nd ed.). Newbury Park, CA: Sage.

Using the counts of number of Bachelor’s degrees awarded in 2006-07 provided in the RFP and based on the values listed above, individual institution sample sizes were calculated and are listed in Table 1 and a system-wide sample size was calculated and presented in Table 2.

Table 1 Minimum Institutional Sample Sizes		
Institution	# of 2006-07 Bachelor’s Degrees	Minimum Sample Size with 7.5% Sampling Error
EOU	570	132
OIT	489	127
OSU	3,294	162
PSU	3,143	162
SOU	727	138
UO	3,721	163
WOU	724	138
TOTALS	12,668	1,022
Table 2 Minimum System-wide Sample Size		
Institution	# of 2006-07 Bachelor’s Degrees	Minimum Sample Size with 3% Sampling Error
OUS System	12,668	984

When calculating the system-wide sample size with a sampling error of 3% at a 95% confidence interval, the total sample size needed was only 984. Limiting the system-wide total to only 984 would have required the reduction of one or more of the individual institution sample sizes. Because of the small difference (only 38 surveys), the total of the individual sample sizes was used as the goal, resulting in a total of 1,022 completed surveys.

The next step was to determine the number of records that will need to be called in order to achieve the number of completed surveys desired (i.e., minimum sample sizes listed in the above tables). Based on the number of records per institution used to complete one survey provided in the RFP (One Year Later: Class of 2004-05), the number of records per institution was calculated. Table 3 depicts the manner in which those figures were determined for each institution and for the system as a whole. It also includes the actual number of records received for each institution. For three institutions (EOU, OIT, WOU), fewer records were received than the estimates required. As is discussed in the next section, this was only an issue for EOU’s minimum number of completed surveys and for OIT’s oversample.

Institution	# of Degrees in 2007	Minimum Sample Size	# Records/ Complete for 2004-05	# Records Needed	Actual # Records Received
EOU	570	132	3.36	442	223
OIT	489	127	3.61	458	412
OSU	3,294	162	4.36	708	2,590
PSU	3,143	162	5.29	857	3,111
SOU	727	138	3.56	493	576
UO	3,721	163	6.02	983	3,548
WOU	724	138	4.21	582	576
TOTALS	12,668	1,022		4,523	11,036

A. Institutional Oversampling

OUS requested the calculation of oversample sizes needed for each institution to achieve a 5% sampling error. The first step was to calculate the minimum sample sizes at the 5% sampling error (Table 4, column c) and compare those to the sample sizes proposed at 7.5% sampling error (column b). The difference between those figures would be the number of completed surveys in the oversample (column d). The next step is to determine the number of records that will need to be called in order to achieve the number of completed surveys desired. The minimum number of records needed per institution was calculated (column f) based on the number of records per institution used to complete one survey (column e) provided in the RFP. Table 4 includes all of the figures used to calculate the number of oversample completes and number of records needed.

Institution	(a) 2006-07 Degrees Awarded	(b) Proposed Base Sample Sizes at 7.5% Error	(c) Target Sample Sizes at 5% Error	(d) <i>DESIRED</i> Oversample based on 5% Error (c-b)	(e) Number of Records/ Complete	(f) Minimum Number of Records Needed (d*e)
EOU	570	132	230	98	3.36	329
OIT	489	127	215	88	3.61	318
OSU	3,294	162	344	182	4.36	794
PSU	3,143	162	342	180	5.29	952
SOU	727	138	252	114	3.56	406
UO	3,721	163	348	185	6.02	1,114
WOU	724	138	251	113	4.21	477
TOTALS	12,668	1,022	1,983	960	4.73	4,390

These calculations were done prior to receiving any of the institution samples from OUS; therefore, the figures in Table 4 were considered “desired” because we anticipated that there may not be enough records available in the sample pool to achieve these totals for the regional institutions. Given that the samples available for completing surveys (Table 5, column a) were expected to be small for the regional institutions (EOU, OIT, SOU, WOU), we anticipated that the majority of those would be used to achieve the completed surveys at the 7.5% level of error. As a result, it was necessary to determine the “realistic” number of oversample completes that could be done for those four institutions based on the available sample pool (i.e., numbers remaining after the base set of surveys are completed). The pools of numbers needed for each of the institution base samples of completes were calculated based on the number of records needed for each complete (column f). Based on those figures, we determined the maximum number of records available (column e) to be the difference between the number of records needed to achieve the desired number of base completes (column d) and the total number of records available (column a). The final step was to divide the maximum number or records available (column e) by the number of records per complete (column f) to get the “realistic” oversample completes (column g). Table 5 presents those recalculated “realistic” oversample figures for the four regional institutions, as well as the previously calculated oversample figures for the three larger institutions.

Institution	(a) 2006-07 Degrees Awarded	(b) Proposed Base Sample Sizes at 7.5% Error	(c) Target Sample Sizes at 5% Error	(d) Minimum Number of Records Needed to Get Base Completes	(e) Maximum Number of Records Available (e-a)	(f) Number of Records/ Complete	(g) <i>REALISTIC</i> Oversample based on 5% Error (e/f)
EOU	570	132	230	442	128	3.36	38
OIT	489	127	215	458	31	3.61	9
OSU	3,294	162	344	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	182
PSU	3,143	162	342	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	180
SOU	727	138	252	493	234	3.56	66
UO	3,721	163	348	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	185
WOU	724	138	251	582	142	4.21	34
TOTALS	12,668	1,022	1,983				694

This information was provided to OUS for review. It was mutually decided that the “realistic” oversample calculations would be given to each of the institutions, along with the costs associated with securing the oversamples. Each institution then had the opportunity to contact the Survey Research Lab to discuss the purchase of an oversample. Of the seven universities, Oregon Institute of Technology, Southern Oregon University, University of Oregon, and Western Oregon University decided to purchase their respective oversamples. The gathering of the oversamples was incorporated into the data collection for the primary survey, after the number of completes necessary to achieve 7.5% sampling error had been secured.

B. Preparing the Samples for Calling and Completing the Surveys

Once the SRL Project Manager received the listed samples from OUS, the seven samples were formatted to make the file structure fit the needs of our software and to identify any records that do not have a valid telephone number. All of the remaining usable records in each of the seven files were then randomly sorted based on a random number variable to ensure random selection.

The randomly sorted pool of records necessary to achieve a sampling error of 7.5% or less at the institution level and a sampling error of 3% or less at the system level (both at a 95% confidence interval) were uploaded into the CATI software for calling. For the three larger institutions, the larger pool of numbers were divided into 500 count replicates, each of which representing a subset of the randomly sorted samples received. This allowed us to initially include only 1,000 numbers, keeping the total number of records as small as necessary to achieve the desired number of completed surveys for each institution. This also increased the cost effectiveness of our work and kept the response rate and non-response bias as low as possible. The total samples for each of the smaller schools was uploaded first to (1) remove any invalid numbers by calling each number at least once, (2) determine the valid base sample we had to work with, and (3) have as much time as possible to make potentially more calls per number to maximize the sample. After the samples from the four smaller schools were run through at least once, the first replicates from the three larger schools were uploaded. On a daily basis, quotas for the total sample and the seven subsamples were reviewed to monitor the numbers of completed surveys for both the base samples and the oversamples for four of the institutions.

A total of 1,231 OUS graduates completed the survey. Table 6 shows a breakdown of the minimum number of completed surveys, the realistic number of oversample surveys, the total target number of completed surveys and the actual number of completed surveys by institution.

Institution	Minimum # of Completed Surveys	Realistic # of Oversample Completed Surveys	Total Target # of Completed Surveys	Actual # of Completed Surveys
EOU	132	<i>n/a</i>	132	94
OIT	127	9	136	136
OSU	162	<i>n/a</i>	162	165
PSU	162	<i>n/a</i>	162	164
SOU	138	66	204	147
UO	163	185	348	351
WOU	138	34	172	174
TOTALS	1,022	294	1,318	1,231

The minimum number of completed surveys was achieved for all of the institutions except EOU. This was due to the smaller number of records received than was estimated to be necessary to achieve the minimum number of completed surveys (see Table 3). For the institutional oversamples, both UO's and WOU's were achieved; however, OIT's oversample was short by two completed surveys and SOU's oversample was short by 57. Calling continued as long as possible in an attempt to achieve the total number of completes for each institution; however, budget constraints prevented the calling to continue beyond 27 days. Table 7 presents a breakdown of the total sample used and the number of calling days necessary to complete the target number of surveys for each institution. Due to the smaller than required number of records received, SRL staff used Internet searching to locate telephone numbers for graduates of both EOU and SOU who did not have a valid telephone number included in the sample received from OUS. This increased the total number of records available for use for those two institutions and is reflected in Table 7. It is important to note that the additional number of calling days to achieve the oversample for UO was longer than would be expected because more sample was not added until the 10th day into oversample calling in order to resolve as many numbers in the pool as possible before adding more sample.

Institution	Total # of Records Used	# of Calling Days: Minimum Completes	Add'l # of Calling Days: Oversample Completes
EOU ⁵	371	<i>not achieved in 27 days</i>	<i>n/a</i>
OIT	412	21	<i>achieved in 6 days</i>
OSU	1,000	8	<i>n/a</i>
PSU	1,000	9	<i>n/a</i>
SOU ⁶	614	23	<i>not achieved in 4 days</i>
UO	1,500	6	14
WOU	576	11	10
TOTALS	5,473		

C. Disposition of Calls

During the data collection period, the Project Manager submitted periodic status reports to OUS that itemized the status of all the telephone numbers in the sample for the system as a whole, as well as for each institution. The numbers were divided into two groups, active and resolved, and these two groups were further subdivided into call disposition codes. **Resolved numbers** are those that have been finalized and do not need to be called back. This includes numbers for which a survey was completed, and all numbers that should not be called back because a completed survey is not possible or ethical. Included in this category are numbers that are not associated with an OUS graduate, respondents who could not complete the survey due to

⁵ Telephone numbers were found through Internet searching and added to the EOU sample on 4/24/08 (n=85) and on 4/28/08 (n=63).

⁶ Telephone numbers were found through Internet searching and added to the SOU sample on 4/24/08 (n=38).

language or cognitive deficit, and households for which a new number for the OUS graduate was not provided. *Active numbers* are those for which a completed survey could still be possible. The refusals in this category are considered “soft” in that the respondent refused in a less definitive manner. Also in the active category are numbers for which a callback had been scheduled, but not completed by the time the calling ended due to achieving the necessary completes in each quota. All of the final counts and percentages for the resolved and active disposition codes for the total OUS are presented in Table 8. The final counts and percentages for the resolved and active disposition codes for each institution are presented in Table 9.

Table 8 Resolved and Active Disposition Codes for the Total OUS Sample		
Resolved Number Disposition Codes	Count	Percent
Completed Interviews	1,231	43.5%
Fax Machine	24	0.8%
Cell Phone Refusal	5	0.2%
Non-working, disconnected number	670	23.7%
Non-residential	57	2.0%
Language/Disability barrier	12	0.4%
Pay Phone	2	0.1%
No One Here by that Name	304	10.7%
No Longer Living at this Address; No Phone Number	291	10.3%
No Longer Living at this Address; Don't Know Person	21	0.7%
Refused to Provide New Number	79	2.8%
Suspend without callback	16	0.6%
Refusal - never callback	118	4.2%
Total Resolved Numbers =	2,830	100.0%
Active Number Disposition Codes	Count	Percent
Answering machine	1,775	67.2%
Busy	33	1.2%
No Answer	112	4.2%
Specific English Call Back	172	6.5%
Suspend with English Call Back	1	<0.1%
Generic English Call Back	180	6.8%
Refusal	163	6.2%
Refusal – Might Call Back SRL	118	4.5%
Immediate Hang Up – Timed Callback	52	2.0%
Not yet Called	37	1.4%
Total Active Numbers =	2,643	100.0%
TOTAL SAMPLE	5,473	100.0%

Table 9
Resolved and Active Disposition Codes for the Institutional Samples

	EOU		OIT		OSU		PSU	
Resolved Number Disposition Codes	n	%	n	%	n	%	n	%
Completed Interviews	94	39.3%	136	45.8%	165	49.0%	164	41.8%
Fax Machine	3	1.3%	2	0.7%	4	1.2%	3	0.8%
Cell Phone Refusal	1	0.4%	1	0.3%	0	0.0%	1	0.3%
Non-working, disconnected number	71	29.7%	67	22.6%	91	27.0%	120	30.6%
Non-residential	11	4.6%	3	1.0%	6	1.8%	5	1.3%
Language/Disability barrier	3	1.3%	0	0.0%	0	0.0%	5	1.3%
Pay Phone	0	0.0%	0	0.0%	0	0.0%	0	0.0%
No One Here by that Name	38	15.9%	31	10.4%	25	7.4%	41	10.5%
No Longer Living at this Address; No Phone Number	10	4.2%	24	8.1%	25	7.4%	28	7.1%
No Longer Living at this Address; Don't Know Person	3	1.3%	1	0.3%	0	0.0%	0	0.0%
Refused to Provide New Number	1	0.4%	11	3.7%	9	2.7%	5	1.3%
Suspend without callback	0	0.0%	1	0.3%	1	0.3%	4	1.0%
Refusal - never callback	4	1.7%	20	6.7%	11	3.3%	16	4.1%
Total Resolved Numbers =	239	100.0%	297	100.0%	337	100.0%	392	100.0%
	EOU		OIT		OSU		PSU	
Active Number Disposition Codes	n	%	n	%	n	%	n	%
Answering machine	97	73.5%	85	73.9%	458	69.1%	422	69.4%
Busy	6	4.5%	2	1.7%	10	1.5%	5	0.8%
No Answer	11	8.3%	7	6.1%	20	3.0%	21	3.5%
Specific English Call Back	0	0.0%	5	4.3%	33	5.0%	58	9.5%
Suspend with English Call Back	0	0.0%	0	0.0%	1	0.2%	0	0.0%
Generic English Call Back	8	6.1%	1	0.9%	65	9.8%	46	7.6%
Refusal	8	6.1%	8	7.0%	18	2.7%	26	4.3%
Refusal – Might Call Back SRL	1	0.8%	7	6.1%	11	1.7%	19	3.1%
Immediate Hang Up – Timed Callback	1	0.8%	0	0.0%	10	1.5%	11	1.8%
Not yet Called	0	0.0%	0	0.0%	37	5.6%	0	0.0%
Total Active Numbers =	132	100.0%	115	100.0%	663	100.0%	608	100.0%
TOTAL SAMPLE	371	100.0%	412	100.0%	1,000	100.0%	1,000	100.0%

Table 9 (continued)
Resolved and Active Disposition Codes for the Institutional Samples

	SOU		UO		WOU	
Resolved Number Disposition Codes	n	%	n	%	n	%
Completed Interviews	147	37.6%	351	41.6%	174	52.7%
Fax Machine	2	0.5%	10	1.2%	0	0.0%
Cell Phone Refusal	1	0.3%	0	0.0%	1	0.3%
Non-working, disconnected number	88	22.5%	177	21.0%	56	17.0%
Non-residential	11	2.8%	17	2.0%	4	1.2%
Language/Disability barrier	0	0.0%	3	0.4%	1	0.3%
Pay Phone	0	0.0%	2	0.2%	0	0.0%
No One Here by that Name	53	13.6%	90	10.7%	26	7.9%
No Longer Living at this Address; No Phone Number	51	13.0%	119	14.1%	34	10.3%
No Longer Living at this Address; Don't Know Person	6	1.5%	5	0.6%	6	1.8%
Refused to Provide New Number	13	3.3%	30	3.6%	10	3.0%
Suspend without callback	3	0.8%	5	0.6%	2	0.6%
Refusal - never callback	16	4.1%	35	4.1%	16	4.8%
Total Resolved Numbers =	391	100.0%	844	100.0%	330	100.0%
	SOU		UO		WOU	
Active Number Disposition Codes	n	%	n	%	n	%
Answering machine	142	63.7%	397	60.5%	174	70.7%
Busy	2	0.9%	7	1.1%	1	0.4%
No Answer	22	9.9%	25	3.8%	6	2.4%
Specific English Call Back	0	0.0%	59	9.0%	17	6.9%
Suspend with English Call Back	0	0.0%	0	0.0%	0	0.0%
Generic English Call Back	6	2.7%	47	7.2%	7	2.8%
Refusal	24	10.8%	58	8.8%	21	8.5%
Refusal – Might Call Back SRL	22	9.9%	50	7.6%	8	3.3%
Immediate Hang Up – Timed Callback	5	2.2%	13	2.0%	12	4.9%
Not yet Called	0	0.0%	0	0.0%	0	0.0%
Total Active Numbers =	223	100.0%	656	100.0%	246	100.0%
TOTAL SAMPLE	614	100.0%	1,500	100.0%	576	100.0%

Table 10 presents the average length of completed surveys across the entire system and by institution.

Table 10 Average Survey Length by Institution	
Institution	Average Survey Length
EOU	13.71 minutes
OIT	13.00 minutes
OSU	12.43 minutes
PSU	13.21 minutes
SOU	12.99 minutes
UO	12.61 minutes
WOU	12.89 minutes
SYSTEM	12.87 minutes

D. Response Rate and Sampling Error

The response rate for each sample was calculated two different ways. The response rate was first calculated using all eligible numbers in the denominator. That included all of the numbers within the resolved and active disposition codes listed in Tables 8 and 9 *except* numbers classified as fax machine, non-working, non-residential, pay phone, no one in the household by that name, no new number for the graduate, graduate unknown, or not yet called. The second approach to calculating the response rate was based on only resolved numbers. This indicates the proportion of all resolved numbers that are actually completed surveys. In addition to these response rates, the refusal rate and the proportion of bad numbers were also calculated. The refusal rate included any numbers classified as cell phone refusal, refused to provide new number, suspended without callback, refusal—never call back, refusal, refusal—might call SRL back, or immediate hang up. These counts were considered relative to the total number of eligible numbers. The bad numbers included fax machine, non-working or disconnected, non-residential, pay phone, no one at the residence by that name, no number known for the graduate, and graduate not known. These counts were considered relative to the total number of used sample such that the denominator did not include any numbers that had not been called at least once.

As seen in Table 11, overall the response rates were quite respectable. Generally, the smaller institutions had higher response rates when compared to the larger institutions. EOU and OSU had the lowest refusal rates. When looking at the proportion of bad numbers, it can be seen that the three highest rates were from three of the smaller institutions (EOU, SOU and OIT), which made the already smaller than expected sample sizes even more problematic for achieving the minimum sample sizes and oversamples.

Institution	Response Rate: Eligible Numbers	Response Rate: Resolved Numbers	Refusal Rate	Proportion of Bad Numbers
EOU	40.00%	39.33%	6.81%	36.66%
OIT	47.89%	45.79%	16.90%	31.07%
OSU	20.32%	48.96%	7.39%	15.68%
PSU	20.42%	41.84%	10.21%	19.70%
SOU	36.48%	37.60%	20.84%	34.36%
UO	32.50%	41.59%	17.69%	28.00%
WOU	38.67%	52.73%	15.56%	21.88%
SYSTEM	30.27%	43.50%	13.55%	25.18%

After the survey was completed the *actual* sampling error (or level of accuracy) was calculated. For this calculation we used a confidence interval of 95%, maximum variation (50/50) and the sample sizes achieved. Based on those figures and population estimates, sampling error was calculated for the university system and at the institutional level.

Using the approach described above, all Institution sampling errors were lower (i.e. better) than the goal of $\pm 7.5\%$ (Table 5) except for EOU. This was due to the smaller number of records received than was estimated to be necessary to achieve the minimum number of completed surveys to achieve a 7.5% sampling error. Additionally, the OUS System was below the goal of $\pm 3\%$ sampling error. All sampling errors are presented in Table 5.

Institution	# of 2006-07 Bachelor's Degrees	Sample Size	Sampling Error
EOU	570	94	9.26%
OIT	489	136	7.15%
OSU	3,294	165	7.44%
PSU	3,143	164	7.45%
SOU	727	147	7.24%
UO	3,721	351	4.98%
WOU	724	174	6.48%
Institution	Population	Sample Size	Sampling Error
OUS System	12,668	1,231	2.65%

IV. Weighting and Analysis

The OUS system data and the individual institution data were all analyzed through the creation of crosstab analysis reports. Specific variables were paired for comparison purposes based on research questions developed by OUS staff. All frequencies were compared using a Z-test for percentages. This significance test requires the comparison of only two groups at a time. The formula takes into account both the proportion of respondents giving the responses and sample size of the original group from which the respondents came. This test assumed a 95% confidence interval.

As has been done for past One Year Later surveys, individual institution weights were calculated and used in the generation of the weighted system-wide data report. This was done to adjust the influence of each institution's data on the system-wide results to be comparable to the proportion of the Bachelor's Degrees received by their graduates. The following variable weights were used to extrapolate the weight of each respondent for the system data:

- ♦ EOU = 0.5892
- ♦ OIT = 0.3494
- ♦ OSU = 1.9399
- ♦ PSU = 1.8623
- ♦ SOU = 0.4806
- ♦ UO = 1.0302
- ♦ WOU = 0.4043

As can be seen in Table 5, EOU had 570 out of the 12,688 degrees earned in 2006-07, which is 4.5%. In order to achieve the 7.5% sampling error it was originally estimated that 132 surveys would need to be completed (which is 12.9% of the total of 1,022 estimated surveys that would need to be completed). In order to adjust the proportion of completed surveys down to the 4.5% level, a weight of 0.5892 was used in the analyses to reduce the influence of the responses from EOU to better represent their proportion in the population of graduates. The influence of other smaller institutions (OIT, SOU, and WOU) was also decreased while the influence of the larger institutions (OSU, PSU, and UO) was increased.

A. Income Formula

All respondents were first asked for their quantitative salary. If they did not know their quantitative salary or refused to provide it, they were then asked if their salary was above or below \$30,000. If their salary was below \$30,000, they were then asked about specific category ranges. If their salary was \$30,000 or above, they were also asked about specific category ranges. The below formula was then used to combine these two income formats into one categorical income variable.

```
if (Q53>=0 AND Q53<=4999) annsal=1.  
if (Q53>=5000 AND Q53<=9999) annsal=2.  
if (Q53>=10000 AND Q53<=14999) annsal=3.  
if (Q53>=15000 AND Q53<=19999) annsal=4.  
if (Q53>=20000 AND Q53<=24999) annsal=5.  
if (Q53>=25000 AND Q53<=29999) annsal=6.  
if (Q53>=30000 AND Q53<=34999) annsal=7.  
if (Q53>=35000 AND Q53<=39999) annsal=8.  
if (Q53>=40000 AND Q53<=44999) annsal=9.  
if (Q53>=45000 AND Q53<=49999) annsal=10.  
if (Q53>=50000 AND Q53<=74999) annsal=11.  
if (Q53>=75000 AND Q53<=99999) annsal=12.  
if (Q53=777777) annsal=13.
```

```
if (Q53B=1) annsal=1.  
if (Q53B=2) annsal=1.  
if (Q53B=3) annsal=2.  
if (Q53B=4) annsal=3.  
if (Q53B=5) annsal=4.  
if (Q53B=6) annsal=5.  
if (Q53B=7) annsal=6.  
if (Q53C=1) annsal=7.  
if (Q53C=2) annsal=8.  
if (Q53C=3) annsal=9.  
if (Q53C=4) annsal=10.  
if (Q53C=5) annsal=11.  
if (Q53C=6) annsal=12.  
if (Q53C=7) annsal=13.  
if ((Q53A=9) OR (Q53B=9) OR (Q53C=9)) ANNSAL=99.  
if ((Q53A=8) OR (Q53B=8) OR (Q53C=8)) ANNSAL=88.
```

VARIABLE LABELS

```
annsal 'Qualitative Annual Salary'.
```

VALUE LABELS annsal

```
1 '$0 - $4,999'  
2 '$5,000 - $9,999'  
3 '$10,000 - $14,999'  
4 '$15,000 - $19,999'  
5 '$20,000 - $24,999'  
6 '$25,000 - $29,999'  
7 '$30,000 - $34,999'  
8 '$35,000 - $39,999'  
9 '$40,000 - $44,999'  
10 '$45,000 - $49,999'
```

11 '\$50,000 - \$74,999'
12 '\$75,000 - \$99,999'
13 '\$100,000 or more'
88 'Dont Know'
99 'Refused'.

A second formula was used to combine all income data into a quantitative variable. If the respondent did not originally provide their quantitative salary, the midpoint of the category that they subsequently chose was used to create a factored quantitative income. Based on the 2005 data, the midpoint of several categories was slightly modified to better represent the data: \$45,000 to \$49,999 (\$46,000 was used), \$50,000 to \$74,999 (\$56,000 was used), \$75,000 to \$99,999 (\$76,000 was used), and \$100,000 or above (\$106,500 was used).

compute quantsal=q53.

if (q53b=2) quantsal=2500.
if (q53b=3) quantsal=7500.
if (q53b=4) quantsal=12500.
if (q53b=5) quantsal=17500.
if (q53b=6) quantsal=22500.
if (q53b=7) quantsal=27500.

if (q53c=1) quantsal=32500.
if (q53c=2) quantsal=37500.
if (q53c=3) quantsal=42500.
if (q53c=4) quantsal=46000.
if (q53c=5) quantsal=56000.
if (q53c=6) quantsal=76000.
if (q53c=7) quantsal=106500.
if (q53=777777) quantsal=106500.

if (q53a=8) quantsal=\$sysmis.
if (q53a=9) quantsal=\$sysmis.
if (q53b=8) quantsal=\$sysmis.
if (q53b=9) quantsal=\$sysmis.
if (q53c=8) quantsal=\$sysmis.
if (q53c=9) quantsal=\$sysmis.

variable label quantsal 'factored quantitative salary'.

V. Recommendations for Future OYL surveys

The Survey Research Lab has truly appreciated the opportunity to work with OUS staff on such an interesting survey. Regarding future OYL surveys, we have several suggestions regarding sample coordination, implementation, content, and analysis. First, we would suggest that the number of actual records for each institution be determined during the planning phase. This would provide more insight into the possibility of oversampling. For EOU, we received half as many records as were needed to meet the sample error guidelines. This added additional time relative to other institutions because of the need to repeatedly call the sample and convert refusals. Additionally, a high proportion of EOU's resolved numbers were non-working/disconnected numbers (29.7%; see Table 9). It also resulted in a lower sample error for EOU when the adequate sample size could not be reached. During calling we did use reverse-look-up to locate additional EOU respondents. Therefore, we would recommend that reverse-look-up be used for universities with smaller samples prior to calling. In terms of the sample content, we would suggest that each institution provide data in an identical format. This would include gender, race/ethnicity, GPA, High School code, and College code data. For example, different institutions used variations of the same high school code and different codes to represent different situations (foreign high school, unknown, etc.). Additionally, the college code data should include state information if that is of interest for analyses. It would also be helpful to allot more time for coding any variables. In terms of implementation, we suggest conducting live pre-testing with a small number of records from the larger universities. This provides a wonderful learning opportunity regarding survey wording and skip patterns.

In terms of the survey content, we would suggest adding the standard occupation codes as an additional question. We would also recommend including an option regarding dual-enrolled high school students for the question regarding enrollment status during first admission (Q26). It would also be helpful to consider how to tailor the survey for respondents who attended primarily through distance learning. Also, it would be very helpful to add options to Q22 (primary reason for working in an area outside your major field) and additional options to other variables that required later recoding (Q14, Q33, and Q35). Finally, we would suggest developing a standardized coding scheme for the "majors" imported information and variables.

Regarding analyses, we would suggest the possibility of conducting more planned analyses rather than or in addition to ordering crosstab reports. In an effort to increase sustainability, we would recommend only requesting electronic copies of crosstab reports. Finally, the list of additional analyses could include more specific references to question number.