

Methods for Identifying Translational Researchers and Scientists

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Introduction

Evaluators continually face the challenge of conceptually and operationally determining the boundaries of a group or organization of interest. In the case of CTSA, evaluators are taking a variety of approaches to capture individuals engaged in translational research on campuses or through affiliations with a campus and medical center. Here we outline the ways in which the evaluation team at the UIC CCTS has sought to identify translational researchers on campus, with the goal of tracking their activities and understanding how the CCTS has affected the production of translational research and activities. Using data from two surveys administered in 2010 and 2011, we outline three methods for identifying translational researchers and scientists.

- I. We take the approach of defining individuals based on affiliation with CCTS and using CCTS services.
- II. We ask researchers to self-identify as doing translational research or being involved with translational science and research.
- III. We identify translational researchers based on the types of activities they are engaged in.

Research Question

How should evaluators best define and identify translational researchers and scientists?

I. Participating in and Using CCTS Services and Programs

At UIC, we took a multi-pronged approach to identifying translational researchers in the community that may or may not be formally affiliated with the CCTS or have some interaction with or receive benefits from the CCTS. First, we began with a broad definition of affiliation with or use of CCTS services, by collecting information about all individuals who are formally affiliated with the CCTS or receive any type of service provided by the CCTS including pilot grant funding, training, assistance on research proposals and IRB applications, data analysis assistance, course instruction and training, and attendance at lectures or seminars sponsored by the CCTS.

At the broadest level, we might expect that every individual who interacts with the CCTS at UIC has the potential to advance translational activities and be or become a translational researcher or scientist. If the CCTS effectively provides a venue for translational research and science, it can enhance translational awareness and activities on campus. We took the approach of tracking all individuals who use CCTS services, whether those are light users who attend a single seminar or heavy users who apply for and receive financial support from the CCTS.

The evaluation and tracking team at UIC tracks all individuals who use CCTS services. This enables us to identify researchers, faculty, students, and community members that might be engaged in translational activities. Capturing all users also serves as the basis for sampling for the Annual Scientific Collaboration Surveys which are administered to a sample that combines CCTS users and a random selection of potential CCTS users, determined by department affiliation. Table 1 outlines the number of CCTS users identified each year.

Table 1: Identifying Translational Researchers based on the use of CCTS services

YEAR	# CCTS USERS
2009	356
2010	926
2011	958
2012	656

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II. Self-Identifying as Translational Scientists and Researchers

Our second method for identifying translational researchers and scientists is to ask individuals if they conduct translational research. The benefit of this approach is that we do not assume that affiliation with the UIC CCTS or is necessarily indicative of doing translational research. Moreover, we are able to see if researchers themselves describe their work as translational. The drawback of this approach is that it is possible that researchers are engaged in translational research and science, but do not define their work with such terms. It is conceivable that an individual might describe her research as clinical research with human subjects and health services research, and although she also engages in translational work, she does not define herself with such terminology, or views the translational component as too minor to report. We used two survey items asking respondents to self-identify as translational researchers.

What type(s) of research do you do? PLEASE SELECT ALL THAT APPLY.

<1> Clinical research with human subjects
 <2> Laboratory-based research with human specimens
 <3> Laboratory-based research without human specimens
 <4> Population-based, epidemiological or public health research
 <5> Translational research
 <6> Educational research
 <7> Health Services research
 <8> Practice-based research
 <9> Community-based research
 <10> Engineering research

During the past academic year (August 2009 – August 2010), did your work involve translational science or translational research?

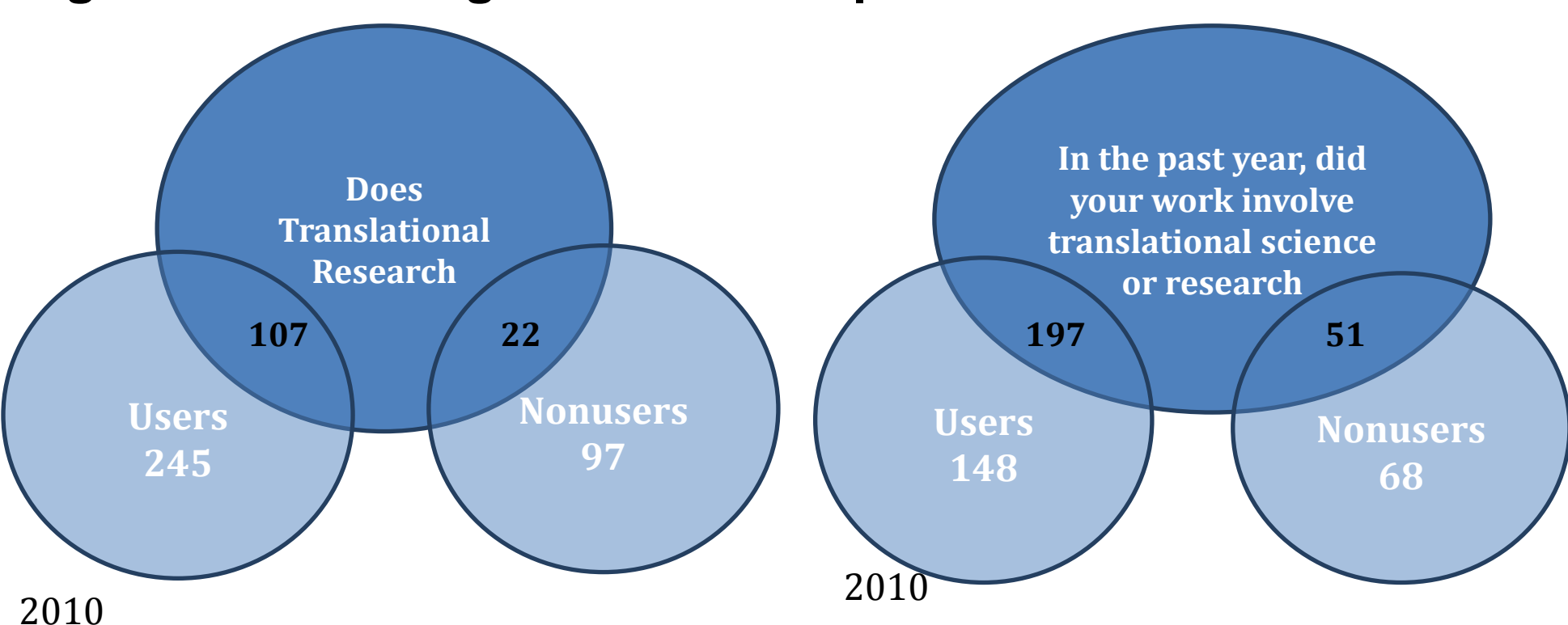
The second item asks the more specific question: "During the past academic year (August 2009 – August 2010), did your work involve translational science or translational research?", enabling us to capture respondents who might not describe their research primarily as translational, but remain involved in translational research activities through collaboration with colleagues and students, in the classroom, or through service activities. Table 2 outlines the descriptive statistics for the two questionnaire items in 2010 and 2011.

Table 2. Descriptive statistics for conducting translational research	Frequency	%	
What type(s) of research do you do? Translational research, 2010	No	372	72.9
	Yes	138	27.1
	Total	510	100.0
During the past academic year (August 2009 – August 2010), did your work involve translational science or translational research?	No	238	47.3
	Yes	265	52.7
	Total	503	100.0
During the past academic year (August 2010 – August 2011), did your work involve translational science or translational research?	No	324	47.2
	Yes	362	52.8
	Total	686	100.0

Table 2 indicates that more individuals report being involved in translational science or research than defining their work as translational. Thus, how we describe translational research is clearly related to whether or not respondents self-identify as translational researchers and scientists. It is possible that researchers do not describe their overall research agenda as translational, but are involved with translational research, either as co-authors, advisors, or through teaching, service, or outside of their core research area.

Figure 1 shows the distribution of responses for 2010 and 2011, noting individuals who reported doing translational research, by user and nonuser, and doing work that involved translational science, by user and nonuser. More individuals describe themselves as "being involved" in translational research in the past year (248), than describing their research as translational (129). A crosstabulation shows that these differences are significant at the .05 level (Crosstab: CCTS User by Conducts Translational Research (yes/no), 2010, Pearson Chi² 6.344, Asymp. Sig. (2-sided) .012. Fisher's Exact Test Sig. (1-sided), .007).

Figure 1: Venn diagrams of self-reported translational research



The Venn diagram to the right in Figure 1 illustrates the comparison of those who self-reported being involved in translational research and science in the past year with CCTS users and non-users. It also indicates significant differences across groups. Among the 345 CCTS users in the sample, more than half (197) report going work that involved translational research in the past year. A crosstab indicates that the differences in doing work that involved translational research in the past year, by CCTS user and non-user are significant at the .01 level (Crosstab: CCTS User by work involved Translational Research in the Past Year (yes/no), 2010, Pearson Chi² 7.215, Asymp. Sig. (2-sided) .007. Fisher's Exact Test Sig. (1-sided), .005).

The results presented in Figure 1 show the potential for CCTS to reach translational researchers and also the ways in which the CCTS might be connecting with people who do not self-identify as translational researchers. For example, 51 individuals who have been involved in translational science or translation research in 2009-2010 report no affiliation with CCTS, thus providing a target of potential individuals for outreach. Additionally, we see that many of the CCTS users (43%) were not involved in translational science in the 2009-10 academic year, indicating that CCTS is providing services beyond the translational science community.

There is extensive overlap between doing translational research and science and being affiliated with and using CCTS services. Among those who report doing translational research, a large proportion have used CCTS services. Taken together, these two approaches to defining CCTS affiliation and translational researchers can help evaluators to better understand the translational activities occurring on campus and their relationship to CCTS efforts.

Figure 2: Venn diagrams on translational science or research involvement, 2010 & 2011

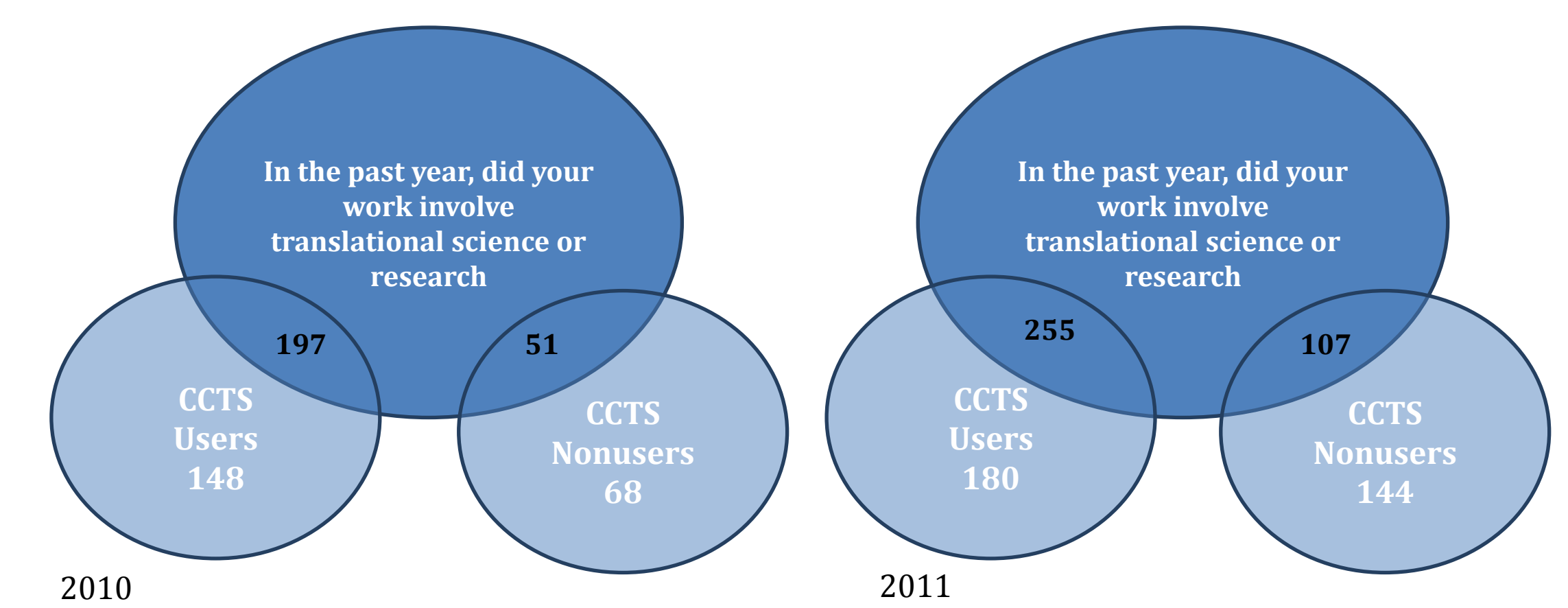


Figure 2 illustrates the distribution of CCTS users and nonusers who report that their work involved translational science or research in 2010 and 2011. In both cases, we see that among those who report that their work involved translational science or research, the majority used CCTS services (78% in 2010 and 70% in 2011). Among CCTS users, in 2011 59% reported being involved in translational research, up from 55% in 2010. In both 2010 and 2011, there is a statistically significant difference in doing translational research between CCTS users and nonusers.

III. Engaging in Activities that are Characteristic of Translational Science and Research

The third approach we took to identifying translational researchers and scientists was to ask respondents about the types of activities they engage in. The question offered respondents a list of activities that one might characterize as translating scientific research to the public. Table 3 outlines the frequency of translational activities reported by survey respondents in 2010 and 2011. In 2010, the most common activity is presenting to a non-scientific audience (39%), followed by serving on a committee that is developing guidelines or policy recommendations (25%), contributing to a media report, (24%) and publishing in a journal that is directed to policy makers or practitioners (23%). This pattern holds for 2011. The least common activity reported in both years is teaching a course for policy makers or professionals.

Table 3: Frequency of translational activities, 2010 & 2011

During the past academic year, have you...	2010			2011			%change
	Yes	Valid	%	Yes	Valid	%	
Contributed to a media report	89	370	24%	124	508	24%	0.4%
Published in a journal that is directed to policy makers, or practitioners	86	371	23%	125	504	25%	1.6%
Contributed to a policy report	59	370	16%	94	503	19%	2.7%
Presented to a non-scientific audience	144	372	39%	206	506	41%	2.0%
Taught a course for policy makers or professionals	41	369	11%	52	494	11%	-0.6%
Served on a committee that is developing guidelines or policy recommendations	91	370	25%	133	502	26%	1.9%
Served on a review committee that awards funding for clinical or translational (bio)medical and health research	59	370	16%	104	501	21%	4.8%
Served as an editor for (bio)medical or health research journals that target professionals and practitioners	49	369	13%	91	499	18%	5.0%

IV. Comparing Approaches

Table 4: Crosstabulation of translational activities by whether or not respondent did translational science or translational research in the past academic year, 2010 & 2011		2010		Pearson Chi ²	2011		Pearson Chi ²	
		Did translational work	Yes		No	Did translational work		Yes
		Contributed to a policy report	Yes	42	17	9.62 *	63	30
Published in a journal that is directed to policy makers, or practitioners	No	152	157		198	206		
	Yes	56	29	7.84 **	86	38	19.91 ***	
Contributed to a media report	No	138	146		173	201		
	Yes	62	26	14.16 *	82	41	13.68 ***	
Presented to a non-scientific audience	No	133	147		180	199		
	Yes	85	57	4.74 *	130	75	17.51 ***	
Taught a course for policy makers or professionals	No	110	118		131	164		
	Yes	24	170	.60	38	13	12.14 ***	
Served on a committee that is developing guidelines or policy recommendations	No	17	156		213	224		
	Yes	61	30	9.94 *	90	42	18.14 ***	
Served on a review committee that awards funding for clinical or translational (bio)medical and health research	No	133	144		169	194		
	Yes	41	18	7.93 **	70	34	12.17 ***	
Served as an editor for (bio)medical or health research journals that target professionals and practitioners	No	153	156		188	203		
	Yes	32	17	3.67 *	62	29	11.17 ***	
		No	161	157		196	206	

Exact Sig. (1-sided) *** p<.001; ** p<.01; * p<.05

Table 4 shows the results of a crosstabulation between the translational activities (Approach III) and whether or not the respondent indicated that in the past year they had been involved in translational science or research (Approach II). Having done translational work in the previous year is statistically significantly related to conducting six of the seven activities in 2010 and all seven activities in 2011. The results presented in table 4 indicate that the majority of researchers doing translational work do not engage in the types of activities listed, indicating a need to identify what other types of activities they might be conducting that they consider to be translational. Additionally, these results indicate that there is an opportunity for CCTS to better connect individuals doing these types of activities with the translational science and research community on campus.

Table 5: Factor analysis of measures identifying translational researchers and activities, 2010 & 2011

Component 2010	Component 2011		
	1	2	3
CCTS User		.540	.846
Type of research - Translational	.738	n/a	n/a
Past year, work involved translational science or translation research	.707		.574
Contributed to a policy report	.793		.763
Published in a journal directed to policy makers, or practitioners			
Contributed to a media report		.600	
Presented to a non-scientific audience	.533		.646
Taught a course for policy makers or professionals			
Served on a committee that is developing guidelines or policy recommendations	.733		.738
Served on a review committee that awards funding for clinical or translational (bio)medical and health research		.625	.711
Served as an editor for (bio)medical or health research journals that target professionals and practitioners		.693	.687
Total Eigenvalue	2.60	1.45	1.11
% of Variance	23.59	13.21	10.08
Cumulative %	23.59	36.80	46.88
		25.71	57.53
		37.53	68.56

Table 5 shows a factor analysis of the measures used to identify translational scientists and researchers including the eight types of translational activities, use of CCTS services, and self-reports of doing translational research. The first factor includes activities that are policy relevant and focus on communicating with the general public and policy makers. The second factor is comprised of activities that are practitioner focused, aiming at informing the health community. Interestingly, teaching a course or publishing in a journal for policy makers or professionals do not load to the factors, possibly because most respondents are already teaching and publishing for academic audiences and therefore less likely to do these same activities for practitioner audiences.

Factor 3 indicates individuals who self report doing translational research; the items that categorize researchers by CCTS use/nonuse and those which ask respondents if they conduct translational research or do work involving translational science load on to the same factor. Based on this factor analysis, we see that defining translational researchers and scientists by policy work and practice results in different factor loadings than using measures such as self-identification and CCTS affiliation. Table 5 shows that how evaluators define and identify translational researchers can result in distinct concepts and measures, indicating the importance of thinking critically about the ways in which we define and categorize researchers so that we can effectively evaluate CCTS activities.