



Beyond Rigor: In a Sea of Context

Patricia B. Campbell, PhD
Eric J. Jolly, PhD

Context

While there are many definitions of context, for these purposes, context might best be described as the interrelated conditions in which something exists or occurs.¹ For evaluators, context covers that which they need to consider in addition to the Science, Technology, Engineering, and Mathematics (STEM) project/program being evaluated. Contextual factors include individual factors such as age, race, and ethnicity and group factors such as the local economy, available resources, location, and changes in project/program leadership.

Depending on the project/program being evaluated and the participants themselves, different contextual factors may be more or less important. For example, in an evaluation of a program to reduce the impact of stereotype threat on students' continuation in STEM; gender, disability, race, and ethnicity become more important factors than perhaps college type. College type may become a more important contextual factor in an evaluation of the impact of different remedial math programs on students' continuation in STEM. Participant involvement in other projects/programs, whether STEM related or not, could be another important contextual factor.

How participants identify themselves or how they are identified by others is one way to help evaluators understand the individual contextual factors that may be most salient for the evaluation. Learning about what is currently going on in an institution and the surrounding community can also help to identify other important factors. When contextual factors are salient, attention may need to be paid to them in evaluation design, implementation, analysis, and interpretation of results.



This material is based upon work supported by the National Science Foundation under Grant No. 1146249. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

Creative Commons: Attribution-NonCommercial-ShareAlike 3.0 Unported

Illustrations by Lee Abuabata

Across contextual factors, evaluators need to:

- have knowledge and understanding of the contextual factors that are important to the evaluation. If that knowledge and understanding is lacking, then people with the needed experience and expertise need to be hired or another team should do the evaluation.
- be aware of their own world view and the assumptions they make especially for data analysis and interpretation. They also need to be aware of the world views and assumptions of participants and stakeholders. Having members of targeted groups involved in conceptualization of the evaluation and having a mechanism for checking interpretations with participants can correct inaccurate assumptions.
- build relationships and trust with project/program staff and participants. Spending time on the campuses or sites to get to know staff and participants and to have them get to know the evaluators can make a difference. Having someone who is well respected and trusted by staff and participants vouch for the evaluators can help build trust as well. This can be particularly important for evaluators who are new to a particular area.

The eleven factors included here do not begin to encompass the comprehensiveness and complexity of context. They are, however, factors that are often important in STEM workforce development efforts and may need to be considered in the construction, implementation and interpretation of evaluations. For each factor there is an overview of implications for evaluation as well as sources of more information about the factor.

| | | |
|--------------------|------------------|-----------------------------|
| Ethnicity | Military Service | Culture |
| Sexual Identity | Disability | First Generation to College |
| Gender | Money | Science |
| Citizenship Status | Race | |

Ethnicity/Race

In Science, Technology, Engineering, and Mathematics (STEM) project/program evaluations, some categories of race (Blacks, Native Americans) and ethnicity (Hispanic) are often collapsed into one group UMR (underrepresented minorities). Practically, this confounding of race and ethnicity has serious implications for data analysis and results. For example, in what group would a person who identifies as Hispanic and White or Hispanic and Black be located? Similar questions can be raised for those who identify as multiracial. One solution is to put individuals in multiple groups - but that violates a number of statistical assumptions and inflates sample sizes.

Separately or collapsed, the categories of race and ethnicity are problematic for evaluators. The common perception is that being of a specific race presumes a shared biological or genetic background. But race is not biologically nor genetically based. It is a socially constructed concept with arbitrary criteria, defined by the more powerful group(s) that can vary across time.² Indeed early in the last century, in the US the Irish were considered a separate racial group³ and in the 1920s some states legally defined anyone with “one drop of Negro blood” as Negro or Black, overturning earlier rules that free people who were 3/4ths or 7/8ths White were White.⁴ The misunderstanding of what race is and the arbitrariness of definitions of race have caused some to question whether race can be used as an independent variable at all in research or

evaluation. The feeling is when race is used as an independent variable, other variables such as racism or racialized cultural and educational environments are the actual variables being used.

While the issues are different for ethnicity, they too are very serious. When STEM project/program evaluations are being done, the only ethnicity that is asked about is Hispanic/Latino(a). The dictionary definition of Hispanic/Latino(a), “being a person of Latin American descent living in the United States”⁵ is so broad that it is not clear what meaning can be drawn from using it. It does not assume common customs, common cultures or even a common language since those from Portuguese speaking Brazil are included.

There are no easy answers here. When evaluating an effort to increase diversity, there is a need to track progress or impact on different groups. There is also a need to be clear about the complexities and the possibilities for inaccurate or incomplete conclusions and misinterpretation. For a start, since there are relatively strong correlations between “race” or “ethnicity” and such variables as income and educational level, these variables should be included in the analysis or controlled for.

For more information:

- American Anthropological Association (2011). Race: Are we so different?
<http://www.understandingrace.org/home.html>

Military Service

Many veterans are leaving the service with experience and expertise in areas of technology, and more is being done to transition them to civilian careers in Science, Technology, Engineering, and Mathematics (STEM). While being in military service is a category of context that is increasingly important to evaluators of STEM workforce development projects/programs, currently most institutions of higher education do not separate retention and completion rates for veterans.⁶

Evaluators need to be aware that veterans are coming out of a very structured hierarchal environment where working together is key to success and often to survival. Veterans tend to have a sense of identity that is different from non-veterans and they consider themselves part of a group. As one veteran explained, “The training that we received teaches us to be part of a team, not to be an individual. So anytime you do anything for yourself, it just feels awkward.”⁷ Veterans with disabilities may view their disabilities as a sign of weakness or even shame—that they let down the group. They often do not want to be labeled as having a disability and would prefer to be called “wounded warriors”.

Evaluators who are working with recent veterans and do not have personal experience with the military may want to bring someone on to the evaluation team who has that knowledge. Evaluators need to be aware that while there are commonalities across different branches of military service, the language, the culture, and the symbols can be quite different for different services. They also need to be aware of their own positive or negative feelings about the wars that these veterans have fought and the ways, if any, the evaluator’s own feelings might affect

the data collection, analysis, and interpretation. As is the case with evaluations in general, trust must be established between the evaluator and the participants. Experienced evaluators who have worked with wounded warriors suggest that the evaluator must become very visible to the group, explain why they are present, and be very clear about the role of the evaluation and of the evaluator. Using a veteran as a co-evaluator is also recommended.⁸

Veterans have all been in military service, but they are not a homogeneous group. As appropriate, analysis of evaluation data may need to include other types of demographic information such as race and ethnicity, sex, income and education level.

For more information:

- Articles from the *Journal of Postsecondary Education and Disability: Special Issue on Veterans with Disabilities* (Volume 22, Number 1 – 2009).
http://www.satest.arizona.edu/programs/vets/clearinghouse/documents/returning_veterans.pdf
- Student Veterans of America <http://www.studentveterans.org/>
- Transition STEM: A Wounded Warrior ThinkTank <http://www.transitionstem.org/>
- Transitioning from Service <http://maketheconnection.net/events/transitioning-from-service?gclid=CLK5p6fY77MCFcXb4AodEmcARg>

Culture

While there are almost as many definitions of culture as there are cultures themselves, this definition, from the Center for Advanced Research on Language Acquisition (CARLA) provides a perspective that may be useful to evaluators. They define culture “as the shared patterns of behaviors and interactions, cognitive constructs, and affective understanding that are learned through a process of socialization. These shared patterns identify the members of a culture group while also distinguishing those of another group.”⁹ While we often think of culture groups in terms of ethnicity or nationality, they can be any group with shared patterns of behavior and understandings such as evaluators, scientists, or even Boston Red Sox fans. Most of us are part of many different culture groups.

Evaluators need to be aware of the major culture groups which may have relevance for the evaluation. The culture of the institutional type (i.e., Ivy League, large public, historically Black) tends to be pertinent to the evaluation as does the culture of the discipline or field. Other culture groups might be important in different evaluations as well. Having participants write down some words that describe themselves may provide evaluators with some ideas about the culture groups that are important to participants.

An evaluation team needs to include people who are familiar with the major culture groups that have relevance for an evaluation. These may be people who are members of those groups or people who have experience working with those groups. No one can know everything about a culture, much less multiple cultures, but all evaluation team members should have some background knowledge of the relevant culture groups. Knowing such basics as appropriate levels of formality in language and dress, how people are addressed, and what behaviors are considered rude can make a big difference on the evaluation—especially the data collection.

For more information:

- American Evaluation Association. (2011). *American Evaluation Association public statement on cultural competence in evaluation*. <http://www.eval.org/ccstatement>
- Lee, K. (2007). The importance of culture in evaluation: A practical guide for evaluators. The Colorado Trust. <http://www.communityscience.com/pubs/CrossCulturalGuide.r3.pdf>

Sexual Identity

In Science, Technology, Engineering, and Mathematics (STEM) project/program evaluations, sexual identity can be best described as “don’t ask; don’t tell.” Information about sexual orientation is rarely asked or considered in the analysis or interpretation of results. Heterosexuality is the normative assumption. Without opportunities for those who are lesbian, gay, bisexual, or transgender (LGBT) to voluntarily disclose their sexual orientation, evaluators will not know if there are issues tied to homophobia, being identified as homosexual or bisexual, or being closeted that impact the effectiveness of different STEM projects/programs.

Asking and answering questions about sexual identity can be very sensitive. “Lesbian, gay, and bisexual people in the United States encounter extensive prejudice, discrimination, and violence because of their sexual orientation... More recently, public opinion has increasingly opposed sexual orientation discrimination, but expressions of hostility toward lesbians and gay men remain common in contemporary American society.”¹⁰

Where sexual identity is or is potentially significant in the evaluation, an evaluator needs to be aware of this history and create a safe, accepting space for data collection. This can include something as simple as adding an “other, please specify” option in the demographic question about sex which acknowledges the existence of transgendered and intersexual people or asking adults a specific question about sexual orientation such as:

Do you think of yourself as:

- a. Gay or lesbian
- b. Straight, that is not gay or lesbian
- c. Bisexual
- d. Something else
- e. Not sure¹¹

Evaluators may want to explain why the question is being asked and stress that participants can choose not to respond. If they are not already on the evaluation team, having LGBT people participate in the evaluation as advisors and/or reviewers can help the evaluator design the data collection so as to collect better, more accurate data. Evaluators should reflect on their feelings about sexuality, including homosexuality and bisexuality. If evaluators, or others involved in the evaluation, are uncomfortable with different sexual orientations, they should not be involved in the data collection.

Sexual identity is not the only defining variable of an individual or a group. As appropriate, the analysis needs to include other types of diversity such as race and ethnicity, income, and education level.

For more information:

- American Evaluation Association Lesbian, Gay, Bisexual & Transgender Issues Topical Interest Group http://comm.eval.org/LGBT/About_the_LGBT_TIG
- American Psychological Association. (2008). *Answers to your questions: For a better understanding of sexual orientation and homosexuality*. Washington, DC: Author. <http://www.apa.org/helpcenter/sexual-orientation.aspx>
- Greytak, E, Gutierrez, E & Greene, K. (2012). Eval 12 Session 654: Don't ask, can't report - A practical guide to collecting data on lesbian, gay, bisexual & transgender people in a culturally responsive way. <http://comm.eval.org/assessmentinhighereducation/resources/ViewDocument/?DocumentKey=a7d74a48-2545-4184-beaf-369cd2d9d133>

Disability

As an underrepresented group in the Science, Technology, Engineering, and Mathematics (STEM) workforce, people with disabilities are frequently targeted in STEM workforce development efforts. Regardless of whether people with disabilities are targeted, since they are 10% of the US population between the ages of 18 to 64,¹² they are part of most STEM workforce development projects/programs.

The US Census categorizes disabilities into three different domains: communicative, physical, and mental.¹³ Because many disabilities, especially those in the communicative and mental domains are not obvious, evaluators may not know if there are persons with disabilities involved in their evaluations. Developing data collection methods that are accessible to as broad a group as possible is one of the best ways to collect better data across participants. The Universal Design for Evaluation Checklist¹⁴ can be a valuable resource to do this. Under universal design, things are designed to be usable by all people without the need for adaptations.

As indicated in “Beyond Rigor: Accurate Data”, data collection sites need to be accessible to participants with mobility impairment. Websites and online measures need to be constructed so they can be read by text readers (which convert text to speech for visually impaired participants) and in fonts and colors that low vision participants can read. Directions should be short and clear and all instruments and protocols should be pilot tested with people who are similar to the participants. Sign language interpreters should be available as needed and attention should be paid to information that might be biased toward hearing people such as providing auditory information on websites without captions and asking questions about sounds or things that are heard.

Asking and answering questions about disability-related issues can be very sensitive, especially in groups that include people with and without disabilities. Explanations as to why the information is being asked, who will have access to it, and how it will be used can help people feel more comfortable disclosing their status.

Although the disability rights movement has been with us for 40 years, some still view people with disabilities as weak or in need of “fixing.”¹⁵ Today, while there is a greater emphasis on removing environmental, social, and attitudinal barriers and on associating disability with political rights, identity, and independence, many of the older ideas are still with us. Evaluators need to reflect on their feelings about interacting with people with disabilities. If they are not comfortable with people with disabilities or have little or no experience with people with disabilities, they should not be involved in the data collection.

Having, or not having, a disability is not the only defining variable of an individual or a group. As appropriate, the analysis needs to include other types of diversity such as race and ethnicity, income, and education level.

For more information:

- ADA National Network. Information, guidance and training on the Americans with Disabilities Act. <http://www.adata.org/Static/Home.aspx>
- Kiernan, N. E., & Matason, R. A. (2001). Do participants have disabilities? Tipsheet #9, University Park, PA: Penn State Cooperative Extension. <http://www.extension.psu.edu/evaluation/pdf/TS9.pdf>
- Sullivan-Sulewski, J. & Gothberg, J. (2012). Universal design for evaluation checklist (3rd ed.). http://www.beyondrigor.org/PDF/UDE_Checklist_Sulewski_Gothberg_20121.pdf

First Generation to College

Regardless of whether they are the target audience, Science, Technology, Engineering, and Mathematics (STEM) workforce development projects/programs will include a number of students who are the first in their family to attend college. These “first generation to college” students may come to college with limited knowledge of the mores and folkways of college—the language, traditions, and expected behaviors—thus their needs may be quite different than other students, leading to different project/program impact. In the data collection, evaluators should ask if students are the first in their families to go to college and include questions that might reflect their experiences, including such areas as academic culture shock and balancing work and college studies with family responsibilities.¹⁶

While first generation to college students are not a homogeneous group, they are more apt to be from lower income families and/or from families that are relatively recent immigrants. However, not all students who are from lower income families or from families who are recent immigrants are first generation to college students and not all first generation to college students come from these backgrounds. These and other variables, including gender, race, and ethnicity, as appropriate, need to be included in the data analysis.

Students who are in programs that provide them with financial support, may feel indebted to the program and fear if they do not participate in the evaluation or if they raise concerns, it could affect their participation in the program. This could affect whether their participation in the evaluation is truly voluntary and that their responses are free from pressure. Evaluators should explain the goals of the evaluation, the role of the external evaluator, and the steps that will be

taken to ensure confidentiality to the student. Students should also be made aware of any impact the evaluation could have on participating students.

For more information:

- *First in the Family: Your College Years* <http://www.firstinthefamily.org/>

Gender

As indicated in “Beyond Rigor: Accurate Data,” there are a variety of gender linked triggers that can impact the quality of an evaluation. The language that is used when participants are asked to do a task or take a survey can impact participants’ responses, as can the physical environment or whether demographic information is asked at the beginning or end of a survey. Even the choice to use the more culturally-based term “gender” rather than the more biologically-based term “sex”¹⁷ can have an impact. The cultural norms that define “feminine” and “masculine” behavior are powerful. Evaluators need to be aware of gender stereotypes and actively work to reduce or eliminate them in all aspects of the evaluation.

Evaluators need to remember that women are not a homogeneous group and neither are men. Rather than just looking at sex or gender, evaluators need to make decisions about what other demographic information should be included in the evaluation. Because of the dramatic change in gender roles in the United States in the past 30 years, individual age can be an important variable to consider when looking at gender. Individual perceptions and experiences with Science, Technology, Engineering, and Mathematics (STEM) education and training, and with women in STEM can be quite different for 20 year olds than for 40 year olds. Since issues and experiences of women and men of color can be quite different than those of White women and men, race and ethnicity are other important variables to consider in the analysis. Based on the evaluation questions and the populations being served, other demographic variables such as geographic location, type of educational institution, or military service might need to be included.

Practically speaking, because women are much more apt to change their names, it is more difficult to track women participants. If follow-up is going to be done, evaluators should consider collecting information that is less apt to change such as parents’ names and contact information, personal cell phone numbers, and e-mail addresses.

While women comprise 47% of the workforce,¹⁸ there remain some differences in women and men’s work-life patterns including some women leaving the workforce for a time and then returning. Evaluation measures need to be constructed so that any such differences come out and can be used in the analysis as appropriate.

For more information:

- Association for Women in Science <http://www.awis.org/>
- Beede, D., Julian, T., Langdon, D., McKittrick, G., Khan, B., & Doms, M. (August, 2011). *Women in STEM: A gender gap to innovation*. US. Department of Commerce: Economics and Statistics Administration. <http://www.esa.doc.gov/sites/default/files/reports/documents/womeninstemagaptoinnovation8311.pdf>

- Women of Color Research Network. National Institutes of Health. <http://www.wocrn.nih.gov/>

Money

Money can mean so many things to so many people. In evaluation, money can be an outcome, a confounding variable, or even a risk factor. Money is tied to access to resources and power. It is a key component of context that needs to be considered in evaluations.

Money as defined as annual family income, along with adult educational attainment are the conventional measures of socioeconomic status (SES) or class, although they are not the only ones. Indeed there is no consensus definition of class.¹⁹ To make data as comparable as possible to that collected by others, it would make sense to use the same measure of SES or class as has been used by others. Otherwise, evaluators should consider using a measure that ties most closely to their evaluation questions. If the primary interest is individual or family income, then that is what should be used.

Making assumptions about income based on race, ethnicity, or family education is dangerous and should be avoided. While there is a correlation between income and race and ethnicity as well as between income and educational level in the United States, lower income and higher income families come in all colors and from all educational levels. Race, ethnicity, and educational level are not proxy indicators of income or SES and should not be used as such. Indeed, evaluators should consider in their analysis disaggregating by race, ethnicity, and educational level to tease out interactions.

Asking about income can be sensitive. Many people don't feel comfortable discussing their income and often students don't know their family income. Many evaluators use ranges the participant can choose such as \$0-\$25,000 or \$25,001-\$50,000 rather than asking for exact or even approximate numbers.

When working with lower income participants, particularly if they are in programs that provide them with financial support, evaluators should be sensitive to participant fears that if they don't participate in the evaluation or if they raise concerns, they could impact their continued support from the program. This could impact whether their participation in the evaluation is truly voluntary and if their responses are free from pressure.

For more information:

Measuring Socioeconomic Status. National Institutes of Health: Office of Behavioral & Social Sciences Research. <http://www.esourceresearch.org/tabid/767/default.aspx>

Citizenship Status

While the citizenship/immigrant status of students or others in Science, Technology, Engineering, and Mathematics (STEM) workforce development projects/programs may not be

obvious to evaluators, it is an important part of context and may have an impact on the quality of the evaluation. Citizenship status may have an impact on access to employment, schooling, and, for people with disabilities, access to accommodations and services.²⁰ If a participant or a family member does not have a legal citizenship status, the impact may be more severe - deportation or incarceration.

Asking citizenship status may cause some participants to refuse to provide data and others to provide inaccurate data. If citizenship status is asked, the evaluator should make it very clear why the information is being requested, how it will be used, and who will have access to it. For the protection of human subjects, Institutional Review Boards (IRBs) may request additional security for the protection of the confidentiality of that information.

Citizenship status can be complex. For example, the federal definition of tribal citizenship for Native Americans often differs from the definitions that certain tribes have for citizenship. In a time of changing immigration policies, citizenship status can even be uncertain. Asking about citizenship status can be very sensitive, especially when a participant or a family member may have uncertain or questionable status.

Citizenship status may have an impact on tracking data as well. Participants who themselves have uncertain or questionable citizenship status or who have family members with such a status may not be willing to provide accurate contact information for follow-up. However, questionable or uncertain citizenship status may also pressure participants to participate in an evaluation and give the “right” responses. Evaluators need to do their best to make sure that participant involvement in the evaluation is truly voluntary and that their responses are free from pressure.

Citizenship status can interact with other demographic variables including gender, race, and ethnicity. These variables, as appropriate, need to be included in the data analysis.

Science

The culture of science, its mores and folkways, career ladders and methods, is the primary context for the evaluation of Science, Technology, Engineering, and Mathematics (STEM) projects/programs. Without that knowledge and understanding, evaluators will be unable to formulate the right questions and understand the answers. For example, without knowing about the academic career ladder in science, it would be very difficult to do a quality evaluation of efforts to increase the number of women science faculty. Without understanding the kinds of math skills that are needed for science careers from nutrition to nuclear physics, evaluations of projects/programs to increase undergraduate retention in the sciences may miss an important bottleneck. Knowing the funding mechanisms for science graduate students, which is often quite different from that for other graduate students, is an important piece of context for evaluations of projects to increase STEM graduate student diversity. And of course, these funding mechanisms may be quite different for different funders. There is a culture of science but that culture varies based on the field. For example, there are similarities in the culture of biology and that of physics but there are also differences.

Knowledge of the cultures of science is very important to do a quality evaluation of STEM projects/programs. Also needed are skills, knowledge, and expertise in evaluation. Yet few evaluators have the background, training, and experience in both science and evaluation. STEM evaluators primarily fall into one of two groups: those from non-STEM backgrounds with formal evaluation training or those from STEM backgrounds often now in administrative positions, with little formal evaluation training.

In theory, the easiest solution is for people from both groups to work together as a team where there is equal power and each learns from the other. In practice, this can be difficult. Evaluators without science backgrounds often feel that evaluation skills are context-free and can be applied to any project and program. But they can't. Scientists who do evaluations often feel that knowing the science discipline, the research design, and statistics is all that is necessary to do a quality evaluation. But it's not. In both cases, the skill sets are necessary but not sufficient. While advisors and informants are useful and important in these cases, they are not enough.

Evaluators without science backgrounds need to be able to understand implications for evaluation of such areas as the "hierarchical status" of different science disciplines and the changing definitions of what is "real" science and of the concept of scientist as "who you are" more than "what you do." Scientists who do evaluations need to be aware of the role context plays in evaluation, the issues of cultural competence in evaluation, and the potential social, educational, and even political implications of STEM evaluations.

For more information:

- Hrabowski, F. (2012). We need to change the culture of science teaching and learning. TEDxMidAtlantic <http://technicallybaltimore.com/events/freeman-hrabowski-we-need-to-change-the-culture-of-science-teaching-and-learning-video/>
- *Science Magazine* <http://www.sciencemag.org/>

¹ <http://www.merriam-webster.com/dictionary/context>

² http://psqtest.typepad.com/blogPostPDFs/201222256_psq_57-44_reflectionsOnRaceAndResearch.pdf

³ http://www.youtube.com/watch?feature=player_embedded&v=aDz3BJDPXHA

⁴ http://en.wikipedia.org/wiki/One-drop_rule

⁵ <http://www.merriam-webster.com/dictionary/hispanic>

⁶ Fain, P. (December 4, 2012). Scrambling to understand veterans. *Inside Higher Ed*.

<http://www.insidehighered.com/news/2012/12/04/colleges-fail-track-performance-student-veterans-survey-finds>

⁷ Abramson, L. (December 5, 2012). Vets flock to colleges... but how are they doing?

<http://www.wbur.org/npr/166501611/vets-flock-to-colleges-but-how-are-they-doing>

⁸ Moriarty, M. (2012). Military veterans with disabilities: Effective evaluation strategies. A presentation to the American Evaluation Association 2013 Annual Conference.

⁹ <http://www.carla.umn.edu/culture/definitions.html>

¹⁰ <http://www.apa.org/helpcenter/sexual-orientation.aspx>

¹¹ Greytak, E, Gutierrez, E & Greene, K. (2012). Eval 12 Session 654: Don't ask, can't report - A practical guide to collecting data on lesbian, gay, bisexual & transgender people in a culturally responsive way.

<http://comm.eval.org/assessmentinhighereducation/resources/ViewDocument/?DocumentKey=a7d74a48-2545-4184-beaf-369cd2d9d133>

¹² http://www.census.gov/newsroom/releases/archives/facts_for_features_special_editions/cb10-ff13.html

¹³ <https://www.census.gov/prod/2008pubs/p70-117.pdf>

¹⁴ Sullivan-Sulewski, J. & Gothberg, J. (2012). Universal design for evaluation checklist (3rd ed.).

http://www.beyondrigor.org/PDF/UDE_Checklist_Sulewski_Gothberg_20121.pdf

¹⁵ <http://www.disabled-world.com/definitions/disability-models.php>

¹⁶ <http://www.firstinthefamily.org/collegetyears/index.html>

¹⁷ <http://www.apa.org/pi/lgbt/resources/sexuality-definitions.pdf>

¹⁸ <http://www.dol.gov/wb/factsheets/Qf-laborforce-10.htm#.UNMiOqDa8II>

¹⁹ <http://www.esourceresearch.org/eSourceBook/MeasuringSocioeconomicStatus/6HowSESShouldBeMeasured/tabid/887/Default.aspx>

²⁰ http://www.nap.edu/catalog.php?record_id=13285



80 Lakeside Dr
Groton, MA 01450
www.campbell-kibler.com



120 West Kellogg Blvd.
St. Paul, Minnesota 55102
www.smm.org