References


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**Tip:** All sources cited within your dissertation must be in your reference list. Carefully check each chapter and be sure all sources are included.


**Tip:** In title of articles, only the first word of the title, the first word after a colon, and proper nouns are capitalized.


https://www.whitehouse.gov/sites/default/files/microsites/ostp/stem_stratplan_2013.pdf


Appendix A: Email to Potential Participants

FROM: Student Name
TO: Potential Study Participant
SUBJECT: Student research of employee motivation of women in STEM professions

I am in the process of conducting my doctoral dissertation by completing a research study on what motivates women to continue their careers in science, technology, engineering, and math (STEM) professions, and I am asking for your help. This email is sent to you to request your voluntary participation in my study.

The time commitment is minimal—just 1-2 hours of your time. I am seeking to interview women in STEM professions who fit into one of two categories:

1. Women in STEM professions who have been in the profession continuously for more than 10 years (where the definition of continuously is that they have not taken leave from work or had a gap between jobs that lasted more than 26 weeks).

2. Women in STEM professions who have been in the profession for a total of 10 years, where they left their profession at some time, for a period of at least 26 weeks, and subsequently decided to return to the profession. (The reason for the 26 week+ leave period can be any reason, personal or professional, and the participant will not be requested to share the reason for leave).

By taking part, your contribution may help other women by providing them with insights on how to have successful careers in STEM professions.

To participate, please reply back to this email. I encourage you to forward this email to friends or colleagues who you think may be interested.

Thank you in advance for helping me with this important study.

Sincerely,
Student Name
University of the Rockies Doctoral Student
Appendix B: Demographic Questionnaire

1. **What is your STEM discipline (select the closest that applies)**
   - Science
   - Engineering
   - Technology
   - Math

2. **How many years have you been working in STEM fields?** (If you have taken a break from the profession and have come back, add the years of service together. Do not include the time for the break in the total amount of years)
   - <10
   - 10-15
   - 15-20
   - 20-25
   - 25-30
   - >30

3. **Have you ever taken a break from the STEM professions for any reason that lasted over 26 weeks?**
   - No. I have not taken a break that has lasted over 26 weeks
   - Yes, my break from the profession lasted between 6 months to 1 year
   - Yes, my break from the profession lasted between 1 year to 2 years
   - Yes, my break from the profession lasted between 2 years and 5 years
   - Yes, my break from the profession was over 5 years

4. **What is your age?**
   - 21-30
   - 31-40
   - 41-50
   - 51-60
   - 60 or over
   - Decline to answer

5. **What is your race?**
   - African-American, Black
   - Chinese
   - Filipino
   - Indian
   - Japanese
   - Korean
   - White Caucasian – Non Hispanic
   - Hispanic or Latino
   - Mexican
   - American Indian, Alaskan Native
   - Middle Eastern
   - More than one race
6. **What is the highest level of education you have completed?**
   - Some college
   - 4-year college degree (e.g. B.S., B.A.)
   - Master’s degree
   - Doctoral degree
   - Professional degree (JD, MD)
   - Other
   - Decline to answer

7. **The organization you work for is in which of the following:**
   - Public Sector
   - Private Sector
   - Not-for-Profit
   - Unknown
   - Other
   - Decline to answer
Appendix C: Consent Form

Informed Consent Form for a study on *Women Staying in STEM Professions Long Term: A Motivation Model*. You are being invited to participate in a research project conducted by Student Name, who is a doctoral candidate at the University of the Rockies.

You are invited to participate in a research study about your personal experiences throughout your career, including any barriers that you may have overcome and/or factors that motivated you to stay. The interview will take approximately 60 minutes. The potential risks associated with this study are minimal. You will be given the opportunity to add additional information at your discretion at the end of the interview.

Your interview will be used to contribute to empirical evidence in a growing body of research on STEM professions, primarily aimed at retaining women in these professions. Women in STEM professions in the future may benefit from your experience.

Your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time. You also have the right to refuse to answer any question(s) for any reason during the interview. Although the interview questions are not intended to be intrusive or cause distress, if you feel distressed at any time, you have the right to withdraw. In the unlikely event that I, the interviewer, sense distress, I will stop the interview and recommend that you seek local resources to assist you.

A description of your experiences will be part of the published study. Your name will be replaced with a pseudonym to protect your anonymity and ensure that your individual privacy will be maintained in all publications or presentations.

If you use any company names or names of colleagues/managers during your interview, those names will not be used in any publications or presentations associated with this study. Instead, ‘the company’ or ‘the participant’s manager’ or similar language will be used.

Our conversation will be digitally recorded and later transcribed. Upon completion of this study, and subsequent approval of this research by my committee, all recorded materials will be erased after seven years. The same approach will be used with regards to any written notes or memos documented by the researcher.

If you have questions regarding your rights as a research participant or any concerns regarding this project, you may report them – confidentially, if you wish – to the University of the Rockies Institution Review Board at dissertation.online@rockies.edu.

Consent given by ________________________________ on _________ and received by Student Name.
Appendix D: Interview Protocol

Initial Questions for Interviews

1. You signed an informed consent before our interview. I would like to record you acknowledging that you have read this, that you understand it, and that you give consent to participate. Can you please confirm your consent to participate?

2. Briefly, what do you do now professionally?

3. When you were growing up, what types of careers did you think about pursuing?

4. When did you first think of becoming a ________?

5. Tell me why you went into your field of study. Was it your first choice?

6. How would you describe your career?

7. What do you enjoy most about your profession?

8. As you look back on your career, was there ever a situation where you found yourself at a crossroads of continuing in your field versus choosing another path? <If so> Can you describe this situation? What influenced your decision?

9. For linear participants: Have you ever thought of leaving? For the non-linear participants: Have you ever thought of leaving again? What influenced your decision to stay?

10. For non-linear career participants: When you returned to the workplace, was there anyone or anything in particular that eased your transition back?

11. What makes you stay (or what made you come back after your leave)?
   a. Which are the most important reasons?
   b. Why are those reasons important to you?
   c. Continue to ask more about contributing factors
12. Is there anything specific that influenced any big shifts or changes along the way?

13. Were there any changes for you, during your career or your life that changed the motivating factors for you? When you first started your career, what were the drivers that motivated you? Is what makes you stay-the same as what motivated you to enter in the first place?

14. I’m interested in understanding the effects of the changes in the workplace itself, too, that may have been instrumental in you continuing in STEM professions.

   a. There has been quite a bit documented on women in STEM that leads to believe that the environment in the workplace can be somewhat unwelcoming for women to find career success. Has there been anything in particular, either in the policies or the culture that has been key to your career longevity in the profession?
   
   b. Thinking back on your career are there any changes that were instituted in the workplace that you thought were positive for women in STEM professions?

   c. Would you consider these changes key to motivating you to stay?

15. Is there anything else you would like to emphasize about your work experience?

Question added following participant 4:

16. What does your workplace do specifically that keeps things challenging and interesting for you?

17. Participants thus far are suggesting that there has been a shift in the workplace—a positive shift—moving away from the hostile environment that is written in the literature about the STEM workplace culture. There also seems to be a tie-in to self-
confidence for the women I have interviewed so far. Have you seen a shift in
workplace culture and / or your own confidence? What is the timing for both?

Questions added following participant 8:

18. Flexibility and predictability have emerged as a theme of importance to most
participants. Can you comment on this? Does your workplace have any policies that
help create this environment? Is your workplace culture amenable to helping create
more flexible or predictable workdays for you when / if you needed it?

19. Some participants are commenting on what one participant termed as a modern-day
barrier for growth opportunities: part-time work. Can you comment on how part-time
work is viewed in the workplace, if you see it as a barrier for advancement?

20. Some participants think women create barriers for themselves with regard to being
complacent with their careers as compared to men. What is your perspective on this?
Do you view any of your choices as a barrier that you created versus the culture of the
company?

21. What do you think technology has created for the environment at work, now that
people are sometimes working virtually versus in the office?

22. Some participants have emphasized building their reputation as a key part of being
considered for growth opportunities. What do you think? What has helped or
hindered your reputation building in your career?

Questions added following participant 12:

23. Some participants interviewed so far have emphasized being credible and feeling
valued as something that has motivated them, but they seem to reach this at different
points in their careers. Can you speak to whether you agree with the emphasis on
credibility/feeling valued and if so, what contributed to that for you and if you remember, at what point did you feel you reached this sense of yourself?

24. Many participants have emphasized that opportunities for growth are a key part of motivating them. There does not seem to be a consistent or direct path emerging. There is no one recipe for growth success. When you have sought growth opportunities, what has been successful for you? What has your company done that has helped? What barriers to growth, if any, have you experienced?

**Tip:** If you used an instrument that was previously published, you must have permission from the copyright holder to include it in your appendix.
Appendix E: Non-Disclosure Form

Student First Name: _______________  Last Name: ____________________

**Title of Dissertation:** Women Staying in STEM Professions Long Term: A Motivational Model

Name of Service Provider: __________________________________________________

Address:
______________________________________________________________

**Tip:** To protect individuals, block out personal addresses and/or phone numbers.

**Type of Assistance:** Transcribing audio tapes / Recording conference call logs

I hereby agree not to disclose or share any confidential information pertaining to the above-referenced research study obtained in the process of providing the services identified above. Confidential information includes but is not restricted to research participants’ names, demographic characteristics, or any other personally identifying information; assessment instrument responses or scores; participants’ ratings, narrative responses, or comments, whether in response to questions or spontaneous; and/or any other information that might compromise the confidentiality or anonymity of the participants. I hereby agree to refrain from discussing with or disclosing any confidential information regarding research participants to any persons other than the researcher, the members of the UoR dissertation committee, or the UoR IRB. All research materials in my possession will be stored securely and no other parties will have access to them. I agree to report immediately to the UoR IRB any breach, whether suspected or known, of this confidentiality statement regarding the above research project.

Signature: ________________________________________ Date: _________________
Appendix F: Participant Demographics

<table>
<thead>
<tr>
<th>Total Years in STEM</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-15</td>
<td>4</td>
</tr>
<tr>
<td>15-20</td>
<td>4</td>
</tr>
<tr>
<td>20-25</td>
<td>2</td>
</tr>
<tr>
<td>25-30</td>
<td>4</td>
</tr>
<tr>
<td>&gt;30</td>
<td>6</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>STEM Profession Type</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>4</td>
</tr>
<tr>
<td>Technology</td>
<td>4</td>
</tr>
<tr>
<td>Engineering</td>
<td>7</td>
</tr>
<tr>
<td>Math</td>
<td>5</td>
</tr>
</tbody>
</table>

Participant Age

- No Answer: 15%
- 31-40: 20%
- 41-50: 20%
- 51-60: 35%
- >60: 10%

Company size

- No Answer: 2
- 1-49: 2
- 50-999: 4
- 1,000-4,999: 2
- 5,000-49,999: 1
- >50,000: 9

Business Sector

- Public
- Private
- No reply

Participant Type

- Linear
- Non-Linear
### Appendix G: Open Coding Results

<table>
<thead>
<tr>
<th>Codes 1-14</th>
<th>Codes 14-28</th>
<th>Codes 29-42</th>
</tr>
</thead>
<tbody>
<tr>
<td>Likes math</td>
<td>Expessed believing in capabilities</td>
<td>Changes in workplace culture – not hostile now</td>
</tr>
<tr>
<td>Likes science</td>
<td>Expessed maturing into confidence</td>
<td>Lateral moves are good capability building</td>
</tr>
<tr>
<td>Continuously learning</td>
<td>Expessed confidence throughout career</td>
<td>Evidence of advancement opportunities</td>
</tr>
<tr>
<td>Being part of teams</td>
<td>Peer relationships</td>
<td>Networking</td>
</tr>
<tr>
<td>Challenging</td>
<td>Workplace policies</td>
<td>Investment via training is available</td>
</tr>
<tr>
<td>Identifying with profession</td>
<td>Recognition and rewards</td>
<td>Career is limited due to family priorities</td>
</tr>
<tr>
<td>Creating</td>
<td>Client relationships</td>
<td>Fulfillment of growing others</td>
</tr>
<tr>
<td>Problem solving</td>
<td>Sponsor</td>
<td>Credibility</td>
</tr>
<tr>
<td>Variety of work</td>
<td>Direct Managers</td>
<td>Reputation</td>
</tr>
<tr>
<td>Flexibility/predictability</td>
<td>Hostile environment</td>
<td>Visibility</td>
</tr>
<tr>
<td>Expressed having a niche</td>
<td>Good environment – good</td>
<td>Technology advancements effect on workplace</td>
</tr>
<tr>
<td>Societal trends towards gender based work and home</td>
<td>Career advancement is limited for the part-time worker</td>
<td>What motivates me has changed over time</td>
</tr>
<tr>
<td>Personal relationships outside of work</td>
<td>Priority of Family</td>
<td>What motivates me has not changed over time</td>
</tr>
<tr>
<td>Lack of evidence of advancement opportunities</td>
<td>Opportunistic outlook</td>
<td>Compensation</td>
</tr>
</tbody>
</table>

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