

Restate the purpose  
of the research.

## CHAPTER V: DISCUSSION

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The purpose of this qualitative grounded theory study was to identify what motivates women to stay in or return to STEM professions, leading to a model of motivation. This chapter includes a discussion of major findings as related to the literature on women in STEM professions, women in the U.S. workplace, human and worker motivation, and what implications may be valuable for use by legislators, corporations, and women who work in or plan to pursue STEM professions. Also included is a discussion on connections to this study and motivation theories and workplace policies. The chapter concludes with a discussion of the limitations of the study, areas for future research, and a brief summary.

This chapter contains discussion and future research possibilities to help answer the research questions:

**(R1):** What motivates women in STEM professions to stay in their profession long term?

**(R2):** What motivates women with non-linear careers in STEM professions to return to their profession after at least a 6 month break from their profession?

The theory for what motivates women to stay in or return to STEM professions is multi-dimensional and comprised of five themes: (a) interest in STEM is the constant as individual needs and priorities change, (b) direct manager influence on development is critical, (c) performance-based workplace policies and culture are continuously sought, (d) moving towards a no-bias workplace remains important, and (e) the career growth path at life's crossroads remains a challenge. Some factors relate primarily to the individual, some to the workplace, and some are a combination of the successful relationship of both. All of these factors help contribute to an environment where women in STEM are challenged and can continuously grow.

Outline the  
organization  
of the  
chapter.

Restate  
the  
research  
questions.

Briefly restate key findings presented in Chapter IV.

Include an overview and interpretation of the major findings.

## Interpretation of the Findings

While their career specialties, path, and experiences may include variation for each individual, each of the five common themes were prominent factors in motivating the women interviewed for this study, throughout their STEM journey. These themes have a dynamic dimension to them, as what is important to the individual changes over time. Each theme is described in detail in the follow sections.

### **Interest in STEM is the Constant as Individual Needs and Priorities Change**

This study's conclusion that career fit is essential to motivating women to stay in STEM professions agrees with the historical literature that indicates career fit is a primary contributor and a good predictor of persistence (Giles, 2009; Jones et al., 2010; Matusovich, 2010). Career fit relates solely to an individual's interest. While one can expose someone to a profession, one cannot force them to like a specific job or career. Buse and Bilimonia (2013) concluded that among the women who had left the engineering profession, some expressed having been pushed into engineering. While some participants did admit being exposed to STEM professions by someone else, their involvement was their own idea. All participants described a genuine love for their math- and science-based careers. Participants cited enjoyment of the overall challenge of their chosen professions, often described as enjoying the problem solving, achievement, continuous learning, creativity, and the variety in their work.

In this study, women emphasized family or community priorities. Even those women in the study who did not have children, expressed emphasis on their life outside of work, particularly as they matured into their careers. Throughout most interviews, the women expressed their career choices in terms of *sacrifices* or *balanced*. While some women

admitted to some imbalances during times of change in their life, participants felt balanced and satisfied overall.

There was no difference in what motivated women with linear careers or nonlinear careers to stay in STEM professions. The women with nonlinear careers expressed satisfaction with their job opportunities, similar to that expressed from women in linear careers. The women in nonlinear careers came back, because they loved their field of work, which was again, one of the primary reasons women in linear careers stayed long-term.

### **Direct Manager Influence on Development is Critical**

While all participants expressed ownership in their career paths, across all professions and across all age demographics, participants referenced the direct manager as an important partnership throughout the career journey. Specifically, the results of this study included the following sentiments: (a) my manager respects my capabilities, (b) he or she understands my individual needs, and (c) my manager values my work. Underlying all of the sentiments was an inference to trust in the employee-manager and manager-employee relationship

The emphasis on the direct manager in this study is consistent with what is in the literature regarding studies related to women in STEM. Marques (2011) made reference to the importance of the direct manager regarding how managers assist with building a reputation of confidence and how direct managers are key influences in future growth opportunities. This study's conclusion emphasizes the importance for both the worker to communicate their individual needs to the direct manager and for the direct manager to understand that needs are unique to the individual. Understanding the individual's needs, too, is in line with the literature that motivation varies according to each individual. It is important for organizations to focus on the intrinsic motivators that they can help shape, rather than just the extrinsic motivators that they can institute (Furnham et al., 2009).

**Tip:** In APA style, you can separate items in a series using lowercase letters within parentheses.

Throughout this section, discuss your findings in the context of the literature.

**Tip:** When citing multiple resources in a citation, put them in alphabetical order.

One of the noticeable differences in the results of this study, as compared to existing studies, was the emphasis on direct managers versus the emphasis on mentors previously written about in the literature (Glass & Minnotte, 2010; Kerr et al., 2012; Marques, 2011; McLaren, 2009; Powell, 1992; Preston, 2004). Mentors were not overwhelmingly positioned as drivers of motivation in this study. There were some examples in this study where participants cited peer groups, mentors, or company-sponsored mentoring programs as being helpful to them. This study is consistent with the literature that discusses the impact of mentors as helping, but not necessarily critical in keeping women in STEM fields (Glass & Minnotte, 2010; Kerr et al., 2012; Marques, 2011; McLaren, 2009; Powell, 1992; Preston, 2004). While the mentors and programs cited by participants in this study certainly helped manage day-to-day challenges, the mentors were not often cited as sponsors that helped them move towards their career goals or keeping them in STEM. Their direct managers were generally cited as that key sponsor in helping them reach their goals.

Motivators change over time. It is important for managers to know their employees as individuals, to be able to understand what motivates them (Davila & Pina-Ramirez, 2014). Katarzyna and Dagmara (2012) referred to the manager-employee trust relationship as one that hinges fundamentally that the manager is in a position to make decisions that impact employees. While an employee can demonstrate competence and express a desire to move in a certain direction, within that particular company, the direct manager often has the final input into performance evaluations and career growth decisions (Katarzyna & Dagmara, 2012). Conversely, examining the employee-manager relationship through the lens of a manager, the manager has a vested interest in building the reputation and competence of his

or her employees, as their work is a reflection of the manager's (Katarzyna & Dagmara, 2012).

### **Performance-Based Workplace Policies and Culture are Continuously Sought**

Performance-based policies and culture are more satisfiers than motivators, foundational to fostering an environment for these four motivators. This study's results emphasized that career desires and individual needs change over time, and therefore motivation to stay in or return to STEM professions may have varying points of emphasis. This multi-dimensional framework depends on the balance an individual is trying to achieve during that life stage or career stage and the options available to them in the workplace.

The literature emphasizes the importance of trust in the employee-employer relationship regarding motivation, particularly when related to fair wage (Latham, 2009). Historically, women leave STEM professions because of the wage gaps compared with their male counterparts (Hunt, 2010). Salary inequity continues to be prevalent in the United States (Brawner et al., 2012; Giles et al., 2009; Lincoln et al., 2012; Powell, 1992; Preston, 2004; Rhea, 1996). Both full-time and part-time participants cited salary as a motivator for staying in the profession. Several cited salary as having more importance as they matured in their career, which emphasizes that salary is important in retaining women in STEM professions.

Historically, the perception also included that workplace policies are gender-biased, including workplace incentives (Pas et al., 2014; Smith et al., 2012). The participants in this study agreed that generally their workplaces had good work-life balance policies, offering them flexibility in managing their time at work and time at home. One of the most-cited structural barriers in the workplace was effective policies that promoted work-life balance

(Glass & Minnotte, 2010; Kerr et al., 2012; Powell, 1992; Preston, 2004). This study is

**Tip:** Avoid anthropomorphism (attributing human characteristics to an inanimate object). In this sentence, it would be better to say: *The results of this study align with...* For help, see page 69 in the APA Manual.

conclusive as to whether or not policies are a barrier. Work-life balance policies were not used as a motivator in this study because most participants attributed the flexible workplace as part of the culture, rather than as instituted by a policy.

The results of this study would agree with the literature regarding the importance of flexible work policies. Friedman and Lackey (1991) suggested that a work schedule that allows more control over their lives is a motivator for women to persist in STEM professions. Flexible work arrangements were highly valued by the women who participated in this study, which is consistent with conclusions found by Catalyst (Beninger & Carter, 2013). The women in this study indicated downsizing their aspirations at times in their career, even if their workplace policies afforded them a flexible work arrangement. This finding may be indicative that the workplace will employ women at comparable wages with flexible arrangements, but not target them for advancement opportunities.

One interesting difference in flexibility in the women interviewed for this study was the level of flexibility that the women had. Some defined flexibility as being able to leave the office for a child's school function. Others described flexibility in terms of a restructured work week beyond the traditional 9-5. Other participants defined flexibility as working from home. There is no standard flexibility. Within the United States, a minimum wage exists, as well as maternity leave. If flexibility is so critical to creating work-life balance, perhaps it is time to do something different with how it is approached for every worker, making the workplace a step closer to humanizing on a more consistent scale.

### **Moving Towards a No-Bias Workplace Remains Important**

In previous literature, commonly cited barriers related to organizational culture and women progressing in STEM careers included workplace recognition barriers (Glass &

Minnotte, 2010; Lincoln et al., 2012; Thilmany, 2010); workplace culture barriers (Beddoes & Borrego, 2011; Cheryan, 2012; Kerr et al., 2012; Marques, 2011) and other male-dominated workforce barriers (Fouad, Singh, Fitzpatrick, & Liu, 2012; Thilmany, 2008).

The participants in this study did not perceive the male-dominated workforce professions as a modern day barrier for STEM. Previous literature cited women feeling as if they were tokens of diversity on leadership teams (Glass & Minnotte, 2010; Lincoln et al., 2012).

Previous studies undertaken referred to lack of invitations to informal networks in the workplace (Glass & Minnotte, 2010; Kerr et al., 2012). Many women who participated in this study acknowledged that they were a noticeable minority. However, in contrast to previous literature, the male majority was not cited as a barrier and there was no dominant suggestion that women felt like they were diversity tokens, or felt left out of networks in the modern day STEM workplace.

Continue to connect the findings to the existing literature.

Workplace recognition, despite not being positioned by the women interviewed in this study as being unequal, was certainly still seen as an uphill challenge for some women at times in their career in terms of juggling family priorities and finding satisfying roles and growth opportunities. Having credibility is based on another's judgment of your capabilities. As the reputation is still heavily based on a small few (direct manager, direct leadership teams) and not positioned as the workplace overall, it seems like there could still be a bias for women in STEM professions regarding growth opportunities.

The participants in this study did not project the inflexible work culture positioned in the literature. Further, the participants acknowledged some long work weeks but the participants did not see these times as barriers, but part of the payback they make to the company for the flexibility they have to leave work or work from home when their personal

life requires more time (Tomlinson et al., 2005). References included workplace culture as having a higher influence than workplace policies. The women in this study had mixed thoughts on workplace culture, particularly those in large organizations that noted a dislike for politics.

Because some of the hostile environment behaviors still exist in pockets, it is reasonable to suggest that the modern day STEM workplace is not completely free from remnants of the past. The positive step-changes towards performance-based policies and culture seem to be evidence of broad organization changes that help to motivate women to stay in STEM professions. What remains unclear is whether or not a stigma related to growth opportunities continues to be perpetuated because of implicit bias of the still typical male-dominated STEM culture.

### **The Career Growth Path at Life's Crossroads Remains a Challenge**

The women in this study had various career paths, very unique to the individual. As this study verified, women in STEM seek a challenge, enjoy learning, and enjoy doing something new. In other words, they like to continuously grow. Career growth motivation for the women in STEM in this study was not just described as a linear trajectory up the corporate hierarchy, particularly when life event importance outweighed professional advancement as a personal priority for them in their own individual circumstance.

Freidman and Greenhaus (2000) called these career choices leaning towards having *much of it all* where women make choices that had a career sacrifice element to it at a particular life stage. Having much of it all, or *having it all, perhaps not always at the same time* is a similar sentiment to what the women interviewed in this study expressed. Women still want to be challenged and still have goals to achieve in their career in STEM when they



marry and have children. Women in STEM expect that they will be seen first and foremost as a professional in the lens of their managers, co-workers, and clients.

Throughout their career journey stories, the women in this study largely shared their career growth opportunities through a positive lens. Many directly spoke about, or implied, that they had several occasions where the choices along their career path had a work-life balance component to consider. Some participants in this study spoke about career choices that they made to reshape their day or role when having children, where the roles helped them continue towards a steadily upward trajectory career path. For example, one participant worked 4 days, 10 hours a week. Other participants conversely spoke about the conscious choices of taking roles that were career growth sacrifices made in lieu of prioritizing family first. This outcome was especially the sentiment expressed by women who took part-time roles.

Women in this study voiced that they had growth opportunities, but not all were motivated to be on a career fast track. Some women were. Many participants enthusiastically heralded growth opportunities provided through lateral moves as beneficial to their growth and development. Some women indicated that part-time work was critical to them pursuing their careers. However, part-time work is not rewarded with growth opportunities, according to the women in this study.

The STEM workforce is not unique with regards to work-life balance. Researchers refer to this dynamic as the work-family conflict (Kanter, 1997; Sperling, 2011). Kanter (1997) suggested that the workplace had to change the worker-employee relationship as the post-industrial society emerged in America. All STEM professionals in this study cited conscious changes that they made to improve their own work-family conflict, particularly

**Tip:** For rules on when to use italics, see pages 104-106 of the APA Manual.

during periods of change in their careers. While many of the women cited changes made when they had children, some cited their individual interests outside of work. Participating in horse riding, golf, travel, volunteering, and other out-of-work activities were cited as enjoyable activities and in some cases positioned as stress management activities that their work day flexibility helped enable.

Discuss how the results connect to the conceptual/theoretical framework.

### **Implications for Theory and Research**

Chapter II included descriptions of several motivation models. These models included Maslow's hierarchy of needs, Herzberg's two-factor theory, goal setting theory, equity theory, and self-efficacy theory. How the motivation model discovered in this study fits with these models is discussed in the following sections.

#### **Maslow's Hierarchy of Needs**

Maslow's (1964) theory of a hierarchy of needs includes the suggestion that only upon fulfilling the lower needs of security, safety, and belonging, can a person realize growth, or self-actualization. In this study, a good salary and good working conditions in a performance-based culture and rewards and recognition, most closely linked to the security and safety layers of the Maslow hierarchy. The results of this study aligned with Maslow's Theory that certain basic needs are important. However, these needs are not necessarily in a hierarchy with belonging and growth. The results of this study confirmed that the motivation hierarchy is not rigid.

The motivations of individuals for belonging are important, as this study emphasizes the importance of women's reputation and credibility, but belonging is not necessarily a prerequisite for persistence in growth in STEM professions. The women in STEM professions interviewed in this study seemed to grow through various periods of self-

actualization and regrowth in their careers, based on their desires and expectations of themselves as they grew as a person. The cycle of continuous growth is a strong component of what keeps women in STEM motivated, consistent with Maslow's theory where people continue to seek experiences that stretch them, relentlessly seeking ways to explore their intrinsic interests until satisfied with reaching the peak of their capabilities.

Consider the findings in relation to current theory.

### **Herzberg's Motivation Theory**

When comparing this study's results with motivation theory, similarities and differences exist. Herzberg's motivation theory separates intrinsic and extrinsic factors, suggesting motivating factors (intrinsic) and hygiene factors (extrinsic) exists as one examines motivation in the workplace (Robbins & Judge, 2009). Looking first at extrinsic factors such as (a) the quality of supervision, (b) compensation, (c) working conditions, (d) company policies, and (e) relationships with others, it is evident that these extrinsic factors are important to women in STEM professions.

While the results of this study confirmed that compensation, working condition, and company policies were important foundational components of their workplace experience, the women in this study placed increased emphasis on their direct manager and on their ability to build credibility. The intrinsic factors of growth, recognition, and the work itself in Herzberg's theory are found as essential component for women in STEM professions in this study. Growth is a focal point of motivation in this study, where the women expressed the desire to continuously grow. All of the women expressed a genuine and sustained interest in math and science. Recognition links heavily to reputation and credibility building, essential to keeping women motivated to stay in STEM professions.

### **Goal-setting Theory**

Goal-setting theory is based on performance and feedback (Robbins & Judge, 2009). Several participants cited structured performance and development discussions, with two participants even indicating specific, measurable, achievable, realistic and timely (SMART) goals as used in goal-setting theory. Goal-setting theory is very task-based, and while it offers a good communication platform for task-based discussions, if used in the absence of a longer term employee development tool, the richness of the conversation is limited.

### **Self-Efficacy Theory**

The premise of self-efficacy theory suggests that self-efficacy increases with positive feedback, where the worker will be motivated to perform better (Robbins & Judge, 2009). Self-efficacy theory has strong ties to the motivation of women in STEM professions interviewed in this study. Every woman interviewed in this study expressed strong self-efficacy. Even those who mentioned maturing into self-confidence expressed having self-efficacy, even early in their careers. The women interviewed in this study were committed to their professional goals. While they sometimes credited the support of co-workers, spouses, and friends, the women expressed an efficacious attitude towards their capabilities to overcome challenges by heightening their efforts or acquiring new skills.

### **Equity Theory**

The premise of equity theory suggested the motivation of individuals to eliminate inequities when compared to their peers (Robbins & Judge, 2009). It is difficult to assess equity theory in relation to the findings of why women include motivation to stay in STEM professions in this study, as there were no direct questions asking about equal treatment.

Some women implied that they were disappointed that women did not have equal representation and would likely not for a couple generations.

### **Implications for Practice**

Bias may be undermining the chances for women to attain equity for career growth opportunities. Today, the workforce has more dual-income families, more employees working into what was previously viewed as retirement years, more workers going back to college while they are working, and more women entering the workforce than in the past (Wittmer & Martin, 2013). Only 13% of American households have single earners (Wittmer & Martin, 2013). If 87% of the workforce works under the influence of a career growth framework created to grow a demographic of workers married men with a wife at home taking care of the children, and only 13% actually are that demographic, then arguably the career growth framework in contemporary organizations needs to be re-balanced. Society has a voice in helping to create a more balanced approach to development and growth opportunities, as history indicated that legislation can help to move the dial in creating equity in the workplace. Industry has not yet demonstrated the ability to drive substantial change in creating equity for career growth paths.

**Tip:** Avoid words that imply absolutes. Instead, use terms like “suggest” or “imply.”

The results of this study prove that U.S. workplace policies may not be as progressive as those in other advanced countries such as Australia, England, Sweden, New Zealand, and Canada, whose policies offer incentives for recruiting women in STEM professions in particular (Giles et al., 2009; Preston, 2004). The United States lags behind European countries in workplace policies that aid worker success in setting the worker up for success, particularly in terms of childcare, or aiding the career success potential of the primary caregiver.

If the United States wants to continue to compete in an international economy to attract the brightest men and women in STEM professions, the United States should consider more progressive laws to become a country that is an attractive option for the dual-income family. Throughout U.S. history, women are positioned as the primary caregiver (Cohen, 1996; Sperling, 2011). Family leave still impacts women more so than men. Perhaps this imbalance too needs to change, for the work-life conflict transition to work-life balance as women and men increasingly moves towards more equal shares in the responsibilities at work and at home.

Another area that could benefit from a better understanding of how to aid U.S. workers career advancement, is to consider more protection for the part-time worker. The stigma that the part-time worker is less dedicated to the workplace is an outdated stigma based on a 9-5 work schedule, which today does not even exist for many full-time workers. Because women make up more than two-thirds of part-time workers in the United States, this stigma is likely to be more concentrated in the female workforce population (Hirsh, 2005). With regard to work-life balance policies that offer flexible-hours workplace cultures, this study provided some evidence to support that flexible workplace policies do not have a stigma directly related to performance. The results of this study imply that a stigma does exist in the workplace related to growth opportunities.

While workplace norms trend towards more flexible policies and societal norms are starting to move towards more caretaking responsibilities for men, neither of these environmental norms came without the help of legislative intervention (Sperling, 2011). There is a proposed Working Families Flexibility Act being considered in the United States at the federal level, which is long overdue, considering 177 nations in the world offer paid

leave for new mothers and 74 for new fathers, where the United States does not yet require any (Furlow, 2014). It seems that the lack of growth opportunities, often positioned as career sacrifices, were acceptable to the women interviewed in this study. Societal bias is not segmented to women in STEM professions, but to professional women in general in the United States. Because women remain the minority overall in STEM professions, the bias filtering into the organization may be compounded.

### **The Role of Industry Helping Women Persist in STEM Professions**

The emphasis participants placed on their conscious choices to alter their work schedules to attain work-life balance is an indicator that the individual working mother in STEM professions may have their career path limited, because of the way certain jobs have historically been structured in the workplace. The concern for growth in a career is not unique to women in STEM professions. In the United States companies in general “do not promote employees whose work is conditioned on a child’s unexpected needs”, [coined by the University of California at Hastings college as] “family responsibility discrimination” (Kulow, 2012, p. 90). Many companies have adopted policies that aid work-life balance. The argument trends towards making these benefits more universal and consistent.

The results of this study supported the notion in the literature that work-life balance is an important focus for women in the workplace (Pas et al., 2013; Smith et al., 2012). For the women in STEM professions who participated in this study, work-life conflict was not consistently viewed. Some viewed their choices as a sacrifice. Others viewed their choices as almost the norm. Others expressed gratitude to be able to do both, and similar to the literature, it was clear in this study that women in STEM internalize the roles of being a mother, worker, and wife (Pas et al., 2013).

Instead of positioning the work-life conflict as a struggle, the women in STEM professions who participated in this study seemed genuinely at peace with their choices overall, and viewed their choices as the right choice for the right time for their family. It is evident in this study that growth opportunities remain somewhat of a barrier for women in STEM. The traditional view of climbing the ladder, based on a traditional male workforce with little home responsibilities, is not creating a fair and equitable workplace for women. Any working parent who bears responsibility at home (Pas et al., 2012).

**Tip:** This author has integrated the discussion on limitations with suggestions for future research. These sections are typically written individually.

### **Limitations and Recommendations for Future Research**

While the researcher still agrees that qualitative research was the right choice for this study, qualitative research tools, such as interviews, are not designed to capture hard facts. More credibility could be given to this study if coupled with quantitative research. For example, a survey designed for quantitative research, and subsequent statistical analysis, may offer more evidence to strengthen the data discovered using qualitative research tools.

Recommend alternative research methods and/or designs.

Several areas for future research on targeted demographics could add to the findings in this study. A quantitative study could be developed to understand what role company size plays in compensating for performance versus development, since several participants in this study cited the politics of a large organization as something negative. Another demographic to study differences in would be motivation throughout the career journey, potentially even soliciting candidates of different age groups that would be willing to answer survey questions over a 5 to 10 year period to determine if there are large shifts over time in the motivation of an individual and if there are similarities across women in STEM professions.

Another quantitative study that would help to couple with this study's finding would be a study using a larger and more diverse population, potentially comparing the perspectives of women and their managers in STEM across the United States. With regard to qualitative



research, using a participant and manager combination may better be able to describe the role of the direct manager in motivation. A broader demographic of participants and managers may give more insight into if the development of women in STEM is credited as heavily to managers as is this study.

Discuss limitations that may affect the validity, generalizability, or trustworthiness of the results.

From a race perspective, this study lacked diversity of participants. According to the U.S. Department of Commerce Report (2013), 41% of STEM professionals are Asian, 23% are non-Hispanic White, and only 6% are Black, with the remaining percentage not identifying themselves. A broader demographic of participants alone may be an area for future search, noting that all 17 of the 20 participants that did answer the demographic questionnaire were non-Hispanic White participants.

Identify additional topics that need closer examination.

Lee (2012) suggested a potential for studies involving employees who stayed versus left a work environment. Another angle to explore, then, may be to compare career stages of women who leave STEM professions and what is different at those career stages for women that stay. A literature review research project that studied changes in the U.S. law impacting work-life conflict, compared with changes in women in STEM worker attitude towards the workplace culture, might be useful to view any changes over time. A study that looked closer into the effects of part-time positions with respect to career growth opportunities for women in STEM over the course of their career journey may add further insight into whether or not the historically male fast-track career trajectory is still seen as *the* way to advance one's career.

## Conclusion

The notion of a modern-day work environment that exhibits deeply rooted cultural and structural barriers for women in STEM is generally rejected in this study, although some

bias is still evident today. Motivating factors for women in STEM mirror motivating factors for any worker. One exception is the emphasis on, and the inconsistency of, descriptors placed on growth or advancement opportunities, suggesting that growth opportunities are still a barrier today.

If the STEM workforce is vital to the United States as a nation, where the STEM workforce is only 13% female for engineering and 26% female for science, technology, and math (NSF, 2012), society still has work to do to help build and retain the STEM workforce. There is no data in this study or others that suggests that the workplaces for STEM professionals have consistent policies, cultures, and values for the individual. If the U.S. workplace is not consistently creating an environment where women in STEM professions are motivated throughout their career journeys, and laws are not equipping women to balance both work and families, then there is still work to do to advance the United States in the global race in science, engineering, technology, and math.

**Tip:** To increase clarity, limit your sentences to no more than 40 words.

Provide a brief summary of the key findings.

The results of this study suggested that there are five themes related to motivating factors for women who have stayed in STEM professions long-term: (a) interest in STEM is the constant as individual needs and priorities change, (b) direct manager influence on development is critical, (c) performance-based workplace policies and culture are continuously sought, (d) moving towards a no-bias workplace remains important, and (e) the career growth path at life's crossroads remains a challenge. For the first, career fit is essential in relation to an individual's interest. For women in STEM, a career with challenge is key. Family priorities were emphasized as high priority individual needs, particularly when just starting to have a family.

Direct managers were consistently cited as a key to staying motivated, particularly as direct managers were seen as the gateway to new challenges and growth opportunities. A fair workplace has a foundation of performance-based policies and culture. Both are expected in the workplace of today and the future. The no-bias workplace directly relates to helping foster a good reputation. This perhaps is recognition of the opposite of a hostile workplace being a workplace where a women's credibility is not readily undermined. Continuous career challenge at life's crossroads is a reference to several dimensions related to career growth. The women in this study emphatically voiced their interest in being challenged and wanting to continuously grow.

While the attitudes that the women expressed as they shared their career experiences were positive, it was somewhat disturbing to hear the energy focused in the career growth and development opportunities. The participants in this study presented themselves as competent, experienced women, who genuinely loved their work, who spoke of their managers with high regard and who generally viewed their compensation as satisfactory. Yet, the participants had such varying descriptors about how they felt about their growth opportunities throughout their careers. Some used the word *sacrifice* to describe a growth opportunity, referring to those opportunities that were lateral or part-time. Participants saw these positions as an opportunity to stay in STEM, but at a cost to their career in STEM.

Some described growth opportunities as promotions. The words that women used when describing how they felt about promotions included an emphasis on being valued. If companies want to motivate women in STEM, career growth paths have to be modernized so that all growth opportunities result in the employee feeling like their careers are being invested in. If women learn new skills as part of lateral and part-time work, options they take

to balance family priorities, and they are not justly considered for promotional opportunities, then the workplace has a built-in de-motivator for women. In STEM professions, where the workers are knowledge workers, not industrial age workers, treating any growth opportunity as anything other than an investment is not only archaic, it is potentially discriminatory.

The hostile environment may not be as evident on the surface since overt discrimination that used to plague the STEM workplace is largely a practice of the past. The ownership for career advancement is primarily on the individual, which is not necessarily wrong. If the individual is also a caretaker, he or she has to choose between a career track that offers them promotions and rewards for their advancing skills and a career track that offers them lateral moves or part-time work in exchange for their advancing skills. Advancing skills are advancing skills. The results of this study suggested that women in STEM are motivated to be challenged continuously and motivated to grow. Hopefully, the workplace will soon start to recognize growth through a non-biased lens. Hopefully, in future studies, no mention of bias will be referenced by women in STEM at any point in their journey. Until then, opportunities for the workplace and government to help remove bias remain.

Close with a strong conclusion that provides a clear “take-home message.”

**Tip:** Chapter V should be 15-25 pages long.

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