

Encouragement Works in Academic Settings (Case Study 1) Increasing Persistence in Computing Through Encouragement



K-12 Education



Undergraduate



Graduate

IMPACT OF ENCOURAGEMENT

A faculty member described how simple it is for him to encourage his students: “It just takes me going to them and saying, ‘You do better than you think you do, so keep trying.’” This positive message from someone who should know what it takes to succeed in computing persuades his students to keep trying.

Simple though encouragement is, fewer than half of the faculty members in the average computer science department in the United States say they do it. These faculty members may mistakenly perceive expressions of self-doubt as lack of commitment or ability. These expressions of uncertainty are more likely to come from women as a consequence of society-wide stereotypes that undermine belief in women’s technical competence. When faculty members fail to encourage these women, computing loses students who otherwise would have succeeded.

Marissa Mayer, Google’s first woman engineer, told how encouragement contributed to her success. She described the boost she got as a Stanford University student. “[Computer-science professor] Eric Roberts, who was my mentor all through Stanford, really reached out to me and said, ‘You know what? You’re really good at this. You could go far in this.’” As a freshman, she had taken a computer science course to fill a prerequisite and found it intellectually interesting. Thanks to Roberts, she felt “a huge amount of support,” which helped her go from never having owned a computer before college to a senior executive at Google.

Another example of how encouragement works comes from focus groups with students at 16 computer science departments in 2001. Most of the students reported a variety of reasons for their choice of a computer science major, with encouragement from parents or teachers being a common theme. One student remembered being initially resistant when her high school AP computer science teacher told her that she should pursue the major in college: “I completely disagreed with him, told him that I didn’t want to do it.” But those encouraging words from her teacher had planted a seed, and eventually the student “realize[d] that [she] was actually really good” at computing and that she would find the major “really, really fun.” Other women also reported that having their faculty advisors say, “Just keep at it. You can do it,” helped them persist when they had self-doubt.



A SIMPLE PRACTICE

Encouraging persistence is a simple practice that requires no additional resources. It is typically an element of mentoring, but there is no reason to restrict encouragement to the context of a mentoring relationship. Opportunities for offering encouragement abound during the normal course of daily interaction. It requires only a commitment to cultivating outstanding performance through positive communication.

Encouragement is essential to retention when women express doubts about whether they belong in computing. At this point, the instructor’s response can make the difference between persistence and departure. Simply accepting the woman’s doubts at face value can facilitate her departure. In contrast, a sincere encouraging response that expresses confidence in the student’s ability to succeed and that recommends persistence can facilitate retention.

RESOURCES

Lyons, D. (2010, December 22). Marissa Mayer. *Newsweek*.

NCWIT offers practices for increasing and benefiting from gender diversity in IT at the K-12, undergraduate, graduate, and career levels.

This case study describes a research-inspired practice that may need further evaluation. Try it, and let us know your results.

National Center for Women & Information Technology

PROMISING PRACTICES

How Can Encouragement Increase Persistence in Computing? with Case Study 1



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Anyone who participates in sports or physical training knows the positive effects of encouragement. Research in sports medicine finds substantial improvements in effort and persistence result from frequent exhortations like, “Great job!” and “Keep going; I know you can do it!” This type of communication from trusted sources motivates people to work at a task harder and longer (Bandura, 1997). It promotes career advancement. It equalizes retention of men and women computer science majors, and even increases women’s enrollment, because women more often than men say they entered computer science because a teacher, family member, or friend encouraged them to do it (Cphoon, 2006). Therefore, encouragement can be a powerful tool in an overall effort to bring gender balance to computing.

Encouragement seems to work by increasing the recipient’s self-efficacy (belief in one’s competence to succeed at a particular task). Self-efficacy can be increased in other ways too. For example, both observing someone perceived to be similar to one’s self succeed at the task and experiencing one’s own success at the task contribute to belief in one’s capacity to perform that task. The vicarious method and the verbal persuasion method (encouragement) seem to be particularly effective for increasing the likelihood that women will engage, persist, and put effort into tasks in domains like computing.

HOW TO ENCOURAGE PERSISTENCE

Effective encouragement requires some attention to the content and circumstances of your message. Simply offering “knee-jerk praise or empty inspirational homilies” is not likely to have the desired effect of cultivating belief in one’s competence (Maehr et al., 2008, p. 399). Instead, research suggests that effective encouragement might require a focus on elements over which the performer has control (Schunk & Zimmerman, 2007). It should exhort the performer to keep up the good work instead of praising her innate talent or ability, because people are motivated to work at overcoming challenges only if they believe that their effort increases their chances of success.

Finally, communicating encouragement should be personal, although it also may be public. In other words, announcing the names of those who put forth extra effort and had notable accomplishments can be very effective. Likewise, it might even help to give information that the individual listener can personalize, such as, “Those of you who scored above an xx on this exam should give yourselves a pat on the back. You’re really doing great in the course. Keep it up.” Be certain, however, not to call attention to the gender or race of those you are encouraging and praising. For example, do not say, “The women are really doing great,” because this approach is likely to backfire and undermine women’s confidence.

ENCOURAGING WORDS COUNTER LOW CONFIDENCE

Encouragement increases self-efficacy, which is the belief in one’s ability to successfully perform a task. Because we are more likely to engage in tasks that we believe we can perform successfully, encouragement may be especially useful in male-stereotyped fields such as computing, which are marked by men’s apparent over-confidence and women’s apparent under-confidence. In this context, credible words of encouragement from supervisors and instructors increase women’s entry and persistence by raising their self-efficacy.

RESOURCES

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Schunk, D. & Zimmerman, B. (Eds.). (2007). *Motivation and Self-Regulated Learning: Theory, Research, and Applications*. New York: Routledge.

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