NOLEGEIN Journal of
Human Resources Management & Development

ISSN: 2581-9461
Volume 5, Issue 1, 2022
DOI (Journal): 10.37591/NJHRMD

http://mbajournals.in/index.php/JoHRMD/index

Review NJHRMD

Technology Education Pipeline Success Factors for Female Senior Secondary Students

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Abstract

An important part of long-term success is an individual's capacity to learn and grow on their own terms. When it comes to high school girls' engagement in technology education programmes, this research focuses on their last year of high school. For this section, we'll focus on the many elements that have been recognized by various writers as motivating today's youngsters to participate in extracurricular activities like school. a study of school-sponsored activities and pupils' own beliefs is needed. As a part of their efforts to improve the number of female students taking technical classes, school districts need to be included. Female high school students in India are less likely than their male counterparts to pursue degrees in science and technology. The criticism is based on feminist constructionism that was studied in a classroom in 2013. When students can design their own learning experiences and produce their own artifacts, their interest in technology education increases significantly. Their inherent motivation has been influenced by an increase in students' capacity to reflect and their sense of self-determination. Students are motivated by the wide range of materials, procedures, and goods that are accessible to them. The values that drive the lives of today's young people have been shown to have a direct impact on the interests and motivations of individuals and organizations. As a result, kids in secondary school classrooms will learn about values via the prism of technology. The long-term ramifications of this research are that teachers will have new tools at their disposal to help female students in technology education programmes flourish in the classroom. Women's use of technology should be encouraged regardless of the gender mix of their classroom or school, rather than merely fixing gaps in the system.

Keywords: Technology, education, motivation, females, youth

INTRODUCTION

The purpose of this research is to investigate the elements that impact students' interest in technology education classes. To be successful, students must be actively involved in their own education. The findings are based on a recent study of the factors that influence female students' participation in high school. Students' personal and group motivation has been studied through looking at how they utilize their own beliefs to participate in non-compulsory technological education, as well as what motivates the young of today. The efforts of school districts to increase the proportion of female students enrolled in technologically oriented courses need special mention. Anecdotally, evidence from Europe suggests that female high school students in India are underrepresented in STEM (STEM)-related postsecondary fields of study. Female students aren't enrolling in high school programmes that lead to college degrees for the purpose of

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Received Date: June 20, 2022
Accepted Date: July 07, 2022
Published Date: July 21, 2022

Citation: Mohammad Asif Pasha. Technology Education Pipeline Success Factors for Female Senior Secondary Students. NOLEGEIN Journal of Human Resources Management & Development. 2022; 5(1): 19–24p

educational development. One way to think of a "pipeline" is to think of a student's journey from the beginning of their technology education to the commencement of their post-secondary professional path. Lower secondary school should provide a broad variety of courses in technology to encourage female students to continue their studies at a higher level.

"The creation of the natural world to satisfy preconceived human wants and aspirations," was how the International Technology Educators Association (ITEA) defined technology in 2006 and 2019. Technology education includes subjects that deal with design processes. In the Indian context, this classification includes subjects like agriculture, business, industrial arts and design and graphics, home economics and hospitality, information and communication studies, and engineering. However, even though the term is now the topic of much debate, it has a long history in Indian education. A new technology syllabus is currently being developed by the Indian Curriculum that requires students to show competency in technical and computational thinking [1]. Instead of a definition, it's more of a concept that's not centred on objects but on the abilities that children will acquire.

Therefore, social constructionism has given rise to a plethora of new fields of study, such as the significance of everyday activities, the social construction of memory and forgetting, the role of power in establishing social meanings, and the importance of methodological and theoretical reflexivity. All of these topics center on the issue of how human abilities and knowledge are formed and reproduced in human communities [2, 3].

Gender is a socially and historically produced construct rather than the result of nature, according to a feminist constructionist perspective. To reach a broad cross-section of society and assist students in preparing for the future, technology educators must go beyond the box. Technologists who want to meet the needs and interests of students must reconsider how they legitimize technology education [4,5]. There must be support for Wright's idea of difference to foster variety in all forms, within the context of cultural norms and expectations. The validity of variety will lead to new and vital forms of reasoning and a willingness to participate.

There is a focus on technology education in the literature on the values of young people in secondary school educational settings [6,7,8]. The broadest definition of motivation is 'inspiring action via the use of values, the process through which goal-directed actions are launched and sustained'. Values, according to Rokeach, have a driving purpose: they guide human behavior in the here and now while simultaneously representing human desires in the long term. Valuable features include motivational, cognitive, emotional, and behavioral aspects. Instrumental values are energizing because the idealized behaviors they focus on are seen as essential to obtaining desired results. They are potent motivators because they represent goals that go beyond the immediate, physical ones. We need conceptual tools like these to preserve and increase our feeling of self-worth. You need to look at both the long-term and short-term effects of classroom behavior.

Personal and cultural experiences have an impact on how a person thinks about the world around him or her.

There may be an impact on the way a person acts because of their focus on society or personal values. A person's actions will be different depending on whether social or personal standards are more important to them. Social or personal values, for example, decrease as one climbs. Students' personal values are moulded by their classroom experiences and their interactions with technology when they are regularly exposed to artefacts. Personal and social ambition, self-control, capability, ingenuity, and independence may all be indicators of a participant's desire to succeed. Technology education's design process serves as a starting point for both internal and external values. Morality and technology are inexorably connected [9].

Ethics and technology have become so entwined in today's world that it's almost impossible to separate them. Ethical and moral considerations influence the demand for new technologies. The creation of new technology reflects our values. They have grown inseparable therefore [10,11].

Such an organization of thoughts regarding desirable forms of behavior or end states of existence might be described as a long-term value system. Values are made up of cognitive, emotional, and behavioural components, much like all other kinds of beliefs.

Specializing in the Construction of Female Bodies

This research uses a positivist lens to reveal the perspectives of women in the field of technology education. As young women become more conscious of gender issues, current socio-cultural liberal feminism makes gender equality in the classroom conceivable [12,13]. To enhance the state of the technological education supply chain, there must be a strong desire to succeed.

Therefore, students from a wide range of cultural backgrounds may be identified and given the tools they need using sociocultural teaching approaches. This model of education emphasizes the importance of the learner's active participation in their community of practice to disseminate, interconnect, and contextualize their learning [14]. Through these methods, data on thinking processes may be collected, leading to a better knowledge of how individuals think and their potential for self-modification and transformation.

Learning in both a technical and social setting may be advantageous for females. We are challenged to embrace and comprehend ambiguity, ambiguity, and variety in the same way that other forms of postmodernism press us to accept and understand our desire for imposing order and structure [15,16]. If we do our job right, real life may become even more disorganized and convoluted. It is possible for technology educators to avoid a constricted cultural perspective and to promote change in the sector by incorporating both postmodern and feminist principles.

According to recent studies, the capacity of students to build their own learning outcomes and the freedom they have in the classroom to do so are the most significant influences on their interest in technology education [17]. Certain pupils' intrinsic motivation has been affected by issues such as individual choice. Students appear more willing to continue when they have a greater feeling of self-direction, autonomy, and choice because of increasing the volume of internal information. Women's self-confidence and goals for achievement have made the possibilities available to them in technology education valuable.

To effect change, we must increase awareness of the importance of gender and feminist applications in technology education programmes and ideas. The biological differences between the sexes have no bearing on gender, gender characteristics, or gender interactions. Rather than physical differences, gender is a social construct that encompasses a broad variety of interpersonal connections. The best method to motivate kids is to use a pedagogy that considers the needs of all students, not only females.

Students' perceptions of technology education demonstrate that it is still seen as masculine, procedural, and lacking in intellectual depth by most students. Women's interest in the issue is stifled by this long-held perception. It is important that we don't succumb to stereotypes that reinforce the notion that women enjoy working with people while men prefer dealing with things. Breaking the one-way links that bind everything together is only possible via repetition.

According to study results, making technology education a positive concept that they (females) are exposed to often may help motivate them. By virtue of the frequency of exposure and role models, it may be possible to relate technology to feminism. Motivational Strategies are affected by gender.

Listed below are the methods used in 2019 to increase the interest of female high school pupils in their studies.

THE VALUES OF OUR CIVILIZATION

It is common for women to choose careers that allow them to work in close contact with people and make a positive contribution to society. A greater understanding of the ways in which STEM occupations may be utilized to accomplish humanitarian goals and ideals may encourage more females to pursue a career in the field. Female students put a high value on morality and ethics in society. A study from Queensland's secondary schools has shown that pupils in technology education courses might be inspired by their own values. Instrumental values piqued the curiosity of students just starting to learn about technology. The first step was to study for personal enrichment or professional gain [13]. Technology education was no longer relevant to students' long-term goals as they got older, therefore they quit taking it. It was the students' own values that spurred them to excel in school.

SELF-EFFICACY

Building self-efficacy is another technique to inspire female students in technology education. Women's achievement of task-specific goals and performance in non-traditional career domains has been demonstrated to be linked to their confidence in their ability to act situations [18]. Developing self-efficacy-focused cognitive and metacognitive abilities motivates learners to learn. Investigated the positive outcomes of female students in engineering programmes to learn more about their contentment, success, and long-term satisfaction in the programme. Students' motivation and performance in even the most difficult design projects may be aided using instructive examples and encouragement, as well as by altering the physical environment. Successful results result in long-term involvement [19].

CHALLENGE STRENGTH

Peer and teacher support, as well as self-efficacy and self-confidence, influence women's ability to self-regulate and push them, as well as their ability to overcome obstacles. The ultimate purpose of the design endeavor was what motivated them.

CONCLUSION

From a gender-balanced perspective, technology transfer, the use of aids, and the pedagogic interest that an artefact or object produces may be questioned. A product or a method may have an impact on a girl's motivation. When it comes to using study aids, females are more creative and ingenious than their male peers. To reconnect with technology, ladies may need to change their mindset. To attract female students, the classroom setting, clothes, creative and inventive abilities, and informal learning interactions need to be feminized, as well as the teaching methods. 2018 research found that students at one school were more excited about their education than those at other schools. First came the fight for a place in the school's technology education programme in grades 8 and 9. An all-encompassing school culture instructs pupils on how to be successful in their endeavors. To be successful, it was necessary to maintain the averages of all the students in a year cohort and to keep the school as an academic institution to attain personal achievement. One child was worried that he would disappoint his classmates and that he needed to work as hard for them as he did for himself. His persistence proved the value of this approach as a means of inspiring pupils to generate superior work. The self-efficacy principles as discussed in the above article have been shown to be effective in a non-traditional setting for education. Students' interest in pursuing a career was a driving force for their participation in the poll. The selection of design challenges enhanced participation and motivation. In the classroom, students appreciated being able to develop their own projects. After making a design choice, female students seldom altered their minds. The success of a project depends on your ability to manage it appropriately. Even if they haven’t finished all the necessary preparation work, they may have a plan in place for getting to their objective.

Thirdly, female students were inspired by their teachers' pedagogical approaches to the classroom environment. In classes where students worked together, shared ideas, and learned from one other, it was discovered that they had a better feeling of self-motivation. Researchers may be able to help practitioners by sharing their findings. Female students may be accommodated in technology education programmes via classroom modifications. Long-term planning, short-term support, and constructionist concerns are all important components of initiatives to boost female participation, as this article's empirical and theoretical findings reveal. Female students' involvement and motivation in secondary schools may be positively influenced by short-term efforts as well as long-term human resource planning and management. For example, role models, peer support and the creation of artefacts are factors that will lead to changes soon. It will take time to overcome a deeply rooted social and psychological problem like "Women need to be given the unambiguous message that technology, in all its parts, is suitable for women". Instead of just mending holes in the system, the objective is to create a "gendered pipeline," where women "feel at home doing technology."

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