Social sustainability skills in secondary education: gender and spatial contexts

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Article Info

ABSTRACT

In today's rapidly evolving world, the acquisition of social competencies and an understanding of sustainability principles are critical for holistic student development. This study delves into the comprehensive analysis of social and sustainable skills within the framework of secondary education, considering the influential factors of gender and spatial contexts. To investigate whether there exists a difference between the students at the secondary level of education in social and sustainable skills along the demographic lines of gender and spatial context. A primary data collection method was used for gathering quantitative data from 125 students on a Likert-type 25-item self-constructed questionnaire and differential analysis was conducted. The performance of male and female students is significantly different and the performance of students in the urban settings is higher than the students in the rural settings. It shows that female and rural students are comparatively lower in performing on the social and sustainable skills test. The findings of this research hold implications for educators, policymakers, and practitioners committed to fostering well-rounded individuals prepared for the challenges of the 21st century. By identifying gender-specific patterns and spatial influences, stakeholders can tailor educational strategies and interventions to ensure equitable skill cultivation.

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1. INTRODUCTION

Education is a crucial element in fostering global as well as economic and social development. It is the critical process that enables individuals to acquire knowledge, skills, values, and attitudes to facilitate the achievement of personal goals in the learning population [1]. Education offers a chance to harness the human capital of individuals in our fast-paced society as it is strongly linked to individuals' earning potential and labor market outcomes. The advent of the 21st century has mandated the transformations required to increase the productivity of human capital qualitatively [2]. According to a major finding of the seminal report, the learning generation: investing in education for a changing world, published by the International Commission on Financing Global Education Opportunity, it was noted that the paradigms of investment in our learning generations are steeply inclined toward quality education in developed countries yet remains a serious threat in the developing countries [3]. Subsequently, the greatest challenges are anticipated by the countries existing with huge discrepancies in developing educational resources and youth to achieve scientifically upgraded societies. Educational systems around the world differ in their structure, goals, and outcomes, but they all share the common objective of equipping individuals with the tools they need to succeed in life. This poses a universal inquest towards the existent education frameworks about their preparation to equip the students to

transition from schooling to higher learning and beyond [4]. While the rapid changes in the educational frameworks are now inclusive of cognitively stimulating developments within the academic curriculum, the latest embracement pertains to the value of the development of 'skills' in the young learning populations to meet the long-term demands of the world outside school.

Microscopically then, the popularity of the 'skilled workforce' is situated in the understanding of skill as a variety of competencies that are required for solving challenges, maintaining healthy relationships, and managing social behaviors [5]. The notion of 'skill' in education has pushed the holistic dimension within education for the development of interpersonal integrity in a value-based system [6]. Since the research in the psychological and education domain has long been inclined to social and sustainable skills, the majority of the research has related them to crucial life outcomes like educational attainment, employability, mental health, and subjective well-being [7]. The alarming elevation in the young workforce of India along with the inefficiency of transforming this potential into skilled labor has broadened the discrepancies between the education system and employment sector. National initiatives of secondary education, Rashtriya Madhyamik Shiksha Abhiyan, have endeavored to raise the accessibility levels in the young learning population [8]. Yet, the low transitioning rates from secondary education to further education and wide employability discrepancies in the pursuit of skilled labor have questioned the extent of 'quality' in education that can create sustainability in the future. Regardless of the educational reforms like the new education policy (2020) and government efforts of increasing equity resources through Sarva Shiksha Abhiyaan, there seems to exist serious flaws in creating the awareness towards skills that are required by the students to be competent enough to continue their quest of long-term success [9]. Further, there is a persistent ambiguity regarding the significance of contextual factors like parental involvement, learning environments, and the role of gendered practices that are crucially functional in the amplification of social and sustainable skills in transitioning students.

The value of education these days has culminated in academic success through learning outcomes. These learning outcomes have been further bifurcated into academic skills and social and sustainable skills [10]. Built as a necessary part of the industry-competency model (U.S. Department of Labor), social and sustainable skills have steadily gained prominence across global economic sectors [11]. Academic programs have predominantly emphasized academic skills due to their ability to provide measurable developmental outcomes. However, real-world survival necessitates skills that go beyond academic boundaries. As countries and industries require a dynamic workforce, the recognition of social and sustainable skills has expanded. It encompasses skills beyond academic ones, such as memory, concentration, preparation, language, and reasoning skills. These abilities are characterized as "patterns of thinking, feeling, and behavior" in students [12] that are socially determined and can be developed over a lifetime for beneficial outcomes.

According to existing research, social and sustainable skills consist of social intelligence, compassion, leadership skills, as well as verbal and non-verbal communication [13], [14]. Other studies have expanded the scope of social and sustainability to include links to confidence, competence, and human behavior during later stages of employability [15], [16]. Social and sustainable skills are linked to a child's intellect, mood, and behavior, and some studies have also shown possible connections between social and sustainable skills and traits such as conscientiousness, perseverance, and coordination. These skills are crucial for a student's success, both inside and outside the classroom [17]. The complete idea of social and sustainable skills is theoretically situated in developing abilities within the secondary learning population that can promote the acquisition of values, attitudes, and beliefs that are strictly aligned to generate the upgradation and flexibility required for the higher learning phase and employability today [18]. Deductively, these definitions shape the definition of social and sustainable skills as a set of abilities at the secondary learning level, that is acquired for help in development beyond the institutional boundaries [19].

The conceptual framework of the study on social and sustainable skills has been developed by extensively reviewing literature and incorporating a wide range of research in the field of social and sustainable skills. One such framework extensively highlighted in the literature is the five-factor model [20]. The Big Five model is the result of several research studies. A considerable amount of research has led to a consensus that the Big Five model effectively illustrates the fundamental dimensions of human personality [21]. Furthermore, studies have demonstrated that adult personality traits can be structured hierarchically, with broader higher-order characteristics being subdivided into narrower, lower-order ones [22]. The Big Five model provides a solid foundation for this hierarchy [23]. Since education is closely related to the 'ability of acquisition and application', scholars support the incorporation of social and sustainable skills as an integral part of developing the student's personality. Many studies have associated social and sustainable skills with high school academic performance [24], [25].

Drawing from the definitions and extensive literature survey, social and sustainable skills can be comprehended from a multifaceted perspective, which includes innovativeness, school resilience, information and communication technology skills, task mastery, and proactive leadership. Figure 1 represents the attributes of social and sustainable skills with their scientific evidence of inclusion:

- Innovativeness is the reflection of genuine potential and its effectiveness on the behavior of the individual. It is defined as the "skill of thinking, engagement, and practical efforts of confirmation of novel ideas in real-world settings." Research studies have explored innovative behaviors at the undergraduate level and demonstrated positive associations between the meaningfulness of the career pursued and innovative work behavior [26].
- School resilience is understood as the "skill of enduring goal and developing sustainable resilience despite regular classroom difficulties and academic challenges". In this regard, studies on adolescents have linked resilience to better rates of high school graduation [27]. Furthermore, research studies have found positive associations between school resilience and higher stability in interpersonal relationships [28]. Other studies have also connected school resilience to improved performance in academic learning at the secondary level [29].
- Information and communication technology skills are defined as the "skill of utilizing digitally available technologies, communications software, and the internet networks for accessibility of the content." Hatlevik *et al*. [30] explored that these skills are related to academic sustenance in high school learning environments. information and communication technology skills are strongly associated with the pursuit of higher education at the school level [31]. Scholars have also underlined that the utilization of blended learning technologies entails integrating various learning formats as well as instructional approaches [32].
- Task mastery is understood as the "skill of engaging in effective practices for academic achievements through prioritization of the tasks". A major research study found self-efficacy to strongly predict reading, Science, and arithmetic achievement in high school students [33]. Such skills are, therefore, clubbed within the dimension of school mastery.
- Proactive leadership is referred to as the "skill of inspiring two or more individuals towards the shared purpose of change within and outside the classroom". Indian research studies have found proactive behavior in students to be positively connected to high academic performance in the high school learning population [34]. Other studies have scientifically reflected that a higher presence of proactive leadership is negatively correlated to peer bullying and school victimization [35].
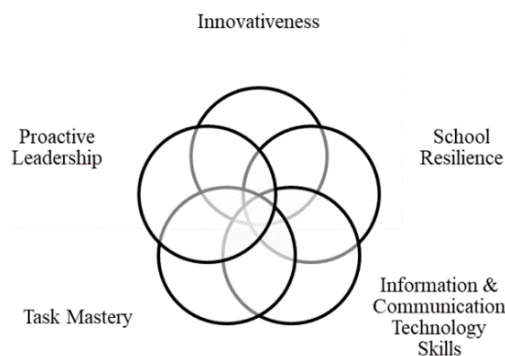

Figure 1. Dimensions of social and sustainable skills

The current state of secondary education is undergoing significant changes, with an increasing focus on fostering the development of social and sustainable abilities in pupils. Nevertheless, there is a significant knowledge deficit about the impact of gender dynamics and geographical settings on the learning, application, and significance of these abilities. Despite the acknowledged importance of social competencies and sustainability literacy, there is a limited amount of research that has investigated potential disparities in the development and expression of these skills based on gender. Additionally, there is a lack of understanding regarding how the physical and socio-geographical environments of secondary education may influence these outcomes. That is why this study will focus on "analyzing social and sustainable skills through gender and spatial contexts in secondary education." Keeping this in mind, the objectives formulated for the research study are presented: i) to analyze whether there exists a difference in the performance of social and sustainable skills between males and females at the secondary level; and ii) to analyze whether there exists a difference in the performance of social and sustainable skills between students in urban settings and rural settings at the secondary level. Research questions (RQ) are prepared according to the formulated research objectives in the research study, they are: i) does the performance of male and female students vary in the social and sustainable skills at the secondary level? (RQ1); and ii) does the performance of students in urban and rural settings vary in the social and sustainable skills at the secondary level? (RQ2).

2. RESEARCH METHOD

The research study ensued a quantitative research design for the collection of data. A primary data collection method was used. The study for this paper was conducted in the high literacy district of Uttar Pradesh, where quantitative data was gathered. The method of this paper was based on quantitative analysis with the inference of the collected data. It investigated the research question of whether male and female students differ in the performance of social and sustainable skills at the secondary level. It also investigated the research question of whether students in urban settings differ from students in rural settings in the performance of social and sustainable skills at the secondary level.

2.1. Sample size and population

The population of the study includes government senior secondary schools in Uttar Pradesh. The district for sample collection was selected from the 75 districts based on the literacy rate according to the 2011 census. From the three districts with the highest literacy, one district (Kanpur) was selected through a random sampling method. A systematic sampling technique was used to draw the sample population from 2 blocks of Kanpur out of 18 blocks. The random sampling technique was used to select the government senior secondary schools of each block. A total of 5 schools were randomly visited in each block, making a total of 10 schools. The total number of students' responses collected from Kanpur was 125, of which 75 were male students and 50 were female students. Also, in terms of the spatial context, the data was gathered from 73 students in urban spaces and 52 students in rural spaces.

2.2. Research tool construction

Measurement of social and sustainable skills was done by the formation of the questionnaire for the social and sustainable skills test. It ensured a 25-item scale with a 5-point Likert-type rating that ranged from strongly agree =5 to strongly disagree =1. The measurement of social and sustainable skills pertained to measuring the multidimensional abilities of innovativeness, school resilience, information and communication technology skills, task mastery, and proactive leadership in the students at the secondary level. The test consists of five dimensions of social and sustainable skills. Each dimension is inclusive of five items. The validity of the test was conducted through expert validity and further obtaining the Kaiser-Meyer-Olkin (KMO) value for the same [36]. For measuring the reliability of the questionnaire, test-retest reliability was used. The Cronbach alpha value for social and sustainable learning outcomes is 0.85, which indicates acceptable internal reliability as shown in Table 1.

Table 1. Cronbach's alpha and KMO

Test	Value
Cronbach alpha social and sustainable skills test	0.85
KMO	0.72

*<0.001

3. RESULTS AND DISCUSSION

The obtained dataset for this research study was subjected to differential analysis using a statistical package for social science 22. The data analysis included the independent variables (gender and spatial reference) measured against the dependent variable, social and sustainable skills to measure the performance of the students quantitatively. Table 2 depicts the comparability between the male and female students on the performance of the social and sustainable skills test. It includes the analysis of the students of Kanpur data depicting that the differential value of the mean social and sustainable skills scores between the male and female students is significant (t=0.04, p<.05). It indicates that there exists a significant difference in the mean scores of social and sustainable skills between male and female students. Additionally, the table represents the comparability for students in urban settings and rural settings on the social and sustainable skills scores.

Table 3 represents the differential analysis of the spatial reference demographic. It includes the category, sample, mean, S.D. value, and p-value for the dataset of Kanpur. It portrays that there exists a significant difference in the mean scores of social and sustainable skills among the students in urban settings and students in rural settings.

Table 2. T-test table for social and sustainable skills of male and female students

Demographic	Category	N=125	M	S.D.	t-value
Gender	Male	75	76.93	13.10	0.04*
	Female	50	71.00	11.08	

*p<.05 level

Table 3. T-test table for social and sustainable skills of students of urban and rural settings

Demographic	Category	N=125	M	S.D.	t-value
Spatial reference	Urban	73	74.52	12.63	0.02*
	Rural	52	69.03	8.11	

*p<.05 level

Recent studies in the area of education have consistently emphasized the importance of gender concerning developmental outcomes. In contrast to many other nations, India is now seeing the rapid creation of a youthful labor force that eagerly anticipates the effective utilization of its burgeoning capabilities [37]. The international attention on achieving gender equality in science, technology, engineering, and mathematics (STEM) education, as well as the development of academic and psychological skills during secondary education, has grown significantly. However, India appears to be falling behind in its efforts to promote gender equality in skill acquisition within its current educational framework. This raises concerns about the overall quality of education in the country, which is strongly emphasized [38]. The primary objective of this study inquiry is to investigate if there is any discernible variance in the social and sustainable skills shown by male and female students at the upper secondary level. The objective of our research is to examine if there exists a disparity in the social and sustainable skills among secondary school pupils based on the geographical setting they encounter.

Table 2 presents empirical evidence indicating a statistically significant disparity in the average performance scores of male and female students at the secondary level, specifically in the domain of social and sustainable skills. The mean score for male students is recorded as 76.93, while female students exhibit a lower mean score of 71.00. This research elucidates the observation that male students exhibit superior performance in the domains of social and sustainable skills, a finding of notable significance warranting further consideration. It might be argued that research has shown that females exhibit higher levels of proficiency in their sustained capabilities [39]. Hence, a notable disparity in academic achievement becomes evident when considering the comparatively lower performance of female students at the secondary education level. One potential rationale for this discrepancy may be ascribed to the prevailing gender norms within the profession and workplace, which may persistently impact the skill-based performance of female students. Gender stereotypes, such as the belief that nursing and caring vocations are mostly suited for females, act as barriers that impede women's engagement in acquiring the necessary inventive skills for pursuing careers in scientific professions [40]. Furthermore, it is worth noting that gender stereotypes are prevalent in Indian families, particularly in the context of family expectations, as extensively discussed in previous research [41]. Vroom's social expectation theory posits that the perception of success, self-regulation, and result expectancies among social members is influenced by the accessible information on the social standing or achievement of a certain group or category of individuals [42]. Moreover, scholarly investigations examining gender disparities in the domains of grit and leadership have consistently shown a lack of female representation in upper-level positions within corporate entities [43]. This information, along with other similar findings, presents a depiction of women as being underrepresented in terms of their skilled contributions inside businesses, often assuming subordinate roles in the workplace [44]. The acquisition of skills in secondary education is often perceived by parents and society as primarily serving the purpose of preparing female students for marriage rather than recognizing its importance as a necessary foundation for enhancing employability and pursuing leadership roles in their chosen careers [45].

The primary objective of the study is to investigate if there is a variation in the levels of social and sustainable skills among secondary-level pupils. According to the findings shown in Table 3 of the results section, it can be seen that the average performance scores for social and sustainable skills among secondary students residing in urban areas (74.52) surpass those of their counterparts in rural areas (69.03). A notable disparity is seen in the social and sustainable abilities shown by children at the secondary level in the studied urban and rural areas. Furthermore, it has been shown that secondary-level pupils residing in urban settings exhibit superior performance in the domains of social and sustainable skills compared to their counterparts in rural regions. Numerous investigations conducted in the field of spatial psychology have examined the impact of geographical location on the acquisition of skills among the local population [46]. The findings of our study are strongly supported by the field of geographical psychology, which examines the influence of geographical factors on the perception of skill worth concerning academic advancement. It is posited that there exist notable disparities in ecological and social influences between urban and rural locations, particularly concerning the learning settings and the accessibility of geographic resources. Consequently, these disparities have an impact on students' skill development. The contemporary concept of skill development primarily focuses on the creation of educational settings that facilitate the cultivation of adaptable learning behaviors and a diverse learning community [47].

Based on the tenets of the modern theory of urbanization, the existence of urbanized settings fosters the communal development of competencies associated with acquiring sophisticated production techniques and using contemporary technology [48]. Comprehensive research on this theory posits that the concept of "urbanized ecological influence" encompasses various pre-vocational and vocational opportunities, such as internships, job fairs, simulated short-term employment, and work-related exposures. These opportunities aim to enhance individuals' connections with the scope and skill requirements at the employability level [49]. The increased prevalence of pupils in urban areas exhibiting superior performance in social and sustainability skills may be attributed to the presence of more favorable learning environments and resource allocation in these urbanized settings, which benefit the students. The combination of geographical advantage, accessibility, and equity contributes to the presence of numerous urbanized ecological and social influences. These influences include school-level guidance facilitated by school counseling services, peer interaction, and digital accessibility. Their collective effect is to enhance the development of skills such as innovation and Information and communication technology literacy, particularly at the secondary level [50]. On the other hand, it is worth noting that schools located in rural regions have challenges in terms of accessibility due to their geographical location. Additionally, these schools often experience a disproportionate ratio of instructors to students in classes, as well as high rates of teacher absenteeism. Furthermore, there is a prevailing notion among teachers in these schools that the completion of the syllabus is equivalent to the transmission of information [51]. Insufficient allocation of resources towards the development of inventive or academic mastery skills within impoverished learning settings hinders the ability to instill in pupils the recognition of skills as a fundamental component of contemporary education.

4.   CONCLUSION

The majority of countries modify their STEM-related pedagogical policies to the preparation of their young population for the race of technological development yet developing countries like India continue to face inequalities in the educational empowerment of the female population. The study culminates that spatial factors, resource equity, and social negligence are highly intrusive in building the social and sustainable skills required to transition from secondary education to further learning and employability levels. As far as the student group is concerned, male students perform higher than female students in social and sustainable skills. The results portray that female suffer from the existent gender stereotypes at the secondary level compared to their male peers as the reason for insignificant results. At the spatial level, the student group of urban schools outperforms the students of rurally situated schools. The major factors affecting the spatial context are the lack of ecological and social influence at the rural level, ranging from the absence of parental involvement to the lack of pre-vocational and vocational opportunities within the school ambiance. However, it is impending adds to the diversity in psychological developments of the students at both spatial levels, thereby creating a gap of highly uneven student skills, which might play a role in determining the further employability and survival of the young learning population. Therefore, the study strengthens the need for practical policy reforms that subsume the mandatory inclusion of teaching skills as an integral part of secondary education along with the academics of the upcoming learning generations so that they transition better to the evolving world of further learning and work.

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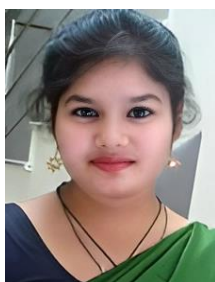
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