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Investigating 21st Century Skills Level Among Youth: An Empirical Study

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Abstract

Twenty-first century skills are a set of capabilities and competencies that students need to cultivate and develop to succeed in the age of information and technology. The success and growth of today's youth in the labour market and the knowledge economy depend on the level of 21st century skills they possess. Hence the key objective of this study was to answer the questions: to what extent do the youth possess 21st century skills? Is there a difference between levels of 21st century skills on account of various demographic variables? The researchers used the descriptive survey method and selected 160 college students randomly from various higher education institutions of Kerala, the southern part of India, for the study. The significant findings of this study revealed that 15.6% have a Low level, 68.1% have an Average level, 16.3% have a high level of 21st-century skills. No significant difference exists between males and females and stream of subjects of college students with respect to the level of 21st century skills, but there is a substantial difference between the youth who belong to the urban and rural locality.

Keywords: 21st century skills, partnership for 21st century skills, OECD, learning and innovation skills, digital literacy skills, life skills

1. Introduction

The twenty-first century has witnessed various developments in sciences and technology, and it has created a knowledge economy across the world. Hence there is great demand for equipping learners with the necessary skills to effectively and efficiently grapple with contemporary challenges. This century's social and economic advancements have developed new socio-economic indicators for technological advances and changes in the labour market. The 21st century is being moulded by technological progress, social changes, and the knowledge economy. In this context, the students of the present century must be able to cope up with complex jobs and responsibilities and apply their skills to their daily work (Darling-Hammond

et al., 2017). Most crucial skills like problem-solving, creativity, critical thinking, and digital literacy skills are essential for the economic development of any nation today (Osman, Soh, & Arsad, 2010). In this scenario, there is a pressing demand for new sets of skills which the youth are expected to be competent in. Luna Scott (2015) clearly outlines these new sets of skills: knowledge, attitudes, and abilities compulsory for competitiveness in the corporate sector, catalysts for changing society, managing changes in the workplace, and applying innovative technologies. In the coming years, especially in the post-COVID-19 period, the expectations of the workplace from the fresher's will be different from that of the previous century. Hence, educational institutions, especially at the tertiary level, have the responsibility to inculcate skills and competencies needed for the twenty-first century in their students, which are expected from the workplace (Oretta, 2012). It has been observed that there is an incongruence between present-day teaching in schools and the skills and knowledge required for societal development, which divide has created a 'global achievement gap' that leads to learners who are unprepared for the present age (Wagner, 2014).

The concept of 21st century skills is not a new one but has become increasingly relevant over time (Silva, 2009; Rotterham & Willingham, 2010). There are many studies on 21st century skills across the globe that suggest the way and method to integrate them into the education of the youth (Yost, Sentner, & Forlenza-Bailey, 2000). 21st century skills are equally important and relevant for teachers and learners of this age; therefore, the curriculum designed for learners need to be transformed so that these transformative skills of the century can be successfully transmitted to them. Educational institutions should be organized in light of these skills. Hence, this study would help determine the spaces and areas that need to be stressed in preparing the youth of today.

1.1 What are 21st Century Skills?

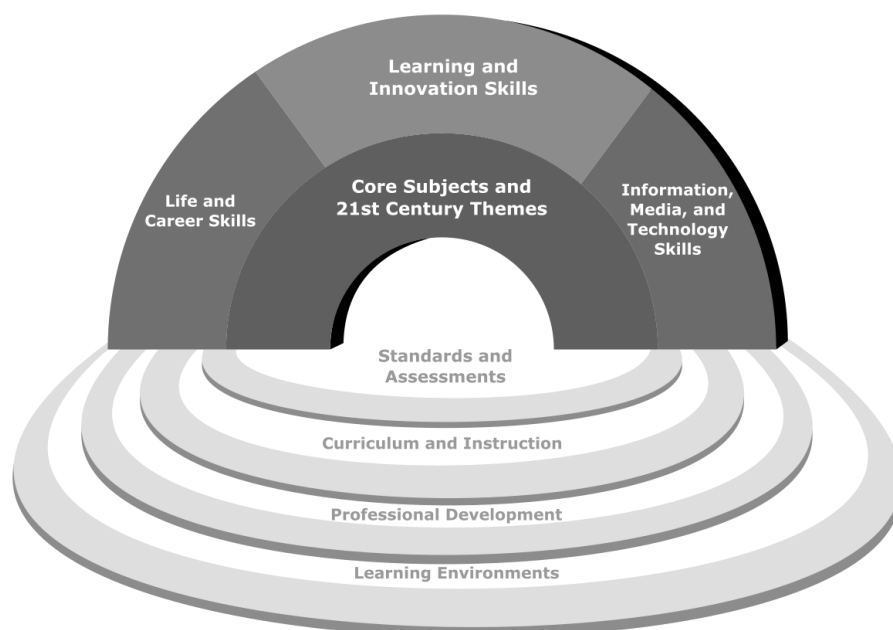
Among the various organizations and frameworks, Partnership for 21st Century Learning (P21) & the Organization for Economic Co-operation and Development (OECD) have acted as catalysers in a joint effort between educators, companies, and governments, and have contributes in enhancing 21st century skills among various stakeholders especially among the youth and teachers. The skills and competencies of higher education students need to be improved in their careers and personal lives and these are determined by mutual collaboration among various stakeholders (Johnson, 2009). This necessitates the need to integrate the 21st century learning competencies in the curriculum at all levels. The P21 framework identifies core twenty-first-century themes, such as standards and assessments, curriculum and instruction, professional and learning development, and three types of skills essential for the twenty-first century, as shown in Figure 1 (Trilling & Fadel, 2009). Figure 1 displays the core skills recommended for students to acquire in the twenty-first century: life and career skills, learning and innovation skills, and information, media, and technology skills. Each of these three core skills focuses on specific domains considered necessary for twenty-first-century life.

- a) Learning and Innovation Skills consist of engaging in critical, creative, and innovative thinking and communication and collaboration with others (Trilling & Fadel, 2009). These skills are essential for those involved in more and more complex life and work. These skills essentially prepare the learners for the future (Kay & Greenhil, 2011).
- b) Digital Literacy Skills include three components like information, media, and technology skills. Information literacy is considered as the ability to access, locate, and

evaluate information effectively (American Library Association, 1989). Media literacy points out the ability to analyse, produce, and evaluate print and electronic media (Kubey, 1997). Technology literacy refers to applying and using digital/ICT tools and creating information (Trilling & Fadel, 2009; Kay & Greenhil, 2011, van Laar et al., 2017).

- c) Life and Career Skills consist of abilities that make one flexible, adaptable, help one have socio-multi cultural interactions, be accountable and productive, etc. (Trilling & Fadel, 2009; P21, 2015).

FIGURE 1. P21 FRAMEWORK



Source: P21, 2006

1.2 Youth and 21st century skills

The hopes and expectations of a population lie on the youth to create a sustainable, equitable, and prosperous nation. To affirm this fact, the Kothari Commission (1964) opens its report by stating, "the future of India is being shaped in her classrooms." It is estimated that the world has about 1.8 billion young people in the age group of 15 to 29 years, India has the world's most prominent young population of 356 million in the age group of 10 to 24 years, followed by China with 269 million young people. By 2020 India became the youngest country with a median age of 29 years (Rajiv Gandhi National Institute of Youth Development, 2017). To make use of this demographic dividend, they must be moulded and shaped according to the situations of the modern age by enhancing the capabilities and expectations of young people. Empowering the youth necessitates not only mere providing education but also quality learning which can enhance skill development. Evidence from various research highlights those countries which are now restructuring the teachers' education standards, curriculum, assessment, teaching methods, and career development to integrate 21st century skills into the education system (Bellanca & Brandt, 2010). This is all for developing a generation who can

manage the socio, economic, and cultural situations of the age in which they live. Hence learners are expected to think and learn, solve problems, communicate and collaborate by applying 21st century skills such as critical thinking, creativity, and problem-solving (Kay, 2010). These are the various competencies needed for today's youth, and it is essential to make vital changes in education systems (Dede, 2010; Voogt & Roblin, 2012). Any curricular reformation must first ensure the status and level of the learners so that the integration of 21st century skills may be incorporated into all levels of education. Hence the objective of the study is to analyse and examine the levels of 21st century skills among the youth.

1.3 The rationale for the study

21st century skills are essential skills and competencies for successful accomplishments in the personal and professional life of today's young people (Ledward & Hirata, 2011). These primarily involve higher-order skills like creativity, critical thinking and problem solving, and competencies related to information and communication technologies (ICT) as well as skills like collaboration, leadership, sociability, flexibility, and productivity which were also important in the previous century as well (Pellegrino & Hilton, 2012; P21, 2015). These skills are regarded as significant by all the stakeholders of education. Few of these skills could be found in practice in the majority of people even at the turn of the century. Still, digital literacy skills are the result of advancements in science and technology. Hence, mere factual knowledge of these skills would not be sufficient enough, rather the specialization of these skills through theory and practice is required (Greiff, Niepel & Wüstenberg, 2015).

The related literature of 21st-century skills comprises several frameworks and organizations established worldwide (Tan, Chua, & Goh, 2015) like the OECD, Framework for twenty-first-Century Skills (P21, 2015), and enGauge (NCREL-METIRI Group). The commonality among these frameworks is the emphasis on the competencies essential for contemporary learners (Tan et al., 2015). The vital highlights of these frameworks would suggest a solid agreement on the need for competencies in various activities like the communication process, collaborative enterprises, application of ICT, and multicultural awareness and understanding in all spheres of life. Creativity, critical thinking, problem-solving, and productivity skills are also considered as important (Voogt & Roblin, 2012). Hence it is very essential to equip the present-day youth with 21st-century skills. Therefore, this study was oriented to assess their level of 21st century skills.

1.4 Objectives of the Study

- a) To ascertain the level of 21st century skills among college students.
- b) To find the difference between various demographic variables (gender, stream of study, locale) and 21st century skills.

1.5 Hypothesis

- 1. H₁- There is a significant difference in the mean scores of the level of 21st century skills of college students with respect to gender at 0.05 level of significance.
- 2. H₂- There is a significant difference in the mean scores of the level of 21st century skills of college students with respect to locale at 0.05 level of significance.
- 3. H₃- There is a significant difference in the mean scores of the level of 21st century skills of college students with respect to stream of subject at 0.05 level of significance.

2. Methodology

The present study is based on the survey method.

2.1 Sample and Sampling Technique

All the college students (UG level) in Kerala (India) are included as the population of this study. Four Colleges of Kerala were randomly selected. The researcher chose 160 students (Male 68; Female 92; Rural 93; Urban 67, students from science stream 66 and from Arts stream 94) randomly and collected the data using a questionnaire on 21st century skills.

2.2 The tool used for the Study

The Twenty-First Century Skills Scale was constructed and standardized by the researchers for assessing the level of 21st century skills among the college students of the study. There were 50 items, and each of the items has some alternative answers. Cronbach's alpha reliability of scale was established as 0.88 and the scale has undergone a face and content validity process by experts. The Likert Five-point scale measure ranged from Strongly Agree-5, Agree-4, Neutral-3, Disagree-2, and Strongly Disagree-1. A value of 1 to 5 is assigned for each answer and then the total score is compared to a key to determine the level of 21st century skills. The scores of arithmetic mean and standard deviation of scores obtained from the results of the 21st Century Skills Scale were 191.53 and 16.76. Norms for the scale were set as Low, Average, and High by taking into consideration scores less than -1SD (174.77) as Low and the scores more than +1 SD (208.06) as High. The scores between -1 SD to +1SD (between 174.77-208.06) are considered to be Average.

3. Results

The first objective of the study was to identify the existing level of 21st century skills among the youth. Table 1 shows that out of 160 college students, 25 students (15.6%) have a Low level, 109 college students (68.1%) have an Average level, and 26 students (16.3%) have a High level of 21st century skills.

TABLE 1. LEVELS OF 21ST CENTURY SKILLS AMONG COLLEGE STUDENTS
(FREQUENCY AND PERCENTAGE)

Variable	Low	Average	High
Twenty-First Century Skills	25 15.6%	109 68.1%	26 16.3%

Source: current research

It can also be seen that the maximum percentage of students (68.1%) have an average level of 21st century skills. This can be interpreted as most college students do possess a moderate/average level of the skills essential for the 21st century.

The mean scores of 21st century skills, as depicted in Table 2, for male students is 18.45 (S.D=8.70) and for female students is 17.35 (S.D=8.37) respectively.

TABLE 2. SIGNIFICANCE OF DIFFERENCE BETWEEN VARIABLES

Pair of Comparison	N	Mean	SD	SED	df	't' Value	Remark
Male	68	18.45	8.70	1.05	158	0.80	NS#
Female	92	17.35	8.37	0.87			
Rural	93	19.25	8.43	0.87		2.55	S*
Urban	67	15.83	8.26	1.00			
Science	66	17.72	8.29	1.02		0.12	NS#
Arts	94	17.89	8.70	0.89			
<i>*Significant at 0.05 level, # Not significant at 0.05 level.</i>							

Source: current research

From Table 2, it can be observed that the calculated t value (0.80) is smaller than the table value (2.61 at 0.01 level & 1.98 at 0.05 level), which leads to the understanding that the difference between the two groups (Male and Female) is not significant at 0.05 levels. Hence, H_1 is rejected, that is to say that there is no significant difference between male and female college students regarding the level of 21st century skills. The mean scores of the level of 21st century skills for rural college students are 19.25 (S.D=8.43) and for urban college students is 15.83 (S.D=8.26) respectively. Here the calculated t value (2.55) is greater than the table value (1.98 at 0.05 level). That is to say that the difference between the two groups (Rural and Urban) is significant at a 0.05 level of significance. Hence, H_2 is accepted at the 0.05 level; that is to say that there is a significant difference between Rural and Urban College students regarding their levels of 21st century skill. The mean scores of the level of 21st century skills for science students is 17.72 (S.D=8.29) and for art students is 17.89 (S.D=8.70) respectively. The calculated 't' value (0.12) is smaller than the table value (2.61 at 0.01 level & 1.98 at 0.05 level). That is to say that the difference between the two groups (Science and Arts) is not significant at 0.05 and 0.01 level of significance, and H_3 is rejected. Thus, there is no significant difference between science and art students regarding the possession of 21st century skills.

4. Discussion

The present study aimed to investigate the levels of 21st century skills among the youth, and the significant findings of this study reveal that 15.6% have a Low level, 68.1% have an Average level, 16.3% have a High level. No significant difference exists between male and female and stream of subjects of college students with regard to the level of 21st century skills, but there is a significant difference between the youth who belong to urban and rural localities. Compared to other studies, the results of the present study show some familiarities and inconsistencies in the findings. The study conducted by Fong, Sidhu & Fook, (2014) has a similar kind of result where postgraduate students were observed to have average critical and creative thinking, communication and English language skills, and low entrepreneurial skills. The studies conducted by Yenice (2011) on critical thinking dispositions, Tican & Deniz, (2019) on collaboration and flexibility resulted in proving female learners as having more collaboration and flexibility skills than males, but this result is inconsistent with the result of Zayıf (2008), Çetinkaya (2011), Yorganci (2016) where scores of male candidates were significantly more significant than the scores of females. The study conducted by Yesilyurt (2010) viewed that there is no gender-based difference between the teacher-students. This study

also found that there is no significant difference in the scores of 21st century skills based on gender.

5. Conclusion

21st century skills are essential for 21st-century learners, and therefore the education system must be designed in such a way as to effectively teach these skills to the young people. The results of the present study help to determine the focus areas which should be emphasized in the learning programmes of the youth. The present study reveals that the level of 21st century skills among the youth is average, whereas it should be at a superior or high level. In this context, it is essential to prepare policies and integrate these skills into the curriculum to develop transformative competencies for the future. Another aim of this study is to encourage future research to be carried out to understand the measures and techniques to enhance 21st century skills. The educationists and curriculum constructors should conduct serious research to develop various strategies and learning packages which can be incorporated in higher education and teacher education curricula.

References

- American Library Association (1989). *Presidential committee on information literacy: Final report-1989*. 12.10.2021 Source: <http://www.ala.org/ala/mgrps/divs/acrl/publications/whitepapers/ALA>
- Bellanca, J. & Brandt, R. (2010). *21st-Century Skills: Rethinking how students learn*. Bloomington: Solution Tree Press.
- Cetinkaya, Z (2011). Determining of the views of prospective Turkish teachers on Critical thinking. *Journal of Ahi Evran University Kirsehir Faculty of Education*. 12(3), 93-108.
- Darling-Hammond, L. et al. (2007). *Preparing teachers for a changing world: What teachers should learn and be able to do*. Indianapolis: John Wiley & Sons.
- Dede, C. (2010). Comparing frameworks for 21st-Century Skills. In J. Bellanca & R. Brandt, *21st-Century Skills: Rethinking how students learn* (pp. 51–75). Indiana: Solution Tree Press.
- Fong, L. L., Sidhu, G. K. & Fook, C. Y. (2014). Exploring 21st-century skills among postgraduates in Malaysia. *Procedia - Social and Behavioral Sciences*. 123, 130 – 138.
<https://doi.org/10.1016/j.sbspro.2014.01.1406>
- Greiff, S., Niepel, C. & Wüstenberg, S. (2015). 21st-Century Skills: International advancements and recent developments. *Thinking Skills and Creativity*, 18, 1–3. <https://doi.org/10.1016/j.tsc.2015.04.007>
- Johnson, P. (2009). The 21st-century skills movement. *Educational Leadership: Journal of the Department of Supervision and Curriculum Development*, 67(1), 11.
- Kay, K. (2010). 21st-Century Skills: Why they matter, what they are, and how we get there. In J. Bellanca & R. Brandt, *21st-Century Skills: Rethinking how students learn* (pp. xiii–xxxi). Indiana: Solution Tree Press.
- Kay, Ken. & Greenhill, V. (2011). Twenty-First Century Students Need 21st-Century Skills. In G. Wan, D.M. Gut, *Bringing Schools into the 21st century, Explorations of Educational Purpose* 13. (pp. 41-65). New York: Springer

-
- Kothari, D. S. et al. (1964). *Report of the Education Commission - 1964-66*. New Delhi: National Council of Educational Research and Training.
- Kubey, R. (1997). *Media Literacy in the Information Age: Current Perspectives*. New Brunswick, N.J.: Transaction Publishers
- Ledward, B.C. & Hirata, D. (2011). *An overview of 21st-century skills*. Honolulu: Kamehameha Schools Research & Evaluation.
- Luna Scott, C. (2015). *The futures of learning 2: What kind of learning for the 21st century?* Paris: UNESCO Education Research and Foresight.
- Oretta, C. (2012). *21st-century skills practices and programmes: A case study at an elementary school*. Unpublished doctoral dissertation. California: University of Southern California.
- Osman, K., Soh, T. M. T. & Arsad, N. M. (2010). Development and validation of the Malaysian 21st-century skills instrument (M-21CSI) for science students. *Procedia-Social and Behavioral Sciences*, 9, 599–603. <https://doi.org/10.1016/j.sbspro.2010.12.204>
- Partnership for 21st Century Skills. (12.09.2009). *P21 Framework Definitions*. 12.06.2021. Source: <https://files.eric.ed.gov/fulltext/ED519462.pdf>
- Partnership for 21st-Century Skills. (2015). *P21 framework definitions*. 12.06.2021 Source: http://www.p21.org/storage/documents/docs/P21_Framework_Definitions_New_Logo_2015.pdf
- Pellegrino, J. W. & Hilton, M. L. (2012). *Education for life and work: Developing transferable knowledge and skills in the 21st century*. Washington, D.C: The National Academies.
- Rajiv Gandhi National Institute of Youth Development. (2017). *India Youth Development Index and Report*. Government of India: Rajiv Gandhi National Institute of Youth Development.
- Rotterham, A. J. & Willingham, D. T. (2010). 21st-century skills: Not new, but a worthy challenge. *American Educator*, 34(1), 17–20.
- Silva, E. (2009). Measuring skills for 21st century learning. *Phi Delta Kappan*, 90(9), 630–634. <https://doi.org/10.1177/003172170909000905>
- Tan, C., Chua, C.S.K. & Goh, O. (2015). Rethinking the framework for 21st-century education: Toward a communitarian conception. *The Educational Forum*, 79(3), 307–320. <https://doi.org/10.1080/00131725.2015.1037511>
- Tican, C. & Deniz, S. (2019). Pre-service teachers' opinions about the use of 21st century learner and 21st century teacher skills. *European Journal of Educational Research*, 8(1), 181-197. <https://doi.org/10.12973/eu-jer.8.1.181>
- Trilling, B. & Fadel, C. (2009). *21st-Century Skills: Learning for life in our times*. San Francisco: Wiley & Sons.
- van Laar, E. et al. (2017). The relation between 21st-century skills and digital skills: A systematic literature review. *Computers in Human Behavior*, 72, 577–588. <https://doi.org/10.1016/j.chb.2017.03.010>
- Voogt, J. & Roblin, N. P. (2012). A comparative analysis of international frameworks for 21st century competences: Implications for national curriculum policies. *Journal of Curriculum Studies*, 44(3), 299–321. <https://doi.org/10.1080/00220272.2012.668938>
- Wagner, T. (2014). *The global achievement gap: Why even our best schools don't teach the new survival skills our children need and what we can do about it*. New York: Basic Books.
-

-
- Yenice, N. (2011). Investigating pre-service science teachers' critical thinking dispositions and problem-solving skills in terms of different variables. *Educational Research and Reviews*, 6(6), 497-508.
- Yesilyurt, E. (2010). Evaluation of the suitability of pre-service teachers' qualifications for the cooperation-based learning method. *Dicle University Ziya Gokalp Education Faculty Journal*, 14, 25-37.
- Yorganci, S. (2016). Critical Thinking Dispositions of Pre-Service Mathematics Teachers. *Participatory Educational Research (PER)*, 3(3), 36-46. <http://dx.doi.org/10.17275/per.16.13.3.3>
- Yost, D. S., Sentner, S. M. & Forlenza-Bailey, A. (2000). An examination of the construct of critical reflection: Implications for teacher education programming in the 21st century. *Journal of Teacher Education*, 51(1), 39–49. <https://doi.org/10.1177/002248710005100105>
- Zayif, K. (2008). *Critical thinking tendencies of prospective teachers*. Unpublished master's thesis. Bolu: Abant Izzet Baysal University Institute of Social Sciences.