

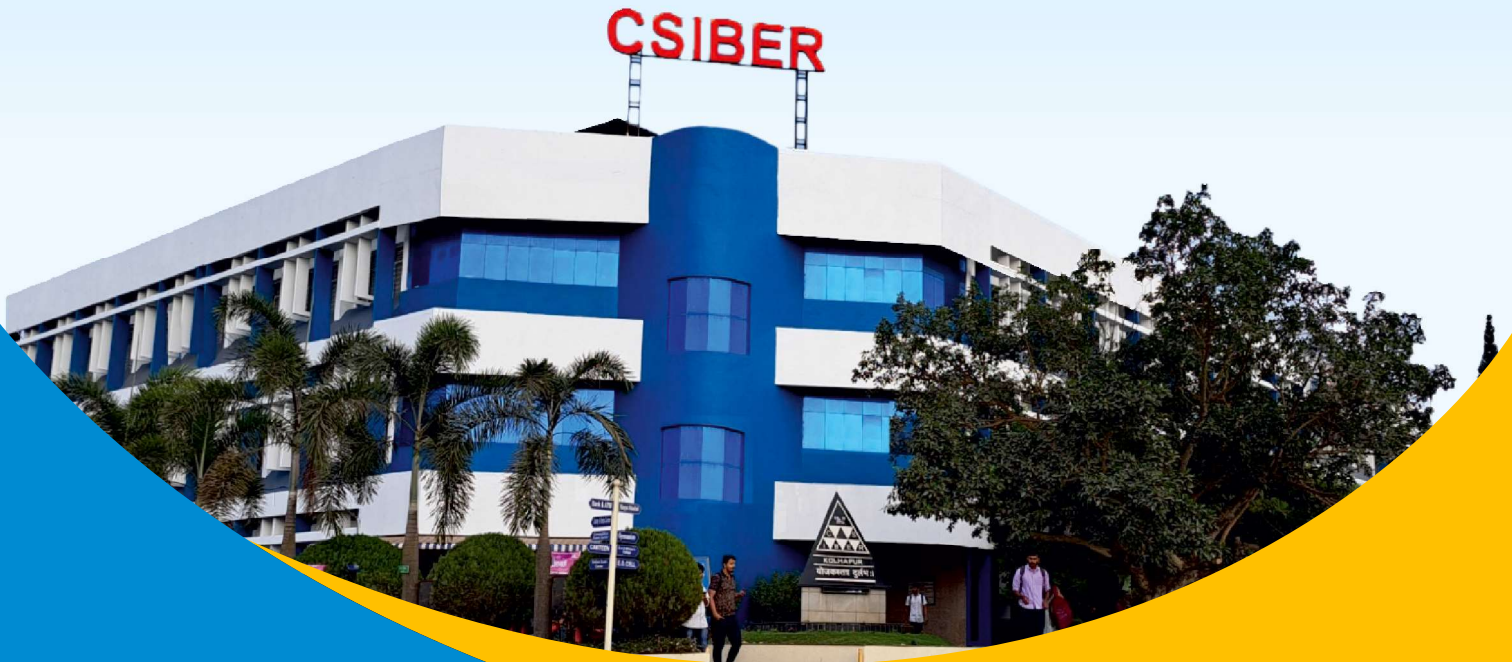
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Editorial Note

South Asian Journal of Management Research (SAJMR), is a scholarly journal that publishes scientific research on the theory and practice of management. All management, computer science, environmental science related issues relating to strategy, entrepreneurship, innovation, technology, and organizations are covered by the journal, along with all business-related functional areas like accounting, finance, information systems, marketing, and operations. The research presented in these articles contributes to our understanding of critical issues and offers valuable insights for policymakers, practitioners, and researchers. Authors are invited to publish novel, original, empirical, and high quality research work pertaining to the recent developments & practices in all areas and disciplines.

Cross-functional, multidisciplinary research that reflects the diversity of the management science professions is also encouraged, the articles are generally based on the core disciplines of computer science, economics, environmental science, mathematics, psychology, sociology, and statistics. The journal's focus includes managerial issues in a variety of organizational contexts, including for profit and nonprofit businesses, organizations from the public and private sectors, and formal and informal networks of people. Theoretical, experimental (in the field or the lab), and empirical contributions are all welcome. The journal will continue to disseminate knowledge and publish high-quality research so that we may all benefit from it.

Dr. Pooja M. Patil
Editor

**South Asian Journal of Management Research
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High School Teachers' Teaching Practices for Students' 21st Century Skills

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Abstract

The main purpose of this study is to investigate the high school teachers' teaching practices for students' 21st century skills. The research design was a descriptive design and participants were 305 high school teachers in the academic year 2023-2024. High school teachers were from two townships of Bago Region (East). As a research instrument, a questionnaire which was based from Hixson, Ravitz and Whisman (2012) was used. Concerning research findings of descriptive statistics, among the mean values of students' 21st century skills, the highest mean value was collaboration skill (22.69) and using technology as a tool for learning skill was the lowest (18.02). Moreover, most of high school teachers practiced students' 21st century skills at the moderate level. According to the results of independent samples t test, there were no significant differences of high school teachers' teaching practices for students' 21st century skills between two groups in terms of their teaching experiences and their specialization. When the responses of two open-ended questions were identified, most of high school teachers were experiencing challenges such as inadequate instructional time, inadequate instructional resources, inadequate media supporting, inadequate number of teacher, deficiency of classroom and large class size, being unfamiliar of teachers with new curriculum and insufficient training for teachers. The most possible ways to overcome the challenges were providing trainings for teachers how to practice students' 21st century skills and supporting multi-media and instructional resources. Therefore, findings from this study will help in implementing curriculum reform concerning with 21st century skills.

Keywords: 21st Century Skills, Learning and Innovation Skills, Career and Life Skills, Digital Literacy Skills, Teaching Practices

Introduction

Human resources have been recognized as the most important of all resources. They are of special importance in education (Okafor, 2018). Without employing and effectively utilizing the services of teachers, the education sector will need to raise the successfulness. In the 21st century, all societies are experiencing the biggest challenges such as overpopulation, overconsumption, increased global competition and interdependence, melting ice caps, financial meltdowns, wars and other threats to security and so on. Moreover, unlike the 20th century, the 21st century jobs demand higher levels of knowledge and applied skills. However, most of the today's students graduating from secondary schools, technical colleges, and universities are sorely lacking in some basic skills and applied skills of the 21st century: communication, critical thinking and problem solving, professionalism and work ethic, collaboration, applying technology, leadership and project management (Santos, 2017).

As a result, "21st century skills gap" is costing business a great deal of money in finding highly skilled talent and in bringing new employees up to required skill levels through costly training programs. Therefore, the term "21st century" has now become the integral part of education because 21st century skills are keys to the empowerment of children and adolescents to deal with the issues and concerns related to their lives (Trilling & Fadel, 2009).

Developing countries are facing challenges involving a shortage of skilled workers. Therefore, governments are trying to develop in every area, especially in education to meet the socio-economic development and the needs of the 21st century. Since the new curriculum emphasizes 21st century skills as learning outcomes, opposing to a content-based approach and rote memorization used in the 20th century, teachers have the responsibilities to practise students' 21st century skills in their teaching.

Related Philosophies of 21st Century Skills

21st century skills are consistent with the educational philosophies of constructivism, and humanistic school of thought (Wilcox, Liu, Thall & Howley, 2017).

Constructivism refers to the idea that learners construct knowledge for themselves. Each learner individually or socially constructs meanings they learn. Characteristics of constructivism are (1) active learning is better than passive learning, (2) learning takes place best in group or social situations, (3) learners should engage in authentic activities, (4) learners should relate new information to that which they already have, (5) learners should reflect or think about what is being learned, (6) teachers must provide learners with scaffolding assistance needed for them to progress, (7) students are expected to resolve what they thought that may be contradictory with new information.

Connectivism is a learning theory that attempts to explain learning in terms of sharing information across people in a digital world and learning occurs through the connection of information sources (digital nodes) in a constantly changing environment. Learning is affected by technology because technology has performed many operations such as information storage and retrieval. There is no need for formal institutions because the focus of connectivism is on the individual participants, networks and the flow of information and the new forms of knowledge (Bates, 2019). Humanistic school of thought emphasizes to improve students' attitudes and values. Humanists maintain that education should be based upon the needs and interests of learners. Thus, education should be as personal as possible. Teaching according to the interests and needs of children creates healthy social and emotional classroom environments characterized by acceptance and respect. Doing these things enhances learning (Cruickshank, Jenkins & Metcalf, 2006).

21st Century Knowledge and Skills

Although there are many 21st century knowledge and skills frameworks, this study is based on three frameworks namely, partnership for 21st century skills framework, innovative teaching and learning (ITL) framework and deeper learning framework.

Partnership for 21st Century Skills Framework. 21st century skills can be classified into three groups, namely learning and innovation skills, career and life skills, and digital literacy skills. Learning and innovation skills consist of critical thinking and problem solving, communication and collaboration, and creativity and innovation. Digital literacy skills include information literacy, media literacy, and information, communication and technology (ICT) literacy. Career and life skills are flexibility and adaptability, initiative and self-direction, social and cross-cultural interaction, productivity and accountability, and leadership and responsibility (Trilling & Fadel, 2009). Figure 1 depicts the partnership for 21st century skills framework.

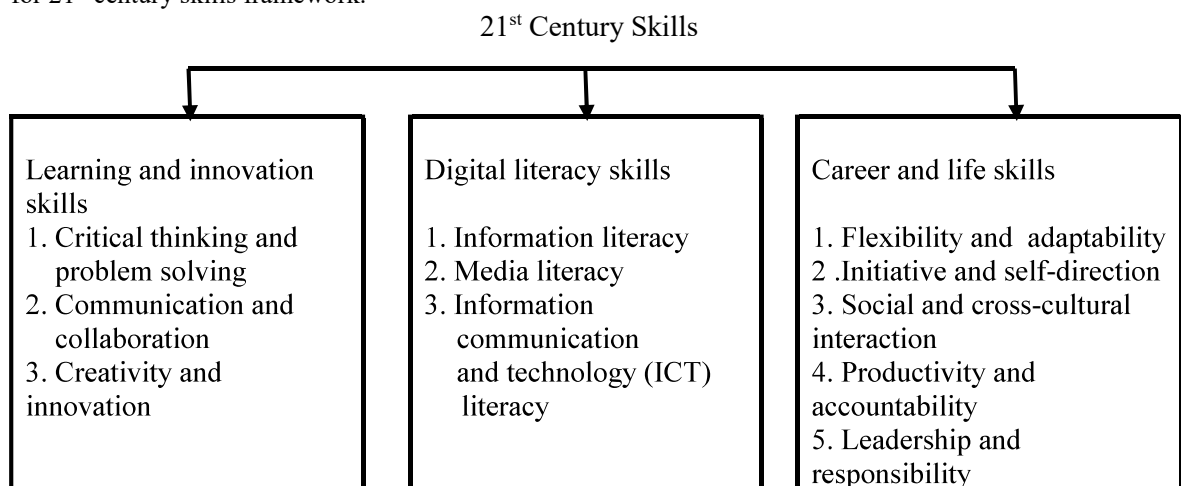


Figure 1: Partnership for 21st century skills framework

Innovative Teaching and Learning (ITL) Framework. Students' 21st century skills include broad skills that are seen as important goals of innovative teaching practices. These skills are knowledge building, problem-

solving and innovation, communication, collaboration, self-regulation, and use of ICT for learning. Figure 2 depicts the innovative teaching and learning framework (Shear, Novais, Means, Gallagher & Langworthy, 2010).

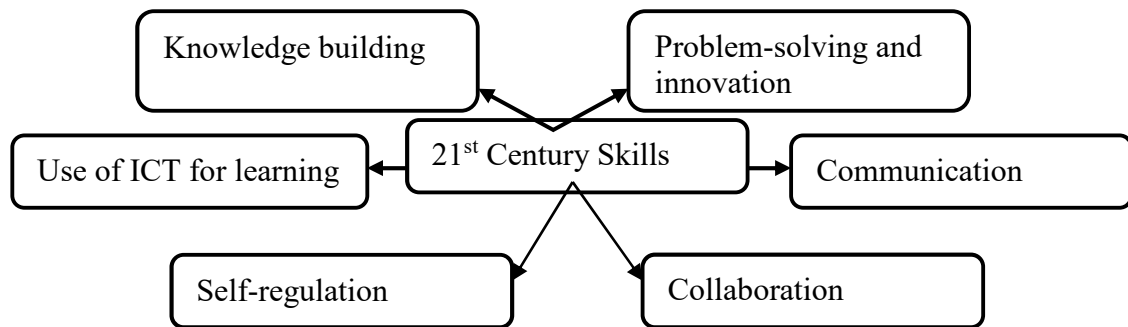


Figure 2: Innovative teaching and learning (ITL) framework

Deeper Learning Framework. Deeper Learning competencies are essential to prepare students to achieve at high levels and succeed in college, career and civic life: master core academic content, think critically and solve complex problems, work collaboratively, communicate effectively, and learn how to learn (The William and Flora Hewlett Foundation, 2010). Figure 3 depicts deeper learning framework.

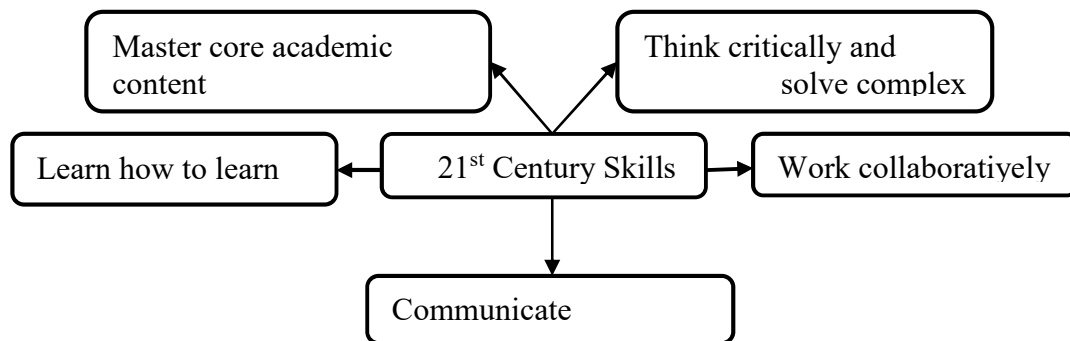


Figure 3: Deeper learning framework

Measuring 21st Century Teaching and Learning

21st century skills including in this survey are critical thinking skill, communication skill, creativity and innovation skill, self-direction skill, global connection skill, local connection skill, and using technology as a tool for learning skill.

Critical thinking skill refers to students being able to analyze complex problems, investigate questions for which there are no clear-cut answers, evaluate different points of view or sources of information, and draw appropriate conclusions based on evidence and reasoning.

Collaboration skill refers to students being able to work together to solve problems or answer questions, to work effectively and respectfully in teams to accomplish a common goal and to share responsibility for completing a task.

Communication skill refers to students being able to organize their thoughts, data, and findings; and share these effectively through a variety of media, as well as orally and in writing.

Creativity and innovation skill refers to students being able to generate and refine solutions to complex problems or tasks based on synthesis, analysis, and then combining or presenting what they have learned in new and original ways.

Self-direction Skill refers to students being able to take responsibility for their learning by identifying topics to pursue and processes for their own learning, and being able to review their own work and respond to feedback.

Global connection skill refers to students being able to understand global issues including awareness of geography, culture, language, history, and literature from other countries.

Local connection skill refers to students being able to apply what they have learned to local contexts and community issues.

Using technology as a tool for learning skill refers to students being able to manage their learning and produce products using appropriate information and communication technologies (Hixson, Ravitz & Whisman, 2012).

Purpose of this Study

The main purpose of the study is to investigate high school teachers' teaching practices for students' 21st century skills. The specific objectives of this study are as follows.

1. To investigate high school teachers' teaching practices for each 21st century skill of students
2. To examine the differences of high school teachers' teaching practices for students' 21st century skills between two groups in terms of their teaching experiences
3. To examine the differences between science teachers' and art teachers' teaching practices for students' 21st century skills
4. To study the challenges faced by high school teachers in teaching students' 21st century skills
5. To investigate the possible ways to overcome the challenges faced by high school teachers in teaching students' 21st century skills
6. To make suggestions for high school teachers to improve their teaching practices for students' 21st century skills.

Methodology

The research design used for this study was a descriptive research design. The questionnaire included eight dimensions: critical thinking skill (Item No. 1 to 6), collaboration skill (Item No. 7 to 12), communication skill (Item No. 13 to 18), creativity and innovation skill (Item No. 19 to 24), self-direction skill (Item No. 25 to 30), global connection skill (Item No. 31 to 36), local connection skill (Item No. 37 to 42), using technology as a tool for learning skill (Item No. 43 to 48). Moreover, two open-ended questions for challenges faced by high school teachers in teaching students' 21st century skills and the possible ways to overcome these challenges were used.

All high school teachers (305) from Kyauktaga Township and Nyaunglebin Township within the academic year 2023-2024 were selected by means of cluster sampling method. The study consisted of five research questions.

- To what extent do high school teachers practise for each 21st century skill of students?
- Are there any significant differences of high school teachers' teaching practices for students' 21st century skills between two groups in terms of their teaching experiences?
- Are there any significant differences between science teachers' and art teachers' teaching practices for students' 21st century skills?
- What are the challenges faced by high school teachers in teaching students' 21st century skills?
- What are the possible ways to overcome the challenges faced by high school teachers in teaching students' 21st century skills?

Using SPSS (Statistical Package for the Social Science) Version 22, the descriptive analysis was employed to calculate mean, standard deviation, frequency and percentage for the quantitative data. The independent samples *t* test was used to examine whether there were any significant differences between two groups in terms of their teaching experiences and their specialization. Moreover, thematic analysis of responses to open-ended questions was used.

Findings and Discussion

This section includes the survey data and discusses the results based on the data. 305 high school teachers participated in this survey and gave some suggestions.

To what extent do high school teachers practise for each 21st century skill of students?

Based on the participants' survey data, the highest mean score was (22.69) for collaboration skill. Therefore, high school teachers practiced students' collaboration skill at the highest level. The lowest mean score was (18.02) for using technology as a tool for learning skill. Thus, high school teachers practiced students' using technology as a tool for learning skill at the lowest level among the other skills. The average mean score of high school teachers' teaching practices for students' 21st century skills was (20.83).

Accordingly, it can be assumed that more than half of high school teachers practised students' 21st century skills.

Table 1: Mean scores of high school teachers' teaching practices for students' 21st century skills

Students' 21 st Century Skill	N	Mean	SD	Minimum	Maximum
Critical Thinking Skill	305	22.31	3.21	10	30
Collaboration Skill	305	22.69	3.21	11	30
Communication Skill	305	21.29	3.32	10	30
Creativity and Innovation Skill	305	21.91	3.22	10	30
Self-direction Skill	305	21.36	4	11	29
Global Connection Skill	305	18.33	3.97	8	30
Local Connection Skill	305	20.75	3.94	8	30
Using Technology as a Tool for Learning skill	305	18.02	4.4	6	30
Average		20.83	3.66	9.25	29.88

Note. N = Number of high school teacher, SD = Standard Deviation.

Are there any significant differences of high school teachers' teaching practices for students' 21st century skills between two groups in terms of their teaching experiences?

High school teachers were divided into two groups: high school teachers with teaching experiences of eighteen years and below, and above eighteen years. There were (150) high school teachers with teaching experiences of eighteen years and below, and (155) high school teachers with teaching experiences of above eighteen years. Based on the results, there were no significant differences between the mean scores of teaching practices for students' 21st century skills of two groups at the probability level .05. Therefore, both the teachers who have more teaching experiences and less teaching experiences practised students' 21st century skills at the same level.

Table 2: *t* values for high school teachers' teaching practices for students' 21st century skills in terms of their teaching experiences

21 st Century Skill	Group	N	Mean	SD	MD	<i>t</i>	df	<i>p</i>
Critical Thinking Skill	≤ 18 years	150	22.63	3.03	0.62	1.675	303	.095 (ns)
	> 18 years	155	22.01	3.36				
Collaboration Skill	≤ 18 years	150	22.68	2.97	-0.01	-0.028	303	.978 (ns)
	> 18 years	155	22.69	3.44				
Communication Skill	≤ 18 years	150	21.02	3.46	-0.53	-1.410	303	.160 (ns)
	> 18 years	155	21.55	3.17				
Creativity and	≤ 18 years	150	21.68	3.38	-0.45	-1.221	303	.223

21 st Century Skill	Group	N	Mean	SD	MD	t	df	p
Innovation Skill	> 18 years	155	22.13	3.04				(ns)
Self-Direction Skill	≤ 18 years	150	21.43	4.11	0.13	0.283	303	.777 (ns)
	> 18 years	155	21.30	3.91				
Global Connection Skill	≤ 18 years	150	18.17	3.99	-0.32	-0.696	303	.487 (ns)
Local Connection Skill	≤ 18 years	150	20.75	4.15	-0.01	-0.018	303	.986 (ns)
	> 18 years	155	20.76	3.74				
Using Technology as a Tool for Learning Skill	≤ 18 years	150	17.74	4.65	-0.54	-1.078	303	.282 (ns)
	> 18 years	155	18.28	4.16				
Total	≤ 18 years	150	166.10	22.86	1.42	-0.441	303	.242 (ns)

Note. N = number of high school teacher, SD = significant difference, MD = mean difference, ns = not significant.
* $p < .05$.

Are there any significant differences between science teachers' and art teachers' teaching practices for students' 21st century skills?

High school teachers were divided into two groups, science teachers and art teachers. There were (157) science teachers and (148) art teachers in this study. According to the results, there was a significant difference between the mean scores of science teachers' and art teachers' teaching practices for students' using technology as a tool for learning skill at the probability level .05. Therefore, science teachers did more practices for students' using technology as a tool for learning skill than the art teachers. However, there were no significant differences in other skills. Thus, science teachers and art teachers practised these skills at the same level.

Table 3: t values for science teachers' and art teachers' teaching practices for students' 21st century skills

21 st Century Skill	Group	N	Mean	SD	MD	t	df	P
Critical Thinking Skill	ST	157	22.05	3.31	-0.54	-1.482	303	.139 (ns)
	AT	148	22.59	3.08				
Collaboration Skill	ST	157	22.67	3.38	-0.03	-0.092	303	.927 (ns)
	AT	148	22.70	3.04				
Communication Skill	ST	157	21.41	3.34	0.25	0.662	303	.509 (ns)
	AT	148	21.16	3.30				
Creativity and Innovation Skill	ST	157	21.80	3.44	-0.23	-0.629	303	.532 (ns)
	AT	148	22.03	2.97				
Self-Direction Skill	ST	157	21.18	4.18	-0.37	-0.819	303	.412 (ns)
	AT	148	21.55	3.81				

Global Connection Skill	ST	157	18.17	4.14	-0.34	-0.735	303	.463 (ns)
	AT	148	18.51	3.80				
Local Connection Skill	ST	157	20.59	4.28	-0.35	-0.781	303	.435 (ns)
	AT	148	20.94	3.56				
Using Technology as a Tool for Learning	ST	157	18.53	4.58	1.06	2.103	303	.036*
	AT	148	17.47	4.16				
Total	ST	157	166.39	22.96	1.69	-0.222	303	.54
	AT	148	166.96	21.27				

Note. N = number of high school teacher, SD = significant difference, MD = mean difference, ST = science teacher, AT = art teacher, ns = not significant.

* $p < .05$.

What are the challenges faced by high school teachers in teaching students' 21st century skills?

According to the results, the challenges faced by high school teachers in teaching students' 21st century skills were inadequate instructional time and too much lessons, insufficient instructional resources, weakness of students' prior knowledge, lacking students' interest in schooling, assessment system focusing rote learning, inadequate media supporting, insufficient number of teacher, deficiency of classroom and large class size, being unfamiliar of teachers with new curriculum and inadequate training for teachers, and language deficiency.

Table 4: Percentage of the challenges faced by high school teachers in teaching students' 21st century skills

No.	Statement	N	Frequency	Percentage (%)
1.	Inadequate instructional time and too much lessons	305	60	19.7%
2.	Insufficient instructional resources	305	106	34.8%
3.	Weakness of students' prior knowledge	305	40	13.1%
4.	Lacking students' interest in schooling	305	55	18%
5.	Assessment system focusing rote learning	305	93	30.5%
6.	Inadequate media supporting	305	85	27.9%
7.	Insufficient number of teacher	305	90	29.5%
8.	Deficiency of classroom	305	52	17.1%
9.	Being unfamiliar of teachers with new curriculum and inadequate training for teachers	305	44	14.1%
10.	Language deficiency	305	25	8.2%

What are the possible ways to overcome the challenges faced by high school teachers in teaching students' 21st century skills?

According to the results, the possible ways to overcome the challenges faced by high school teachers in teaching students' 21st century skills were revising the amount of lessons in new curriculum, supporting the instructional resources, supporting multi-media and technology infrastructures, recruiting high school teachers, providing trainings for teachers how to practise students' 21st century skills, changing the assessment system, and regulating class size.

Table 5: Percentage of the possible ways to overcome the challenges faced by high school teachers in teaching students' 21st century skills

No.	Statement	N	Frequency	Percentage (%)
1.	Revising the amount of lessons	305	53	17.4
2.	Supporting instructional resources	305	95	31.1
3.	Supporting multi-media and technology Infrastructures	305	106	34.8
4.	Recruiting high school teachers	305	98	32.1
5.	Providing trainings for teachers how to practise students' 21 st century skills	305	82	26.9
6.	Changing the assessment system	305	75	24.6
7.	Regulating class size	305	84	27.5

Conclusion:

For the 21st century students, expertise in 21st century skills and knowledge should be the outcome of 21st century teaching and learning so that students are supported to succeed in their future careers and life (Sural, 2017). Future generation of leaders in developing countries should be independent thinkers who can successfully lead their society. Thus, this study investigated high school teachers' teaching practices for students' 21st century skills. According to the results of this study, the administrators recognize the extent of high school teacher' teaching practices for students' 21st century skills, the challenges faced by high school teachers in teaching students' 21st century skills and the possible ways to overcome these challenges. Moreover, principals and teachers will implement Continuous Professional Development (CPD) program in their schools.

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References

- Bates, A. W. (2019).** Teaching in a digital age: guidelines for designing teaching and learning (2nd ed.). Vancouver, B.C.: Tony Bates Associates Ltd.
- Cruickshank, D. R., Jenkins, D. B., & Metcalf, K. K. (2006).** The act of teaching. 6th ed. New York: McGraw-Hill Companies, Inc.
- Hixson, N. K., Ravitz, J., & Whisman, A. (2012).** Extended professional development in project-based learning impacts on 21st century skills teaching and student achievement. USA: West Virginia Department of Education.
- Okafor, C. E. (2018).** 'Human resources in education: Development and utilization.' International Journal of Novel Research in Humanity of Social Sciences, 5(5): pp. 238-242. Available at: www.noveltyjournals.com
- Santos, J. M. (2017).** 21st Century learning skills: A challenge in every classroom. International Journal of Emerging Multidisciplinary Research, 1(1): pp. 31-35. Available at: <https://doi.org/10.22662/IJEMR.2017.1.1.031>

Shear, L, Novais, G., Means, B., Gallagher, L., & Langworthy, M. (2010). ITL research design. Menlo Park, CA: SRI International. Available at: https://www.sri.com/wpcontent/uploads/2021/12/itl_research_design_15_nov_2010.pdf

Sural, I. (2017). 21st century skills level of teacher candidates. *European Journal of Education Studies*, 3(8): pp. 530-538. Available at: <https://oapub.org/edu/index.php/ejes/article/view/949/2731>

The William and Flora Hewlett Foundation (2010). Education program strategic plan. Menlo Park, CA: The William and Flora Hewlett Foundation.

Trilling, B., & Fadel, C. (2009). 21st century skills: learning for life in our times. San Francisco, CA: Jossey-Bass.

Wilcox, D., Liu, J. C., Thall, J., & Howley, T. (2017). Integration of teaching practices for students' 21st century skills: faculty practice and perception. *International Journal of Technology in Teaching and Learning*, 13(2): pp. 55-77