

# TEACHERS OF 21ST CENTURY: TEACHERS' ROLES IN INNOVATING LEARNING STRATEGIES AND CHALLENGES

*by Ida Bagus Nyoman Mantra*

---

**Submission date:** 31-Mar-2024 03:44PM (UTC+0700)

**Submission ID:** 2335749790

**File name:** TEACHERS\_OF\_21ST\_CENTURY\_TEACHERS\_ROLES.pdf (284.11K)

**Word count:** 3809

**Character count:** 22805



## TEACHERS OF 21<sup>ST</sup> CENTURY: TEACHERS' ROLES IN INNOVATING LEARNING STRATEGIES AND CHALLENGES

By

Wayan Maba<sup>1</sup>, Ida Bagus Nyoman Mantra<sup>2</sup>, Ida Ayu Made Sri Widiastuti<sup>3</sup>

<sup>1,2,3</sup>Universitas Mahasaraswati Denpasar

Email: <sup>1</sup>[wayanmaba.unmas@gmail.com](mailto:wayanmaba.unmas@gmail.com), <sup>2</sup>[bagusmantra@unmas.ac.id](mailto:bagusmantra@unmas.ac.id), <sup>3</sup>[idaayuwidia@unmas.ac.id](mailto:idaayuwidia@unmas.ac.id)

### Article Info

#### Article history:

Received Feb 24, 2023

Revised Feb 18, 2023

Accepted Mar 28, 2023

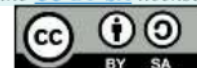
#### Keywords:

Teachers,  
21<sup>st</sup> century,  
Roles,  
Strategies,  
Challenges

### ABSTRACT

One of the indicators of teacher professional competence is being able to utilize technology in the learning process to answer the challenges of the times. This is in accordance with the competence of 21st-century teachers, namely having good skills and digital literacy. In other words, teachers' competence from time to time must continuously be upgraded to keep up with the development. This study used qualitative research design to investigate the teachers' roles in innovating learning strategies. The study found that teachers are required to use various skills in developing teaching and learning strategies to meet the demand of the students to equip them with sufficient knowledge and skills to survive in this new millennium era. Furthermore, this study highlights that teachers should continually upgrade their knowledge and ability to conduct learning activities professionally.

This is an open-access article under the [CC BY-SA](#) license.



### Corresponding Author:

Wayan Maba

Universitas Mahasaraswati Denpasar, Jalan Kamboja 11 A Denpasar, Bali, Indonesia

Email: [wayanmaba.unmas@gmail.com](mailto:wayanmaba.unmas@gmail.com)

## 1. INTRODUCTION

One of the demands of 21st-century learning is integrating technology as a learning medium to develop study skills. Learners need to learn how to use technology properly in everyday life. In addition, teaching can improve inventive thinking, effective communication, high productivity, and spiritual skills. 21st-century learning is an implication of the development of society from time to time (Ward et al., 2021). In essence, everyone must learn, whether learning formally, informally, own experience, as well as from observing the experiences of others. Learning is something that is essential and is a basic need of every person. Many theories have been and are currently developing which explain the nature of learning, including the learning theories of the 21<sup>st</sup> century (Prachagool & Nuangchalerm, 2021).

Recently, many advancements and development in education have happened in education sectors. Moreover, concerning the 21st century, there has been a significant transformation in the social, economic, political, and cultural aspects driven by four major interrelated forces, namely scientific and technological advances, demographic changes, globalization, and the environment (Maba & Mantra, 2018). Advances in communication technology and lower transportation costs have fueled globalization and created a global economy, community, and culture. Industrial society is changing into a knowledge society. Environmental changes such as global warming have impacted the need to increase public awareness and responsibility for the environment. These forces also impact the world of education, especially schools (Mantra et al., 2021).

Education faces significant challenges in the 21st century, which has entered the digital era. The character and needs of students in this era are very different from students in previous periods. As a teacher who educates and teaches this generation, of course, you must continually improve your competence so that it is not outdated and can answer students' needs. Educator competencies that Smart Teachers must own include pedagogic competence, personal competence, professional competence, and social competence (Mantra et al., 2019).

As various changes occurred in education, students in schools are more diverse in culture, religion/belief, and language. Advances in information-internet technology have increased flexibility in acquiring knowledge for each individual, both teachers and students. Consequently, teachers must be able to develop learning approaches and

strategies that align with environmental developments as a 21st-century teacher competency (Widiastuti et al., 2020). Knowledge is no longer limited to 'experts' or teachers. There is much information available about education. This condition increases alternative educational choices for parents and the community, and together with this is society's growing demand for quality education.

Globalization that has made the world seem borderless has sparked international comparisons between schools, curricula, assessment methods, and student achievement. Schools are urged to be superior and competitive and face issues such as identity, differences, rules, social capital, quality of life, and so on (Elliott & Yu, 2013). Various changes or environmental crises have led to the need for environmental education in schools to increase students' sensitivity, awareness, and responsibility toward the environment. Highlighting aspects of school policy revealed that since the end of the 20th century, most schools worldwide have chosen a market economy approach.

Nowadays, schools are expected to contribute to the nation's economic competitiveness. Schools must 'sell themselves,' find a 'place' in the market and compete. Schools must be responsive to their local communities through various approaches that allow consumers to choose which school services to obtain. Changes in the school environment and the market economy approach to schooling have implications for the growing demands for teacher professionalism (Maba & Mantra, 2018). Professional teachers of the 21st century with the competency standards of 21st-century teachers need help teaching well (Prachagool & Nuangchalem, 2021).

The 21st-century professional teacher is a teacher who can become a career-long learner to increase the effectiveness of the student learning process in line with environmental developments; able to work with, learn from, and teach colleagues to deal with the complexities of schooling and teaching challenges; teaching based on teaching professional standards to ensure the quality of learning; as well as having to communicate both directly and use technology effectively with parents of students to support school development (Ward et al., 2021).

Professional teachers are required not only to have teaching skills as needed for the academic competency standard, but teachers must also be able to develop professionalism continuously, as stated in professional competence. Teachers must also establish effective communication with fellow educators, educational staff, parents, and the community as needed in social competence and have a good personality as described in personal competence. Besides that, teachers must also have adequate academic qualifications or educational background and be relevant to their teaching field (González-Pérez & Ramírez-Montoya, 2022).

The role of the 21st-century teacher is that the teacher must be able to teach students, not only be able to lead and manage classroom activities but also be required to be able to create effective relationships with students and the school community, using technology to improve the quality of teaching (Jalinus et al., 2021). Therefore, teachers need conducive learning conditions for professional and continuous learning. In the 21st century, the teacher is a complex and challenging job, along with changes in the school environment driven by technological advances. Teachers are not just teaching but teachers are required to be able to become learners and agents of school change (Handayani & Widiastuti, 2019).

Teacher competencies that the government has formulated include personality, professional, social, and pedagogical competencies that need to be contextualized and adjusted. Pedagogic competence is the teacher's ability to manage learning, starting from planning, implementing, and evaluating (Maba & Mantra, 2017). Teachers are required to be able to optimize students' potential to actualize their abilities in class and be able to carry out assessments of the learning activities carried out. Personality competence, namely personality that reflects a solid, stable, mature, wise, sophisticated, humorous but firm, and authoritative personality that always fascinates students. The social competence of educators as part of society to communicate and interact effectively with students, fellow educators, education staff, parents, and the community. So teachers must have social skills with the community to implement an effective learning process.

Professional competence is the ability related to master learning material broadly and deeply. The teacher has to direct student learning activities to achieve learning goals. Therefore, teachers are required to be able to deliver lesson material. The teacher must also continually update and master the subject matter presented. Considering the above phenomenon, it is essential to conduct a study related to the roles of teachers in innovating the learning and teaching strategies in this new education era to ensure that students are ready to face challenges in their society.

## 2. RESEARCH METHOD

This study employed qualitative research designs to uncover the roles of teachers in innovating learning and teaching strategies in the 21<sup>st</sup> century. Qualitative research is research procedures that produce descriptive data in



written or spoken words from people and observable behavior (Ary et al., 2018). The data were collected from interviews with teachers from various schools and document studies available concerning the roles of teachers in the 21<sup>st</sup> century. All the data were first put into the right headings and categories; then, the data were selected to ensure that only relevant data were analyzed. The data were descriptively analyzed and presented elaboratively with relevant arguments and factual theories and phenomena. After all data were analyzed appropriately, the findings were presented descriptively to provide a deeper horizon of the teachers' roles in innovating the learning and teaching strategies in the 21<sup>st</sup> century.

### 3. RESULTS AND DISCUSSION

Below are selected excerpts of the interviews conducted with the teachers from different schools chosen to be interviewed in this study.

"I have to learn various teaching platforms to be able to teach nowadays because some students wish to have some learning materials given through online systems. I also have to modify and develop my teaching strategies" (Teacher 1)

*"I really have to develop my skill in teaching now because I have to utilize various strategies to provide my students with a better learning situation. I have to use technology in teaching. I have to read a lot to develop myself, and I should be able to teach my students various skills, including critical thinking skills"* (teacher 2)

*"Well, the learning activities should be really modified nowadays. Before, I could teach without technology, but now, I have to integrate technology in my classroom and use more effective learning strategies"* (Teacher 3)

*Teaching is getting more challenging nowadays with the advancement of technology. I have to use them because it is essential to make my students learn. I also have to use new teaching strategies and teach students to learn together with their friends cooperatively. I have to be able to write a report appropriately about my students learning progress"* (Teacher 4)

*"Well, teaching is my profession, so I must be the best possible. In this century, I have to be more skillful in teaching because I have to teach my students the skills needed for this era. Therefore, my teaching styles should be modified"* (Teacher 5)

Based on the excerpts from the 5 teachers above showed that teachers nowadays have to be more professional and have various still in teaching. Teachers are expected to be able to provide conducive learning conditions. Moreover, they must be able to modify their learning styles and use various teaching strategies. Teachers are also required to have sufficient knowledge of technology to teach correctly. It is because students also expect teachers to provide learning material using various learning platforms.

All five teachers believed that being a teacher nowadays should have the following characteristics: (1) The teacher's interest in reading must be high. (2) The teacher must have the ability to write scientific papers. Besides the teacher's interest in reading must be increased, teachers are also required to have the ability to write scientific papers. In doing their duties, the teacher will always give their students various assignments. In this case, teachers must read teaching trends, writing articles and academic papers. (3) Teachers must be creative and innovative by utilizing various teaching strategies. Moreover, they have to use technology in preparing and presenting the lessons. (4) The teacher should be able to change from conventional teaching to students centered learning to provide more opportunities for the students to learn. In addition, teachers should continuously develop students' skills that are required in the 21<sup>st</sup> century, such as critical thinking and problem-solving, communication skills, creativity, collaboration, and innovation.

Critical thinking skills are fundamental skills in learning in the 21<sup>st</sup> century. Necessary thinking skills include accessing, analyzing, and synthesizing information that can be learned, trained, and mastered (Sri Widiastuti et al., 2022). Skills Critical thinking also describes other skills, such as communication skills and information, as well as the ability to examine, analyze, interpret, and evaluate evidence. In the era of digital literacy, where the flow of information is very abundant, students need to have the ability to select relevant sources and information, find quality sources and conduct an assessment of the source from the aspects of objectivity, reliability, and modernity (Mahana et al., 2019).

Good communication skills are special skills in work and everyday life. Communication skills include excellent skills in conveying thoughts clearly and persuasively orally and in writing, getting opinions with clear sentences, communicating clear orders, and motivating others through speaking skills (Astawa et al., 2017). Collaboration and teamwork can develop through experiences within schools, between schools, and outside schools.

Students can collaborate on project-based authentic assignments and develop their skills through peer group tutoring. In the world of work in the future, collaboration skills must also be applied in learning activities (Widiastuti, 2018).

Creativity and innovation skills should also be developed to provide students with further valuable skills to live comfortably in society. Creativity and innovation will further develop if students can think divergently (Liyanage et al., 2021). Students must be triggered to think outside the existing habits, involve new ways of thinking, get opportunities to convey ideas and new solutions, ask unusual questions, and try to make guesses. Individual success will be obtained by students who have creative skills (Mantra et al., 2022). These skills provide students with various employment later once they are ready to work for a living. Below are some excerpts of the interviews related to the teachers' roles in teaching:

*"I have more crucial roles in teaching because students need more skills for the 21<sup>st</sup> century. I have to prepare the lesson seriously and conduct the learning activities properly. I need to develop students' critical thinking skills continually and also their collaborative skills"* (Teacher 1)

*"Being a teacher in the 21<sup>st</sup> century is very important for the student's development. I, however, have to teach with a proper plan because many skills have to be taught in learning activities in the classroom"* (Teacher 2)

*"I always have to teach my students some more skills such as critical thinking, communication, problem-solving, collaborative, social, and many others. So being a teacher has to be really professional because it is essential for the student's development"* (Teacher 3)

*"Well, many skills should be introduced to the students to enrich. Being a teacher is not really easy. I have to learn also how to teach the skills of 21<sup>st</sup> century to ensure my students have sufficient skills for their future in the society"* (Teacher 4)

*"Teaching in the 21<sup>st</sup> century is very challenging. I need to teach many skills to my students. The skills of the 21<sup>st</sup> century are essential for them to survive in society; therefore, I need to teach them properly."* (Teacher 5)

The role of the teacher in the 21<sup>st</sup> century is crucial because the student's academic and non-academically development depends on the teachers' ability to provide students with various skills needed for their future life. In the 21<sup>st</sup> century, a teacher must master various fields, proficient in pedagogy, including innovation in teaching and learning. Moreover, teachers should also understand the psychology of learning and have counseling skills to comprehend the developments in curriculum and educational issues. Furthermore, a teacher should be able to use new media and technology in education. Teachers must still improve students' behaviors, conduct, personality, and morals (Marisa, 2021).

The main goal of 21st-century learning is to build individual learning abilities and support their development into independent lifelong, active learners; therefore, the teacher needs to become a learning coach to provide students with various skills. Teachers should always encourage students to improve their knowledge and apply it creatively. Teachers need to strengthen students' intellectual curiosity, identify skills and solve problems, and their ability to build new knowledge with people other. Therefore, teachers should be proficient at finding out with their students the knowledge they need to live harmoniously in the 21<sup>st</sup> century (Zaragoza et al., 2021).

Teachers of the 21<sup>st</sup> century must be able to transform themselves into highly educator sensitive and responsive to student needs. Accordingly, it is essential to availability a responsive curriculum relevant to the learning of the 21<sup>st</sup> century, that is, a curriculum with the introduction of skills of the 21<sup>st</sup> century. Teachers must design the learning activities appropriately to provide and facilitate students' specific needs, meet the user community's demands, and initiate education growth of creativity and innovation.

#### 4. CONCLUSION

The rapid development of science and technology in the 21st century is one of the impacts on the world of education. Technology advances impact the teacher's primary function, which is no longer just the only source of information. In the 21st century, teachers must equip skills and particular competencies that are undoubtedly different from teachers in the previous century. In the 21st century and the next century, teachers are challenged to accelerate the development of information and communication. In this century, classroom learning and management class must be adapted to the standards of advances in information technology and communication. Therefore, teachers have essential roles in innovating education and teaching strategies to create conducive and meaningful learning for students. This study implies that teachers should continually develop their teaching skills to carry out their professional tasks and provide students with sufficient skills to face challenges in the 21<sup>st</sup> century.



## REFERENCES

- [1] Ary, D., Jacobs, L. C., Irvine, C. K. S., & Walker, D. (2018). *Introduction to research in education*. Cengage Learning.
- [2] Astawa, I. N., Mantra, I. B. N., & Widiastuti, I. A. M. S. (2017). Developing communicative English language tests for tourism vocational high school students. *International Journal of Social Sciences and Humanities*, 1(2), 58–64. <https://doi.org/10.29332/ijssh.v1n2.43>
- [3] Elliott, J., & Yu, C. (2013). Learning studies in hong kong schools : a summary evaluation report on the 'variation for the improvement of teaching and learning' (VITAL) project. *Éducation Et Didactique*, 7(2), 147–163. <https://doi.org/10.4000/educationdidactique.1762>
- [4] González-Pérez, L. I., & Ramírez-Montoya, M. S. (2022). Components of Education 4.0 in 21st century skills frameworks: systematic review. *Sustainability*, 14(3), 1493.
- [5] Handayani, N. D., & Widiastuti, I. A. M. S. (2019). Integrating Quantum Learning to Improve Students' Linguistic Competence. *International Journal of Linguistics and Discourse Analytics (IJOLIDA)*, 1(1), 22–28.
- [6] Jalinus, N., Verawardina, U., Azis Nabawi, R., & Darma, Y. (2021). Developing Blended Learning Model in Vocational Education Based On 21st Century Integrated Learning and Industrial Revolution 4.0. *Turkish Journal of Computer and Mathematics Education*, 12(8), 1239–1254.
- [7] Liyanage, I., Walker, T., & Shokouhi, H. (2021). Are we thinking critically about critical thinking? Uncovering uncertainties in internationalized higher education. *Thinking Skills and Creativity*, 39(March). <https://doi.org/10.1016/j.tsc.2020.100762>
- [8] Maba, W., & Mantra, I. B. N. (2017). An analysis of assessment models employed by the Indonesian elementary school teachers. *International Journal of Social Sciences and Humanities (IJSSH)*, 1(1), 39–45.
- [9] Maba, W., & Mantra, I. B. N. (2018). The primary school teachers' competence in implementing the 2013 curriculum. *SHS Web of Conferences*, 42, 00035. <https://doi.org/10.1051/shsconf/20184200035>
- [10] Mahanal, S., Zubaidah, S., Sumiati, I. D., Sari, T. M., & Ismirawati, N. (2019). RICOSRE: A learning model to develop critical thinking skills for students with different academic abilities. *International Journal of Instruction*, 12(2), 417–434. <https://doi.org/10.29333/iji.2019.12227a>
- [11] Mantra, I. B. N., Handayani, N. D., & Pramawati, A. A. I. Y. (2021). Alternative Learning Methods Employed by Language Teachers in the New Normal of COVID-19. *IJEE (Indonesian Journal of English Education)*, 8(2), 232–246. <https://doi.org/10.15408/ijee.v8i2.21135>
- [12] Mantra, I. B. N., Handayani, N. D., & Pramawati, A. A. I. Y. (2022). Problem-Based Learning and Project-Based Learning Integration in Online Learning to Enhance Students' Critical and Creative Thinking Skills. *Jurnal Pendidikan Progresif*, 12(1), 184–195.
- [13] Mantra, I. B. N., Suwandi, I. N., Sukanadi, N. L., Astuti, N. K. W., & Indrawati, I. G. A. P. T. (2019). Teachers' competencies in dealing with instructional constraints to develop a higher quality of learning. *International Journal of Social Sciences*, 2, 44–48. <https://doi.org/10.31295/ijss.v3n1.95>
- [14] Marisa, M. (2021). Curriculum Innovation "Independent Learning" in The Era of Society 5.0. *Jurnal Sejarah, Pendidikan, Dan Humaniora*, 5(1), 66–78. <https://doi.org/10.36526/js.v3i2.e-ISSN>
- [15] Prachagool, V., & Nuangchalem, P. (2021). Perspectives of Thai Educators toward 21st Century Instruction. *Journal of Education and Learning (EduLearn)*, 15(3), 432–437.
- [16] Sri Widiastuti, I. A. M., Krismayani, N. W., & Murtini, N. M. W. (2022). Communication, Inquiring, Networking, Teaching, Applying (CINTA) as an Effective Learning Model to Improve Students' Critical and Creative Thinking Skills. *International Journal of Information and Education Technology*, 12(12), 1337–1344. <https://doi.org/10.18178/ijiet.2022.12.12.1757>
- [17] Ward, P., Lawson, H. A., van der Mars, H., & Mitchell, M. F. (2021). 21st-century physical education in the United States: Introduction to the special issue. *Journal of Teaching in Physical Education*, 40(3), 345–352.
- [18] Widiastuti, I. A. M. S. (2018). EFL students' writing interactions through weblog and self-assessment. *International Journal of Humanities, Literature & Arts*, 1, 38–45. <https://doi.org/10.31295/ijhla.v1n1.32>
- [19] Widiastuti, I. A. M. S., Mantra, I. B. N., & Sukoco, H. (2020). Mobile Internet-Based Learning To Cultivate Students' Speaking Skills During Coronavirus Pandemic. *International Journal of Applied Science and Sustainable Development (IJASSD)*, 2(1), 6–10.
- [20] Zaragoza, M. C., Díaz-Gibson, J., Caparrós, A. F., & Solé, S. L. (2021). The teacher of the 21st century: professional competencies in Catalonia today. *Educational Studies*, 47(2), 217–237.

THIS PAGE IS INTENTIONALLY LEFT BLANK

# TEACHERS OF 21ST CENTURY: TEACHERS' ROLES IN INNOVATING LEARNING STRATEGIES AND CHALLENGES

## ORIGINALITY REPORT

18%

SIMILARITY INDEX

14%

INTERNET SOURCES

9%

PUBLICATIONS

4%

STUDENT PAPERS

## PRIMARY SOURCES

1

123dok.com

Internet Source

2%

2

ejournal.umm.ac.id

Internet Source

1%

3

Wachidi Wachidi, Adrian Rodgers, Dmitriy Yu Tumanov. "PROFESSIONAL COMPETENCE UNDERSTANDING LEVEL OF ELEMENTARY SCHOOL IN IMPLEMENTING CURRICULUM 2013", INTERNATIONAL JOURNAL OF EDUCATIONAL REVIEW, 2020

Publication

1%

4

Suyitno Suyitno, Yusri Kamin, Dwi Jatmoko, Muhammad Nurtanto, Edi Sunjayanto. "Industrial Apprenticeship Model Based on Work-Based Learning for Pre-service Teachers in Automotive Engineering", Frontiers in Education, 2022

Publication

1%

5

eudl.eu

Internet Source

1%

6	<a href="http://jurnal.fkip.unila.ac.id">jurnal.fkip.unila.ac.id</a> Internet Source	1 %
7	<a href="http://jurnal.unw.ac.id">jurnal.unw.ac.id</a> Internet Source	1 %
8	<a href="http://journal.uinsgd.ac.id">journal.uinsgd.ac.id</a> Internet Source	1 %
9	<a href="http://researchmgt.monash.edu">researchmgt.monash.edu</a> Internet Source	1 %
10	Submitted to University of Wisconsin, Oshkosh Student Paper	1 %
11	<a href="http://jurnal.ar-raniry.ac.id">jurnal.ar-raniry.ac.id</a> Internet Source	1 %
12	<a href="http://repository.uin-suska.ac.id">repository.uin-suska.ac.id</a> Internet Source	1 %
13	<a href="http://www.academypublication.com">www.academypublication.com</a> Internet Source	1 %
14	<a href="http://www.ejournal.warmadewa.ac.id">www.ejournal.warmadewa.ac.id</a> Internet Source	1 %
15	Bambang Apriady Loeneto, Zahra Alwi, Ernalida Ernalida, Eryansyah Eryansyah, Santi Oktarina. "Chapter 10 Teacher Education Research and Development in Indonesia: Preparing Educators for the Twenty-First	1 %

16

[ijece.iaescore.com](http://ijece.iaescore.com)

Internet Source

<1 %

17

Submitted to International Islamic University  
Malaysia

Student Paper

<1 %

18

[journal1.uad.ac.id](http://journal1.uad.ac.id)

Internet Source

<1 %

19

[journal2.uad.ac.id](http://journal2.uad.ac.id)

Internet Source

<1 %

20

Hendrik A.E Lao, Ezra Tari, Yohanes Baun,  
Hengki Wijaya. "The Evaluation of 2013  
Christian Religious Education Curriculum:  
Using the Stake Model Approach", AL-  
ISHLAH: Jurnal Pendidikan, 2022

Publication

<1 %

21

[beei.org](http://beei.org)

Internet Source

<1 %

22

[namibian-studies.com](http://namibian-studies.com)

Internet Source

<1 %

23

[noexperiencenecessarybook.com](http://noexperiencenecessarybook.com)

Internet Source

<1 %

24

[ojs2.pnb.ac.id](http://ojs2.pnb.ac.id)

Internet Source

<1 %

25	Apantee Poonputta. "Emotional, Attitude and Classroom Action Research Competency Conduction of Undergraduate Students Through STEM Education", Journal of Education and Learning, 2021 Publication	<1 %
26	eprints.unm.ac.id Internet Source	<1 %
27	ijere.iaescore.com Internet Source	<1 %
28	jiecr.org Internet Source	<1 %
29	mjltn.org Internet Source	<1 %
30	Handayani Redjeki, Sukirman, Santoso. "Education and Training Technology Increases Teacher Competence", Journal of Physics: Conference Series, 2021 Publication	<1 %
31	Reginald A. Blake, Janet Liou-Mark. "Chapter 6 Authenticating Interdisciplinary Learning through a Geoscience Undergraduate Research Experience", Springer Science and Business Media LLC, 2016 Publication	<1 %

32

Osman Kayhan, Özgen Korkmaz, Recep Çakır.  
"How Do Computational Thinking and Logical  
and Math Thinking Skills Predict  
Programming Self-Efficacy?", Computers in  
the Schools, 2023

Publication

<1 %

33

journal.uinjkt.ac.id

Internet Source

<1 %

Exclude quotes Off

Exclude matches Off

Exclude bibliography On

# TEACHERS OF 21ST CENTURY: TEACHERS' ROLES IN INNOVATING LEARNING STRATEGIES AND CHALLENGES

GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

/0

PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6