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21st Century Teacher Skills and Their Contribution to the Educational System According to Expert and Teacher Views

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ABSTRACT

Background/purpose – In the 21st century, humankind has experienced an unprecedented level of change and we should therefore ensure that the new generations are educated with the skills appropriate to this ever-developing technological era. However, in order to adequately equip students their teachers first need to acquire these 21st century skills. In this respect, this study aims to reveal what these 21st century teacher skills are and, according to the opinions of teachers and experts, how their acquisition by teachers contributes to the education system.

Materials/methods – The research was designed as a qualitative phenomenological study. The participants consisted of six academicians who are each experts in the field of teacher training, plus 13 working teachers. The study's data were collected through a semi-structured interview form developed by the researchers. Content analysis was then used in the analysis of the data.

Results – It was revealed that teachers should possess many varied and versatile skills. Once these 21st century skills have been acquired by teachers, they can actively contribute to both parties' futures according to many different aspects.

Conclusion – Education plays a crucial role in shaping the future generations. However, fulfillment of these roles is only possible through teachers who first acquire and master these 21st century skills, and then learn to impart these skills to their current and future students.

Keywords – skills, 21st century skills, teacher skills

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1. INTRODUCTION

Humankind has reached the 21st century by undergoing unprecedented changes and transformation in all areas of life, ranging from transportation, communication, education, science, and technology to social and cultural aspects (Anagün et al., 2016; Arabacı & Polat, 2013; Kozikoğlu & Altunova, 2018; Okogbaa, 2017). There have already been some dramatic and yet previously unimagined developments in this, the 21st century (Faulkner & Latham, 2016; Keskin & Yazar, 2015). Along with these developments, individuals are expected to perform certain skills in today's knowledge-driven society. In other words, each period requires its own unique set of skills (Hamarat, 2019). The skills that people are proposed to need in this century, which is described as the information age, are referred to as "21st century skills" (Anagün et al., 2016; Ananiadou & Claro, 2009; Kozikoğlu & Altunova, 2018).

The literature contains various definitions and categorizations of what these 21st century skills should be (Kozikoğlu & Altunova, 2018; Orhan-Göksün, 2016). Classifications have been proposed by many institutions and organizations such as the Assessment and Teaching of 21st Century Skills (ATCS), Partnership for 21st Century Learning (P21), the Organisation for Economic Co-operation and Development (OECD), Asia Society Partnership for Global Learning, International Society for Technology in Education (ISTE), North Central Regional Educational Laboratory (NCREL), and the European Union (EU) (Anagün et al., 2016). Even though various descriptions exist in the literature for 21st century skills, they are all considered vital for modern-day survival, in other words, they are today's "survival skills" (Wagner, 2008). These 21st century skills are not just relevant to society's elite, but are essential survival skills for everyone living in this age (Wagner, 2008). In this respect, acquiring these skills has been considered of increasing importance (Cansoy, 2018) and even stated as being a necessity (Hamarat, 2019). Educational institutions, schools, and teaching professionals at all levels each bear critical responsibilities for equipping students with the skills needed in the 21st century (Pa-alisbo, 2017; Tarbutton, 2018; Uche et al., 2016; Voogt & Roblin, 2010; Yalçın, 2018). Teachers have a significantly strategic role in equipping the next generation with these 21st century skills (Cansoy, 2018), and must first therefore possess these skills themselves (Okagbaa, 2017; Valli et al., 2014) in order to prepare their current students for adulthood in the 2030s (OECD, 2018) and life in the 21st century (Tarbutton, 2018).

It can be agreed that the primary way for teachers to acquire 21st century skills is dependent on their awareness of what these skills consist of, and having a positive attitude towards the contribution of these skills to the education system. When the relevant literature is reviewed, studies can be found that aimed to determine the characteristics of 21st century students (Chalkiadaki, 2018; Günüç et al., 2013; Howlett & Waemusa; 2019; Kijunva, 2015), whereas others have focused on 21st century skills in specific branches (Aydemir & Çiftçi, 2008; Bal, 2018; Korkut & Akkoyunlu, 2008; Stickler et al., 2020), or studies on 21st century skills in general (Acun et al., 2010; Dağhan et al., 2017; Gürbüztürk & Koç, 2012; Koray et al., 2005; Korkmaz & Gür, 2006; Murat, 2018; Urbani et al., 2017). However, no published research could be found which aimed to determine teachers' views on 21st century skills. Similarly, no studies could be found regarding the opinions of education faculty instructors,

who have an active role in the preservice training of future teachers with 21st century skills, about what 21st century teacher skills should be, and what their contribution is perceived to be for the education system as a whole. This situation was considered by the researchers as a deficiency or gap worthy of investigating and which the current study aims to address. In this respect, the study aims to reveal what the pertinent 21st century teacher skills are, and their contribution to the education system based on the opinions of teachers and educational experts. For this purpose, answers to the following research questions are sought:

1. According to experts' and teacher' opinions, what skills should teachers possess in the 21st century?
2. According to experts' and teachers' opinions, what are the contributions of teachers having 21st century skills to the education system?

2. METHODOLOGY

In this section, research design, study group, data collection, data analysis, validity and reliability studies are explained.

2.1. Research Design

In this study, phenomenology, one of the qualitative research designs, was used. The purpose of research conducted according to a phenomenological design is to reveal the meaning attributed to the phenomenon by individuals (Creswell, 2016; Johnson & Christensen, 2012). In this context, the current research aims to ascertain the meaning and perceptions of experts and teachers about the 21st century skills of teachers and the contributions of 21st century teachers' skills to the education system.

2.2. The Study Group

Data sources in phenomenological research consist of individuals or groups who experience the phenomenon of interest and can express about or reflect upon this phenomenon (Büyüköztürk et al., 2019). The study group of the current research consisted of teachers working in Turkish schools and educational experts. In order to determine the study group, 13 teachers working in schools affiliated to the Turkish Ministry of National Education (i.e., state schools) during the 2019-2020 academic year were included, taking into account their seniority, branch of teaching, and gender within a framework of maximum diversity sampling.

Criterion sampling was adopted in determining the study group of experts. As criterion, participants had to have obtained a doctoral degree or associate professorship in the field of teacher training. Based on this criteria, the experts were interviewed from among academicians working at the education faculty of Kahramanmaraş Sütçü İmam University in Turkey. Codes of T1, T2… were assigned to the participant teachers in terms of ethical research guidelines, whilst codes of E1, E2… were assigned to the experts' group. Demographic information about the study's participants is presented in Table 1 and Table 2.

Table 1. Demographic Characteristics of Participating Teachers

Code	Gender	Branch	Seniority (years)
T1	Female	Mathematics Teacher	8

Code	Gender	Branch	Seniority (years)
T2	Female	Preschool Teacher	9
T3	Male	Music Teacher	8
T4	Female	English Teacher	6
T5	Female	Mathematics Teacher	15
T6	Male	Justice Teacher	3
T7	Male	Technology and Design Teacher	13
T8	Male	Psychological Counselor & Guidance Teacher	3
T9	Male	Preschool Teacher	5
T10	Female	Preschool Teacher	5
T11	Female	English Teacher	4
T12	Female	Mathematics Teacher	7
T13	Female	Turkish Teacher	3

Table 1 shows that 13 teachers participated in the study in total, and that eight (62%) were female and five (38%) male. Three of the participant teachers were math teachers (23%), three were preschool teachers (23%), two were English teachers (15%), and the remaining five consisted of a music teacher, a justice teacher, a technology and design teacher, a psychological counselor and guidance teacher, and a Turkish teacher. The seniorities of the participant teachers varied between 3 and 15 years.

Table 2. Demographic Characteristics of Participating Experts

Code	Gender	Department	Seniority (years)
E1	Male	Educational Sciences Department	6
E2	Male	Turkish and Social Sciences Education	9
E3	Male	Educational Sciences Department	12
E4	Male	Elementary Education Department	9
E5	Male	Educational Sciences Department	22
E6	Female	Educational Sciences Department	12

Table 2 shows that five of the six experts that participated in the current research were male (83%) and one (17%) was female. All of the experts worked in the Faculty of Education, with four from the Educational Sciences Department, one from the Department of Basic Education, and one from the Turkish and Social Studies Education Department. The seniority of the experts varied between 6 and 22 years.

2.3. Data Collection Tool and The Process

Interviewing, which is frequently preferred in qualitative research, is a data collection technique in which the study's participants actively explain their knowledge, feelings, and thoughts about the topic of research (Baltacı, 2019). Semi-structured interviews, on the other

hand, combine both fixed-choice answer options with being able to provide in-depth information about the relevant field (Büyüköztürk et al., 2019). The data in the current study were obtained through application of a semi-structured interview form developed by the researchers. The interview form had two parts, with the first part consisting of six questions to determine the demographic characteristics of the participants, while the second part consisted of two open-ended questions to determine the views of the participants about 21st century teacher skills. Whilst preparing the semi-structured interview form, the researchers reviewed the current literature and expert opinion was also sought. The study's data were collected during the 2019-2020 academic year.

2.4. Data Analysis

In the research, data obtained through the semi-structured interviews were analyzed according to the content analysis method. Content analysis is defined as a systematic, repeatable technique in which words of a text are summarized as content categories with coding based on certain predefined rules (Büyüköztürk et al., 2019). While analyzing the data, first, the collected data were transferred to digital form, themes were created, and then the codes specified. After receiving expert feedback, any necessary corrections were applied and the study's findings then written.

2.5. Reliability and Validity

A series of strategies were followed so as to ensure the internal validity (credibility), external validity (transferability), internal reliability (consistency), and external reliability (verifiability) of the study (Yıldırım & Şimşek, 2011). Providing detailed information about the research has an important place in increasing the credibility of the results in the minds of its readers (Creswell, 2016). Accordingly, the pattern of the research, study group, data collection tool, data collection process, as well as the analysis method and interpretation of the data are explained in detail. In the findings part of the study, excerpts from the participants' statements are presented without comment (verbatim), for the purpose of increasing the internal reliability (consistency) of the study. For verification of the analysis, the data and coding obtained were maintained by the researchers in order to allow interested parties the opportunity to inspect how the process had been applied. Finally, the external reliability of the study was aimed to be increased by discussing the data fully and appropriately in the conclusion of the study.

2.6. Research Ethics

In qualitative research, it is necessary that the study be conducted according to established research ethics (Merriam, 2013). In order to conduct the study in an ethical manner, permission was sought from Kahramanmaraş Sütçü İmam University Rectorate, Social and Humanities Ethics Committee. Additionally, to conduct the research ethically, the participants were prior informed about the research subject, that their participation was voluntary, and that their anonymity and confidentiality of the data was assured (Glesne, 2012) through the use of pseudonym codes instead of their actual names in the reporting.

3. FINDINGS AND DISCUSSION

In this section, the findings obtained from the research are presented illustratively. According to the participant teachers' and experts' opinions, answers to the question of "What should 21st century teacher skills be?" are presented in Figure 1 and Figure 2, respectively.



Figure 1. 21st century teachers' skills – according to teachers

When Figure 1 is examined, it can be seen that 21st century teacher skills consist of six themes: innovation skills, pedagogical skills, metacognitive skills, media and technology skills, life skills, and career skills. The participant teachers stated that teachers who have 21st century innovation skills also have high awareness, openness to innovations, an inquiring mind, and self-development qualities. Regarding self-improvement, T4 stated that:

> Teachers should be in an active and respected position through constantly updating themselves. Because, in a world that is constantly changing and developing, it is necessary to educate using new methods and techniques.

> Teachers should not to be just stuck where they are, but train themselves and those in their profession to keep up with the new generation.

With regards to innovation, T2 stated that teachers "…must be open to innovation, since we are in a world of rapid development and change, there are innovations in the world of education and teachers should be able to reflect these innovations in their education." Under the theme of pedagogical skills, effective communication, teaching how to learn, and empathy skills of teachers were revealed. Concerning the effective communication code, T9 expressed that, "Again, in terms of 21st century features, teachers need to be very good at communication." T8 emphasized teaching how to learn, stating, "…in the 21st century, teachers should be in the role of guiding students in accessing and using information, rather than teachers who directly transmit information, with the effect of recent technological developments in this period." In relation to empathy, T12 stated that, "…there should be teachers who have strong empathic skills and can reach the level of students and understand them. Because, in the 21st century, children and the new generation are different."

The metacognitive skills theme consists of critical thinking, an inquiring mind, computational thinking, problem solving, creative, algorithmic thinking, analyzing, and reflective thinking. For problem solving, T1 said that, "Since the problem has been exposed a lot in this century, the teachers should solve it easily. They should be skilled at problem solving." Teachers who have media and technology skills also have the qualities of using technology in education, being aware of the power of social media, media literacy and information literacy. Regarding the code of using technology in education, T2 stated that:

> They should have a good command of technological developments, teachers should have technological skills, especially with the introduction of technology into education. They should have a command of technological developments, both in terms of keeping up with the pace of students and keeping up with the developments in education.

Concerning the media literacy code, T13 said that:

> Teachers should be able to use information technologies. Because in our age of both information and media, due to the rapid flow of information or information pollution, teachers should be able to retrieve the necessary information and be able to research and question using this information.

Regarding the code of being aware of the power of social media, T6 stated that teachers "…should be aware of the power of social media. They should analyze this medium well." The life skills theme includes intellectual, extrovert, flexible, humanist, having values, and fair codes. On flexibility, T2 stated that:

> In the 21st century, teachers must be flexible. Teachers should not have strict rules, as the new generation get bored quickly and cannot tolerate authority. They should be more flexible and understanding.

Regarding the code of having values, T4 emphasized that:

Teachers should be respected individuals who reflect national and moral values, set an example to society, and raises individuals who will set an example for society. Because today's changing world changes us not only positively but also negatively.

Teachers' career skills were expressed as productive, multiculturally skilled, curious, subject-matter specialist, likes to read, collaborative, and open to criticism. Related with being productive, T10 said that, "In the 21st century, there is a need for individuals who produce more than those who consume." On being multiculturally skilled, T9 stated that, "…various cultures have entered the country [Turkey], so now our teachers should be multicultural, tolerant, humanist, and can appeal to people of various different backgrounds."

Figure 2 shows the expert opinions about what 21st century teacher skills should be.

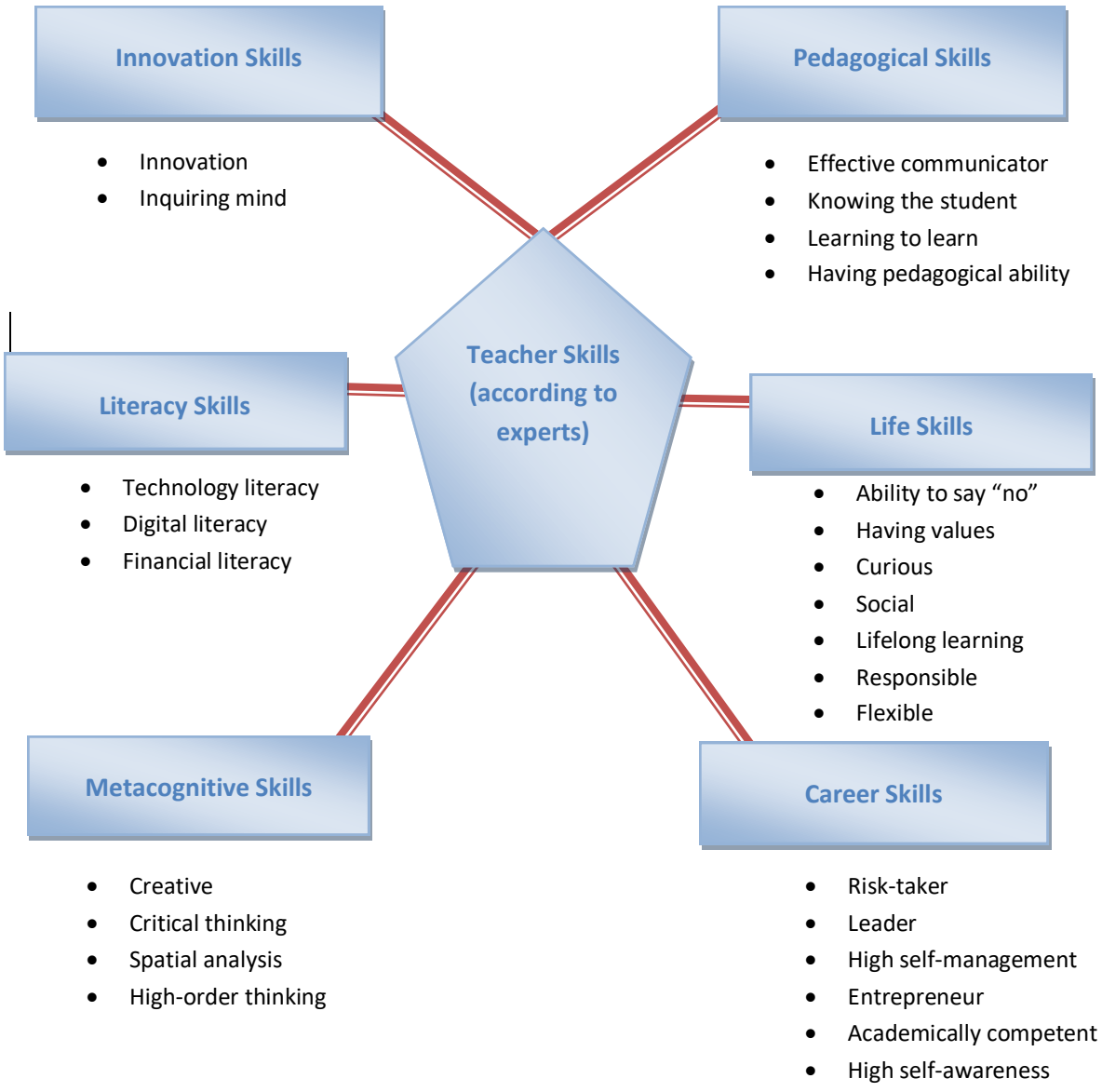


Figure 2. 21st century teachers' skills – according to expert opinion

As can be seen in Figure 2, according to the participant experts' opinions, the 21st century teacher skills consist of six themes: innovation skills, pedagogical skills, metacognitive skills, literacy skills, life skills, and career skills. The innovation skills theme is composed of innovation and inquiring mind codes. Regarding innovation, E1 expressed that "The most important skill is continuous innovation, continuous learning. We live in an age of change. In this century, teachers must constantly innovate themselves. In this process, teachers especially need to learn new things and increase their competencies." About being an inquirer, E4 said that, "Teachers should have inquiry skills. Human beings are constantly changing."

In the theme of pedagogical skills, effective communication, getting to know the student, learning to learn, and pedagogical competence were the codes revealed. Concerning effective communication, E1 said; "The third skill is social skills. In the world we live in, many relationships have moved to a virtual environment, but we also need skills to build healthy relationships in real life." About getting to know students, E5 expressed that, "Getting to know the student, considering their individual differences (cognitive, affective, socioeconomic, and cultural) in education…" E3's view on being creative included "Originality: Creativity due to the nature of their [a teacher's] job." Regarding critical thinking, E4 stated that, "Teachers should have critical-thinking skills. They should be able to handle issues multidimensionally. They should evaluate criticism and improve themself." In the literacy skills theme, the experts stated that teachers should have technology literacy, digital literacy, and financial literacy skills. Regarding technology literacy, E2 stated that:

> The benefits of the digitalized world (such as artificial intelligence and algorithm) should be reflected in the education program. For Generation Z and then the alpha generation, it should be aimed to provide children with technology-related skills from an early age.

In the theme of life skills, the participant experts stated that teachers should have the ability to say no, have values, be curious, social, lifelong learners, responsible, and flexible. About the ability of teachers to say no, E4 stated that, "Teachers should be able to say 'no.' Thus, they can prevent future pressure on themselves." E1's opinion on being curious was that, "21st century skills need to include creativity and curiosity. As a teacher, they need to consider what other teaching methods and techniques could be used, and to develop appropriate materials." The theme of career skills comprised risk-taking, leader, high self-management, entrepreneur, being academically competent, and high self-awareness. Concerning the code of high self-awareness, E4 stated that, "Teachers should be aware of themselves, their self, and their personality. The children they teach should also be aware of themselves." Regarding having academic competence, E4 stated that "Teachers should have academic competence. They should know the teaching methods and techniques well."

In response to the second question of the study, the opinions of the participant teachers and experts regarding the contribution of 21st century teachers' skills are presented in Figure 3 and Figure 4, respectively.

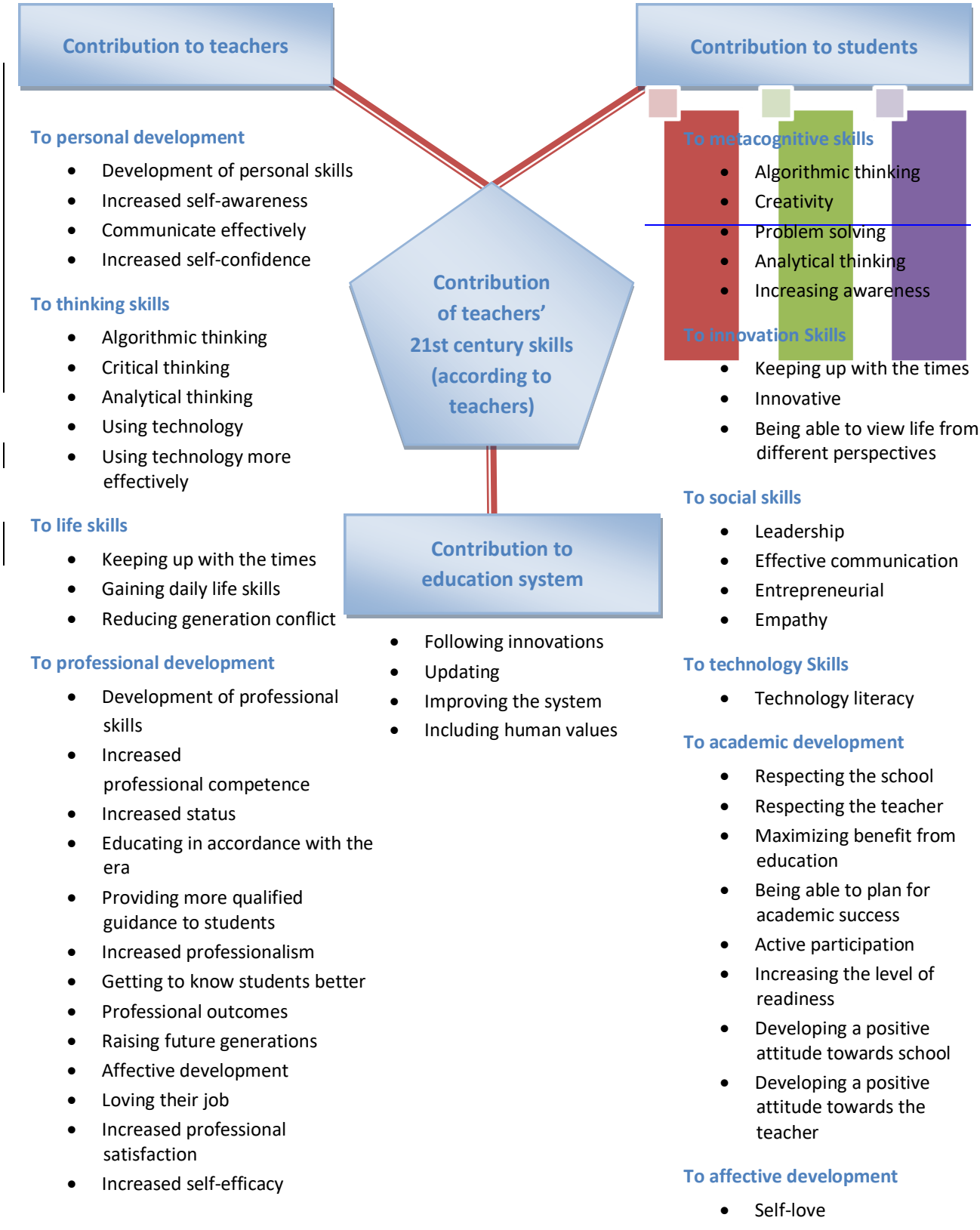


Figure 3. Teachers' views on contribution of 21st century skills

In Figure 3, teachers' views on the contribution of having 21st century skills are grouped under three themes: contribution to teachers, the students, and the education system. The theme of contribution to the teachers consists of personal development, thinking skills, using technology, life skills, professional development, professional outcomes, and affective development. Regarding using technology more effectively, T13 said that:

> Because a teacher who has media literacy or who knows screen reading will be able to transfer this skill to their students. I mean, I think that having these skills will make them more confident since they will not be behind the times.

The fact that teachers have life skills will contribute to their being able to keep up with the times, to gain daily life skills, and to reduce generation conflict. Concerning keeping up with the times, T7 stated that, "…because we have to keep up with the times in the changing world, teachers who do not keep up will be left outside of the system." Regarding increased professional competence, T13 said that, "Having 21st century skills will contribute to teachers as follows, I think that teachers who can transfer their knowledge mentally, socially, and physically will actually feel more competent." About providing more qualified guidance to students, T8 explained that: "Today, teachers need to provide qualified guidance to students about the rapidly changing world of knowledge, and themselves keep up with the developments in today's world." According to the findings based on the participant teachers' opinions, 21st century skills will contribute to teachers raising future generations as a professional outcome. Regarding the raising of future generations, T4 stated that, "...it will contribute to raising generations that keep up with the times, have their feet on the ground, shape the future of the country, and will affect the country's place and future in the world." Having 21st century skills will contribute to teachers' enjoyment of their job, increase their professional satisfaction, and increase their self-efficacy. Regarding increased professional satisfaction, T12 stated that "It will enable teachers to feel a sense of professional satisfaction and to increase their teaching skills." About increase self-efficacy, T2 asked, "How would it help teachers to have 21st century skills? It would enable them to be more qualified, expert in their job, to do their job better, and have high self-efficacy."

According to the teachers' views, those with 21st century skills will contribute to the development of their students' metacognitive, innovative, technological, and social skills, and also their academic and affective development. The metacognitive skills subtheme consists of algorithmic thinking, creativity, problem solving, analytical thinking, and increasing awareness. On problem solving, T8 stated that it "…will enable students to develop their problem-solving skills in areas they will encounter in their lives other than just requiring knowledge." The innovation skills subtheme is composed of keeping up with the times, being innovative, and being able to view life from different perspectives. Regarding keeping up with the times, T13 said that: "Teaching students 21st century skills is actually a matter of keeping up with the times. Because we are in an age where skills cannot be simply transferred, but are acquired through practice." About being able to view life from different perspectives, T6 stated that "It allows students to gain new perspective."

The social skills subtheme is comprised of leadership, effective communication, entrepreneur, and empathy. Regarding effective communication, T12 said:

> Of course, if teachers have a good command of 21st century skills, it will stand students in good stead. The more that teachers' mutual understanding and communication skills improve, the more the profile of students who love their teachers and who are highly interested in the lesson increases.

Concerning the entrepreneur and leadership codes, T13 said that, "Being an entrepreneur and having a leadership feature, students who see these skills embodied in themself will actually participate and guide the process more actively. Actually, I think the guidance effect will be greater."

The academic development subtheme consists of respecting the school, respecting the teacher, maximum benefit from education, being able to plan for academic success, active participation, increasing the level of readiness, developing a positive attitude towards the school, and developing a positive attitude towards the teacher. Regarding developing a positive attitude towards the school and teachers, T2 expressed that:

> It will contribute if students love their school and their teacher, have respect for their teacher and school, and receive better education. I think that a child who loves their school and teacher will benefit most from their education.

On the topic of maximum benefit from education, T9 stated that:

> In the 21st century, central exams form the primary focus at school and therefore such exams are a struggle of existence for some students. Students who are educated by teachers with 21st century skills will be successful individuals who will lead in this struggle.

Teachers with 21st century skills will contribute to the education system by following innovations, updating, improving the system and including human values. T7 stated that, "I think the education system will become a little more flexible and updatable, and develop a new modular system that can adapt to information and keep up with change." Related to the code of following innovations, T3 said that "…it will contribute by bringing an innovative, open to change, and developmental structure..." With respect to including humanitarian values, T7 explained that, "I think that a system will be formed that interprets, produces, and integrates information into life rather than reliance upon memorizing information, and while doing this, including humanitarian values, too."

Figure 4 presents the contributions of teachers having 21st century skills according to the participant experts' views.

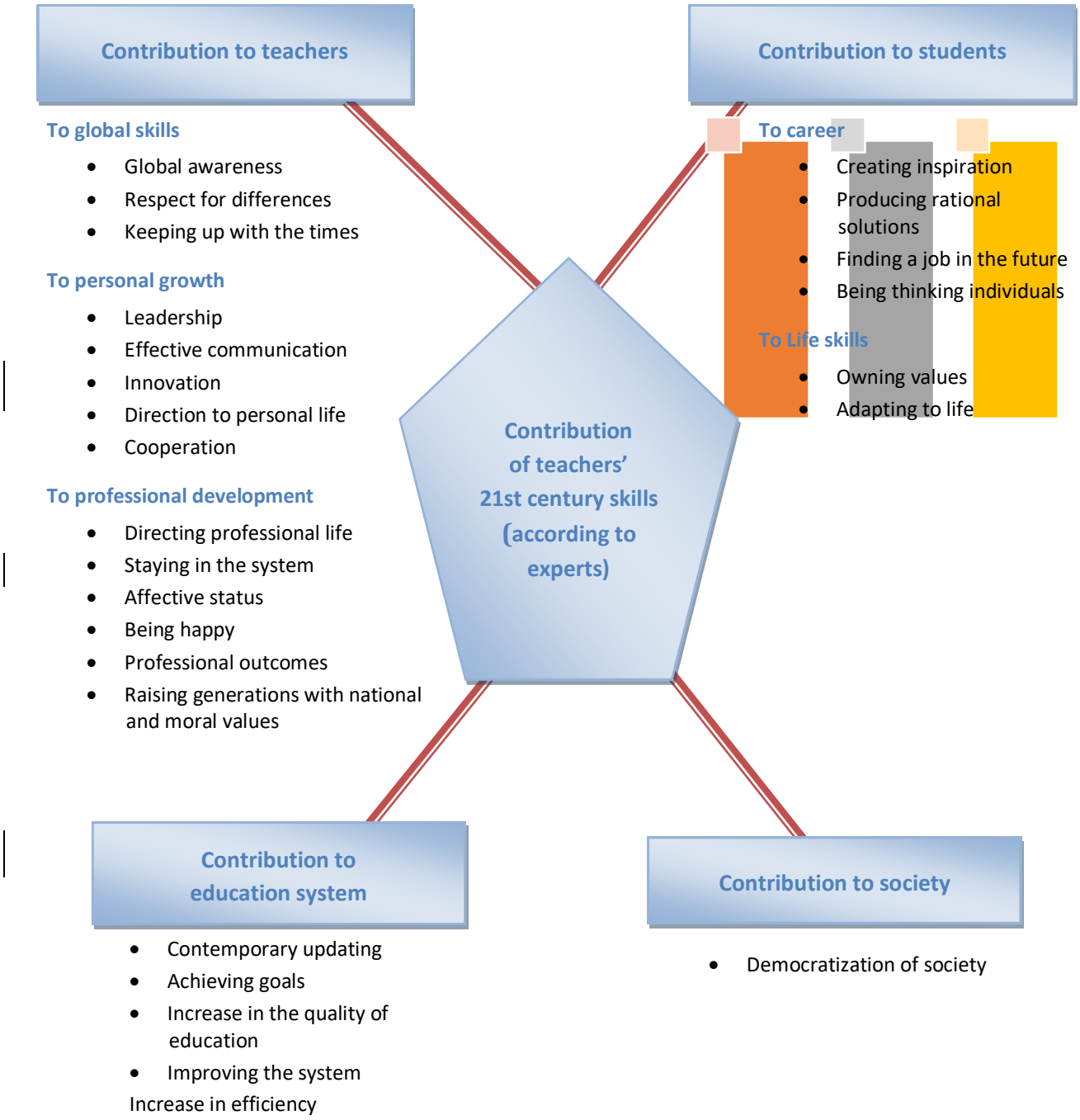


Figure 4. Experts' views on contribution of teachers' 21st century skills

When Figure 4 is examined, it can be seen that having 21st century skills contributes to the global skills of teachers in terms of their personal growth, professional development, affective status, and professional outcomes. Related to having global consciousness and respecting differences, E2 said, "It will provide through global consciousness and in respecting differences." In relation to the direction of personal life, E2 said that "It will help them direct their personal and professional lives and be happy." With regard to raising generations with national and spiritual values, E4 expressed that, "If teachers possess the necessary skills, they will raise generations who value their homeland and nation, who are principled, honest, and have a strong personality."

According to the study's participant experts, teachers having 21st century skills will contribute to students' career skills such as creating inspiration, producing rational solutions, finding a job in the future, being thinking individuals, and also to life skills such as owning values and adapting to life. With regard to creating inspiration, E1 explained that "21st century skills will provide the needed courage, inspiration, and support for them to come up with new ideas, new inventions…" On having values, E4 emphasized that "If teachers have these qualifications, their students will be trained in the same way and thus become representatives of the future with moral values and a strong personality to protect the country and the nation." With regards to adaptation to life, E5 stated that, "Since they will have the skills required for the 21st century, they will be able to adapt to life more easily."

According to the interviewed experts, teachers' having 21st century skills will contribute through being able to be contemporarily updated, achieve goals, increase the quality of education, improve the system, and increase in efficiency. With regard to contemporarily updating and achieving goals, E1 stated that "It will help to form a functional system that is compatible with the requirements of the century, has the capacity to realize its goals, and can lead the social, economic, and cultural structure of the country." Concerning increased efficiency, E5's opinion was that "The speed and efficiency of the system will increase." According to the participant experts, teachers with 21st century skills will contribute to society by ensuring its democratization. On this issue, E2 stated that "...it will ensure respect for differences by building a more democratic society."

3. CONCLUSION and RECOMMODATIONS

The current study aimed to reveal what teachers skills should be in the 21st century, and the contributions that teachers with 21st century skills would add to the education system, according to the opinions of both experts and teachers.

In the study, it was found that teachers should possess skills in critical thinking, problem solving, creativity, effective communication, and collaboration in the 21st century. Other research results have also supported this finding (e.g., Beers, 2011; Partnership 21, 2019; Wagner, 2008). As in the current study, it is seen that creativity, critical thinking, working in cooperation, and problem solving have also been emphasized in studies on 21st century skills (Belet-Boyacı & Güner-Özer, 2019). In the current research, the conclusion that teachers should possess critical thinking, collaboration, and problem-solving skills in the 21st century may have resulted from the participants' awareness of the reported necessity of having these skills in order to be able adapt to today's changing world, to accomplish the process of qualified education and training, to better prepare today's students for tomorrow, and to solve the problems that teachers face in this information age. In addition, as emphasized in the ATCS 2010 report (Binkley et al., 2010), success lies in being able to communicate, share, and use information to solve complex problems, adapting and innovating in response to new demands and changing conditions, to marshal and expand the power of technology to create new knowledge, and to expand human capacity and productivity.

It was revealed that teachers should possess technology literacy skills in the 21st century. This result is consistent with those reported in a study by Voogt and Roblin (2012)

and also the 21st century skills defined in the ATCS 2010 standards (Binkley et al., 2010). Today's students mostly already possess the necessary knowledge and skills to use technology, the Internet, and social networks effectively in every aspect of life (Günüç et al., 2013). In order that teachers can create a digital footprint for their students (Gültekin, 2020), they must also have the necessary knowledge and skills that allow them to use the most appropriate technology (Harris et al., 2009) for educational and communication purposes. The acquisition of ICT skills has become a fundamental requirement for living effectively in the modern-day world (Uche et al., 2016). Moreover, teachers need to possess ICT literacy skills in order to connect with today's digital natives (Prensky, 2001). Teachers who are unable to utilize 21st century technologies and cannot readily adapt to the latest developments will likely fail to raise individuals who will become the architects of tomorrow (Bahadır et al., 2019).

It was ascertained in the current study that teachers should have flexibility skills in the 21st century. This conclusion coincides with that of Wagner's (2008) study and the skills identified by Partnership 21 (2019). It may be said that humankind faces many problems in the 21st century such as global warming, climate change, drought and epidemics, and that these problems will affect the social fabric of modern-day life as well as people's professions and working conditions. Therefore, it can be stated that teachers should possess flexibility skills in order that they can readily adapt to changes of profession and working conditions.

The current research established that teachers should possess many types of literacy skills in the 21st century, including those related to technology, the digital world, and finance. These skills are similar to digital age literacy skills reported by Lemke (2002). Additionally, in the 21st century, teachers should take responsibility, be knowledge literate, innovative, and learn to learn skills. This finding is consistent with the 21st century skills described in the ATCS 2010 standards (Binkley et al., 2010).

Lifelong learning was one of the skills that teachers should possess in the 21st century, according to the current study's results. The fact that teachers should have lifelong learning skills will contribute in many ways in today's information-age society, where information becomes outdated in a very short timeframe, new information dissemination accelerates, and alternative information sources are ever-increasing. These contributions can be itemized as the lifelong learning of societies and individuals and of being considered a learning society (Evin Gencel, 2013), the development of students' lifelong learning skills (Selvi, 2011), teachers' positive attitudes towards the profession, and preventing teachers' job-related stress. Furthermore, teachers with lifelong learning skills will research and follow new technologies as they appear, as well as new educational approaches, and then make use of them in better preparing their students for a productive adult life (Yıldız Durak & Tekin, 2020).

It was concluded that teachers should have pedagogical skills in the 21st century; a finding consistent with research by Dağhan et al. (2017). Considering that teaching is a human-oriented profession, it can be said that pedagogical skills will be just as an important skill in the 21st century as in the past. Regarding this, Kereluik et al. (2013) stated that although the 21st century is indeed considerably different from earlier times, this does not mean that basic attributes such as knowing, acting, and valuing have changed, in this regard,

there is no disjuncture between what teachers have done in the past, and what they will do today (or even in the future). Nonetheless, we need to continuously change and find newer ways of embodying them.

According to the findings, the fact that teachers have the 21st century skills will contribute to students' technology literacy skills. Considering that already 90% of jobs require at least some digital skills (European Commission, 2018), today's students will require advanced digital skills in order to be successful in tomorrow's digital economy (Soh et al., 2012). In this respect, it can be said that teachers with 21st century skills will constitute an important advantage for students' own acquisition of these skills.

In the light of the study's findings, the fact that teachers possess the 21st century skills that will contribute to students' high-level thinking skills such as algorithmic thinking, creativity, problem solving, and analytical thinking, 21st century competence requirements are notably changing. In addition to literacy, numeracy, and basic digital skills, creativity, critical thinking, initiative taking, and problem-solving skills have taken on an increasing role in dealing with complexity and change in today's society (European Commission, 2018). According to Soh et al. (2012), students in the 21st century ought to have the ability to apply the knowledge they have learned to face the inevitable difficulties of life beyond school. In this sense, it can be commented that teachers with 21st century skills will contribute to educating students to become individuals who can think and produce rational solutions to the complex situations they encounter.

In the study, it was concluded that 21st century skills will contribute to the affective development of students and for them to have certain values. According to an OECD report from 2009, education in the 21st century needs to provide students with the social values and attitudes as well as with the constructive experiences that will allow them to benefit from the opportunities and contribute actively to the new areas of social life (as cited in Ananiadou & Claro, 2009). However, it can be said that providing students with these qualifications is only really possible if their teachers also have the appropriate 21st century skills.

According to another finding of the study, teachers with 21st century skills contribute to students being gainfully employed in the future. In relation to this, Borja (2018) stated that to keep jobs in the information age, students also need to think in depth about issues, solve problems creatively, work in teams, have literacy across numerous media types, and deal effectively with a flood of information. In this context, it can be interpreted that teachers with 21st century skills will also contribute to students being able to find jobs in the future and to hold on to them.

As a result of the current research, it was emphasized that teachers in the 21st century should possess versatile skills ranging from career skills, life skills, media and technology literacy skills to innovation skills. Education plays a crucial role in improving the knowledge, skills, attitudes, and values that will enable people to contribute and benefit from an inclusionary and sustainable future (OECD, 2018). It can be stated that the fulfillment of these roles which is expected from education itself, will be only possible through teachers

that possess the right skills as required for the 21st century, and to pass on these same skills to their students.

Based on the results of the current research, the following recommendations have been developed:

- Studies patterned with qualitative and quantitative approach should be conducted on how to bestow 21st century skills to students.
- Whilst the current study was conducted according to the qualitative research model, quantitative studies could also be applied with a larger sample group.
- Future studies may be conducted in order to determine what 21st century skills are according to students.

DECLARATIONS

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