



OPEN ACCESS

EDITED BY

Hassan Ahdi,
Global Institute for Research Education
& Scholarship, Netherlands

REVIEWED BY

Zubair Ahmed Soomro,
University of Portsmouth,
United Kingdom
Tahirah Yasmin,
Quaid-i-Azam University, Pakistan

*CORRESPONDENCE

Mahdi Aben Ahmed
mha1121@hotmail.com

SPECIALTY SECTION

This article was submitted to
Higher Education,
a section of the journal
Frontiers in Education

RECEIVED 20 July 2022

ACCEPTED 10 August 2022

PUBLISHED 26 August 2022

CITATION

Aben Ahmed M (2022) Business English
instruction: Empowering learners with
the 4Cs of the 21st century.
Front. Educ. 7:998987.
doi: 10.3389/feduc.2022.998987

COPYRIGHT

© 2022 Aben Ahmed. This is an
open-access article distributed under
the terms of the [Creative Commons
Attribution License \(CC BY\)](https://creativecommons.org/licenses/by/4.0/). The use,
distribution or reproduction in other
forums is permitted, provided the
original author(s) and the copyright
owner(s) are credited and that the
original publication in this journal is
cited, in accordance with accepted
academic practice. No use, distribution
or reproduction is permitted which
does not comply with these terms.

Business English instruction: Empowering learners with the 4Cs of the 21st century

Mahdi Aben Ahmed*

Jubail English Language and Preparatory Year Institute, Royal Commission in Jubail, Al Jubail, Saudi Arabia

This research aims to measure the perceptions of business English teachers regarding the effectiveness of the proposed communication, collaboration, critical thinking, and creativity (4Cs) teaching model. Furthermore, it also identifies some of the gaps that emerged while applying the 4Cs model, and finally recommends deliberate instructional steps for using the model. The participants in the study are 140 Business English teachers at an academic institution in the eastern part of Saudi Arabia. The study is driven by the belief that educators in this field need to create modern language instruction involving the 21st century 4Cs: communication, collaboration, critical thinking, and creativity by the intervention of carefully planned objectives, varied activities, varieties of teaching methodologies, technological tools and materials, interaction patterns, teachers' professional development and students' awareness and cultural background. Using two questionnaires, the study gauged EFL teachers' perceptions of the application of a specially developed 4Cs framework for Business English, to ensure that the students enrolled in these courses are fit to take on the role of global citizens. Findings show that teachers are positive about the appropriateness of applying the framework in the context of 21st century skills, and a viable degree of effectiveness in a learning environment. Participant teachers who applied this approach using the conceptualized paradigm in teaching Business English recommend its efficacy due to relevant pedagogical implications and practical principles that were discovered. The study concludes with six principles that can be directly used to ensure that the 4Cs which are a necessity in the 21st education system is integrated by educators in English language teaching (ELT) instruction.

KEYWORDS

21st century skills, business English, collaboration, critical thinking, creativity

Introduction

Creating classrooms conducive to 21st century students is one of the most difficult tasks faced by contemporary teachers. The critical thinking and problem-solving skills required by learners apply not only to the classroom environment, but also for the working world later because the world they will later inhabit is dynamic. The new geopolitical map of the world requires students to be proficient communicators, creators, critical thinkers, and collaborators.

Hence, these are the communication, collaboration, critical thinking, and creativity (4Cs) that we must help our students develop. Moreover, teaching can be rewarding when outputs from students demonstrate acceptable or strong indicators. These indicators according to Bruno (2019) are: the application of critical thinking, adaptability and adjustment to the continuously transforming labor force, capacity to work globally and the ability to lead an organization. Due to their exposure to the 21st century as learners, they should be able to exhibit not only possession, but also, productive application of these skills.

Many proponents (e.g., Rich, 2010; Levin-Goldberg, 2012; Scott, 2015; Ross, 2017) agreed that teaching in the 21st century does not only focus on how to teach, but one of its major concerns is also what to teach. Levin-Goldberg (2012) asserted that there are numerous pedagogical strategies educators can employ to infuse the 4Cs into their curriculum and instruction, for instance, the integration of technology in the classroom to create a richer learning environment. Research studies support that enabling our students to reach their educational goals and gain the skills they need to actively participate in the 21st century is important to all of us as language educators. The current study is driven by the aim of simplifying the definitions of the 4Cs. Accordingly, while communication is a factor of expressing views, queries, thoughts, and solutions, collaboration is working as a team to be able to achieve targets through combining talents, skills and expertise. Furthermore, critical thinking is approaching problems to arrive at possible logical and appropriate solutions; and creativity is experimentation, attempting new methods for the achievement of goals where innovation and invention are applied. These skills could be integrated into Business English instructions, and these four 21st century skills work together and are interdependent to ensure reasonable English proficiency for our students to successfully function in the contemporary world. The essential elements of these 4Cs of the 21st century have been deeply researched by many scholars. Scott (2015) talked in details about these 4Cs as communication, critical thinking, creativity, and collaboration. In terms of communication, she stated that it is the ability to relay ideas clearly and convincingly in both oral and written modes. It also includes learners' ability to clarify thoughts, share comprehensible directions and stimulate the interests of others orally. She also clarifies that collaboration is defined as the ability to work effectively and respectfully with others, show flexibility and the ability to compromise to accomplish common goals. With the inception of new digital technologies in the educational field, collaboration among learners could be functional in face-to-face or distance interaction. Working as a team may involve the utilization of the social media for goals to be attained collectively. 21st-century skills are more relevant to learners nowadays since they do not only offer a context for effective acquisition of knowledge in the classroom, but also, guarantee how learners can grow in an environment where

transformation is permanent and knowledge achievement is a continuous process (Ross, 2017).

Achievement of these among learners is positively contributory to global growth. By applying the 4Cs, contemporary ways of learning are created, and this, in turn, is commonly addressed as 21st century learning. To ensure the global growth of the students' collaboration, digital literacy, critical thinking, and problem-solving are essential (Rich, 2010) as the current age is an age of awareness. Further, critical thinking includes accessing, analyzing and synthesizing information; skills under critical thinking are understood as the basic foundation to 21st century learning and creativity is the ability to construct new ideas and genuine solutions to existing problems. Hence, creative skills are defined as the ability to use a wide range of idea-generating techniques (e.g., brainstorming), develop new and useful ideas and communicate them to others, elaborate, analyze, refine, evaluate original ideas, and be open and responsive to new and diverse perspectives; and incorporate feedback and input from others. Learners who possess creativity can cope with global competitiveness (Scott, 2015). In renowned research finding, commissioned by the Bill and Melinda Gates Foundation, Ahmadi Conley (2007) found that students who were adept at analysis, interpretation, precision and accuracy, problem solving, and reasoning were successful. Critical thinking can be as or more important than content knowledge in determining success in college courses. In terms of digital literacy goals, the four Cs of 21st century learning are also the guiding principles for students where every learner is empowered as a digital citizen, knowledge constructor, innovative designer, computational thinker, creative communicator and a world collaborator. It is understood that while learners are involved in business English lessons where 21st century skills are integrated, digital literacy can also be realized.

The 4Cs of the 21st century have been investigated in various language learning settings in many studies (e.g., Suto and Eccles, 2014; Bedir, 2019; Imamyartha et al., 2019; Azhary and Ratmanida, 2021). However, there is a dearth of similar studies in a Saudi setting. Moreover, some of the research correlated the 4Cs with teacher training, e.g., Bedir (2019) and Erdoğan (2019), lesson plan (Azhary and Ratmanida, 2021), reading skills (Imamyartha et al., 2019), EFL classroom (Pardede, 2020), etc. Other studies linked one of the 4Cs skills with English language teaching (ELT), for example communication (Pheeraphan, 2013; Heinrichs, 2016; Pattiwael, 2016; Abd Rahman et al., 2019); collaboration (e.g., Laal et al., 2012; Alahdal and Al-Ahdal, 2019; Cannon, 2019; Putri et al., 2020); critical thinking (e.g., Yazici, 2004; Al-Shalabi, 2015; Chouari and Nachit, 2016; Tuzlukova et al., 2018; Rahman, 2019); and creativity, e.g., Henriksen et al. (2016), Kweldju (2016), Ahmadi and Besançon (2017), Sitorus et al. (2020), and Soykurt (2020). To the researcher's knowledge, no study has so far explored the 4Cs skills in the business English classroom nor has a teaching model which integrates the

4Cs in Business English classroom been suggested. Therefore, this study is a pioneer in the field of ESP due to the practical model it designed and applied. Moreover, its importance stems from the identification of some of the gaps that appeared while applying the model and the suggested deliberate instructional steps required for application of the model.

Literature review

Integration of the 21st century skills

Generally speaking, research has found that there are some important issues that we as teachers can keep in mind and implement in our language learning and content classrooms that will raise comfort levels, build community, motivate students, and help them learn better and remember longer. In the earlier times, given the content of curricula, the traditional lecture method worked well. However, today's world makes increasingly complex demands on the students as it is deeply populated by technology, a world that is run by multi-national corporations and global economies; we must prepare our students to operate in a fast-paced, technology-rich, multi-cultural workplace because there has been a rapid increase in jobs involving non-routine, analytic, and interactive communication skills. Today's job market requires competencies such as critical thinking and the ability to interact with people from many linguistic and cultural backgrounds (cultural competency).

[Pardede \(2020\)](#) study of the 21st century skills stated that EFL classrooms should undertake all means to enable learners to obtain and advance their 21st century skills. Moreover, the 4Cs are recognized as language classes are ideal hubs for the learners to advance their 4Cs by integrating the four language skills: reading, writing, listening and speaking. Teachers support the strong existence of the 21st century skills through integrating them in the language learning process. With the help of educators, learners are given opportunities to discover their innovativeness in preparation to their global competitiveness in the 21st century.

[Ojo \(2019\)](#) and [Tamela and Dwi \(2021\)](#) found that the 4Cs are interconnected because of the following interweaving indicators as the students undertook. Communication is needed in the collaborative tasks, and collaborative learning needs critical thinking and performance of the projects entails the use of creativity. [Ojo \(2019\)](#) suggested that curriculum proponents comprising planners and designers have to consider learning outcomes that are beneficial. Content and instructional practices should be subject to changes demanded by 21st century skills. These could be further enhanced by the prescribed for instruction and teachers' professional development.

Some research studies focused on the classroom preparations and managements for integration of 4Cs in language teaching ([Fandiño, 2013](#); [Erdoğan, 2019](#); [Pardede,](#)

[2020](#)). [Pardede \(2020\)](#) stated that EFL classrooms should do everything to enable learners to obtain and advance their 21st century skills. [Erdoğan \(2019\)](#) asserted that EFL teachers should make use of the strong existence of the 21st century skills through integrating them in the language learning process. [Fandiño \(2013\)](#) pointed out that English language classes should be equipped with intellectually and meaningfully engaging tasks so that students find ample opportunity to apply their productive skills. For this, they have to be exposed to multiple media and varied forms of learning technologies.

[Devkota et al. \(2017\)](#) found that using Project Based Learning (PBL) is a very interesting idea on teaching and instruction because it provides such learning opportunities to students as demand collaborative work aside from strengthening other 21st century skills. Also, they found that the classes should have a curriculum that caters to the 21st century needs of the students which means traditional learning should be converted into modern methodologies through suitable content, tools or equipment.

[Sohaya \(2020\)](#) related that if today's students want to participate globally, they must be capable of appropriately communicating, innovatively creating, applying critical thinking and learning how to collaborate. To her, these are knowledge and skills through the serious introduction and engagement of the 21st century skills in classrooms. Similarly, [Doringin and Sasmoko \(2017\)](#) emphasized that professional development programs have a strong impact on transferring 21st century skills to learners. They suggested that professional development should be seriously considered in an educational organization to be able to expose learners to the 21st century skills that they must acquire.

Twenty first century instruction is not merely manifested by the introduction of learning technologies in the classroom. [Sunardi and Doringin \(2020\)](#) shared that aside from the different forms of instructional technologies offered to students, the 21st century skill activities should be embedded in the learning content and instruction.

Some studies have investigated the application of the 21st century skills in language teaching ([Suto and Eccles, 2014](#); [Bedir, 2019](#); [Imamyartha et al., 2019](#); [Azahary and Ratmanida, 2021](#)). [Azahary and Ratmanida \(2021\)](#) showed that 21st century skills should be well assimilated in lesson plans that are not controlled, but are made creatively with learning activities that are aligned with the acquisition of the 4Cs. Before teachers can integrate 4Cs effectively in the ELT classroom, [Bedir \(2019\)](#) opined that teacher training in the context of 21st century learning and skills are of important. Teachers are expected to be immersed and have acquired technological knowledge and instructional information for 21st century learners. The findings of [Imamyartha et al. \(2019\)](#) on research in higher education revealed that 4Cs can be integrated in reading instruction. The assumed integration could aid instructors to innovatively

construct learning conducive to a 21st century setting that supports the metacognition of learners, and acquisition of sufficient level of knowledge.

Some institutions have backward facilities as stated by [Keane \(2012\)](#) which affect the knowledge and skills of educators that may serve as their tools for instructing learners. According to her, it is the responsibility of schools to foster staff's professional development in order to reinforce the 4Cs through educational technologies for instruction because this part is underdeveloped.

There are some approaches that may help teachers develop the 21st century skills of learners. [Suto and Eccles \(2014\)](#) suggested that educators offer subject-based assessment, skills-centered courses, competency-based pedagogy, extra-curricular activities, workplace skills development, and independent research projects.

Communication in ELT

Communication, whether verbal or written, is the ability to send and receive a message while interacting with others. Communication is one of the most important elements of 21st century skills, and several studies have explored communication in ELT contexts ([Pheeraphan, 2013](#); [Heinrichs, 2016](#); [Pattiwael, 2016](#); [Abd Rahman et al., 2019](#)). To [Pheeraphan \(2013\)](#), the efficacy of communication as one of the 21st century skills in learning depends on the tasks that the students are to engage with. Further, that with the existence of collaboration, communication skills could be supported. Communication or interactions possibly happen, likely, in a case study, [Heinrichs \(2016\)](#) reported that with the use of collaborative activities, students' communication utilization is enhanced. Even if the medium of communication is bilingual, students are able to interconnect through cultural knowledge. This illustrates that cultural knowledge can encourage communication due to learners' prior awareness. Moreover, [Pattiwael \(2016\)](#) found that the 21st century communication practices constitute instructional goals and needs of teachers as well as students. This was observed when the majority of the 21st century communication activities contained intercultural discussions. These tasks where learners are immersed can address the global need of intercultural communicative competence. Finally, [Abd Rahman et al. \(2019\)](#) perceived communication as an important tool for learners' broader interactions. In order to achieve modern communication capabilities, students need to be exposed to digital media especially seeing that the 21st century is characterized by the emergence of technological inventions and breakthroughs of social media.

Collaboration in ELT

[Cannon \(2019\)](#) shared a significant finding for the second element of 21st century skills, namely, collaboration. The inclusion of collaboration in the ELT classroom has been the focus of many researchers ([Laal et al., 2012](#); [Cannon, 2019](#); [Putri et al., 2020](#)). [Cannon \(2019\)](#) found that collaborative

learning is a very relevant portion of active learning. Combining technology with collaborative learning could reinforce learners' academic proficiency. Moreover, [Laal et al. \(2012\)](#) revealed that learners are actively engaged collaboratively with each other when this combination is practiced regularly and with clear teachers' instructions. Students were able to recognize individual differences and learn how to find solutions to existing problems. Furthermore, [Putri et al. \(2020\)](#), found that focusing on collaboration in language teaching, develops the capacity of students to cooperatively perform their work, exhibit group leadership, adjust and become versatile to different roles and tasks, work effectively with others, put responsiveness in their place and admire others' different standpoints. To them, if students exhibit these pointers, 21st century collaboration is being achieved. Moreover, [Sudinpreeda et al. \(2020\)](#) confirmed that it is noteworthy for EFL teachers to utilize more suitable directions and apply limitations on how they are performed to be able to integrate the rudiments of collaboration in contemporary classrooms.

[Lailiyah et al. \(2021\)](#) disclosed that one way of supporting operative group work among students in higher education is for instructors to construct learning experiences consisting of varied teaching methodologies.

Critical thinking in ELT

[Rahman \(2019\)](#) showed a number of studies that explored the necessity to activate students' critical thinking in the EFL classroom ([Yazici, 2004](#); [Al-Shalabi, 2015](#); [Chouari and Nachit, 2016](#); [Tuzlukova et al., 2018](#); [Rahman, 2019](#)). [Rahman \(2019\)](#) clarified that in order for critical thinking of 21st century learners to be enhanced, EFL teachers have to integrate problem-solving skills in our English learning programs which may develop students as useful citizens capable to solve future problems. [Yazici \(2004\)](#), reported that critical thinking skills could be enhanced when teachers manipulated varied collaborative learning activities which aid the group's way of solving problems. These activities may even lead them to understand, remember, analyze, apply, comment and create. Furthermore, [Chouari and Nachit \(2016\)](#) shared stated that in order to teach and assess critical thinking in English classes in a 21st century educational setting, teachers should have enough training as part of their professional development. Teachers should also consider students' previous knowledge and cultural background as well as educational changes from the government's policy makers to be able to ensure and support favorable teaching practices.

In a study on the conceptions of implementation and challenges of critical thinking in a 21st century classroom, [Saleh \(2019\)](#) argued that the incorporation of critical thinking in language instruction can be shown in varied factors such as teaching strategies, learning tools or equipment and assessment methodologies. Moreover, [Tuzlukova et al. \(2018\)](#) argued that language educators perceived activities to

develop students' critical thinking, that's why these should be performed in an incorporated setting. Language skills such as the receptive and productive skills should be in one way or another used to develop critical thinking. In this regard, [Al-Shalabi \(2015\)](#) suggested that to be able to promote the integration of critical thinking in a higher education setting, universities should reassess present teaching models. Practices that are not benefitting learners must be replaced by new teaching strategies where critical thinking skills are integrated. Through this, we are training students to be innovative, independent, prolific and responsible citizens of the 21st century.

Finally, [Hu \(2017\)](#) shared that critical thinking can be introduced through writing tasks in English. The author opined that the integration can be done by teachers through appropriate involvement alongside instructing, questioning and explaining how the activities are sequenced into different steps which attempt to trigger students' critical thinking. Further, that critical thinking skills such as interpretation, analysis, explanation, inference, evaluation and self-calibration are indicators of higher order critical thinking skills. To make critical thinking skills applicable in reality, language teachers should provide collaborative tasks in their classrooms. [Masduqi \(2011\)](#) further stated that providing collaborative activities will expose students to critical reasoning to transfer meanings.

Creativity in ELT

The work of researchers like [Henriksen et al. \(2016\)](#), [Kweldju \(2016\)](#), [Ahmadi and Besançon \(2017\)](#), [Sitorus et al. \(2020\)](#), and [Soykurt \(2020\)](#) on creativity opened many dimensions for EFL instructors. [Sitorus et al. \(2020\)](#) found that innovative activities given to learners are equal to creatively produced work because these activities that they are engaged with enable them to think and apply their learning creatively. This means that the stimulating factors in the learning processes are the activities which may even ignite critical thinking. Furthermore, [Soykurt \(2020\)](#) action research illustrated that differently framed innovative activities provided to students and contemporary teaching methodologies manipulated in English lessons can trigger creativity among students. The quasi-experimental design that she employed in this study proved the said findings.

Moreover, a study by [Henriksen et al. \(2016\)](#) pointed out that creativity and technology could be infused together in a way that both are enhanced. In their investigation, modern technologies correlate or are contributory to the acquisition of students' creativity. Their study further discovered creativity as a procedure that captures the complexities of learners' environment and with the introduction or presence of new technologies, innovative tendencies of learners may emerge.

Furthermore, the future belongs to and depends on creators, pattern recognizers, and meaning makers. Creators

reap societies' greatest rewards. [Gardner \(2006\)](#) explained that the "creating mind" is one of the five minds our students will need in the future. To cultivate a creative mind, we need education that features "exploration, challenging problems, and the tolerance, if not the active encouragement, of productive mistakes" (p. 85). Creativity is closely interconnected with the other 21st century skills (communication, collaboration, and critical thinking). [Ahmadi and Besançon \(2017\)](#) argued in their review that creative teaching in classrooms can reinforce the growth of learners' imagination and raise the possibility of nurturing innovative minds beneficial for a country's economy. In their review, creativity is a capability which one should have in the 21st century and can be linked to the existence of information and communication technology (ICT). [Kweldju \(2016\)](#) in her study on creative universities' preparation for a creative class, shared that higher education needs to align with the global changes where business is taking its new shape. It has moved from its past industrial framework to innovation and information. The world needs talented people equipped with creativity for commercial progress and these should come from university graduates.

[Fandiño \(2013\)](#) advised that language educators need to examine critically what the modern times offer to learners in order to supplement educational practices and instructive procedures. Innovation starts from what the teachers offer the learners. New ideas can start from what they originally learned. If learners become knowledgeable, receptive and ready for changes, then they can become creative.

Research questions

In the background of the available literature and with the objective of integrating the 4Cs into Business English instruction, this study answers the following questions:

- (1) How suitable or appropriate are the 4Cs if they are integrated with business English tasks?
- (2) How do teachers perceive the effectiveness of integrating 21st century skills in business English instruction through the 4Cs paradigm?
- (3) What are some teacher-observations that may fill-in instructional gaps?
- (4) What are some business English instructions that could illustrate the use of the 4C paradigm?

Research objective

This research is driven by the objective to find the effectiveness of a paradigm that combines the 4Cs of the 21st century skills in business English tasks. It also aims to find

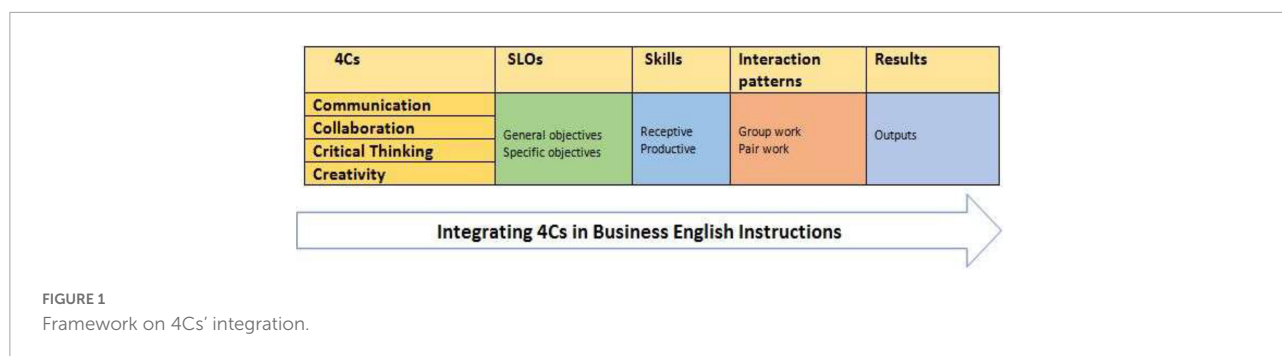


FIGURE 1
Framework on 4Cs' integration.

out how suitable this framework is and how effective this is alongside business English lessons.

Methods

Research design

This research is descriptive and data collection is based on the survey method to determine how effective and appropriate the 4Cs framework presented here is in enhancing the learning experience of the learners in a non-native language setting.

Participants

The participants in this research are one hundred and forty teachers from an institution of higher education in the Eastern region of Saudi Arabia, who have been teaching Business English courses for five or more years. The respondents were requested to give and participate with their broad feedback on the experiences in the Business English class which helped in the formulation of this investigation's pedagogical findings which eventually gave-off the emergence of the six principles of integrating 21st century skills in teaching business English as part of the paper's discoveries.

Teachers' orientation to the 4Cs for business English

The teachers (140 respondents in this study) were introduced to the 4Cs paradigm and requested to apply it in their Business English classes as far as possible. To understand further this research, there is a need to comprehend some fundamental knowledge through a conceptualized framework alongside constructed tables.


Figure 1 displays the four Cs of the 21st century wherein lessons from Business English are derived. Student Learning Objectives (SLOs) are relevant in establishing learners' direction in every 21st century skill. It is understood that a general objective is stated before a specific objective follows in each skill. These two were added to remind learners that

from a broader aim, a specific one should be defined in order to have direction/s, outcomes or results. Receptive skills comprise listening and reading while productive skills cover learners' abilities in speaking and writing. These two elements are very much needed in this process. Interaction patterns show how students are grouped in order to perform the given tasks. Finally, we expect results at the end of every lesson which will answer what the students have constructed at the end of the lesson under each 21st century skill.

Secondly, Figure 2 reinforces Figure 1 because this second figure manifests the individual setting of each 21st century skill when they are integrated in business English lessons. I would like to explain this figure through an example from it. Under communication, its broad objective is *to know* the diagram. A more specific objective is *to use the given information to create* a diagram regarding the flow of communication in a work place. To be able to perform further instructions regarding this given lesson, reading, writing, speaking and listening skills are needed. As to interaction patterns, this is how the teacher can group the students to perform the given tasks. Will it be in pairs or in groups? Students who were assigned in communication may result to passing varied flowcharts.

Additionally, Table 1 supports the Figures 1, 2 because here, it supplies the lessons derived from business English as well as the language foci used in learning each topic falling under each 21st century skill. Columns two and three of this table present business English language activities and language foci, respectively. It is remarkable to note that the verbs used are specific following the subskills in the taxonomy of objectives (Bloom, 1956; Krathwohl et al., 1964; Anderson and Krathwohl, 2001). It is observed that language foci are pertinent to business English lessons.

Some of them reported at this time that they were already doing so with between 1 and 3 of the 4Cs but not in any formatted or conscious manner, and that they integrated them as and when the classroom or curricular situation demanded. Hence, the researcher requested them to apply it in a systematic and conscious manner for the following four weeks after which the survey was planned to be conducted.



4Cs	SLOs	Skills	Foci	Interaction patterns	Outputs
Communication	To know the diagram. Use the information to create specific examples.	Reading Writing Speaking Listening	Contextual words in noun forms	Pair & group work	Flowchart on communication Process
Collaboration	Find survey methods. Survey right research procedures.	Reading Writing Speaking Listening	Specific verbs; infinitives	Pair & group work	Action research plan
Critical thinking	Know the data. Analyze the given table.	Reading Writing Speaking Listening	Comparative adjectives/past simple verbs	Pair & group work	Table analysis
Creativity	Know how strong ads are made. Construct advertisement guidelines.	Reading Writing Speaking Listening	Verbs & nouns	Pair & group work	Ads' guidelines Construction

FIGURE 2
4Cs' individual application.

TABLE 1 Reiteration of other detailed links to the framework.

Integrating 21st century skills to business English tasks

4Cs	Business English tasks (BET)	Skills	Language foci
Communication	Using information to create specific examples in the flow of communication	Receptive Productive	Use noun forms to represent contextual words in the diagram
Collaboration	Surveying actions to do/action research method	Receptive Productive	Use infinitives to state procedures.
Critical thinking	Analyzing the given data.	Receptive Productive	Use degree of comparison /past simple verbs to analyze the data.
Creativity	Constructing advertisement guidelines.	Receptive Productive	Use academic verbs and nouns

Two sets of questionnaires were used to gather subjects' perceptions about the framework's viability and effectiveness levels.

Instruments

This investigation used two surveys, each of which was validated by a panel of four resource people who undertake independent workshops for Business English,

are corporate trainers, and have published three or more research papers in new ideologies and pedagogies in Business English. Instrument reliability was tested by the test-retest reliability measure with thirty respondents not included in this study. The correlation values in the responses were computed at 0.65 which is close to the desirable lower range of 7–8. It may be noted though that the changes recommended by the panel of experts were duly incorporated before administering the test for reliability. The first survey gathered data on the perception of teachers

regarding the appropriateness of the created framework and the survey obtained feedback on how effective this is with the lessons on business English that integrate the 4Cs of the 21st century.

Data analysis, discussion, and results

Basic data on teachers' education and teaching exposure and experience were also gathered as illustrated in **Table 2** below. The majority of the respondents were Master degree teachers ($F = 78$) followed by Ph.D. degree teachers ($F = 48$) and only 14 of them had Bachelor degrees. Forty of them had teaching experience between 5 and 10 years, and 28 of them had taught business English for 4 years or less.

The data collected were analyzed in terms of percentage (%), mode and rank from the data obtained from a 7-point Likert scale for the first part of the questionnaire, i.e., the general perception of the framework, in which (1 = absolutely inappropriate; 2 = in appropriate; 3 = slightly inappropriate; 4 = neutral; 5 = slightly appropriate; 6 = appropriate; and 7 = absolutely appropriate). For the second part, i.e., the effectiveness of the framework, five-point Likert scale was used in which (1 = not effective and 5 = very effective).

To answer RQ1: How *suitable or* appropriate are the 4Cs integrated with *Business English* tasks? Seven levels of appropriacy were made available for the responses of the teachers. **Table 3** demonstrates generally the suitability or appropriateness of the 4Cs with Business English tasks based on teachers' perception of the framework. The majority of teachers, 60.71% viewed the framework as appropriate, 18.57% of them perceived the framework as absolutely appropriate. Also, 17.14% of the teachers discerned the framework to be slightly appropriate. Only, 3.57% of the teachers were neutral. Finally, only one teacher perceived the framework as inappropriate.

As can be seen from the data, findings clearly show the positive perceptions of the teachers toward the integration of the 4Cs in Business English. Seen together with the responses that pertain to RQ2, the overall picture reflected is of the teachers'

TABLE 2 Demographic profile of the respondents.

Education	Levels taught	Experience teaching
Doctorate degree 48	Higher education 92	11+ years 72
Master's degree 78	Secondary level 48	5–10 years 40
Bachelor's degree 14		≤4 years 28
Total 140		

TABLE 3 General perception of the framework (N = 140).

SN	Appropriateness level	Frequency	Percentage (%)	Rank
1.	Absolutely inappropriate	0	0 %	
2.	Inappropriate	0	0%	
3.	Slightly inappropriate	0	0%	
4.	Neutral	5	3.57%	4
5.	Slightly appropriate	24	17.14%	3
6.	Appropriate	85	60.771%	1
7.	Absolutely appropriate	26	18.57%	2

state of high readiness to adopt the framework as summarized in **Table 4**.

The following RQ2 was: How do teachers perceive the effectiveness of integrating the 4Cs 21st century skills in business English instructions through the paradigm?

Table 4 reveals the general effectiveness of the framework as perceived by teachers upon the application of framework in their classes, which answers RQ2, *How do teachers perceive the effectiveness of integrating the 21st century skills in business English instruction through the paradigm?*

A detailed discussion of the responses towards each of the 4Cs follows:

Statistics under critical thinking reveal that the central tendency (mode) of the paradigm's application alongside the lesson under this C of the 21st century is four, which is equivalent to effective. Out of the respondents (44.28%) argued that it is effective while (33.571%) of the respondents claimed it is moderately effective whereas (14.28%) of them perceived the paradigm to be very effective.

As far as creativity goes, **Table 4** shows the central tendency defining creativity in the lesson perceived as moderately effective by (41.42%) of teachers. In other words, using the introduced paradigm alongside Business English lessons is found to be moderately effective, while (33.57%) of them perceived the paradigm to be effective. Moreover, out of the respondent (15.71%) reported the integration of creativity in the EFL classroom to be very effective.

Through a process of elimination, the researcher was able to come up with four lessons (**Table 4**) in business English where the 4Cs of the 21st century skills will be infused during instruction, which answers RQ3: What are some teacher-observations that may fill-in instructional gaps?

Some of the answers reported by teachers are:

- (1) Teachers should explore the possibilities to advance their personal growth and students' skills.
- (2) All teachers should be trained on how 21st century skills are inculcated in the classrooms.
- (3) Instructors should seriously consider what objectives they are going to achieve at the end of lessons.

TABLE 4 The general effectiveness of the Framework.

4Cs	Not effective (1) %	Less effective (2) %	Moderately effective (3) %	Effective (4) %	Very effective (5) %
Communication	1.42	2.14	30.71	40.71	25
Collaboration	8.57	9.28	42.14	20.71	19.28
Critical thinking	5	2.85	33.571	44.28	14.28
Creativity	2.85	6.42	41.42	33.57	15.71
Average	4.46	5.17	36.96	34.81	18.56

Furthermore, other teachers recommended EFL teachers to integrate the 4Cs in the teaching of language skills. Some of the answers are:

- (1) Integrate the macro skills of language learning in the lessons.
- (2) Integrate 4Cs for the enhancement of receptive and productive skills.
- (3) Construct suitably written teaching plans alongside subject matter that incorporates 21st century materials.

Still some others focused on the preparation and availability of technology in the EFL classroom. They opined:

- (1) A classroom should be equipped with modern tools for learning and paired with suitable 21st century designed tasks.
- (2) Employ technologies, teaching materials, assessments, and varied activities in the English program.

The researcher then developed a conceptual plan for Business English lessons which answers the next RQ4: What are some Business English instructions that could illustrate the formulated paradigm? The summary is presented in Table 5 below.

There are four pathways to bring the conceptual plan into the Business English classroom. Each of these is discussed as a Task in the following section. These Tasks are practical tips for the teachers to follow in the teaching process.

Task 1: Communication: The Flow of Communication/Communication Process.

The conduct of the lesson will have to consider the SLOs (objectives), the skills (receptive and productive) to be

TABLE 5 Conceptualized Business English lessons.

Lessons	Business English lessons
Lesson 1	Flow Communication/Communication Process
Lesson 2	Surveying actions to do/Action research method
Lesson 3	Analyzing information in a table
Lesson 4	Construction of advertisement guidelines

developed. and the language foci, the way they are going to be grouped (interaction patterns) and the expected result (output) of the lesson.

The teacher presents a chart on how communication takes place in an organization.

Students are encouraged to infer, share, give definite examples, define, and brainstorm thoughts on what communication is. Students have to be aware of some tools that exist around their environment for communication and the performance of the project such as computers and social media. They are encouraged to explore the internet to gain more info about their assignment. The teacher provides and elucidates the objectives of the lesson followed by grouping the students in a project based-activity type. The students will be tasked to make a version on how communication flows by using the target language (foci). On the way of performing the tasks, students manipulate their receptive skills. They are also encouraged to use whatever digital resources they have around them; emails, chats, Facebook and other LMS are some possible tools that they can interact to do the project. By using the framework in all the tasks in this paper, it could produce viable outputs. Here is the possible output of task 1 (Figure 3) that was brought by the sender, message, channel, receiver/s and feedback.

Task 2: Collaboration: Surveying actions to do/ action research method.

In a higher-level class, the students are tasked to perform an action research project. The best way to do this is to group students to accomplish this project. After discussion on what action research is, the teacher discusses the objectives and the language foci they are going to use in arriving at an output. The framework of this paper elucidates this idea.

Collaboration gathers everyone's skills, knowledge, and creativity, raising the standard or quality of a given classroom assignment. It's a mix of the positive thoughts of every member

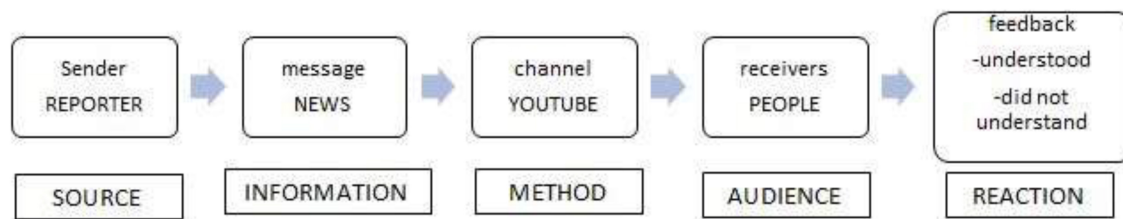


FIGURE 3
Communication output.

which can be contributory in elevating commitment and efficiency among the members of the group. Conditioning learners to perform this for a common goal will become a regular practice that can influence everyone. [Figure 4](#) below presents the expected responses from every group.

Task 3: Critical thinking: Analyzing information in a table.

You can do this by encouraging the students to read a table such as the one below. They can analyze the table by comparing and contrasting each country's population and how they affect employment. With this kind of task, students' critical thinking is triggered. Even the creation of a single paragraph to express what they have learnt, manifests critical thinking levels and can be classified under remembering, understanding, applying, analyzing, evaluating and creating. You can set their responses individually to perform this. Here's an excerpt of an expected answer.

"In 1992, Bangladesh's population was **higher than** Sri Lanka's. There were lots of people who were not employed due to its high population. Also in 1992, China had **more** employment problems **than** the others because its population rose to 1,162 million which created **more serious** status of unemployment in the country. While the population of the Philippines slowly increased that year, India's employment problem was becoming **worse than** Pakistan. It is expected that said country's population will increase by 2025. It was observed that when these countries' populations increased, unemployment was a **more disturbing** issue. . ."

Task 4: Creativity: Constructing advertisement guidelines of a market product.

This is performed by encouraging the students to create one from an original model. This means that learners should be motivated to discover or replace ideas by what has been presented earlier by the teacher such as the ads guidelines below. The students are tasked to create an advert along the lines shown in the table below.

The study reported the perceptions of teachers of the appropriateness of the general framework. The study found that the majority of teachers viewed the framework as appropriate. The perceptions ranged from appropriate to absolutely appropriate to slightly appropriate. This finding shows us the positive awareness that EFL teachers have for integration of the 4Cs in the EFL classroom to produce learners armed with the skills needed for the 21st century. This finding is supported by other findings ([Fandiño, 2013](#); [Erdoğan, 2019](#); [Pardede, 2020](#)). [Pardede \(2020\)](#) which stated that EFL classrooms should do all it takes to enable learners to obtain and advance their 21st century skills. For instance, [Erdoğan \(2019\)](#) asserted that EFL learners should be given the opportunities to discover their innovativeness in preparation for global competitiveness in the 21st century. [Fandiño \(2013\)](#) pointed out that EFL classrooms should be equipped with intellectually and meaningfully engaging tasks in order to give time to students to apply their productive skills. Furthermore, [Devkota et al. \(2017\)](#) found that the classrooms should have a curriculum that caters to the 21st century needs of the students which means traditional learning should be converted into modern methodologies through suitable content, tools or equipment.

Moreover, the study also obtained feedback on how effective the integration of the 4Cs is in the lessons on Business English. It was found that teachers' perception of this ranged from moderately effective to very effective. [Abd Rahman et al. \(2019\)](#) pointed out that communication is an important tool for learners' broader interactions. In order to achieve modern communication capabilities, students need to be exposed to digital media, especially that which characterizes the 21st century involving the application of technological inventions and breakthroughs of social media. Similarly, [Putri et al. \(2020\)](#) found that focusing on collaboration in language teaching enhances the capacity of students to cooperatively perform their work effectively. Moreover, [Tuzlukova et al. \(2018\)](#) argued that language educators perceived activities to develop students' critical thinking, that's why these should be performed in an integrated setting. Language skills such as the receptive and productive skills should be in one way or another manipulated for critical thinking activities. Finally, [Soykurt \(2020\)](#) illustrated that framed innovative

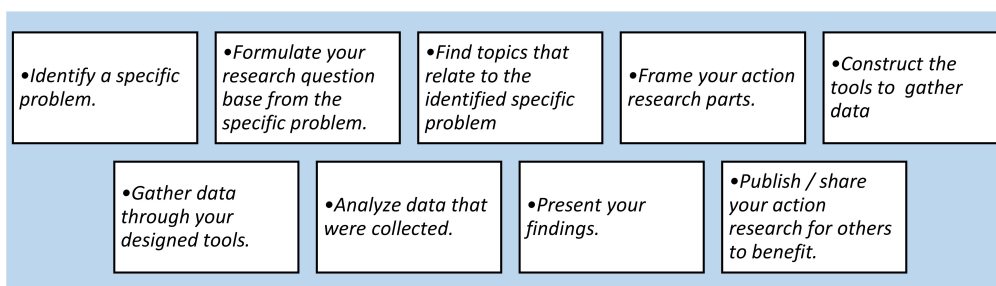


FIGURE 4
Expected responses.

activities provided to students and contemporary teaching methodologies manipulated into English lessons can trigger creativity among students.

The study explored what is required to integrate the 4Cs in the EFL classroom and concluded that teachers' training programs on integrating the 4Cs is the need of the hour. These findings are in line with some previous studies. [Doringin and Sasmoko \(2017\)](#) emphasized that professional development programs have a strong impact in transferring 21st century skills to learners. Further, [Bedir \(2019\)](#) pointed out that teacher training programs on 21st century learning skills are of great importance. Teachers are expected to be immersed and have acquired technological knowledge and instructional information for 21st century learners. Others recommended the teachers integrate the 4Cs through the four language skills. [Imamyartha et al. \(2019\)](#) pointed out that 4Cs can be integrated in reading instructions. The assumed integration could aid instructors to innovatively construct a learning 21st century setting that supports the metacognition of learners and the acquisition of sufficient level of knowledge. Finally, still others recommended the importance of good preparation of the classrooms and integrating technology with the 4Cs. This finding is confirmed by [Henriksen et al. \(2016\)](#) who pointed out that creativity and technology could be infused together in a way that both are enhanced.

Pedagogical implications and conclusion

Educational research is meaningful only when the impact of the findings can be seen in the classroom, and for this to happen, such research should be able to suggest pertinent pedagogical changes.

The [Table 6](#) below summarizes pedagogical findings which may fill-in the gaps of integrating the 4Cs of the 21st century in language teaching such as in Business English. The current study also presents supporting instances from the available literature for further orientation of the teachers desirous of bringing the 4Cs model into the Business English classrooms.

The focal point of this study is to explore the integration of the 21st century 4Cs into business English instruction. With the use of an original framework teachers' observations were obtained. The feedback gave way to the significant pedagogical values of the study and the emergence of the six principles to be observed in the utilization of business English lessons that integrate 4Cs of the 21st century. These principles can serve as standards for teaching and at the same time, recommendations for teachers in the ELT world.

This study has been reinforced by previous research on similar subjects that have reached similar findings. In terms of 21st century skills' integration into ELT despite varied classroom settings, factors such as professional development, ELT methods of teaching, technological tools, curriculum, goals and objectives; learners' backgrounds and variations of tasks and activities play a vital part in the learning and teaching process.

Finally, we should not forget that exposing learners to the 4Cs skills creates an overall impact in the lives of our learners for productivity, knowledge or awareness, independency and global competitiveness as [Carvalho and Santos \(2021\)](#) opined. The 4Cs, communication, critical thinking, collaboration, and creativity, are not new. They've been with us for more than a decade. Yet, they are the basis for great teaching and eventual student success. We are educating our students to compete in a global society and meet the challenges of a constantly changing workforce that requires better prepared employees. Our students must be proficient communicators, creators, critical thinkers, and collaborators. These are the important 4Cs that we must help our students develop to succeed.

Recommendations

Due to the feedback provided by the respondents that were classified as general pedagogical findings on the 21st century skills, some principles to strengthen 21st century skills in business English instructions were formulated. I would like to present six principles that may serve as my recommendations to fellow educators that include the teachers, curriculum planners and education policy makers. Underpinnings are also

TABLE 6 Relevance of the pedagogical findings.

General pedagogical findings	Reinforcements from literature
Respondents feedback to learning and instruction	
21st Century skills	Keane, 2012; Chouari and Nachit, 2016; Bedir, 2019; Pardede, 2020
Teachers should explore possibilities to advance their personal growth and students' skills.	Hu, 2017; Tuzlukova et al., 2018; Erdoğan, 2019
Integrate the macro skills of language learning in the lessons.	Tuzlukova et al., 2018; Erdoğan, 2019; Imamyartha et al., 2019
Integrate 4Cs for the enhancement of receptive and productive skills.	Tamela and Dwi, 2021
The integration of 4Cs for 21st century learning should not be isolated. They need to be emphasized in all instructions	Ojo, 2019; Sunardi and Doringin, 2020; Azhary and Ratmanida, 2021
Instructors should seriously consider what objectives they are going to achieve at the end of lessons.	Fandiño, 2013; Devkota et al., 2017; Doringin and Sasmoko, 2017; Imamyartha et al., 2019; Sohaya, 2020
A classroom should be equipped with modern tools for learning and paired with suitable 21st century designed tasks.	Keane, 2012; Chouari and Nachit, 2016; Bedir, 2019
All teachers should be trained on how 21st century technology is inculcated in the classrooms.	Sunardi and Doringin, 2020; Azhary and Ratmanida, 2021
Construct suitable written teaching plans alongside subject matter that incorporates 21st century materials	Keane, 2012; Pheeraphan, 2013; Suto and Eccles, 2014; Devkota et al., 2017; Doringin and Sasmoko, 2017; Ojo, 2019; Sunardi and Doringin, 2020
Employ technologies, teaching materials, assessments and varied activities in the English program.	Pheeraphan, 2013; Heinrichs, 2016
Communication	Pattiwael, 2016
Collaborative activities enhanced communication skills.	Doringin and Sasmoko, 2017; Imamyartha et al., 2019;
Cultural and intercultural contexts and activities can promote communications in lessons.	Rahman et al., 2019; Sohaya, 2020
Use technology and social media to teach.	Cannon, 2019
Collaboration	Laal et al., 2012; Sudinpreeda et al., 2020
Collaborative learning today should use technology	Saleh, 2019; Sitorus et al., 2020; Putri et al., 2020
Teaching instructions should be simplified and systematic.	Lailiyah et al., 2021
The teacher should present varied activities and assign different learning responsibilities.	Rahman, 2019
21st century skills require varied teaching methodologies.	Yazici, 2004; Masduqi, 2011
Critical Thinking	Keane, 2012; Chouari and Nachit, 2016; Bedir, 2019; Pardede, 2020
Activities that contain problem-solving skills are needed.	Al-Shalabi, 2015; Saleh, 2019
The thinking skills of students are trained by collaborative activities.	Hu, 2017; Tuzlukova et al., 2018
Teachers' professional development can enhance how they teach critical thinking skills.	Sitorus et al., 2020; Soykurt, 2020
Use varied strategies in teaching critical thinking.	Fandiño, 2013; Henriksen et al., 2016; Kweldju, 2016; Ahmadi and Besançon, 2017
Integrate the language skills for critical thinking.	
Creativity	
Innovative activities can make creative students.	
Creativity and technology are needed for global competitiveness.	

mentioned to further emphasize that these are also advocated by other research.

Professional development among teachers is a priority

Teachers should educate themselves to teach others (Keane, 2012; Chouari and Nachit, 2016; Bedir, 2019; Pardede, 2020). This basic principle encourages teachers to add to their knowledge through professional development. This may include additional awareness of teachers by any mode of acquisition such as online or face-to-face lectures. Professional development may come in varied presentations. Saxena (2013) emphasized that teachers must be trained on how to teach and assess these 4Cs, and further added that professional learning communities should be formed for collaboration among educators.

Skills integration and other ELT methodologies play vital roles

Teachers should employ varied ELT strategies such as task-based language teaching and content-based language teaching. To illustrate skills integration, instructors should intertwine productive and receptive skills in a single or series of lessons (Tuzlukova et al., 2018; Erdoğan, 2019; Imamyartha et al., 2019). Table 7 below presents teachers and students' guidance for integrating skills in the classroom.

Current technological infrastructures support 21st century skills

The 4Cs of the 21st century should be reinforced by the employment of technological tools and materials obtained from

TABLE 7 Students creating guidelines.

S/N	Teacher's original guidelines on adverts	Student-created guidelines on adverts from the original
	Criteria	Standards
1.	Choose Your Target Audience	<i>Define consumers</i>
2.	Conduct Marketing Research	<i>Undergo selling inquiry</i>
3.	Choose Your Platform	<i>Choose your channel</i>
4.	Decide on a Budget	<i>Plan expenses</i>
5.	Craft a Message	<i>Frame contents</i>
6.	Create Test Ads	<i>Construct trial adverts</i>
7.	Launch Your Ads	<i>Promote your adverts</i>
8.	Track and Analyze Performance	<i>Check and study results</i>

emerging technologies (Fandiño, 2013; Henriksen et al., 2016; Kweldju, 2016; Ahmadi and Besançon, 2017; Devkota et al., 2017; Doringin and Sasmoko, 2017; Imamyartha et al., 2019; Sohaya, 2020).

English programs should have clearly defined goals and objectives

The curriculum may direct educators to create lesson plans that are carefully structured with suitable, desirable learning competencies to be targeted (Ojo, 2019; Sunardi and Doringin, 2020; Azhary and Ratmanida, 2021). Materials such as technologies and textbooks aid in the implementation of this principle.

Learners' background inclusion and media are needed

The social media can play a significant part in incorporating 4Cs in Business English lessons. From the social media, materials that abound in the learners' environment can be effective springboards for teaching (Sopandi et al., 2019). It may also be relevant if we discuss lessons in cultural contexts which represent learners' background (Pattiwael, 2016) (see Table 7).

Encourage teachers to create and apply a variety of activities

With the use of different innovative activities, the 21st century skills can be effectively carried out in Business English lessons (Al-Shalabi, 2015; Hu, 2017; Tuzlukova et al., 2018; Saleh, 2019; Sitorus et al., 2020; Soykurt, 2020; Lailiyah et al., 2021).

– you begin to think more about integrating 21st century skills into our English classes including English for Specific Purpose (ESP such as Business English) or other English classes, here are some questions for future research to consider:

- How can you/we model critical thinking, problem solving, communication, collaboration, and creativity for your/our students?
- What classroom environment is necessary to emphasize critical thinking, problem solving skills, communication, collaboration, and creativity?
- How can you/we use technology to encourage critical thinking, problem solving, communication, collaboration, and creativity?
- How can you and your colleagues as ELT educators work together to bring more 21st century skills into your schools?

Limitations

The study is broad-based with a reasonable number of respondents. However, the researcher feels that it lacks qualitative data which would have added a new dimension to its applicability. In addition to this, replication of this study in different settings and with varied teacher respondents is likely to bring new insight into the challenge of keeping the language classroom updated with global trends. Finally, the direct input of industry which provides employment opportunities to university graduates needs to be considered to ensure that the educational paradigm is in tune with the workplace needs.

Data availability statement

The original contributions presented in this study are included in the article/[Supplementary material](#), further inquiries can be directed to the corresponding author/s.

Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated

organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/feduc.2022.998987/full#supplementary-material>

References

- Abd Rahman, M. J., Ali, M. M., Razak, M. R. A., Daud, M. Y., Hamzah, M. I., and Ensimau, N. K. (2019). The learning process in cultural of fourth industrial revolution 4.0 (4IR). *Religación* 4, 228–232.
- Ahmadi Conley, D. T. (2007). *Redefining college readiness*. Eugene, OR: Educational Policy Improvement Center (NJ1).
- Ahmadi, N., and Besançon, M. (2017). Creativity as a stepping stone towards developing other competencies in classrooms. *Educ. Res. Int.* 2017:1357456. doi: 10.1155/2017/1357456
- Alahdal, A., and Al-Ahdal, A. A. M. H. (2019). Effectiveness of collaborative learning as a strategy in the teaching of EFL. *Opción: Rev. Ciencias Hum. Soc.* 35, 1026–1043. doi: 10.3389/fpsyg.2022.916432
- Al-Shalabi, N. (2015). Critical Thinking Skills: the recipe for an overwhelming success in the 21st century. *Int. J. Human. Soc. Sci.* 5, 102–105.
- Anderson, L. W., and Krathwohl, D. R. (2001). *A Taxonomy for Learning, Teaching and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives: Complete Edition*. New York, NY: Longman.
- Azhary, L., and Ratmanida, R. (2021). The Implementation of 21st century skills (communication, collaboration, creativity and critical thinking) in English lesson plan at MTsN 6 Agam. *J. English Lang. Teach.* 10, 608–623.
- Bedir, H. (2019). Pre-service ELT teachers' beliefs and perceptions on the 21st century learning and innovation skills (4Cs). *J. Lang. Linguistic Stud.* 15, 231–246. doi: 10.17263/jlls.547718
- Bloom, B. S. (1956). *Taxonomy of educational objectives: The classification of educational goals*, Vol. 1. New York, NY: McKay.
- Bruno, C. (2019). *Why 21st century skills are essential for today's students*. Available online at: <https://blog.empatico.org/why-21st-century-skills-are-essential-for-todays-students/>
- Cannon, A. (2019). *Essential Skills and Collaboration. Technology and Curriculum*. Montreal, MTL: Press books.
- Carvalho, A., and Santos, C. (2021). The transformative role of peer learning projects in 21st century schools—achievements from five portuguese educational institutions. *Educ. Sci.* 11:196. doi: 10.3390/educsci11050196
- Chouari, A., and Nachit, M. (2016). Teaching and assessing 21st century critical thinking in Morocco: a case study. *Arab. World English J.* 7, 21–44. doi: 10.24093/awej/vol7no4.3
- Devkota, S., Giri, D., and Bagale, S. (2017). Developing 21st century skills through project-based learning in EFL context: challenges and opportunities. *Online J. New Horizons Educ.* 7, 47–52.
- Doringin, F., and Sasmoko. (2017). "The model of professional development program for the internationalization of secondary education: case study in SMA Lokon, North Sulawesi," in *Proceedings of the 2017. International Symposium on Educational Technology, ISET 2017*, (Hongkong). doi: 10.1109/ISET.2017.63
- Erdoğan, V. (2019). Integrating 4C skills of 21st century into 4 language skills in EFL classes. *Int. J. Educ. Res.* 7, 113–124.
- Fandiño, Y. (2013). 21st century skills and the English foreign language classroom: a call for more awareness in Colombia. *Gist Educ. Learn. Res. J.* 7, 190–208.
- Gardner, H. (2006). *Five Minds for the Future*. Boston, MA: Harvard Business School Press.
- Heinrichs, C. (2016). Exploring the influence of 21st century skills in a dual language program: a case study. *Int. J. Teacher Leadership* 7, 37–56.
- Henriksen, D., Mishra, P., and Fisser, P. (2016). Infusing creativity and technology in 21st century education: a systemic view for change. *Educ. Technol. Soc.* 19, 27–37.
- Hu, M. (2017). Teachers' Intervention in developing English majors' critical thinking when teaching writing in Chinese universities. *Theory Practice Lang. Stud.* 7, 1290–1294. doi: 10.17507/tpls.0712.16
- Imamyartha, D., Tasnim, Z., Puspa, A., Fardhani, A. E., Wahjuningsih, E., et al. (2019). The efficacy of 4Cs-based reading to foster 21st -century learning competencies. *Indonesian J. Appl. Linguistics* 9, 275–285. doi: 10.17509/ijal.v9i2.20218
- Keane, T. (2012). 21st Century skills = 3Rs + 4Cs. *Australian Educ. Leader* 34:44.
- Krathwohl, D. R., Bloom, B. S., and Masia, B. B. (1964). *Taxonomy of Educational Objectives: Handbook II: Affective Domain*. New York, NY: David McKay Co.
- Kweldju, S. (2016). "Creative universities for preparing the creative class in the 21st Century," in *Proceedings of the International Conference on Education (ICE2) 2018: Education and Innovation in Science in the Digital Era*, (Malang), 37–50.
- Laal, M., Laal, M., and Kermanshahi, Z. (2012). 21st Century learning; learning in collaboration. *Proc. Soc. Behav. Sci.* 47, 1696–1701. doi: 10.1016/j.sbspro.2012.06.885
- Lailiyah, L., Setyaningsih, L. A., Wediyantoro, P. L., and Yustisia, K. K. (2021). Assessing an effective collaboration in higher education: a study of students' experiences and challenges on group collaboration. *Culture Lang. Teach. English* 6, 152–162. doi: 10.26905/enjourme.v6i2.6971
- Levin-Goldberg, J. (2012). Teaching Generation TechX with the 4Cs: using technology to Integrate 21st Century Skills. *J. Instructional Res.* 1, 59–66. doi: 10.9743/JIR.2013.8
- Masduqi, H. (2011). Critical thinking skills and meaning in English language teaching. *Teflin J.* 22, 185–200.
- Ojo, G. (2019). Acquiring the 4cs (communication, collaboration, critical thinking and creativity through integrating the four language skills in secondary ELS classrooms in Nigeria. *LWATI: J. Contemporary Res.* 16, 42–54.
- Pardebe, P. (2020). Integrating the 4Cs into EFL integrated skills learning. *J. English Teach.* 6, 71–75.
- Pattiwael, A. (2016). Addressing 21st century communication skills: Some emerging issues from eil pedagogy & intercultural communicative competence. *IJEE* 3, 158–170. doi: 10.15408/ijee.v3i2.3164
- Pheeraphan, N. (2013). Enhancement of the 21st century skills for Thai higher education by integration of ICT in classroom. 13th International Educational Technology Conference. *Proc. Soc. Behav. Sci.* 103, 365–373. doi: 10.1016/j.sbspro.2013.10.346
- Putri, S. D., Ulhusna, M., Zakirman, Z., and Gusta, W. (2020). Improvement of student science literacy skills through edmodobased teaching materials in learning science in elementary school. *Int. J. Sci. Technol. Res (IJSTR)* 9, 4649–4652.

- Rahman, M. M. (2019). 21st century skill “problem solving”: defining the concept. *Asian J. Interdisciplinary Res.* 2, 64–74. doi: 10.34256/ajir1917
- Rahman, R., Sopandi, W., Widya, R. N., and Yugafati, R. (2019). Literacy in the context of communication skills for the 21st Century teacher education in primary school students. *Int. J. Sci. Appl. Sci.* 3:101.
- Rich, E. (2010). How do you define 21st-century learning. *Educ. Week* 4, 32–35.
- Ross, D. (2017). *Empowering our students with 21st-century skills for today*. Available online at: <https://www.gettingsmart.com/2017/04/empowering-students-21st-century-skills>
- Saleh, S. (2019). Critical thinking as a 21st century skill: conceptions, implementation and challenges in the EFL classroom. *Eur. J. Foreign Lang. Teach.* 4, 2537–1754.
- Saxena, S. (2013). *How 4Cs Can Transform Learning*. Delhi: EdTech Review.
- Scott, C. (2015). *The Futures of Learning 2: What Kind of Learning for the 21st Century? (ERF Working Paper No. 14)*. Paris: UNESCO Education Research and Foresight.
- Sitorus, M. N., Yus, A., and Saragi, D. (2020). Development of computer-based kindergarten children’s creativity portfolio assessment instruments. *Int. Res. Critics Linguistics Educ. (BirLE)* 3, 1421–1427. doi: 10.33258/birle.v3i3.1207
- Sohaya, E. M. (2020). “Blended learning and 4Cs: trends in the new normal life of education, globalization and the next decade,” in *Proceedings of the 5th Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2020)*, (Netherlands: Atlantis Press). doi: 10.2991/assehr.k.201124.019
- Sopandi, R., Widya, R., and Yugafati, R. (2019). Literacy in the context of communication skills for the 21st century teacher education in primary school student. *Int. J. Sci. Appl. Sci. Conf. Ser.* 3, 2549–4635. doi: 10.20961/ijsascs.v3i1.32462
- Soykurt, M. (2020). Reflections of creativity in the 21st century classroom. *Near East University J. Educ. Faculty* 4, 100–108. doi: 10.32955/neuje.v4i1.290
- Sudinpreeda, H., Nurcahyo, M., and Kartika, F. (2020). The presence of collaboration skill in ELT class. *Prominent J.* 3, 305–312. doi: 10.24176/pro.v3i2.5333
- Sunardi, S., and Doringin, F. (2020). The 4Cs learning model in teacher professional development program. *Humaniora* 11, 153–159. doi: 10.21512/humaniora.v11i2.6508
- Suto, I., and Eccles, H. (2014). “The Cambridge approach to 21st Century skills: definitions, development and dilemmas for assessment,” in *Proceedings of the IAEA Conference*, (Singapore).
- Tamela, E., and Dwi, M. (2021). Four C’s skills integration in the lesson plans of grade 7 English teacher. *Jo-ELT-J. English Lang. Teach.* 8, 124–138. doi: 10.33394/jo-elt.v8i2.4345
- Tuzlukova, V., Al Busaidi, S., Burns, S., and Bugon, G. (2018). Exploring teachers’ perceptions of 21st century skills in teaching and learning in English language classrooms in Oman’s higher education institutions. *J. Teach. English Specific Academic Purposes* 6, 191–203. doi: 10.22190/JTESAP1801191T
- Yazici, H. J. (2004). Student perceptions of collaborative learning in operations management classes. *J. Educ. Bus.* 80, 110–118. doi: 10.3200/JOEB.80.2.110-118