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Designing a 21st Century Assessment in EFL Learning Context

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Abstract

Success in a digital world requires more than the ability to turn on a computer or use a smart phone. It requires creativity, innovation, communication, critical thinking, digital citizenship, information fluency and other important 21st century skills. Even though most students can interact with apps on their mobile device, they are not born with these necessary 21st century skills. The present paper addresses the ways of designing a 21st century assessment in English as a Foreign Language learning context The assessment is aligned to the six strands, namely creativity and innovation, communication and collaboration, research and information fluency, critical thinking, problem solving, and decision making, digital citizenship, and technology operations and concepts. There are several mostly-used types of assessment. They include structured interviews, situational judgment tests, role plays, group exercises, in basket exercises, work samples, and performance standards/appraisal. The purposes of assessments designed to measure 21st century skills, such as to provide information for school accountability, to evaluate individual student progress, to focus public attention on educational concerns, or to change educational practices by influencing curriculum and instruction. In addition, the different purposes require different sources of evidence to evaluate the validity of the assessment. Furthermore, computer-based technology can support the development, administration, and scoring of large-scale assessments of 21st century skills.

Keywords: 21st century assessment, EFL context, EFL learning

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1. Introduction

Education in the 21st century emphasizes globalization and internationalization. In line with this, the educational systems is suggested to be equipped with ICT resources both hardware and software, and curricula must be designed to promote a collaborative learner-centered environment to which the 21st students will relate and respond (Boholano, 2017). Therefore, the 21st century teachers are encouraged to be technology

savvy to keep up with the students since they are likely to be that as well. More and more teachers nowadays integrate their learning activities with technology, i.e. the use of such devices as computer, laptop, smartphones, internet, and applications. The students also need to be facilitated to develop the 21st century competencies, namely critical thinking, communication, collaboration, and creativity and innovation (Fullan, 2013:9). He defines the five competencies as follow: critical thinking in the 21st century is described as the "ability to design and manage projects, solve problems, and make effective decisions using a variety of tools and resources"; communication in a 21st century context refers not only to the ability to "communicate effectively, orally, in writing, and with a variety of digital tools" but also to "listening skills"; collaboration in a 21st century context requires the ability to "work in teams, learn from and contribute to the learning of others, use social networking skills, and demonstrate empathy in working with diverse others"; creativity is often described as "the pursuit of new ideas, concepts, or products that meet a need in the world; and the last, innovation is often defined as "the realization of a new idea in order to make a useful contribution to a particular field". Moreover, McCoog et. al. (2008) argue that to acquire 21st century skills, the students must be encouraged to create new ideas, evaluate, and analyze the material presented, and apply that knowledge to their previous academic experiences.

To facilitate students to develop those competencies and skills, the teachers start using available resources on the internet, i.e. educational purposed software or application both desktop and mobile based and integrate them into their classroom. Jati and Dewi (2018) explain at a workshop that the technology integration is divided into three categories, namely technology for learning sources, technology for thinking skills, and technology for interactive learning. The teachers may use such application found in the website as www.breakingnews.com as learning resources to provide students with quizzes on grammar and listening and reading activities. Besides, the students may also be encouraged to access a library online at www.ello.org and make the best use of the available menus using their PC or mobile phone. Moreover, the technology may also be used for interactive learning as it is provided by www.kahoot.com where the students can be given interactive quizzes either as pre or post learning activities. Meanwhile, in order to stimulate the student's critical thinking, the teachers can use such applications as Padlet (www.padlet.com) and Canva (www.canva.com).

Furthermore, the new pedagogical models have also been developing as well. The teachers have been practicing such models as flipped classroom, blended learning, collaborative problem solving, inquiry, interdisciplinary projects, immersive authentic simulations, digital teaching platforms. Consequently, it has effected to methods to assess communication, collaboration, problem-solving, and ICT literacy competencies. They are expected to "make widespread use of smart technology, provide students with realistic, complex performance tasks, immediate feedback, [and] computer adaptive testing, and incorporate accommodations for a range of students" (Duncan, 2010:2).

This paper highlights the role of standards and assessment in promoting learning the ways of designing a 21st century assessment in English as a Foreign Language learning context, describes the nature of assessment systems that can support changes in practice, illustrates the use of technology to transform assessment systems and learning, and proposes a model for assessing 21st century skills in EFL contexts.

2. Designing a 21st Century Assessment in EFL Learning Context

2.1. The 21st century standards and assessments

As it is widely known, assessments are critical elements of instruction; they determine accomplishment of lesson objectives. The assessments that promote the learning process is authentic assessment. They assess their ability to apply standard-driven knowledge and skills to real-world challenges.

Regarding the 21st century competencies, they do not only deal with cognitive competencies in critical thinking, analysis, and problem solving which have been regarded as key indicators for success but also interpersonal and intrapersonal competencies as there have been changing economic, technological, and social contexts in the 21st century (The Ontario Public Service, 2016). In other words, they involve multiple facets: engaging 21st Century skills, using digital tools, collaborating with others around the globe, performance tasks, and more.

The Conference Board of Canada (2000) as quoted in The Ontario Public Service (2016: 10-11) has identified employability skills in three areas: Fundamental Skills (Communicate, Manage Information, Use Numbers, Think, and Solve Problems); Personal Management Skills (Demonstrate Positive Attitudes and Behaviors, Be Responsible, Be Adaptable, Learn Continuously, Work Safely); and Teamwork Skills (Work with Others,

Participate in Projects and Tasks). It has also profiled innovation skills in the following areas:

- creativity, problem-solving, and continuous improvement skills
- risk-assessment and risk-taking skills
- relationship-building and communication skills
- implementation skills

The cognitive, interpersonal, and intrapersonal domains and various competencies associated with more than one domain can support deeper learning practices. This also encourages a more balanced approach to assisting students in developing the knowledge, skills, and characteristics that will lead them to become personally successful, economically productive, and actively engaged citizen.

"Deeper learning" can be defined as "the process through which an individual becomes capable of taking what was learned in one situation and applying it to new situations" (Pellegrino & Hilton, 2012: 5). This is also known as the development and cross-disciplinary application of transferable skills that involves the interplay of cognitive, intrapersonal, and interpersonal competencies.

An emphasis on "deeper learning" requires a shift in the role of teaching from "focusing on covering all required content to focusing on the learning process, developing students' ability to lead their own learning and to do things with their learning. Teachers are partners with students in deep learning tasks characterized by exploration, connectedness and broader, and real-world purposes" (Fullan & Langworthy, 2014:7).

To better support the development and assessment of 21st century competencies, "richer, performance- and curriculum-based" assessments can be employed instead of "standardized, on-demand, end-of-year tests that are easily scored and quantified for accountability purposes" (Pellegrino & Hilton, 2012:12). Large-scale assessments should be only part of any system to support student learning.

The development and assessment of 21st century competencies should be based on the three principles. They are (1) establishing standards clearly in line with the expectations, (2) developing high-staked assessments based on the standards by using extended writing and/or performance assessments, and (3) using the assessments to communicate what is expected, to hold relevant stakeholders accountable and to publish data to inform decisions, for instance, (accountability, selection, placement, evaluation, diagnosis, or improvement).

Similarly, Pellegrino et al (2001:2) cited that assessment rests on three pillars: a model of how students represent knowledge and develop competence in a subject matter domain; tasks or situations that allow one to observe students' performance; and an interpretation method for drawing inferences from the performance evidence thus obtained (Pellegrino et al., 2001:2).

The assessments in general tend to integrate project work into the curriculum promoting more locally adapted and general standards for assessment and involve students in important, authentic performances. However, these exams should be fully updated to reflect the demands of an information and innovation age, and take advantage of 21st century technology. This is because students need to be literate in new media and be able to harness their power, technology can open up new, cost-effective possibilities for the design and use of a new generation of assessments accordingly.

To be more specific, Binkley et. al (2010: 6-7) suggest that the 21st century standards and assessments should:

- be aligned with the development of significant 21st century goals: standards and assessments must fully specify the rich range of 21st knowledge and skills students are expected to understand and apply from novice to expert performance
- incorporate adaptability and unpredictability: one hallmark of 21st century demands is the need to adapt to uncertainty which stimulate unpredictable reactions
- be largely performance-based. The 21st century assessments must systematically ask students to apply content knowledge to critical thinking, problem solving, and analytical tasks in novel situations.
- add value for teaching and learning. The assessments can enhance student learning as assessment tasks can incorporate transfer and authentic applications, and enable students to organize and deepen their understanding through explanation and use of multiple representations.
- make students' thinking visible. The assessments should provide a window into students' understandings and the conceptual strategies a student uses to solve a problem and provide a model for quality practice.
- be fair. fair assessments enable all students to show what they know and provide accommodations for students who otherwise would have difficulty accessing and responding to test items for reasons other than the target of the assessment.

- be technically sound. Assessment data must provide accurate and reliable information for the decision-making purposes for which they are intended to be used.
- valid for purpose. To help students acquire 21st century skills, test results must be both instructionally sensitive and generalizable. That is, instructionally sensitive tests are influenced by the quality of instruction and a generalizable result transfers to other real life applications.
- generate information that can be acted upon and provides productive and usable feedback for all intended users.
- provide productive and usable feedback for all intended users.
- build capacity for educators and students.
- be part of a comprehensive and well-aligned system of assessments designed to support the improvement of learning at all levels of the educational hierarchy.

There are some strategies of assessment that can be exploited to promote 21st century learning as suggested by National Research Council (US) Board on Science Education (2010). They are structured interviews, situational judgment tests, role plays, group exercises, in-basket exercises, work samples, and performance standards/appraisal.

1. structured interviews

   A structured interview uses a standard set of questions to assess students' interpersonal, communication and leadership/team skills.

2. situational judgment tests

   A situational judgment is intended to measure a variety of soft skills by presenting individuals with short scenarios as well as a number of responses. Students are asked to choose the best response for that scenario or to rank the responses in order of most appropriate to least appropriate.

3. role plays

   In a role play assessment, the students are provided with written information about a realistic situation that may involve a non-routine problem. After a period of time to prepare for the role play, they present their responses to the situation. The assessors rate the response using behaviorally anchored rating scales, which describe specific behaviors.

4. group exercises

The development, administration, and scoring of a group exercise are similar to the role play. The critical difference is that the students work in groups to address a problem or respond to a situation, making it possible to assess their interactive skills, such as negotiation, persuasion, and teamwork.

5. in-basket exercises

   An in-basket exercise is an activity that can assess how well students perform job-related tasks within a certain period of time.

6. work samples

   Work sample tests require students to perform tasks or work activities that mirror the tasks employees perform on the job.

7. performance standards/appraisal

   A performance-based assessment is a summative strategy to assess student knowledge as well as their ability to apply knowledge in a “real-world” situation.

2.2. Using information and communication technology

To increase the potential for assessing 21st century skills, information and communication technology can be employed in addition to be used as a tool for traditional assessments. This is partly due to an increase in developments of the ICT infrastructure in schools with expanded access to hardware, software, and broadband Internet connections for both students and teachers.

In addition, the so-called e-assessment has the potential of using technology to support educational innovation and the development of 21st century skills, such as complex problem solving, communication, team work, and creativity and innovation (Ripley, 2007). Gibson and Webb (2013) suggest that new technologies can facilitate both formative and summative assessment and are increasing the range of possibilities for assessments. Today, students can be assessed through simulations, e-portfolios, or interactive games. Formative assessment can be enabled by online peer assessment systems, adaptive feedback from computers, self-assessment, and “semi-automatic systems” that combine teacher, peer, and automatic feedback. They deal with student involvement in assessment, digitally-enhanced assessment, and assessment of the application of ICT skills acquired in formal and informal learning environments.

Gibson and Webb (2013) further explains that the assessments may appear in many forms. It may involve: (1) a pedagogical agent patiently tutoring someone in anything

he or she would like to learn, (2) an analysis of a learner's decisions during a digital game or simulation, (3) students reviewing and commenting on each other' s digital creations through an online discussion, (4) a multimedia-constructed response item created with an online animation and modeling application, (5) students receiving remote asynchronous expert feedback about how they worked with each other via ICT to solve a problem and communicate their understandings, and (6) an emotionally engaging virtual world experience that unobtrusively documents progression of a person's leadership and ethical development over time.

2.3. The KSAVE model

There are 10 important skills necessary for the 21st century. For each of the 10 skills, we have analyzed the extent to which the identified frameworks provide measureable descriptions of the skill, considering the Knowledge, Skills, and Attitudes, Values and Ethics aspects of each skill. This framework is referred to as the KSAVE framework, and is described in more detail below.

To structure the analysis of 21st century skills frameworks, an overall conceptual diagram was created. It defines 10 skills grouped into 4 categories, as follows:

- Ways of Thinking
    1. Creativity and innovation
    2. Critical thinking, problem solving, decision making
    3. Learning to learn, metacognition
- Ways of Working
    1. Communication
    2. Collaboration (teamwork**)**
- Tools for Working
    1. Information literacy (includes research on sources, evidence, biases, etc.)
    2. ICT literacy
- Living in the World
    1. Citizenship – local and global
    2. Life and career

3. Personal & social responsibility – including cultural awareness and competence

(Binkley et. al., 2010, p. 15)

In EFL context, in terms of ways of thinking, to measure creativity and innovation, the students may be assigned to make various kinds of products (Sefton-Green & Sinker, 2000). These might include creative writing in English, performance in drama, recording in music, making videos and multimedia "digital creations".

Regarding critical thinking, problem solving, decision making, the students may be asked to formulate one's argument, in speaking or writing, in a convincing manner and take full account of other viewpoints, whether expressed in written or oral form. In this instance they may formulate an argument based on data that the student collected. The student's argument is expressed in multiple representations through the use of various digital media, including concept maps for cause and effect chains, data collection tools for gathering evidence, and conclusion tools for submitting hypotheses and causal statements, then selecting the most salient data that support these.

In relation to ways of working, in particular, communication, the students are assigned to: (1) communicate, in written or oral form, and understand, or make others understand, various messages in a variety of situations and for different purposes, (2) listen to and understand various spoken messages in a variety of communicative situations and to speak concisely and clearly, (3) read and understand different texts, adopting strategies appropriate to various reading purposes (reading for information, for study or for pleasure) and to various text types, (4) write different types of texts for various purposes, and (5) use aids (such as notes, schemes, maps) to produce, present or understand complex texts in written or oral form (speeches, conversations, instructions, interviews, debates).

Concerning collaboration and team work, the assessments may measure the extent to which students can interact effectively with others, know when it is appropriate to listen and when to speak, work effectively in diverse teams, know and recognize the individual roles of a successful team and know own strengths and weaknesses recognizing and accepting them in others, manage projects, know how to plan, set and meet goals and to monitor and re-plan in the light of unforeseen developments.

Relating to tools of working, in particular information literacy, the students may be assigned to access efficiently (time) and effectively (sources) and evaluate information critically and competently, use information accurately and creatively for the issue or problem at hand, manage the flow of information from a wide variety of sources, apply a fundamental understanding of the ethical/legal issues surrounding the access and

use of information, to possess basic understanding of the reliability and validity of the information available (accessibility/acceptability) and awareness of the need to respect ethical principles in the interactive use of IST, apply technology effectively, use technology as a tool to research, organize, evaluate and communicate information, use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy.

Relating to tools of working, in particular ICT literacy, the assessment measure the extent to which the students can analyze media (understanding both how and why media messages are constructed, and for what purposes, interpret messages differently, how values and points of view are included or excluded, and how media can influence beliefs and behaviors, understand the ethical/legal issues surrounding the access and use of media), and to create media products (understanding and knowing how to utilize the most appropriate media creation tools, characteristics and conventions and understanding and knowing how to effectively utilize the most appropriate expressions and interpretations in diverse, multicultural environments).

In terms of living in the world, especially citizenship, local and global, the assessments may examine the students' quality in participation in community/neighborhood activities as well as in decision-making at national and international levels; voting in elections, to display solidarity by showing an interest in and helping to solve problems affecting the local or the wider community, to interface effectively with institutions in the public domain and to profit from the opportunities given by the home country and international programs.

The following measure is an example of the proposed principle for 21st Century Standards and Assessments that states assessments should "be largely performance-based":

The assessment offers authentic ecological problems for a student to investigate. The student can walk around to make observations and inferences, sorting out the most salient parts of a complex situation. After collecting data, the student then must distinguish the most important data values that can help solve the problem. S/he can create concept maps, rank data by importance, make predictions, and experiment with the virtual environment by altering it (e.g., removing a glacier), then collecting data post-change and submit a conclusion about whether altering the environment resulted in an improvement in the ecosystem. The assessment assesses each student on his or her ability to interpret data that individual collects, as well as the data of simulated

researchers. Furthermore, it will assess each student on both product and process. Product assessment includes the student's scores on 5 tasks, each including a number of various sub-tasks. Process assessment consists of measuring the student's ability to perform scientific inquiry to solve the problem.

Another example is suggested by Davila (2016). By applying the 4Cs a lesson can be changed a bit more on its head, making a typical ELL grammar lesson into something magical. For example:

- Collaborate: Start off by handing out magazines or picture books. Have the students collaborate together to choose a picture.
- Communication, Critical thinking, and Creativity: Ask your students to work together to create to ways to give directions. One set of directions for a student who is blind. Another set of directions for a student who is deaf. Encourage students to think outside the box and think about ways to give the directions using a computer, a mobile phone, a television, or a YouTube video. While there may be some L1 use in the classroom the goal is for the final product to be in English. Stand back and watch your learners go.

Another way to engage with 21st century skills using a typical ELL lesson: the "What's your favorite food lesson?" At some point, people have all experienced it.

- Collaborate: In groups, have students create a survey to assess classroom interest in 10 different foods representing different types of meals (breakfast, lunch, dinner, dessert).
- Communication: Once finished have learners use the information to create a pie or bar graph to communicate the results and determine which meals are the favorite.
- Critical thinking: Have the students compare their answers with answers from others groups. How many differences are there in the reporting? Is the information consistent with the same foods or does it change drastically? Have students compare their results with other teams. Then ask the groups to create a short writing or spoken piece to explain how their results differed from other students.
- Creativity: Using the information collected from the class, and after analysing data from other students, have groups work together to create an advertising campaign that will make the foods that students liked least into foods students may like more. For example, if the survey said that most students did not like kim-chi-chigae for breakfast, the group would need to work together to create an advertising

campaign to make kim-chi-chigae seem like a tasty choice for breakfast. To do this student should consider what makes certain foods more popular in the class. Of course this may require further follow up interviewing to find out why students like one thing and not another, this information can then be used in the campaign. This lesson may play out over a few days but in the end, everyone involved will have gotten a lot more out of the lesson than perhaps they had anticipated going in.

Both of these examples represent the use of 21st skills in the ELL classroom. Each lesson also embeds, in one way or another, important STEM skills. In the preposition lesson the students may use engineering and technology to find a better way to give directions. In the favorite foods lesson, students are engaging with science (and a bit of sociology) and mathematics. All together it becomes a rounded classroom experience where teachers have an active role as facilitator and students become inspired, self-guided learners-who still manage to work inside of the confines of the curriculum.

3. Conclusion

To conclude, technology in the 21st century serves as an extraordinary tool to shape and enhance the learning environment. Digital literacy skills are absolutely necessary to ensure the technology is used to supplement and not substitute for high-quality instructional methods. ICT assessment framework is linked to specific frameworks for subject domains in schools, for instance English subject in a foreign language teaching context. The foregoing discussions have laid out principles for the assessment of 21st century skills, proposed 10 skills and given a sense of what they are and what measurements related to them might be built upon. All highlights number of assessment strategies or tools for classroom-based assessment that can play a key role in creating and supporting the new 21st century learning environments and consider how these strategies may play a role in their own reform efforts

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