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Lebanese Public Schools: 20th or 21st Century Schools? An Investigation into Teachers' Instructional Practices

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Abstract

This study investigated the offerings of Lebanese public schools against requirements of 21st century skills through the lenses of teachers. A survey that captures the features of the 21st century schools was adapted from Hixson, Ravitz & Whisman (2012) and was administered to 667 middle and secondary schoolteachers in 68 public schools in Beirut and Mount Lebanon. The survey addressed 8 teaching practices that are recognized in the literature as the basic 21st century skills: critical thinking skills, collaboration skills, communication skills, creativity and innovation skills, self-direction skills, global connections skills, local connections skills, and technology skills. Data were analyzed using SPSS 21.0 for windows. Results indicated that a huge gap existed between how schools function as opposed to how they are supposed to do so, in light of the 21st century demands. Lebanese public schools have not yet moved to the 21st century and are quite far from doing so. Recommendations for policy and practice are provided.

Keywords

21st Century Schools, School Improvement, Instructional Practices, School Effectiveness, Teacher Education

1. Introduction

1.1. The Problem

The 21st century has marked the birth of the so called "knowledge economy" which impacted various aspects of life including education (Shal, 2016). The adoption of technology into everyday life has changed the way we do many of our everyday tasks (Masseni, 2014). 21st century learners are required to have a very different skill set as compared to learners of the past (Miranda, Isaias, &

Costa, 2014). Schools of the 20th century were required to teach students basic skills of reading, writing, and arithmetic which were deemed as necessary for employment and citizenship (Shal, 2016). With the knowledge explosion, schools are being called to equip their students with the skills and competencies they would need to subsist the challenges that they are and will be confronting in the future (Shal, 2016).

According to the Partnership for 21st Century Skills (P21, 2011), schools need to address the four C's in their curricula to meet the 21st century challenges. These include: critical thinking, communication, collaboration, and creativity. Thus, a new paradigm in education is needed, one that radically shifts teachers' instructional practices to provide quality education that is centered on learners and that enhances their skills and competencies in analyzing, interpreting and creating knowledge; as opposed to simply retrieve it and comprehend it (P21, 2011). In other words, there is a need to shift teacher repertoire of classroom practice from instructing for content, to coaching for process skills. Students need to be provided with such educational experiences to be able to move to a new Globalization 3.0 era (Friedman, 2007).

This study attempts to explore the degree teachers' instructional practices within the Lebanese Public schools closely approximate those described in the literature as being essential to address 21st century skills.

1.2. Purpose of the Study

The purpose of the study was to investigate the repertoire of instructional practice of Lebanese Public school teachers, in light of the requirements of the 21st century skills. Besides, the study attempted to examine the perceptions of those teachers, examining if they thought they were addressing 21st century skills; if they thought their students were learning them; and if they were assessing them in terms of those skills. 21st century skills investigated in this study, included: critical thinking skills, collaboration skills, communication skills, creativity and innovation skills, self-direction skills, global connections skills, local connections skills, and technology skills.

1.3. Research Questions

This study was guided by the following research questions:
1. To what extend do Lebanese public school teachers address 21st century skills through their instructional practices?
2. What are the perceptions of Lebanese public schoolteachers regarding:
a) the degree they thought they were addressing 21st century skills?
b) the degree their students were acquiring 21st century skills?
c) the extent to which they were assessing those skills in their students' learning?

1.4. Significance of the Study

A new global economy is emerging imposing on its dwellers to possess certain skills to survive its challenges. Unfortunately, educational systems seem to be

falling behind in recognizing the ramifications of this new environment. Students who are enrolled currently in school may find themselves jobless when it is time for them to participate in the job market, due to the fact that they were not equipped with the skills needed for them to succeed. Thus, this study is significant at a practical social level. Additionally, this study is significant academically, by providing insights to the current practice of teachers in their classrooms and the degree such practices corroborate with 21st century skills needed to be instilled in students. As such the study provides educators, and policy makers rich information as to how to deal with teacher in-service and pre-service programs in their education reform attempts.

2. Review of Relevant Literature

2.1. Globalization Skills

Friedman (2007) highlighted that schools are not responding to student needs in terms of skills and competencies they needed to confront the challenges of the century they are part of. Through this, Friedman (2007) has alerted educators regarding a shift in global economy requiring schools to undergo a radical shift in how leaders lead, teachers teach and students learn (Shal, 2016). With the shift from web 1.0 to web 2.0, people have moved from structures in which they worked in isolation, to others in which they operated collaboratively (Friedman, 2007). Friedman (2007) describes this as a shift from globalization 1.0 to globalization 2.0. As such, and according to Friedman (2007), these "globalization skills" should be the core of any education reform or school improvement efforts; so that students could compete internationally for jobs. A famous YouTube posting with unknown author describes the status quo by:

"*We are currently preparing students for jobs and technologies that don't yet exist… in order to solve problems that we don't even know are problems yet*"[1]

In other words, education systems worldwide are challenged and their biggest nightmare is to leave an entire generation of kids out of the global economy because these systems have failed to teach them how to "think their way through abstract problems, work in teams, distinguish good information from bad, or speak a language other than [their own]."[2]

2.2. The 21st Century Skills

In an attempt to respond to the challenges of the 21st century skills, the Partnership for the 21st century skills (P21) was established in 2002. The purpose of P21 is to investigate the skills needed by students to reserve a spot for themselves in the global economy (P21, 2011). In this line, the partnership highlighted: (1) critical thinking, (2) communication, (3) collaboration; and (4) creativity, as essential skills for the 21st century knowledge economy. These has been termed as the 4 C's of the 21st century learning and were considered to be bolstered by other skills on top of which were technology skills; and life and career skills (P21,

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[1]"Did you know", widely circulated YouTube posting.
[2]How to Build a Student for the 21st Century, TIME Magazine, December 18, 2006

2011).

In the same vein, Wagner (2008) analyzed student needs so that they could act as active citizens within a global economy. He enlisted 7 core skills that need to be addressed in schools in order to equip students with the 21st century skills, including:

1. Critical thinking and problem solving: ability to analyze complex problems

2. Collaboration across networks and leading by influence: ability to work together against a goal

3. Agility and adaptability: ability to respond to changes swiftly

4. Initiative and entrepreneurialism: ability to take steps to make new establishments

5. Effective oral and written communication: ability to speak effectively and write convincingly

6. Accessing and analyzing information: ability to locate needed information and make use of it

7. Curiosity and imagination: ability to act out as risk-takers and think out-of-the-box (Wagner, 2008)

That is, 21st century skills includes "what students need to learn now to be successful in school, work, family, and community life" (Trilling, 2010: p. 9). It merges content knowledge, specific skills, expertise, and literacies necessary to succeed in work and life (P21, 2011). It emphasizes digital-age literacy, inventive thinking, effective communication, and high productivity (Metiri Group, 2003). Paige (2009) concludes that 21st Century Skills are more than technological literacy, instead they include proficiency in critical thinking, problem solving, communication, and team work.

2.3. Framework for 21st Century Skills Learning

As Figure 1[3] shows, 21st century learning blends several inter-related skill sets:
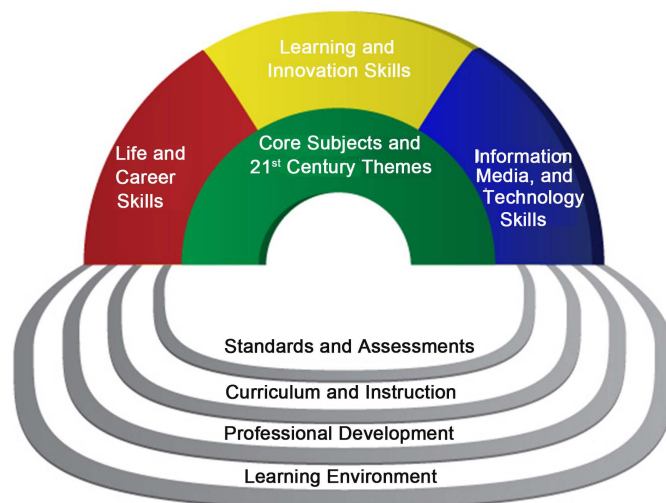

Figure 1. Framework for 21st century student outcome and support system.

[3]Figure 1 adapted from the partnership for 21st century skills.

1) life and career skills;

2) learning and innovation skills;

3) information, media, and technology skills; and

4) core-subject mastery and familiarity with interdisciplinary themes.

Additionally, the above skills sets are built upon:

1) standards and assessments,

2) curriculum and instruction,

3) teacher professional development, and

4) learning environments.

Thus, "the framework provides a holistic representation of the student outcomes and support systems required to establish 21st century career and life readiness" (Ledward & Hirata, 2011: p. 2).

Besides English, math, science, and social studies, the 21st century framework focuses on civic literacy, environmental literacy, global awareness, financial literacy, health literacy, and visual literacy. The framework as such emphasizes the importance of having students get able to successfully influence decision making in community affairs and politics, empowered with financial literacy; develop knowledge and take action on ecological issues based on global awareness, supported with a roust background in health literacy (P21, 2011).

The framework also underscores critical thinking, problem solving, creativity and innovation as integral requirement for students to succeed in the workplace. It advocates for learning that "focuses on leadership and responsibility, productivity and accountability, and cross-cultural skills" (Ledward & Hirata, 2011: p. 2). Under the 21st century skills standards, "learners are able to set and meet goals, plan and prioritize work, multitask effectively, and act in an ethical and professional manner" (Ledward & Hirata, 2011: p. 2).

Equally important, the 21st century skills framework suggests the importance of information literacy empowering learners to recognize when information is needed and how to locate, evaluate, and put it to proper use (P21, 2011). Learners should be able to "access, understand, and where appropriate, filter media bias" (Ledward & Hirata, 2011: p. 2).

Two other aspects of the frame work include the learning environment and the professional development for teachers conducive for the realization of the framework (P21, 2011). The framework emphasizes the importance of flexible and adaptive learning contexts that allow for both formal and informal learning inspire by a sense of community. On the other hand, the framework suggests that teacher professional development programs need to be:

1. Experiential: engaging teachers in concrete tasks of curriculum design, implementation, and assessment;

2. Learner-focused: grounded in teachers' own questions, problems, and issues

3. Collaborative: building upon the collective experiences of participants and the wider community

4. Relevant: connected to teachers' work and contexts

5. Sustained and intensive: including ongoing support via modeling and coach-

ing, during and after the program; and

6. Integrated with other aspects of school reform (Trilling & Fadel, 2009; cited in Ledward& Hirata, 2011: p. 3).

2.4. Assessing 21st Century Skills

According to Wagner (2008), it is impossible to realize 21st century skills in schools in the absence of a rigorous assessment system which underlies any quality instructional practices. Not only this, Wagner (2008) considers assessment to be the starting point for any school that decides to teach the 21st century skills. What you test, is what you get according to Wagner (2008).

Salcito (2012), makes a similar point by stating that:

Traditional assessment methods do not properly evaluate the skills needed to prepare learners for working in the modern world. Skills such as critical thinking and problem solving, communication, collaboration, creativity and innovation are all vital attributes for students but not currently measured effectively by most countries. These skills can prepare a student for the workforce and provide stronger economic opportunities for the future (Salcito, 2012: p. 9).

Both Wagner (2008), and Salcito (2012) are in harmony with the Partnership for 21st century Skills (P21, 2011) whose framework stresses assessment measures as integral for the realization and success of the framework.

Based on the aforementioned, when investigating whether a school addresses 21st century skills or not, it is essential to investigate their assessment procedures. In the absence of a system that examines those sets of skills, it is difficult to judge if the system is indeed addressing them (Salcito, 2012).

3. Methodology

This study was carried out based on the positivist paradigm of research, utilizing quantitative surveying as a method for data collection. As a philosophy, positivism adheres to the view that only "factual" knowledge gained through observation, including measurement, is trustworthy, and that research findings are usually observable and quantifiable (Creswell, 2014). It has an "atomistic, ontological view of the world as comprising discrete, observable elements and events that interact in an observable, determined and regular manner" (Collins, 2010: p. 38). The survey addressed 8 teaching practices that are recognized in the literature to be supporting to students' acquisition of the basic 21st century skills.

3.1. Instrument

This study employed an adapted version of the survey developed by Hixson, Ravitz & Whisman (2012). Hixson et al. (2012) developed this survey making use of the work of Shear, Novais, Means, Gallagher, & Langworthy (2010), The William and Flora Hewlett Foundation (2010), and Partnership for 21st Century Skills (P21.org). Table 1 describes the domains addressed in the survey.

Table 1. Research instrument developed by Hixson, Ravitz & Whisman (2014).

	Area	Content of Area
1	CRITICAL THINKING SKILLS	refer to students being able to analyze complex problems, investigate questions for which there are no clear-cut answers, evaluate different points of view or sources of information, and draw appropriate conclusions based on evidence and reasoning.
2	COLLABORATION SKILLS	refer to students being able to work together to solve problems or answer questions, to work effectively and respectfully in teams to accomplish a common goal and to assume shared responsibility for completing a task.
3	COMMUNICATION SKILLS	refer to students being able to organize their thoughts, data and findings and share these effectively through a variety of media, as well as orally and in writing.
4	CREATIVITY AND INNOVATION SKILLS	refer to students being able to generate and refine solutions to complex problems or tasks based on synthesis, analysis and then combining or presenting what they have learned in new and original ways.
5	SELF-DIRECTION SKILLS	refer to students being able to take responsibility for their learning by identifying topics to pursue and processes for their own learning, and being able to review their own work and respond to feedback.
6	GLOBAL CONNECTIONS	refers to students being able to understand global, geo-political issues including awareness of geography, culture, language, history, and literature from other countries.
7	LOCAL CONNECTIONS	refers to students being able to apply what they have learned to local contexts and community issues.
8	TECHNOLOGY AS A TOOL FOR LEARNING	refers to students being able to manage their learning and produce products using appropriate information and communication technologies.

Each section of the survey addresses practices related to each researched area as well as teachers' perceptions about the 21st century skill being researched within this area. Before answering these questions, teachers select a target course and a target class within this course. Teachers answer the survey with this target class in mind, the one in which they feel their practices are most effective. Response choices were 1 "Almost never"; 2 "A few times a semester"; 3 "1 - 3 times per month"; 4 "1 - 3 times per week"; 5 "Almost daily".

3.2. Participants

667 middle and secondary school teachers from 68 public schools in Beirut and Mount Lebanon completed the survey. The survey was originally administered to 100 public schools who were involved in a leadership training program that one of the researcher was part of. The researcher invited all principals of all the 100 schools to take part in the study explaining the purpose of the study, the anonymity of the school and how data would be used later on. While 84 school principals expressed interest in having their schools take part in the study, only 68 ended up sending back the questionnaires completed by 10 of their teachers form the middle or secondary school level. The researcher collected 680 completed questionnaires, but only 667 were deemed useful for the study as 13 were incomplete or inaccurately marked.

3.3. Data Analysis

Data was processed using SPSS 21.0. Descriptive statistics were used to describe

and summarize the properties of the mass of data collected from school principals. Mean scores, standard deviations and percentages were calculated per each item of the survey instrument.

4. Results

4.1. Demographic Data

Participants in this study were 667 middle and secondary teachers from 68 Public schools in Beirut and Mount Lebanon. As Table 2 shows, the sample was 46.3% male teachers against 53.7% female teachers. Almost half (46.6%) of the teachers involved in the study were of the age bracket [36 - 45] years old.

Table 2. Demographic characteristics of participants.

	%
Gender	
Male	46.3
Female	53.7
Age (Years)	
Less than 25	2.9
26 - 35	16.6
36 - 45	46.6
46 and above	33.9
Geographical Distribution	
Area 1 (Beirut Governorate)	47.2%
Area 2 (Mount Lebanon Governorate)	52.8%
Teaching Experience (Years)	
Less than 4	10.4
5 - 9	13.9
10 - 14	30.1
15 - 19	20.9
20 and above	24.7
Highest Degree Held	
End of School Certificate or less	0.0
Bachelors (Faculty of Education Graduates)	37.3
Bachelors (Graduated from faculties other than Education)	54.5
Masters	8.2
PhD	0.0
Training During the Past 3 years (each workshop being at least 12 hours of duration)	
More than 5 workshops	78.2%
Less than 5 workshops	21.8%

Moreover, teachers were almost equally distributed between Beirut (47.2%) and Mount Lebanon (52.8%) governorates. Teachers' teaching experience was not homogenous with 10.4% having an experience less than 4 years, 13.9% with an experience of 5 to 9 years, 30.1% with an experience of 10 to 14 years, 20.9% with experience between 15 to 19 years, and 24.7% with experience that exceeded 20 years of teaching.

As for the degrees held by participants, none were holders of end-of-school certificate only and on the other extreme, none were holders of a PhD degree, yet 8.2% were holders of Masters degrees. 37.3% were graduates of education schools against 54.5% who were graduates of other faculties and schools. Finally, 78.2% were enrolled in at least 5 teacher training workshops, where the duration of each workshop was at least 12 hours.

4.2. Results per Areas Addressed in the Survey

Tables 3-10 presents the results obtained through the questionnaire for each area addressed in the survey.

Table 3. Critical thinking skills.

1) In your teaching of your TARGET CLASS, how often have you asked students to do the following	Almost never	A few times a semester	1 - 3 times per month	1 - 3 times per week	Almost daily	Mean	SD
a. Compare information from different sources before completing a task or assignment?	279	301	82	5	0	1.72	0.702
	42.8%	45.1%	12.3%	0.7%	0%		
b. Draw their own conclusions based on analysis of numbers, facts, or relevant information?	98	418	151	0	0	2.08	0.606
	14.7%	62.7%	22.6%	0%	0%		
c. Summarize or create their own interpretation of what they have read or been taught?	207	400	59	1	0	1.78	0.598
	31%	60%	8.8%	0.1%	0%		
d. Analyze competing arguments, perspectives or solutions to a problem?	93	523	49	2	0	1.94	0.471
	13.9%	78.4%	7.3%	0.3%	0%		
e. Develop a persuasive argument based on supporting evidence or reasoning?	179	462	24	2	0	1.77	0.515
	26.8%	69.3%	3.6%	0.3%	0%		
f. Try to solve complex problems or answer questions that have no single correct solution or answer?	142	385	137	3	0	2.00	0.661
	21.3%	57.7%	20.5%	0.4%	0%		
					Average	1.88	

2) To what extent do you agree with these statements about your TARGET CLASS?	Not really	To a minor extent	To a moderate extent	To a great extent	To a very great extent	Mean	SD
a. I have tried to develop students' critical thinking skills	0	144	457	66	0	2.88	0.549
	0%	21.5%	68.2%	9.9%	0%		
b. Most students have learned critical thinking skills while in my class	0	75	412	180	0	3.16	0.598
	0%	11.2%	61.5%	26.9%	0%		
c. I have been able to effectively assess students' critical thinking skills	179	456	30	2	0	1.78	0.648
	26.8%	68.4%	4.5%	0.3%	0%		

Table 4. Collaboration skills.

1) In your teaching of your TARGET CLASS, how often have you asked students to do the following	Almost never	A few times a semester	1 - 3 times per month	1 - 3 times per week	Almost daily	Mean	SD
a. Work in pairs or small groups to complete a task together?	62	61	24	492	28	3.54	0.036
	9.3%	9.1%	3.6%	73.8%	4.2%		
b. Work with other students to set goals and create a plan for their team?	98	459	110	0	0	2.02	0.443
	14.7%	68.8%	16.5%	0%	0%		
c. Create joint products using contributions from each student?	119	158	29	361	0	2.95	0.559
	17.8%	23.7%	4.3%	54.1%	0%		
d. Present their group work to the class, teacher or others?	56	509	58	44	0	2.13	0.332
	8.4%	76.3	8.7%	6.6%	0%		
e. Work as a team to incorporate feedback on group tasks or products?	179	456	30	2	0	1.78	0.662
	26.8%	68.4%	4.5%	0.3%	0%		
f. Give feedback to peers or assess other students' work	142	385	137	3	0	2.00	0.235
	21.3%	57.7%	20.5%	0.4%	0%		
					Average	2.40	

2) To what extent do you agree with these statements about your TARGET CLASS?	Not really	To a minor extent	To a moderate extent	To a great extent	To a very great extent	Mean	SD
a. I have tried to develop students' collaboration skills	0	144	404	94	25	3.00	0.712
	0%	21.5%	60.3%	14%	3.7%		
b. Most students have learned collaboration skills while in my class	0	75	446	146	0	3.11	0.566
	0%	11.2%	66.6%	21.8%	0%		
c. I have been able to effectively assess students' collaboration skills	0	569	95	3	0	2.15	0.371
	0%	84.9%	14.2%	0.4%	0%		

Table 5. Communication skills.

1) In your TARGET CLASS, how often have you asked students to do the following	Almost never	A few times a semester	1 - 3 times per month	1 - 3 times per week	Almost daily	Mean	SD
a. Structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs)?	62	535	24	46	0	2.08	0.632
	9.3%	80.2%	3.6%	6.9%	0%		
b. Convey their ideas using media other than a written paper (e.g., posters, video, blogs, etc.)	8	207	452	0	0	2.67	0.497
	1.2%	31%	67.8%	0%	0%		
c. Prepare and deliver an oral presentation to the teacher or others?	73	592	2	0	0	1.89	0.318
	10.9%	88.8%	0.3%	0%	0%		
d. Answer questions in front of an audience?	96	203	43	325	0	3.9	0.045
	14.4%	30.4%	6.4%	48.7%	0%		
e. Decide how they will present their work or demonstrate their learning?	179	456	30	2	0	1.78	0.532
	26.8%	68.4%	4.5%	0.3%	0%		
					Average	2.46	

2) To what extent do you agree with these statements about your TARGET CLASS?	Not really	To a minor extent	To a moderate extent	To a great extent	To a very great extent	Mean	SD
a. I have tried to develop students' communication skills	0	75	179	107	306	3.97	0.347
	0%	11.2%	26.7%	16%	45.7%		
b. Most students have learned communication skills while in my class	0	208	393	66	0	2.79	0.554
	0%	31%	58.7%	9.9%	0%		
c. I have been able to effectively assess students' communication skills	40	560	64	3	0	2.04	0.632
	6%	83.6%	9.6%	0.4%	0%		

Table 6. Creativity & innovation skills.

1) In your teaching of your TARGET CLASS, how often have you asked students to do the following	Almost never	A few times a semester	1 - 3 times per month	1 - 3 times per week	Almost daily	Mean	SD
a. Use idea creation techniques such as brainstorming or concept mapping?	62	61	24	33	487	4.23	0.325
	9.3%	9.1%	3.6%	4.9%	73%		
b. Generate their own ideas about how to confront a problem or question?	8	611	48	0	0	2.06	0.621
	1.2%	91.6%	7.2%	0%	0%		
c. Test out different ideas and work to improve them?	73	592	2	0	0	1.89	0.552
	10.95	88.8%	0.3%	0%	0%		
d. Invent a solution to a complex, open-ended question or problem?	385	282	0	0	0	1.42	0.731
	57.7%	42.3%	0%	0%	0%		
e. Create an original product or performance to express their ideas?	385	282	0	0	0	1.42	0.331
	57.7%	42.3%	0%	0%	0%		
					Average	2.20	

2) To what extent do you agree with these statements about your TARGET CLASS?	Not really	To a minor extent	To a moderate extent	To a great extent	To a very great extent	Mean	SD
a. I have tried to develop students' creativity and innovation skills	0	67	597	3	0	2.90	0.231
	0%	10%	89.1%	0.4%	0%		
b. Most students have learned creativity and innovation skills while in my class	275	366	26	0	0	2.63	0.771
	41%	54.6%	3.9%	0%	0%		
c. I have been able to effectively assess students' creativity and innovation skills	536	64	64	0	3	1.30	0.348
	80.4%	9.6%	9.6%	0%	0.4%		

Table 7. Self-direction skills.

1) In your teaching of your TARGET CLASS, how often have you asked students to do the following	Almost never	A few times a semester	1 - 3 times per month	1 - 3 times per week	Almost daily	Mean	SD
a. Take initiative when confronted with a difficult problem or question?	0	208	393	66	0	2.79	0.642
	0%	31%	58.7%	9.9%	0%		
b. Choose their own topics of learning or questions to pursue?	385	282	0	0	0	1.42	0.212
	57.7%	42.3%	0%	0%	0%		
c. Plan the steps they will take to accomplish a complex task?	536	64	64	0	3	1.30	0.178
	80.4%	9.6%	9.6%	0%	0.4%		
d. Choose for themselves what examples to study or resources to use?	73	592	2	0	0	1.89	0.817
	10.9%	88.8%	0.3%	0%	0%		
e. Monitor their own progress towards completion of a complex task and modify their work accordingly?	536	64	64	0	3	1.30	0.655
	80.4%	9.6%	9.6%	0%	0.4%		
f. Use specific criteria to assess the quality of their work before it is completed?	275	366	26	0	0	2.63	0.475
	41%	54.6%	3.9%	0%	0%		
g. Use peer, teacher or expert feedback to revise their work?	62	61	24	492	28	3.54	0.948
	9.3%	9.1%	3.6%	73.8%	4.2%		
					Average	2.12	

2) To what extent do you agree with these statements about your TARGET CLASS?	Not really	To a minor extent	To a moderate extent	To a great extent	To a very great extent	Mean	SD
a. I have tried to develop students' self-direction skills	0	75	179	107	306	3.97	0.553
	0%	11.2%	26.7%	16%	45.7%		
b. Most students have learned self-direction skills while in my class	500	46	118	3	0	1.44	0.873
	74.6%	6.9%	17.6%	0.4%	0%		
c. I have been able to effectively assess students' self-direction skills	653	7	4	3	0	1.04	0.435
	97.5%	1%	0.6%	0.4%	0%		

Table 8. Global connections skills.

1. In your teaching of your TARGET CLASS, how often have you asked students to do the following	Almost never	A few times a semester	1 - 3 times per month	1 - 3 times per week	Almost daily	Mean	SD
a. Study information about other countries or cultures?	62	246	299	9	51	2.61	0.954
	9.3%	36.9%	44.8%	1.3%	7.6%		
b. Use information or ideas that come from people in other countries or cultures?	454	187	26	0	0	1.36	0.777
	68.1%	28%	3.9%	0%	0%		
c. Discuss issues related to global interdependency (for example, global environment trends,	519	146	2	0	0	1.22	0.736
	77.8%	21.9%	0.3%	0%	0%		
d. Understand the life experiences of people in cultures besides their own?	385	282	0	0	0	1.42	0.657
	57.7%	42.3%	0%	0%	0%		
e. Study the geography of distant countries?	385	282	0	0	0	1.42	0.670
	57.7%	42.3%	0%	0%	0%		
f. Reflect on how their own experiences and local issues are connected to global issues?	551	103	13	0	0	1.19	0.246
	82.6%	15.4%	1.9%	0%	0%		
					Average	1.53	

2. To what extent do you agree with these statements about your TARGET CLASS?	Not really	To a minor extent	To a moderate extent	To a great extent	To a very great extent	Mean	SD
a. I have tried to develop students' skills in making global connections	622	14	28	3	0	1.12	0.464
	92.8%	2.1%	4.2%	0.4%	0%		
b. Most students have learned to make global connections while in my class	622	45	0	0	0	1.07	0.357
	92.8%	6.7%	0%	0%	0%		
c. I have been able to effectively assess students' skills in making global connections	653	14	0	0	0	1.02	0.882
	97.5%	2.1%	0%	0%	0%		

Table 9. Local connections skills.

1) In your teaching of your TARGET CLASS, how often have you asked students to do the following	Almost never	A few times a semester	1 - 3 times per month	1 - 3 times per week	Almost daily	Mean	SD
a. Investigate topics or issues that are relevant to their family or community?	454	187	26	0	0	1.36	0.338
	68.1%	28%	3.9%	0%	0%		
b. Apply what they are learning to local situations, issues or problems?	551	103	13	0	0	1.19	0.878
	82.6%	15.4%	1.9%	0%	0%		
c. Talk to one or more members of the community about a class project or activity?	519	146	2	0	0	1.22	0.626
	77.8%	21.9%	0.3%	0%	0%		
d. Analyze how different stakeholder groups or community members view an issue?	536	64	64	0	3	1.30	0.988
	80.4%	9.6%	9.6%	0%	0.4%		
e. Respond to a question or task in a way that weighs the concerns of different community members or groups?	454	187	26	0	0	1.36	0.355
	68.1%	28%	3.9%	0%	0%		
					Average	1.28	

2) To what extent do you agree with these statements about your TARGET CLASS?	Not really	To a minor extent	To a moderate extent	To a great extent	To a very great extent	Mean	SD
a. I have tried to develop students' skills in making local connections	622	14	28	3	0	1.12	0.221
	92.8%	2.1%	4.2%	0.4%	0%		
b. Most students have learned to make local connections while in my class	622	45	0	0	0	1.07	0.212
	92.8%	6.7%	0%	0%	0%		
c. I have been able to effectively assess students' skills in making local connections	653	14	0	0	0	1.02	0.131
	97.5%	2.1%	0%	0%	0%		

Table 10. Technology skills.

1) In your teaching of your TARGET CLASS, how often have you asked students to do the following	Almost never	A few times a semester	1 - 3 times per month	1 - 3 times per week	Almost daily	Mean	SD
a. Use technology or the Internet for self-instruction (e.g. videos, tutorials, self-instructional websites, etc.)?	98	418	151	0	0	2.08	0.667
	14.7%	62.7%	22.6%	0%	0%		
b. Select appropriate technology tools or resources for completing a task?	73	592	2	0	0	1.89	0.445
	10.9%	88.8%	0.3%	0%	0%		
c. Evaluate the credibility and relevance of online resources?	653	14	0	0	0	1.02	0.885
	97.5%	2.1%	0%	0%	0%		
d. Use technology to analyze information (e.g., databases, spreadsheets, graphic programs, etc.)?	62	61	24	492	28	3.54	0.223
	9.3%	9.1%1.0	3.6%	73.8%	4.2%		
e. Use technology to help them share information (e.g., multi-media presentations using sound or video, presentation software, blogs, podcasts, etc.)?	73	592	2	0	0	1.89	0.322
	10.9%	88.8%	10.3%	0%	0%		
f. Use technology to support team work or collaboration (e.g., shared work spaces, email exchanges, giving and receiving feedback, etc.)?	622	14	28	3	0	1.12	0.111
	92.8%	2.1%	4.2%	0.4%	0%		
g. Use technology to interact directly with experts or members of local/global communities?	653	14	0	0	0	1.02	0.113
	97.5%	2.1%	0%	0%	0%		
h. Use technology to keep track of their work on extended tasks or assignments?	551	103	13	0	0	1.19	0.221
	82.6%	15.4%	1.9%	0%	0%		
					Average	1.71	

2) To what extent do you agree with these statements about your TARGET CLASS?	Not really	To a minor extent	To a moderate extent	To a great extent	To a very great extent	Mean	SD
a. I have tried to develop students' skills in using technology as a tool for learning	622	14	28	3	0	1.12	0.654
	92.8%	2.1%	4.2%	0.4%	0%		
b. Most students have learned to use technology as a tool for learning while in my class	622	45	0	0	0	1.07	0.774
	92.8%	6.7%	0%	0%	0%		
c. I have been able to effectively assess students' skills in using technology for learning	653	14	0	0	0	1.02	0.277
	97.5%	2.1%	0%	0%	0%		

In terms of Critical thinking, Table 3 shows that perception wise; the majority of teachers believed that they did their best to address critical thinking skills in their teaching (M = 2.88, SD = 0.589) and that their students acquired those skills (M = 3.16, SD = 0.598). However, they made such claims, despite their confession that they didn't succeeded assessing their students' acquisition of those skills (M = 1.78, SD = 0.648).

In terms of practice, results show that teachers weakly addressed critical thinking skills with an average mean score of 1.88 which is relatively low on a five points scale. They did not seem to effectively: (a) compare information from different sources before completing a task or assignment (M = 1.72, SD = 0.702); (b) draw their own conclusions based on analysis of numbers, facts, or relevant

information (M = 2.09, SD = 0.606); (c) summarize or create their own interpretation of what they have read or been taught (M = 1.78, SD = 0.598); (d) analyze competing arguments, perspectives or solutions to a problem (M = 1.94, SD = 0.471); (e) develop a persuasive argument based on supporting evidence or reasoning (M = 1.77, SD = 0.515); nor (f) try to solve complex problems or answer questions that have no single correct solution or answer (M = 2.00, SD = 0.661). In all investigated practices, the mean score value was never beyond the average (2.5) and as the frequencies indicate, critical thinking skills was sparingly addressed by teachers and did not seem to be one of the core practices embraced by them.

In terms of teachers' perceptions regarding the degree they worked towards enhancing their students' collaborative skills, Table 4 again shows significant appreciation to both how well teachers thrived to address collaboration in their classrooms (M = 3.00, SD = 0.712) and the degree they thought their students acquired those skills (M = 3.11, SD = 0.566). Yet, again teachers explicitly stated that though they did not do a good job assessing those skills in their students (M = 2.15, SD = 0.371).

Whilst better when compared to the case of critical thinking skills, teachers' practices did not resonate effectively with their perceptions, as the average mean score for the 6 investigated practices was only 2.4 on a scale of 5 points. On the bright side, teachers seemed to be allowing students to work in pairs or small groups on tasks (M = 3.54, SD = 0.036), leading them to create joint products using contributions from each student (M = 2.95, SD = 0.559). However, teachers weakly invited students to set goals and create a plan for their teams (M = 2.02, SD = 0.443), present their group work to the class, teacher or others (M = 2.13, SD = 0.332), incorporate feedback on group tasks or products (M = 1.78, SD = 0.662), give feedback to peers or assess other students' work (M = 2.00, SD = 0.235).

Communication skills seemed to be the widely addressed 21st century skill amongst the researched group of teachers with an average mean score of practices approaching the average (2.46 on a 5 points scale) as presented in Table 5.

At the level of practice, teacher scored highest on inviting their students to respond to questions (M = 3.9, SD = 0.045), and on having them convey their ideas using media other than written paper (M = 2.67, SD = 0.497). On a lower level, they invited them to structure data for using it in written products or oral presentation (M = 2.08, SD = 0.632), request them to deliver presentations (M = 1.89, SD = 0.318), and allow them to decide on the means they preferred to present their work or demonstrate their learning (M = 1.78, SD = 0.532).

The same pattern of teachers believing they did their best to address the skill (M = 3.97, SD = 0.347) and that students succeeded in acquiring the skill (M = 2.79, SD = 0.554) recurred with themselves failing to admit they succeeded in measuring student acquisition of those skills (M = 2.04, SD = 0.632).

Creativity and innovation was below the average (2.20 on a 5 points scale) as presented in Table 6; yet it bears one practice that received the higher score in

the whole survey. In fact, teachers recorded that they employed brainstorming and concept mapping to a very large extend (M = 4.23, SD = 0.352). However, other practices were relatively weak: generate their own ideas about how to confront a problem or question (M = 2.06, 0.621), test out different ideas and work to improve them (M = 1.89, SD = 0.552), invent a solution to a complex, open-ended question or problem (M = 1.42, SD = 0.731), and create original products or performances to express their ideas (M = 1.42, SD = 0.331).

Teacher perception, on the other hand, was similar to the case of previous skills. Teachers considered themselves to be addressing creativity and innovation in their teaching (M = 2.90, SD = 0.231), and that students acquired those skills (M = 2.63, SD = 0.771); however, their judgements were made without appropriate assessment of those skills (M = 1.30, SD = 0.348).

Results pertaining to self-direction skills were somehow different from the previous, as Table 7 shows. Teachers considered themselves to be addressing such skills in their classes (M = 3.97, SD = 0.553), yet did not claim that their students acquired those skills relatively well (M = 1.44, SD = 0.773). Teachers also stated that their assessment of such skills was weak (M = 1.04, SD = 0.435).

At the level of practice, teachers considered themselves to use peer and teacher feedback frequently in the class (M = 3.54, SD = 0.948), and less frequently invite their students to take initiative when confronted with difficult problem or question (M = 2.79, SD = 0.642). The average mean score for this area was 2.12 on a 5 points scale.

Teachers initiatives at inviting students to choose their own topics for learning (M = 1.42, SD = 0.212), planning steps for a complex task (M = 1.3, SD = 0.178), choosing for themselves examples to study or resources to use (M = 1.30, SD = 0.655) or monitoring their own progress towards the completion of a complex task (M = 1.30, SD = 0.817) were less frequent and all beyond average.

Table 8 presents global connection skills, which showed one of the lowest average mean scores (M = 1.53 on a 5 points scale), teachers' perceptions were different. They reflected a belief that they were not working enough towards equipping their students with such skills (M = 1.12, SD = 0.464). They also believed that their students did not acquire those skills well (M = 1.07, SD = 0.357) and they did not assess those skills well (M = 1.02, SD = 0.882).

Teachers' practices synergized with their perceptions where all practices were rated infrequent, except for learning about other countries or cultures (M = 2.61, SD = 0.954) which was the only one that scored above average on a 5point scale. Teachers believed that they infrequently invited students to use information or ideas that come from people in other countries or cultures (M = 1.36, SD = 0.777), discuss issues related to global interdependency(M = 1.22, SD = 0.736), understand the life experiences of people in cultures besides their own (M = 1.42, SD = 0.657), and Study the geography of distant countries (M = 1.42, SD = 0.657).

Table 9 which presents how frequent teachers addressed local connections and their perceptions toward it, shows the lowest average score amongst the 8

addressed in this study (M = 1.28 on a 5 points scale).

Teachers' practices and perceptions were very harmonic. In fact, on the perception level, teachers stated that they did not do their best to address this sets of skills (M = 1.12, SD = 0.221), and that they were not sure their students did acquire such skills (M = 1.07, SD = 0.212). Additionally, teachers did not claim that they assessed such skills well (M = 1.02, SD = 0.131).

At the level of practice, teachers said they infrequently invited their students to (a) investigate topics or issues that are relevant to their family or community (M = 1.36, SD = 0.338); (b) apply what they are learning to local situations, issues or problems (M = 1.19, SD = 0.878); (c) talk to one or more members of the community about a class project or activity (M = 1.22, SD = 0.626); (d) analyze how different stakeholder groups or community members view an issue (M = 1.30, SD = 0.988); or (e) respond to questions or tasks in a way that weighs the concerns of different community members or groups (M = 1.36, SD = 0.355).

Finally, Table 10 presents results pertaining to the frequency teachers addressed technology skills in their classes. The average mean score was 1.71 on a 5 points scale. Teachers reflected that they did not address such skills effectively in their classes (M = 1.12, SD = 0.654), and that they did not assess such skills enough in their classes (M = 1.02, SD = 0.277). They also manifested that their students did not acquire such skills enough (M = 1.07, SD = 0.744).

At the level of practice, teachers stated that they infrequently invited students to: (a) use technology or the Internet for self-instruction (M = 2.08, SD = 0.667); (b) select appropriate technology tools or resources for completing a task; (c) evaluate the credibility and relevance of online resources (M = 1.02, SD = 0.885); (d) use technology to help them share information (M = 1.89, SD = 0.322); (e) use technology to support team work or collaboration (M = 1.12, SD = 0.111); (f) use technology to interact directly with experts or members of local/global communities (M = M = 1.02, SD = 0.113); and (f) use technology to keep track of their work on extended tasks or assignments (M = 1.19, SD = 0.221). The only practice that scored relatively higher was teachers' initiatives at inviting students to analyze information using technology (M = 3.54, SD = 0.223).

Thus, through their own lenses, teachers considered themselves to be addressing 5 out of the 8 set of skills: critical thinking skills, collaboration skills, communication skills, creativity and innovation skills, and self-direction skills. The skills set they did not address were global connections skills, local connections skills, and technology skills. Teachers also considered their students to be acquiring all those skills sets they were addressing except for self-direction skills, and the other three skills they did not address. Interestingly, teachers stated that they did not assess all the 8 sets of skills, yet they judged whether their students acquired those skills or not.

In addition, the results have shown that none of the average scores per each skills set was above the average on a 5 points scale, with communication skills scoring highest (M = 2.46) and local connections skills scoring lowest (M = 1.28) as Figure 2 suggests.

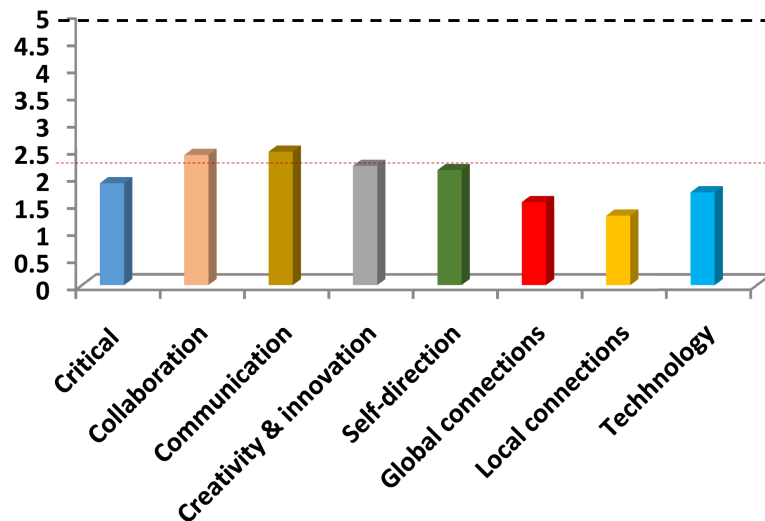**Figure 2.** Average mean scores for 21st century skills sets on a 5 points scale.

5. Discussion

This study offered important findings pertaining to the teaching of 21st century skills within the Lebanese educational context. It has shown that Lebanese public schools closely fit 20th century schools and are way part from being 21st century schools. None of the skills sets acknowledged in the literature of 21st century schools seemed to be fully and frequently addressed as per the teachers themselves. The reality, when assessed through the lens of students, could be even worse. Teachers' perceptions outweighed their personal description of practices. They were positive about themselves addressing critical thinking skills, collaboration skills, communication skills, creativity and innovation skills, and self-direction skills. However, they did not claim to be assessing such skills. This is alarming according to Wagner (2008) who stresses that 21st century education needs to start with assessment; and that what you test is what you get. So declaring that they did not assess such skills at all or poorly, teachers are assuring that 21stcentury skills remain lagging behind in Lebanese schools. In fact, assessment is the driving force behind quality instructional practice, and it stands to reason that if assessment can be upgraded to address 21st century skills, then instructional practices will follow (Wagner, 2008: p. 17). Despite the fact that teachers declared they did not assess well the 21st century skills, they judged their students, considering them to have acquired well 4 out of the 8 skills sets.

On the other hand, teachers' practices were way far from being at the level of 21st century schools as described by Partnership for the 21st century (P21, 2011). Teachers lagged behind in all of the 8 skills sets, and they particularly dawdled in the areas of addressing local connections skills, global connection skills and critical thinking skills. Unfortunately, these sets of skills mark membership within the knowledge economy era (Shal, 2016). In other words, students of the 21st century are still being taught with methods and approaches that closely approximates the previous century.

6. Conclusion

The research findings in the area of 21st century skills indicate the need for transformation of public education. The data collected through the sample that participated in the study, present a dark image of the endeavors of participant Lebanese Public schools in addressing 21st century skills. Schools seem to be submerged in the 20th century practices, refraining from focusing well on critical thinking skills, collaboration skills, communication skills, creativity and innovation skills, self-direction skills, global connections skills, local connections skills, and technology skills. Despite the fact that there exists a variance in the degree those sets of skills were being handled in schools, all practices lagged behind. Teachers thought they were addressing such skills, and that their students indeed acquired those skills; however, their practices in classrooms negated and conflicted with such claims.

Finally, the study has shown that 21st century skills were being weakly assessed in schools. This is quite alerting as the international literature emphasizes that 21st century skills need to be assessed in order to flourish and nourish in schools.

7. Recommendations

This study has shown that Lebanese public schools have not yet moved to the 21st century and are quite far from doing so. As such, several recommendations can be made for policy-makers, teacher training stakeholders, and curriculum designers. First, it is important for policy-makers to recognize the importance of 21st century skills and work towards addressing them in schools. There is a need for reforming instructional practices to address critical thinking skills, collaboration skills, communication skills, creativity and innovation skills, self-direction skills, global connections skills, local connections skills, and technology skills. Students should be involved in intellectually challenging tasks that closely simulates the global communities, so that they can acquire survival skills that would secure them with competitive advantage in the global economy.

Curriculum designers should benefit from this study as well. The curriculum review process should effectively consider 21st century skills. It should also revise assessment procedures that the curriculum relies on both formative and summative. A careful examination of assessment and assessment practices can yield a clear picture of what is taught in classrooms, as well as what student outcomes are expected from a curricular program.

Finally, teacher training stakeholders should make advantage of the findings of this study. They need to design their teacher training programs and professional development in a way they (1) raise teacher awareness around 21st century skills; (2) build their capacities that would allow them to utilize instructional practices that better cater for the acquisition of those skills by students. Teacher preparation programs at the university level can utilize findings to prepare teachers for a profession needing to undergo a transformation.

8. Contribution of this Study, Limitations and Further Research

The study at hand offers both local and international readers insights to address challenges of the 21st century. It sheds light on aspects pertaining to practices of teachers within schools besides their viewpoints regarding such practices. Thus, readers are exposed to one of the most important issues confronting educational systems worldwide: the degree to which schools are equipping students with the skills they need to compete in a knowledge economy.

This study investigated only 68 public schools in Lebanon. This is the main limitation of this study. There are more than 1200 public schools[4] in Lebanon accounting for 30% enrollment of student population in Lebanon[5]. This is opposed to 70% enrolled in private schools across the country. Thus, it is crucial to survey a larger sample in future research studies. Equally important, a qualitative dimension is of great importance to better address this research topic. Findings from a qualitative study would better inform experts involved in educational reform.

The study did not analyze data in terms of teachers' gender, age, educational background and other demographics. It would be useful to address any variances pertaining to such factors.

Additionally, it would be useful to investigate the view point of students regarding teacher practices. Teachers were sort of self-evaluating their practices. As such, potential bias might exist. Thus, students' view point could shed light differently on the investigated issue. Another area for future research includes focusing on professional development programs offered for teachers in schools. It would be very beneficial for educational reform to investigate the scope and quality of training offered to teachers during their service in schools. Finally, an investigation to the curriculum offered to students would be valuable for the same purpose.

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