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Constructive Alignment of the Enhanced Basic Education Curriculum

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Abstract

Introduction: Basic education reform is considered essential for providing Filipino learners with a higher quality of education. It aims to equip graduates with the skills and knowledge needed to either enter the workforce immediately after senior high school or pursue higher education in college.

Objectives: This paper analysed the constructive alignment of the basic education Social Studies subject in the written, implemented, and assessed curriculum and identifies the challenges encountered by the teachers in the teaching and learning process.

Methods: The study made use of a qualitative research approach. Document analyses were utilized to determine the constructive alignment of the written and the implemented curriculum.

Results: The study determined that the 21st-century skill most represented through the learning competencies in the Social Studies curriculum is Information Literacy Skills, utilizing document analyses and interviews. Problem-Solving ranked second and followed by Critical Thinking in the written curriculum. In the implemented curriculum, the 21st-century skill most represented through the learning competencies is Problem-Solving. Critical thinking ranked second and followed by Information Literacy Skills. There are identified issues in the implementation of the 21st Century Skills in Social Studies, which include insufficiency of learning resources, congested curriculum, pedagogy, and characteristics of learners.

Conclusions: The intervention plan centered on the TEIs was formulated to prepare would-be teachers to teach Social Studies in the field and propose an extension project to enhance in-service teachers' skills in 21st instructional planning, pedagogies, and assessment.

Keywords: 21st-century skills, Social Studies, constructive alignment, enhanced basic education

1. Introduction

Basic education reform is seen as critical in giving Filipino learners a higher quality of education. It was envisioned to enable graduates to join the workforce after senior high school or prepare them to enter college. Through the enhanced basic education curriculum, learners were given enough time to master their basic academic skills and participate in co-curricular activities. The curriculum certainly is a vital component in which educational objectives are reflected. The curriculum aims to maximize learners' outcomes while ensuring they have significant educational experiences.

The enhanced basic education curriculum, also known as the K to 12 programs, offers a more excellent solution to the country's problems, particularly in the employment phase, as many Filipino graduates work abroad. These problems include the need for teachers trained in pedagogy, education research, measurement and evaluation, and classroom management (Bala, 2017) to ensure that instructions are delivered meaningfully. The need for a government budget to provide the necessary resources to support

this new curriculum, including junior and senior high school teachers, is also alarming.

The K-12 curriculum was crafted so the country will be at par with the global educational system. It hopes that graduates acquire the same skills as the rest of the world. Among the many skills needed, 21st-century skills are considered imperative. These include analyzing outcomes, problem-solving skills, information literacy, and critical thinking skills. Though 21st-century skills might sound contemporary, some of these skills are not new, just newly vital (Silva, 2009). Vital competencies such as critical thinking and problem-solving have always been necessary.

However, these competencies have gained increasing significance because of the emergent demands of knowledge-based economies (Rotherham & Willingham, 2009). With that, certain skills are specific to the information era we are currently living in. For example, Pedro (2006) opined that due to the exponential growth of Information, any content might become obsolete in a few years; thus, continual updating is one way to meet the demands of the 21st century. It is expedient that everybody needs to be prepared for and convinced of the need to be lifelong learners to keep pace with the evolution of technology (Medel-Aňonuevo et al., 2001).

The learners' achievement might be reflected in the prominence of the national quality assurance activities. In the Philippines, the agency responsible for implementing achievement tests is the National Educational Testing and Research Center, which provides Information vital for formulating educational policies geared towards realizing an empowered and globally competitive Filipino. The said agency revealed that the results of the National Achievement Test were relatively low, especially in Northern Mindanao Region. From the 2016-2017 and 2017-2018 results, the Grade 6 takers obtained 37.75% and 35.64%, respectively. The Grade 10 takers acquired 43.21% and 45.6% in the same years, respectively. The Grade 12 takers earned a general point of 45.26%. All these results show low proficiency. The results created a sense of urgency from the current DepEd administration and other concerned stakeholders.

Escarlos et al. (2016) studied the performance of the 4th year students' NAT in the two (2) Divisions of the Province Bukidnon; results showed that those areas with low MPS are competencies of higher-order thinking skills. Moreover, The Division of Bukidnon has percentage scores of 64.73% in the SY: 2008-2009; 61.46% in SY: 2009-2010; and in the year 2010-2011, 71.58% NAT results showed poor achievement levels across all subjects in elementary based on the BEIS (2011).

Regarding this matter, the researchers aspire to study the constructive alignment of the enhanced basic education curriculum to detect the possible misalignment between the written curriculum, the implemented curriculum, and the assessed curriculum. Constructive alignment is the unity between intended learning outcomes (ILOs), learning and teaching activities (LTAs), assessment tasks (ATs), and Grading. In an educational program, their connections are intrinsically aligned based on the learning activities expressed in the outcomes statements (Biggs & Tang, 2011). It is an approach to curriculum design that optimizes the conditions for learning. The teacher's teaching and the learner's learning activities are directed toward the same goal.

The roles of aligning the school's strategic plans with curricula and graduate attributes are increasingly assigned to teachers and curriculum developers (Oliver, 2013). The international research findings on curriculum design and course delivery call for more emphasis and a clear focus on engaging pedagogies and professional development for teachers. Course designers and administrators should give alignment long overdue attention to ensure proper implementation of constructive alignment in practice (Wang et al., 2013).

Various studies show the analysis of the curriculum alignment in different modalities. Yuran-ozpolat and Bay (2017) carried out a case study model to investigate the alignment levels of teachers to their implemented curriculum. A study by Squires (2012) developed a relationship between taught curriculum, the tested curriculum, and the written curriculum to achieve the same goal. Ziebell and Clarke (2018) studied curriculum alignment using different performance types in the intended, enacted, and assessed curriculum. Hoadley and Sabri (2016) also discussed the role of program curriculum alignment in ensuring students achieve success. They also described the increasing expectations of higher education programs in developing graduate outcomes value in the workplace.

In this light, the concept of the curriculum takes center stage. The general aim of education is to provide an opportunity for the total development of the learners' thoughts, feelings, and conduct so that they will realize

their potential for the good of themselves and society. The government is continuously working hard, ensuring that the state universities, colleges, and the Department of Education continue to provide a mechanism that can develop the learners' intellectual capabilities and skills to contribute to the national economy.

2. Objectives

Determine the constructive alignment of the enhanced basic education on its written and implemented curriculum based on 21st-century skills in Social Studies.

Identify the gaps in the implementation of the K to 12 curriculum.

Formulate an intervention plan based on the identified gaps in implementing the K to 12 curricula.

3. Methods

The study made use of a qualitative research approach. Document analyses were utilized to determine the constructive alignment of the written and the implemented curriculum. Document analysis is a form of qualitative research in which documents are interpreted by the researcher to give voice and meaning to an assessment topic. In this study, a researcher-made matrix was created. Analyzing documents incorporates coding content into themes similar to how focus groups or interview transcripts are analyzed (Bowen, 2009).

On the constructive alignment of the written curriculum, a competency alignment analysis matrix was used to analyze the K-12 curriculum guide of the different NAT subjects assigned to the other HEIs. A matrix of constructive alignment for the implemented curriculum was utilized about the DLP or Daily Lesson Plan. These DLPS were used by the enhanced basic education teachers on the Key Stage Areas, which are grades 3,6,10, and 12, and different NAT subjects, which are English, Filipino, Math, Science, and Social Studies, to determine the alignment of both written and implemented curriculum with the 21st-century skills.

The researchers also utilized prepared questions for the focused group discussion. During the FGD, questions prepared were directed to help analyze challenges, solutions, and recommendations encountered by the teachers in implementing enhanced basic education—questions asked on how the teachers implemented the competencies during the onslaught of the COVID-19 pandemic.

The researchers followed the proper protocol during the data gathering—a Memorandum of Understanding prepared by NEDA – X Regional Development Council and DepEd-X. Upon the agreement, it was forwarded to the Division Offices and cascaded to the teachers where the study was conducted.

With the agreed schedule, the researcher gathered all data needed after a short briefing stating the research's intention. Also, the consent of these teachers was asked. Participants were informed of the study's intention, the source of data collection, participation risks and benefits, voluntary participation and withdrawal, and confidentiality. These procedures and standards safeguarded the participants' rights to informed consent, privacy, anonymity, and confidentiality.

With the consent of the participants, a video camera was used during the focused group discussion, as the recordings were utilized during the transcription stage to gather accurate data. Once consent forms and demographic surveys were collected and reviewed for completeness, the questioning began. The moderator used the prepared script to welcome participants, remind them of the group's purpose, and set ground rules. The focus group moderator was responsible for covering all the prepared questions within the allotted time. The moderator is responsible for getting all participants to talk and fully explain their answers. When the focus group had been completed, the moderator thanked all participants and distributed the certificate of participation. Immediately after all participants left, the researchers debriefed while the recorder was still running and labeled all tapes and notes with the group's date, time, and name.

The study utilized the qualitative form of research. Once the constructive alignment of the written and implemented curriculum has been collected, these were organized through transcribing. Data were grouped according to similar Information and analyzed in a tabular form. The researchers highlighted similar themes, classified and examined the issues and challenges encountered, solutions/actions made, and the recommendations by the teachers in implementing the K-12 curriculum, and were validated through the records from the focused group discussion.

4. Results and Discussion

Constructive Alignment of the Enhanced Basic Education on its Written Curriculum Based on the 21st Century Skills in Social Studies

Based on the table, the highest 21st-century skill being addressed by the competencies in the Key Stage Area is Information Literacy Skills.

TABLE 1. Constructive Alignment of the Enhanced Basic Education on its Written Curriculum Based on the 21st Century Skills in Social Studies

21st Century Skills	Grade Level								
	3			6			10		
	Total	%	QD	Total	%	QD	Total	%	QD
Problem Solving	3	6.12	LR	3	8.57	LR	28	45.16	MR
Information Literacy	14	83.67	HR	29	82.86	HR	29	46.77	MR
Critical Thinking	6	12.24	LR	9	25.71	LR	8	12.90	LR

Legend

1 – 33 - Low Representation (LR)
34 – 66 - Moderate Representation (MR)
67 – 100 - High Representation (HR)

On Problem-Solving Skills

Based on the Learning Plans presented for Grades 3, 6 and 10, and 12, it shows that the most significant number of competencies presented under Problem-Solving could be found in the Analyzing Outcomes across all key stage areas. Also, the Identify Association has the most significant competencies compared to the other 21st-century skills under Problem Solving. The table shows that the number of competencies decreases as it moves further. It also exhibits that the two subskills under problem-solving skills, Executing Strategy/ Methods and Understanding the Problem, should be addressed in classroom instruction in basic education. It connotes that learners cannot fully exercise this life skill, which may hinder them from becoming functionally literate individuals across the different key-stage areas. Furthermore, it is deduced that the concentration of skill development in problem-solving focuses on one sub-skill, which makes other sub-skills abandoned when everything should be equally essential and intensity other sub-skills abandoned when everything should be equal importance intensity.

Information Literacy Skills

The data gathered shows that the Ability to Manage Information has the most significant competency under the Information Literacy Skills across all key stage areas. Classifying Information ranked one among the 21st-century skills, followed by Acknowledges Different Types of Information. It reveals that most areas need competencies that belong to any of the 21st-century skills needed by the learner. It is safe to infer that the distribution of competencies in Information Literacy skills is widely scattered. In specific sub-skills, it can be witnessed that there are no present competencies across all the key stage areas. It means that learners need help to adequately identify valid and invalid Information in the different forms of media around us. This type of skill has to be fully developed as it is a powerful tool in molding functionally literate individuals in society.

On Critical Thinking Skills

It is noted that the Critical Thinking Skills showed that Drawing Only Relevant Information had the greatest number of competencies compared to the other 21st Century Skills across all key stage areas. Also, a very minimal number to number of competencies are present in most of the 21st skills needed by the learners. In other sub-skills, it is evident that no competencies are observed. Most competencies focus only on one sub-skill, which ignores other sub-skills. The highest expectation in attaining the goals of developing higher-order thinking skills among learners is not fully satisfied, as it is witnessed that certain areas in critical thinking skills are not adequately met.

Constructive Alignment of the Enhanced Basic Education on its Implemented Curriculum Based on the 21st Century Skills in Social Studies

TABLE 2. Detailed Summary of 21st Century Skills on Implemented Curriculum tested in the National Achievement Test

21st Century Skills tested in the National	No. of Competencies			
	GRADE 3	GRADE 6	GRADE 10	GRADE 12

Achievement Test				
PROBLEM SOLVING				
A. Analyzing Outcomes (AO)				
1. Identify association	9	9	9	2
2. Identify cause and effect	1	7	6	3
3. Predict outcome	3	0	1	2
B. Executing Strategy/ Methods (ESM)				
1. Identifies and strategy/ method	0	1	2	1
2. Selects appropriate methods to solve problem	2	0	2	1
3. Identifies alternative methods to solve the problem	3	0	3	0
C. Understanding the Problem(UTP)				
1. Generates a hypothesis about the problem	0	1	3	0
2. Modifies hypothesis about the problem	0	0	0	0
3. Generalizes hypothesis to other problems	0	0	1	0
INFORMATION LITERACY				
A. Ability to Manage Information (AMI)				
1. Classify information	12	13	7	2
2. Organize the structure	1	3	0	0
3. Sequence information/ identifies ways of accessing	1	0	0	0
B. Identifying Types of Information (ITI)				
1. Acknowledges different types of information	0	4	2	1
2. presents required information when explicitly asked	1	0	1	4
3. Interprets questions or forms to provide appropriate information	1	0	0	0
C. Ability to Communicate Information (ACI)				
1. Presents information in another medium	3	0	0	2
2. Organizes information in another medium	1	0	0	0
3. Re-organizes or sequences the information	0	0	0	0
CRITICAL THINKING				

A. Analyzing Relevance (AR)				
1. Identifying that there is different information	0	9	1	2
2. Differentiating between relevant and irrelevant information	2	0	2	0
3. Drawing only on relevant information	6	12	10	4
B. Evaluating Sources (ES)				
1. Identifies source of information	1	1	1	0
2. Evaluates credibility of source	0	0	0	0
3. Develops criteria for evaluation of source	0	0	0	0
C. Using evidence to Formulate and Argument				
1. State evidence	0	1	0	0
2. Links evidence to argument	0	0	0	0
3. Draws conclusion based on various evidence	1	6	2	1

Table 2 shows that Identify Association has the most numbered competencies under Problem-Solving compared to the latter skills. In addition, Classify Information under Information Literacy has the most significant number among the three skills. Moreover, Drawing Only on Relevant Information has the most met competencies compared to others under Critical Thinking. In this table, it is observed that in most cases, competencies in 21st-century skills are absent. The teachers' learning plans may be recalibrated to develop 21st-century skills. It also emphasizes the importance of gaining an explicit knowledge of how individual 21st-century skills growth and attainment can be defined, reflecting this in an alignment of curriculum, assessment, and teacher training for classroom practices. (Kim, Care & Ruscelli, 2019a; Kim, Care & Vista, 2019b; Vista, Kim & Care, 2018b).

As students' progress into junior and senior high school, critical thinking, decision-making, and information-gathering skills need to be taught. The individual must also be skilled at evaluating the future consequences of their present actions and the actions of others. They must be able to identify different solutions and assess the impact of their values and those around them. (Hove, 2011). Educated critical thinkers may study the more significant viewpoints rather than accepting Information at face value, significant viewpoints rather than accepting Information at face value.

TABLE 3. Summary of 21st Century Skills on Implemented Curriculum by Key Stage Areas

21st Century Skills	No. of Competencies			
	Grade 3	Grade 6	Grade 10	Grade 12
PROBLEM SOLVING				
A. Analyzing Outcomes (AO)	13	16	16	7
B. Executing Strategy/ Methods (ESM)	5	1	7	2
C. Understanding the Problem(UTP)	0	1	4	0
INFORMATION LITERACY				
A. Ability to Manage Information (AMI)	14	16	7	2
B. Identifying Types of Information (ITI)	2	4	3	5
C. Ability to Communicate Information (ACI)	4	0	0	2

CRITICAL THINKING				
A. Analyzing Relevance (AR)	8	21	13	6
B. Evaluating Sources (ES)	1	1	1	0
C. Using evidence to Formulate and Argument	1	7	2	1

Data collected in Table 3 showed that Analyzing Outcomes under Problem Solving contained the most significant competencies compared to the two skills. Also, in Information Literacy, the Ability to Manage Information has the highest number of competencies of the three skills presented. On Critical Thinking Skills, Analyzing Relevance has the most competencies among the present skills. Most of the 21st Century Skills are met in this table but in the least numbers. A comprehensive review of the construction of teacher-made learning plans and 21st-century skills may be done to avoid disparities in the written and implemented curriculum. The 21st-century skills in the learning plans were only concentrated on certain sub-skills, making it difficult to develop other equally essential sub-skills. It shows that most competencies need to be evident in senior high school. It deviates from the K to 12 curricula about spiral progression. The more the learner accelerates to a higher level, it is presumed that more competencies are developed as a preparation for entering the different exit goals of the enhanced basic education.

Although, it is impossible to foretell just what civilization will be twenty years from now. Also, preparing the learners for any precise set of conditions is impossible. To prepare them for the future means to give them command of themselves; it means to train them in such a way that they will be able to make complete and ready use of all of their capacities, that their eye, ear, and hand will be prepared to command, that their judgment will be capable of grasping the conditions under which it must work and that the executive forces are trained to act economically and efficiently (Gomez & Albrecht, 2014).

Other observations include the fact that, based on the written and implemented curriculum, some competencies specifically address the development of values, indicating that the Social Studies subject emphasizes the transfer of learning to real-world situations. Additionally, the spiral progression advocated by the K to 12 Curriculum is clearly evident, as the competencies progress from simple to complex. In the lower grades, the curriculum focuses on foundational concepts, while the higher grade levels emphasize the development of critical thinking skills.

Gaps and challenges in the implementation of the K to 12 Curriculum

MATRIX 1. Gaps and challenges in the implementation of the K to 12 Curriculum

Gaps and Challenges in the Implementation of the K to 12 Curriculum	**Sample Statements**
Lack of learning resources	Lack of learning resources for both the students and the teachers.
	Insufficient resources used like books and computers.
	Lack of access to the internet by both teachers and the students.
Issues on the Curriculum	The curriculum is congested.
	Too many competencies with very limited time.
	Understanding the curriculum especially if the teacher is not specialized in the subjects being handled.
Reading ability of the learners	Some students are non-readers and belong to frustration readers
	Teachers consider pupils' poor reading ability and comprehension as one of the issues and challenges in the implementation of the k-12 curriculum.
Class interruptions	Some local activities classes are being interrupted thus some of the lessons are not delivered according to its scheduled week/time.
	Extracurricular activities of the school decrease the contact hours with students such as culminating activities and various month celebrations

Multifarious tasks of the teachers	Varied assignments of teachers hamper the delivery of the lessons thus, affecting the attainment of the learning outcomes.
Pedagogical skills of the teachers	Teachers need to have training on strategies to sustain student attention span and engagements.

Teacher Education Institutions play a vital role in implementing basic education curricula. TEIs produce teacher education graduates who will teach in the basic education sector. Thus, the teacher education curriculum needs to integrate the basic education curriculum framework as part of its content in the Social Studies program. In so doing, pre-service teachers are equipped with the trends in the field. Moreover, teaching and learning through 21st-century skills must emphasize the teacher education curriculum. It can be enhanced through field study and internship courses.

There is a need for the Department of Education to revisit its curriculum and evaluate the constructive alignment of teacher-made lesson plans, assessment plans, and other instructional materials. It ensures that the standards set in the curriculum guide are attained at the classroom level. Program monitoring through certifications and accreditation programs should ensure that the teacher education curriculum integrates the basic curriculum framework, content, and pedagogy, which can be distributed across the specialization and professional education courses.

5. Conclusion and Recommendations

In the Social Studies curriculum, the 21st-century skill most represented through the learning competencies is Information Literacy Skills. Problem-Solving ranked second and followed by Critical Thinking in the written curriculum. In the implemented curriculum, the 21st-century skill most represented through the learning competencies is Problem-Solving. Critical thinking ranked second and followed by Information Literacy Skills.

There are identified issues in the implementation of the 21st Century Skills in Social Studies, which include insufficiency of learning resources, congested curriculum, pedagogy, and characteristics of learners. The individual teachers and the school addressed some of these issues. To ensure continuity of learning during the pandemic, the DepEd-identified MELCs were implemented in both public and private schools. An intervention plan centered on the TEIs is formulated to prepare would-be teachers in the teaching of Social Studies in the field and propose an extension project to enhance in-service teachers' skills in 21st instructional planning, pedagogies, and assessment.

Recommendations include suggesting a curriculum review by the Department of Education to enhance competencies that address 21st-century skills. Additionally, a thorough evaluation of daily lesson plans should be conducted to ensure the alignment of objectives, teaching and learning activities, and assessments. Teacher training focused on 21st-century teaching and learning strategies could be incorporated into the In-Service Training programs for educators in the field. Furthermore, Teacher Education Institutions must ensure that the competencies prescribed by DepEd are integrated into the pre-service teacher education curriculum as a minimum requirement. Lastly, research aligning learning outcomes, competencies, teaching and learning activities, and assessments should be conducted using teacher-made instructional materials and teaching observations to provide a more comprehensive understanding of curriculum implementation.

Refrences

[1] Ayaz, M. & Aydoğdu, M. (2008). The importance of problem solving in mathematics curriculum. *e-Journal of New World Sciences Academy. 3*. 537-545.

[2] Bala, C, (2017). Problems Encountered in K to 12 Program. Retrieved from http://www.depedne.net/?page=news&action=details&opt=popup&REFECODE=ARPRO20170700024

[3] BEIS (2011) NAT ES Analysis: Grade VI NAT Result SY: 2009-2010. Department of Education Region X-Northern Mindanao. Philippines

[4] Biggs, J. & Tang, C. (2011).*Teaching for Quality Learning at University* (4th ed.). Maidenhead:McGraw– Hill/Open University Press/Society for Research into Higher Education. *Education,99(4), 355–369*

[5] Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal, 9*(2), 27-40. doi:10.3316/QRJ0902

[6] Escarlos., E., Tan., D., Bermillo., J., Magday., E., and Capuyan., G., (2016). Competency Based Performance of Fourth Year Students in Bukidnon.

[7] Galinsky, E. (2010). Mind in the making: The seven essential life skills every child needs. New York, NY: Harper Collins Publishing.

[8] Gomez, A., & Albrecht, B. (2013). True STEM education. *Technology and Engineering Teacher, 73*(4), 8 Retrieved from https://www.iteea.org/39191.aspx.

[9] Hoadley S. & Sabri J. (2017). *Program Curriculum Alignment: Designing for Success.* In: Wood L., Breyer Y. (eds) Success in Higher Education. Springer, Singapore

[10] Hove, G. (2011). Developing critical thinking skills in the high school English classroom. (Unpublished master's thesis). University of Wisconsin-Stout, WI. Retrieved from https://tinyurl.com/y7dm8blh

[11] Kim, H., Care, E. & Ruscelli, D. (2019a*). A collaborative approach to teaching and assessing 21st Century Skills in Africa*. Brookings. Retrieved from https://www.brookings.edu/blog/education-plus-development/2019/04/25/a-collaborativeapproach-to-teaching-and-assessing-21st-century-skills-in-africa/

[12] Kim, H., Care, E., & Vista, A. (2019b). *Education systems need alignment for teaching and learning 21st Century Skills*. Washington, DC: Brookings. Retrieved from https://www.brookings.edu/blog/education-plus-development/2019/01/30/education-systemsneed-alignment-for-teaching-and-learning-21st-century-skills/

[13] Mendelman, L. (2007). Critical thinking and reading. *Journal of Adolescent and Adult Literacy, 51*(4), 300- 304.

[14] Medel-Añonuevo, C., Ohsako, T. & Mauch, W. (2001). *Revisiting lifelong learning. UNESCO institute for education.* Retrieved May 11, 2020 from http://www.unesco.org/education/uie/pdf/revisitingLLL.pdf

[15] Oliver, B. (2013). Graduate attributes as a focus for institution-wide curriculum renewal: Innovations and challenges. *Higher Education Research & Development, 32*(3), 450– 463.

[16] Paul, R., & Elder, L. (2014). *The Miniature Guide to Critical Thinking: Concepts and Tools*. Tomales, CA: Foundation for Critical Thinking. Retrieved from https://tinyurl.com/y7p5xz84

[17] Pedró, F. (2006). *The new millennium learners: Challenging our views on ICT and learning*, OECD-CERI. Retrieved May 11, 2015 from http://www.oecd.org/edu/ceri/38358359.pdf

[18] Rotherham, A. & Willinham, D. (2009). 21st century skills: The challenges ahead. *Educational Leadership*, *67(*1), 16-21.

[19] Silva, E. (2009). Measuring skills for 21st-century learning. *The Phi Delta Kappan, 90*(9), 630–634.

[20] Solmaz, D. (2017). Relationship between lifelong learning levels and information literacy skills in teacher candidates. *Universal Journal of Educational Research, 5*(6), 939-946

[21] Squires, D. (2012). Curriculum Alignment Research Suggests that Alignment Can Improve Student Achievement. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 28* (4), 129-135.

[22] Taylor, J. (2012, August 14). *Philosophical teaching will get students thinking for themselves again*. The Guardian. Retrieved from https://tinyurl.com/ybsn4de6

[23] Turan-Özpolat, E & Bay, E. (2017). Analyzing the Curriculum Alignment of Teachers. *Universal Journal of Educational Research,* 1161-1181.

[24] Vista, A., Kim, H., & Care, E. (2018a). *Working with countries in Asia to raise awareness of 21st Century Skills in classrooms*. Washington, DC: Brookings. Retrieved from https://www.brookings.edu/blog/education-plus-development/2018/06/14/working-with-countriesin-asia-to-raise-awareness-of-21st-century-skills-in-classrooms/

[25] Wang, X., Su, Y., Cheung, S., Wong, E., & Kwong, T. (2013). An exploration of Biggs'constructive alignment in course design and its impact on students learning approaches. Assessment & Evaluation in Higher Education, 38(4), 477-491. *Evaluation in Higher Education,38*(4), 477–491.

[26] Ziebell, N. & Clarke, D. (2018). Curriculum Alignment: Performance Types in the Intended, Enacted, and Assessed Curriculum in Primary Mathematics and Science Classrooms. *Studia Paedagogica, 23* (2), 176-203. Doi:10.5817/SP2018-2-10