

**III. INTERNATIONAL
EDUCATION AND LEARNING CONFERENCE**

**EDUCATION '19
CONFERENCE PROCEEDINGS**

Özgür Öztürk DAKAM YAYINLARI

May 2019, İstanbul.

www.dakam.org

Firuzaga Mah. Boğazkesen Cad., No:76/8, 34425, Beyoğlu, İstanbul

EDUCATION '19 / III. INTERNATIONAL EDUCATION AND LEARNING CONFERENCE -
CONFERENCE PROCEEDINGS

Cover Design: D/GD (DAKAM Graphic Design)

Print: Metin Copy Plus, Mollafenari Mah., Türkocağı Cad. 3/1, Mahmutpaşa/
İstanbul, Turkey

ISBN: 978-605-81019-6-8

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CONTENTS

- 7 **BUILDING BRIDGES THROUGH BIG IDEAS**
 ZUZANA PECHOVA, DENNISE GACKSTETTER, LISA SAUNDERSON
- 23 **COMPARATIVE STUDY OF DIGITAL LITERACY FRAMEWORKS FOR SCHOOLS IN**
 INDONESIA, TURKEY, AND CANADA
 AGUSTIN ANGGRIANI, ÖZLEM ÇAKMAK, SENA NUR ERDOĞAN,
 MASTURI, TRI HANDOKO
- 37 **IMPORTANCE OF EDUCATIONAL GAMES IN COMPUTER SCIENCE EDUCATION**
 SHORENA ABESADZE, DAVID NOZADZE
- 49 **A RESEARCH ON BLADE RUNNER FILM IN TERMS OF ARCHITECTURAL DESIGN AND**
 FILM DESIGN
 MERVE DOGAN, MUNEVVER SEN DAGGULU
- 51 **GROUP WORK WORKS: INSIGHT FROM GROUP-BASED LEARNING IN TEACHING**
 ENGLISH LANGUAGE USING INNOVATIVE ASSESSMENT
 MOHAMMAD TAMIMI, TAMRIKA KHVITSIASHVILI

BUILDING BRIDGES THROUGH BIG IDEAS

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Abstract

The research paper is designed on bridging theory and practice through planning meaningful lesson plans to actual teaching experiences. The findings are to provide clear reasons for making meaning through the use “big ideas” in art education and thus connecting the process of creating to the personal experience. The findings also offer a look at the abilities of teacher trainees to develop comprehensive arts integrated lesson plans, research and interpret literature and other visual resources, and the transform the information in ways that makes it accessible to elementary school children.

These main objectives are processed and evaluated through action research and qualitative research methods used within a research project of intercultural curriculum collaboration on art education of elementary school teacher trainees that took place in Technical University of Liberec and Utah State University in 2017. The project is devoted to a rarely processed issue of teaching the teacher trainees in the usage of Big Ideas in Art Education. The topic is more often processed in literature designated to enhance teaching practice and pupil’s learning.

Introduction

Art and art education continues to gain attention with the ever changing needs of our society which requires creative and critical thinking skills, along with the multiple intelligence research.

A lack of value and support for the creative arts in learning at a systematic level can perpetuate already low levels of esteem for the creative arts among teachers (Alter, Hays, O’Hara, 2009). Creative arts education professionals often raise an issue of generalist primary education teachers’ capability of realizing the learning potential of the creative arts in schools (Hargreaves, Lamont, Marshal and

Tarrant, 2003, La Pierre and Zimmerman, 1997, Russel-Bowie and Dowson, 2005). One of the reasons may be a low expertise in arts, but also a lack of confidence in teachers: their own artistic ability connects directly to the level of effectiveness they demonstrate as teachers (Welch, 1995). The confidence is something we are born with, or can be developed. It is the pre- service period of preparation for the profession of teachers that should enhance the self-esteem in arts of teacher trainees. Art education theory reinforces the comprehensive approach on human learning, interdisciplinary and integration of subjects. Enduring ideas are very powerful medium to develop lessons of this quality, as broadly discussed in literature and research (Burton, J. M., Horowitz, R., & Abeles, H., 2000, Eisner, 2002, Adams, M., Foutz, S., Luke, J., & Stein, L., 2007). The paper focuses on the topic from the point of view of teacher trainees' education and preparation for the profession of elementary school teacher. Among other goal groups of teachers and pupils, this one seems to be quite overlooked in research field.

To help to fill in the research and to extend the theory resources with real practices, the capacity of teacher trainees to develop quality big-idea based lesson plan is observed, developed and measured within our research study. A literature review combined with action research of a specific art education project gives clear reasons for reinforcing the usage of personal experience into teaching, learning, and instruction.

Methods

Context and setting of the study

Art is a basic part of every culture on the Earth, necessary to human development. There is no official, unique and strict definition of what art is, depending on wide variety of aspects, but is always connected to some human practice of creating perceptible forms expressive of human feelings (Langer, 1996). People, cultures, countries, communities appreciate art for its cognitive value, impact on intellectual level of human life; art formulates a new way of feeling.

As evident from the previous paragraph, art as fundamental part of our lives has its place in education. Art education is the education of feeling (Langer, 1996). This driving force of creation is often neglected by people, who feel so imbued with the idea of feeling as a formless excitement, that the idea of its developing seems odd to them (Langer, 1996). Visual art education is however necessary component of the school educational system. Nevertheless the visual art education has always been implemented inconsciously and its esteem is underestimated in the hierarchy of core subjects in almost every educational system (Eisner, 2002; Kress, 2000). This paradigm changes slowly with the increasing need of creativity as skill conducive to innovation- the key engine of economic growth.

The value of art-based learning is often overlooked because of the social and cultural dominance of literal language and written modes of expression (Alter, Hays, O'Hara, 2009, Eisner, 2002, Kress, 2000). Many studies show that education in and through arts can produce positive learning outcomes, such as developing a greater sense of personal and cultural identity, emotional skills and fostering more creative and imaginative ways of thinking in young children who are more likely to earn higher degrees of education later in life (Bamford, 2006; Eisner, 2002). Because the arts draw on different kinds of intelligences or ways of thinking, it helps

students learn other subjects (Campbell, Townshend, 1997) and strengthen ability to communicate and cooperate effectively (Winner, Goldstein, Vincent-Lacrin, 2013). There is a large research done on the positive outcomes of art education, that could be summarized and categorized in three groups: a, the development of academic or cognitive skills which encompass know-what and know-how in specific subjects (Winner, Cooper, 2000); b, the development of skills in creativity and thinking and; c, the development of social and behavioral skills leading to outcomes such as student motivation, persistence, good communication, emotion, regulation and self-confidence (Winner, Goldstein, Vincent-Lacrin, 2013).

Art is no longer considered to be a school subject leading to drawing skills and knowing the names of painters. These views radically changed in 20th century with the new art education approaches leading to interdisciplinary learning, such as Arts Integration, as a pedagogical methodology that suggests the arts can be used to create and demonstrate knowledge across disciplines (Kennedy Center, 2014), and all curricula integrated approaches to education. In general, schools teach arts in those ways: a, visual arts as a special subject, that does not share common planning times with faculty in other subjects; b, visual arts serves a more dominant discipline in the curriculum, enhances the study of the dominant subject area (e.g. English, History); c, art address a common theme as other subjects, the content of the visual arts lesson bears some relation to students' work in other disciplines (Davis, 1999). A broad general education is necessary for fostering critical thinking, creativity, innovation across disciplines. Innovation is the result of interdisciplinary experiences that fuse arts, social sciences, and humanities into science, technology, engineering, and math. Arts integration provides a deeper and more meaningful experience through interdisciplinary practice that intrinsically fosters creative thinking and innovation (Zakaria, 2015).

Through the emphasis on interdisciplinary learning in education, the need of experience-based learning gains relevancy. Learning experiences gained through practical experience of pupils or students, follow the way humans learn presented by the learning pyramid (Flammini, 2012), that describes the way people learn the best: from the less effective passive teaching method of lecture to participatory teaching method of practice by doing and teaching others. The idea is not new. A number of authors in 1980's emphasize this approach as defined by Comenius in the 17th century (Comenius, 1991) and promotes the role of real life experience in learning process and teaching strategies (Smith, 1987, Eisner, 1988, Clark, Day, Greer, 1987).

There are many approaches to teaching in art education, and hundreds of curricular models. Some of them practice drawing as a form of reproduction of what is seen, interpreted and discovered. Other art activities involve imaginative interpretation. Others are issue based approaches. Art education seeking interdisciplinary learning through real-life experience very often uses the curricular approach of Big Ideas.

Although it is extensively written about the possibility of using Big Ideas within art education, this approach is not limited to visual arts (Kaplan, 2017). It is one of the main characteristics of this approach: the interactivity and interconnectedness. By definition, Big Ideas are "broad, important human issues- are characterized by complexity, ambiguity, contradiction, and multiplicity... big ideas do not completely

explicate an idea, but represent a host of concepts that form the idea" (Walker, 2001, p. 1). Big idea is big if it helps learners make sense of lots of confusing experiences and isolated facts (Wiggins, 2010). These themes are the basis for making meaning in art and are built into every art making challenge. This approach is based on the way people learn: by linking new knowledge with thing we already understand. The human brain learns by making connections. Meaningful connections can be made using conceptual themes in education. Big Ideas link art instruction with prior knowledge, personal experience, classroom curriculum, previous art lesson and the world. This system of adding the idea to knowledge and skills is being called 3D curriculum (Lynn Ericson, 2007). The point of big ideas in teaching is that they can help learners make sense of information in several different contexts across time and place.

Building Bridges through Big Ideas Project

The intercultural curriculum collaboration art education project was created to bridge: a) Cultures and Curriculum through connecting art educators and students in the Czech Republic and United States; b) Making and Meaning by connecting the process of creating to the personal experience with and understanding of a *big idea*; c) Theory and Practice by connecting the development of meaningful lesson plans to actual teaching experiences. The main objectives were defined as follows: 1) To foster intercultural understanding in art education; 2) To develop the knowledge and use of big ideas and essential questions as a foundation for art lesson plans; 3) To improve student understanding about the importance of developing meaningful art making experiences for children. The project was part of an ongoing collaboration of faculty from two universities in sharing current pedagogy and best practices in art education to develop and enhance methods that foster aesthetic development, critical and creative thinking skills, and cultural and social competencies in pre-service teachers.

This project was based on the secondary visual art education curriculum developed by Dennise Gackstetter for the Bachelor of Fine Arts in Art Education teacher preparation program at Utah State University. The degree program is grounded in the perspective that art education is a multi-dimensional humanistic course of study. The program was designed to address the contextual shifts from modernist to postmodernist assumptions about art and the human experience (Stewart & Walker, 2005). The impact of this shift caused the need to develop an expanded and comprehensive curriculum.

The result is a focus on the meaning of an artwork beyond its formal qualities to the relationship between the culture and context in which it was created and through the lens through which it is viewed and interpreted. This curriculum emphasizes the significant role that the visual arts have in cultivating students' understanding of multiculturalism and contemporary visual culture, strengthening social-emotional learning, and developing transferable 21st century skills. Art methods taught in this curriculum are grounded in professional studio art practices and emphasize students' responsibility for their own learning through personal inquiry and expression.

In both the Czech Republic and United States, many elementary schools nation wide do not have visual art classes taught by licensed art teachers. In the

US, only 83% of public elementary schools offer arts instruction as compared to 91% of secondary schools. A schools' use of fulltime, part-time arts specialists, or classroom teachers to provide art instruction varied by school size, region, and student population. In 2009-10 lower percentages of small schools and schools in the western states reported employing full times arts specialists than larger schools or schools in other regions. In the West, 48% of schools relied on classroom teachers for arts instruction. Most often, these teachers do not have any formal training in the arts. Lessons they develop are often prescriptive, unimaginative, and irrelevant to the children's daily life.

As art educators we are concerned about the quality of art lessons that children receive at all levels of their education. We wanted to see if it was possible to bring this curriculum to an elementary teacher preparation arts methods course as a way of introducing the value of the visual arts as an independent subject and as means of developing quality art and interdisciplinary curricula.

This project was conceived as a result of several conversations that occurred during Dr. Pechova's initial visit to Utah State University in October 2015. She came to USU to observe and gain understanding of the pedagogy and methodology of this teacher preparation program and to share her perspectives and best practices. We quickly realized that we had much in common philosophically, and that we shared many concerns about the current state of visual art education particularly at the elementary level.

The USU secondary curriculum proved to be very successful in local and regional middle and high school art programs as implemented by its graduates. Professor Saunderson and Dr. Pechova agreed that it would be valuable to adapt this structure for their respective elementary arts methods courses and to compare outcomes on several objectives.

It was established that Prof. Gackstetter would oversee the adaption of the curriculum and assist with its implementation at both USU by Prof. Saunderson and at TLU by Dr. Pechova. The exact curriculum would be employed at each institution and delivered on the same schedule as could best be aligned considering the academic year schedule and structure from August 2016 through December 2017. Prof. Gackstetter would assist Prof. Saunderson at USU in October 2016, and assist Dr. Pechova at TUL in May 2017. Dr. Pechova and Prof. Saunderson would co-teach at USU in October 2017.

Five big ideas were selected that we all agreed students could successfully interpret with in their own respective cultures. These were: Dreams, Heroes, Play, Identity, and Celebration.

Through visual presentation and lecture, students were introduced to the concept and benefit and process of using big ideas as the foundation for arts and interdisciplinary lessons. Unpacking the concepts of a big (enduring) idea reveals what it is about from multiple perspectives. As a class, the students were taught how to "unpack" the big idea of *community* into a list of several key concepts. Through large group discussion, the key concepts were synthesized and essential questions were formulated. This process brings focus to the lesson. A rationale was collectively written to articulate the importance of the idea to the learners. Students examined a sample lesson plan based on the big idea of *Community*, entitled, "*Where Are You? Where Do You Live?*". They viewed artworks created by

children in response to that lesson plan. Students were introduced to the required lesson plan template and all parts of the lesson plan were explained.

Students were assigned to pairs. Selecting one of the predetermined big ideas they were required to develop a lesson together as a capstone project using the lesson plan template and following the process they had been taught. Requirements for the project included: 1, identify grade level, determine age appropriate skills and objectives, and align the objectives with local art curriculum standards; 2, define arts based subject matter; 3, research and identify relevant visual exemplars; 4, identify specific compositional elements and/or principals to be considered, and pertinent vocabulary; 5, develop effective formative or summative assessment strategies; 6, create their own visual example of the artwork; 7, when possible, actually teach the lesson to a class or group of children; 8, create a visual narrative presentation that tells the story of their learning process; 9, write a personal reflection revealing all they gained from this project.

The study design

The type of research that was used in this study was qualitative research with quantitative elements. As a research study in pedagogy, qualitative data collection methods were mostly employed. This design was determined as well by the number of participants in each study group enrolled in the programs at both participating universities. The main nature of the research design is anchored in participatory action research, a research initiated as a reflective process to produce guidelines for effective practices (Denscombe, 2010, p. 6).

The participative observation, document analysis, and data set analysis were chosen to be able to precede the research problem which has been defined as follows: What are the strategies of teacher trainees in Big Ideas based curriculum planning? The descriptive research problem was formulated as a question to enable analysis and discussion in order to examine methods and abilities of the teacher trainees to employ big ideas through art activities to pupils.

The objective defined as follows is: Are teacher trainees able to design and develop comprehensive arts integrated lesson plan based on big ideas and enduring questions? The expected outcomes were formulated: a) The teacher trainee is able to define main concepts used in the lesson plan and its significance; b) The teacher trainee demonstrates an ability to research and interpret professional resources and transform them into accessible form for pupils; c) The teacher trainee is able to articulate the importance of chosen activity from the educational and developmental point of view.

Population

Two groups of teacher trainees attended the research project.

Twenty students in their second year of university were the teacher trainees at Utah State University, United States of America, School of Teacher Education and Leadership, Department of Elementary Education, within the four year Bachelor of Science study program of Elementary Education. The program is accessible for people with a high school diploma and positive admission results. The Elementary Education Program prepares prospective teachers through seven majors that combine available licensure areas (e.g., Elementary Education, Early

Childhood Education, Special Education, and Deaf Education) in stand-alone, dual, and composite degrees. The program emphasizes informed and responsive teaching developed through extensive field experience. The program of study includes required course in human development, psychology, pedagogy including methodology in language, literature, mathematics, natural and social sciences, and selective courses in art, theatre, music or dance. Teacher preparation for the various Elementary Education majors in the School of Teacher Education and Leadership is called Bridge to Professional Practice (BPP). Students may complete BPP in one of two lanes: the Licensure Lane or the General Studies Lane. Each lane has differing requirements, obligations, and outcomes.

Within the research project, author of the paper - two faculty teachers served as guides, tutors and lectors. The project was implemented in ART 3700 Elementary Art Methods course, which focuses on developing art curricula by formulating objectives for teaching art processes, art history, and art appreciation in the elementary schools. Students will develop basic art skills and gain a rudimentary understanding of art history and art appreciation. Students of the subject were involved in the project after two years of their general university studies, with no prior required experience in the visual arts. In the following studies, teacher trainees will get no further knowledge or skills in visual arts unless they choose to take additional art courses as electives.

Twenty-one students in their second grade of university were the teacher trainees at Technical University of Liberec, Faculty of Education, Department of Primary Education within the 5 year Master's study program of Teacher Training for Primary Education. The program is accessible for people with high school final leaving exam and positive admission results. The teacher trainees gain general education within individual courses in the field of didactics, pedagogy, psychology and specific disciplines of Czech language, literature, mathematics, natural and social sciences, art and music. The courses reflect the multidisciplinary and complex nature of primary school education. The teacher trainees experience a system of reflected teaching practice throughout all five years of study.

Within the research project, author of the paper - the faculty teacher served as a guide, tutor and lector. The project was implemented in the History of Visual Arts course, whose aim is to interconnect the art history knowledge with the educational potential of visual arts and the way if its mediation at elementary school level. Students of the subject were involved in the project after 6 months of their university studies, with precedent experience of one drawing course in the field of visual arts in the first semester. In the following studies, teacher trainees will get knowledge and skills in visual arts through the course of Spatial Creation, Graphics, Painting, Didactics, Natural Materials in Art Education and Play and Experiment in Art Education.

Data collection instruments and procedures

The action research design was set to examine the field of strategies of teacher trainees in building up a specific curriculum. Three main research tools were used.

Document analysis of lesson plans, narratives, and reflections of realizations was used to analyze the ability of teacher trainees to research and interpret resources from literature and science and transmit it to lesson plans in a way accessible

and understandable to target group of elementary school pupils. The lesson plan structure included items of: Title, grade, big Idea and Rationale, Essential Questions, Expected educational outcomes, core standards related to lesson plan, vocabulary, material and equipment, artworks to determine the subject matter, motivation, instructional plan, distribution and clean up, formative and summative assessment, differentiation and reflection. Each lesson plan was accompanied by digital storytelling presenting the main goal of activity and its process.

The method of participative observation was used during the lessons in both institutions. Using the observation form, the ability to grasp the big idea and define clear learning objectives of pupils was observed with the ways the ideas for art making were searched and invented.

Posttest method uses a post-only measurement and was chosen for its qualities of being straightforward and user friendly for respondents- no comparison group. The posttest design included open questions: a) Define the main ideas that lead from concept to subject; b) Why your topic and subject matter is important in terms of pupils' education and development; c) What ensures that the pupils do not do identical artworks. By those three simply defined items, we gained data about the ability of respondents to define main concepts and its importance. Last question show reveals the ability of teacher trainees to set up a lesson plan with hands-on art activity, that offers a space for individual input of pupil and distinctive approach and engagement of each of them that will exhibit understanding of the lesson skills and concepts.

Sampling

The non-probability purposive sampling method was used in the project, because the choice of respondents did not rely on randomization. The respondents were selected on the basis of the intention of the study. The goal group consisted of 41 respondents, 21 Technical University of Liberec Elementary school teacher trainees, 20 Utah State University Elementary school teacher trainees. The characteristics of the respondents are included in the Population section above.

Outline analysis methods

Analysis approach used in the study is inductive, as the major design of the inquiry is qualitative. The data were processed by content analysis of the categorization of verbal and written data for the purpose of classification and summarization in order to search responses for the research question. To assure the credibility-internal validity of the research, member checks and peer-debriefing was used. To give a more detailed and balanced picture of the problematics, the triangulation was included (Alrichter, 2008). The collected data was processed by constant comparison and open coding. The aim of open coding is to create a categorized list of codes. The codes are further processed using an analytical strategy.

Results

The ability of teacher trainees to define main concepts used in the lesson plan and its importance

To be able to define the concept, that is basic block for developing a good lesson plan requires precedent development of a big idea itself. As the Big Ideas were

already pre-selected and chosen at the beginning of the project, the participants did not get a possibility of arbitrary selection of Big Idea. The respondents developed their lesson plans on a groups, in total, 19 lesson plans, narratives, and reflections were made.

Among offered Big Ideas of Dreams, Heroes, Games, Identity, Celebration, the most chosen were Dreams (37% of lesson plans), Identity (32% of lesson plans) and Heroes (21% of lesson plans). During the discussions, we observed reason for the choice of Big Idea.

Within the open coding of the observation record, main categories for the reasons for the choice were defined as follows and sorted descending from most common: a) Simple - the Big Idea is considered as easy to process; b) Width- the Big Idea offers a broad range of possibilities we can choose from; c) Personal - the Big Idea is related to my life experience; d) Targeted - the nature of Big Idea suiting to goal group. The choice shows the effort of respondents to find easy ways to go through the task, which can be seen not just as negative phenomenon, but as an effort to find a way of being able to succeed in the task.

The ability to grasp the big idea was simply measured within the participative observation of a) the quantity of peremptory interventions of teacher during the development of lesson plans needed; b) the width of brainstorming of Big Idea parts and the relevance of rationale and essential questions to Big Idea.

The peremptory interventions are those, demanding an input of teacher in a way, that will either change the nature of a part of lesson plan, either is the main idea of a part of lesson plan. As the Big Ideas in Art Education Approach was new for all participants at the beginning of the project and because of low proficiency of participants given by the grade of their studies, the intervention was expected with all workgroups. The most interventions were on Rationale part: 68% of workgroups more than two, 12% of workgroups two interventions 20% of workgroups one intervention.

To "unpack" a big idea through brainstorming is essential in order to uncover a variety of possible strands, aspects, and behaviors. All of these were taken into consideration and the meaning was examined through multiple perspectives. Observation of the brainstorming phase of the Big Ideas showed the following results. The original (separate items) ideas prevailed over the scaffolded ones (built one on another). Brainstormed lists contained more than 20 items in 60% of workgroups. None of them had less than 12 items listed. Every list contained ideas that did not address the original Big Idea: in 75% of cases it was less than 3 items, the rest contained 3 or 4 of them.

The posttest completed by participants obtained two questions looking for the answers for given part of the research project: 1) Define main concepts (ideas, thoughts) that lead from Big Idea to topic of the lesson, 2) Define the reasons, why the topic is important from two points of view: the education and development of pupils?

10% of respondents were not able to define the main concepts, instead they described their own motivation for the project, topic of big Idea. 25% of respondents kept their answers in the width of Big Idea without processing it further in relation to the topic of the lesson plan. 43% of respondents defined the concepts throughout 2-3 steps of lesson plan development. Only 22% of respondents were able to

include the main ideas within whole process of lesson plan creation.

The analysis of the second question of the posttest has shown the characteristics of the text of respondents. We include relative frequencies of the presence of each of them in number of texts in brackets: The texts do not discuss the importance, but motivation of respondents for the Big Idea (30%) of topic (23%). The texts include only general benefits such as creativity development or fixing the human values (15%). The texts include only the educational value, not the developmental (10%) or vice versa (8%). The texts offer clear and measurable educational and developmental goals (14%).

In total, the pre-service teachers need to practice the development of curriculum planning based on "Big Ideas". They welcome the possibility of consulting with faculty, especially at the stage of synthesizing the rationale after Big Ideas analysis phase. The findings show problems for teacher trainees to relate the ideas to one another.

The ability to research and interpret professional, science resources and transform them into form accessible to children.

The participative observation research method was used to discover the ways the ideas for art making, hands on activities were searched and invented. It is supposed, that teacher trainees in this stage of their studies need to search for sources of ideas for designing the creative part of art lesson, as well, as although the respondents value the arts, it is not related to their idea of future use in the classroom often (Lee, Cawthon, 2015).

Several strategies of respondents were revealed during the lesson plan development. The inability to come up or search for appropriate idea was the case for 28% of respondents. Followed by searching for any already prepared lesson exactly described, step by step plan for art activity (29%), suiting the best to the nature of lesson plan and its objective, searching for chosen technique ideas (16%) that would serve independently designed art activity and searching for inspiration of similar topics in art education practice (17%), that will serve independently designed art activity.

Document analysis method served to get knowledge about the ability of research and interpretation of literature available to the topic and its adjustment to the target group of elementary school children. The need to research was observed at stage of searching for relevancies in Visual Arts and examples of Visual Art related to the topic, to artworks to determine the subject matter.

Excluded lesson plans, that used only examples crafted by respondents, the artworks were selected by four manners: upon visual evidence of common topic, but not related to essential questions, or upon illustrative example of hands on activity result, or without evident relation to any of the parts of lesson plan, but explained by description, or without any evident relevance and with missing explanation. All manners were present without significant frequency variations.

The category of lesson plans using their own examples is seen as most endangering a creative process of art education, because it replaces a definition of a problem, that should stay at the beginning of a lesson. It allows us to use what we learn during the media work experience as frame of reference for the example (Bartel, 2016).

The ability of teacher trainees to articulate the benefits of hands on activity from educational and developmental point of view.

Using the posttest method tool, we investigated the nature of hands on activity from the point of implication for pupils. It is believed that a space for decision making and free will is one of factors in children developing creativity (Stepankova, 2013). It can be assured by offer of choosing the way, from, material, content, place of implementation, interpretation and presentation of the work. The unchanging topics, techniques, using a step by step instructions, demonstrating a sample artwork as result pattern does not allow to search for own input, real live connection, capitalize on specific vision above all build confidence in own creative ability. This is therefore the posttest included the item of Ensuring of not creating identical works.

The results of the analysis have shown these ways the respondents has chosen: a) a personal experience is required to be shown in work (eg. How I met a hero); b) the pupils work separately, follow own written notes made before the creation or make impossible to see others work, so there is no copying; c) the usage of different patterns, for example own body shape, or own color choice is considered as a way of originality guaranteed; d) to stay with the topic, not to specify; e) the offer of multiple material, not to show sample work; f) the example is important, but give an example, that will not be attractive or being unlikely to copy (Topic: What I would dream of? Example: Of buying a new socks); g) announcing competition for the most interesting creation.

There are also responses relying on pupils' imagination as sufficient warranty of not creating identical works.

Through the consultations within the development of lesson plan, we observed the ability of respondents to articulate the input of hands on activity for the kids. The "I can" statements were used to help respondents see the educational benefits from the pupil's perspective.

The categorization upon the protocol of observation shows five main domains, the respondents addressed: 1) work competencies (e.g. follow instructions, can clean-up); 2) soft skills (e.g. share, explain, compare, cooperates); 3) artistic skills (e.g. uses tools, materials, mix, colors); 4) specific knowledge (e.g. definition, explanation); 5) personal development (e.g. tolerance, values). Mostly they stayed with general statements, that needed more specific formulation, to be able to measure the possible implementation success rate.

Discussion

As it is already mentioned, the research field of pre-service teachers is not as mapped as the area of pupils or teachers. It is evident, that university students - future teachers, are struggling with the use of big ideas based curriculum planning is several stages. Here's to accent the position of students of education, not ready educators. Therefore, the concept of learning process is preferable to struggling. The findings presented and synthesized in *Conclusion* chapter offer a fresh insight about real learning processes of elementary school teacher trainees showing the development of curriculum planning in its whole and the paper present real practices of working with the phenomenon of big ideas instruction.

The paper not only presents a problematics of big idea implementation in art

education, it contributes to fill in the gaps in support for the value of creative arts in learning in the bottom-up process of development. Moreover, the respondents are within the literacy and skills developing their artistic and teaching self confidence.

Professional artist use big ideas as means for inspiration to create artworks infused with content and meaning. These ideas can sustain an artist's interest and investigation over an extended period of time. They assist an artist in finding new perspective and seeking insights as they expand boundaries and explore at deep levels. Basing arts curriculum on big ideas gives it validity and real world legitimacy.

In art education, big ideas link academic subject matter to life issue and concerns that can be examined in multiple contexts. Students find their learning more meaningful when it feels personally relevant. They become more active and willing participants in it. This encourages the development of skills and knowledge that are transferable across content areas. This enhances the making of connections and deepens understanding. Students engage in active exploration and reflection, which helps them to make sense of the world.

The paper finding and conclusion offer a way of how to handle the big ideas in pre-service teacher's preparation for the profession of elementary school teacher and henceforward open the field of research interest in variable directions. To observe and analyse the implementation of the curriculum and its learning influence on pupils as well as on teacher trainees would enhance the integrality of our research and would be an inestimable feed back for respondents and researchers. Finally, still some parts of our research has a potential for further examination. The qualitative research methods could show how teacher trainees see the connections between classroom inquiry and art making, teaching and educational change or to see, if the teacher trainees are able to encourage understandings of the connections, between pedagogy and change in developing art curriculum lesson plans.

Conclusions

The research study examined strategies of elementary education teacher trainees to employ big ideas as the foundations for elementary visual art curriculum. The ability of teacher trainees to design comprehensive arts integrated big idea based lesson plans was observed through an action research design including praticum observation, posttest and document analysis. Each case was examined to see if students were capable of defining the big idea and its significance, of researching for relevant and age appropriate visual exemplars and supporting information, of developing open ended learning opportunities that lead students through inquiry to create meaningful connections, and offering valuable learning outcomes within the art lesson and hands on activity.

The main strategies of teacher trainees in big ideas curriculum planning were analyzed, categorized and synthetized into the following main categories.

1. *Assurance* – Teacher trainees are in the process of building self confidence in their ability to create artworks, to teach about art, art history, and visual culture, as well as gaining the knowledge they need for their future work. In this stage it is crucial and valuable to have the possibility of professional support, consultation, and counseling during the whole proces of developing curriculum. This category contains also teacher trainees own strategies of looking for safest way of doing something, as seen for example in the way

they selected the „easy“ big idea.

2. *Reliance* – Teacher trainees have a logically limited scope of both art knowledge and experience. Their own learned strategies, beliefs, values, attitudes, and opinions which were developed through social interaction and other childhood and life experiences has a very strong influence on how these teacher trainees progress. Students require help and professors' intervention in order to be able to proceed in their work. This is absolutely okay and is seen as desirable for its educational potential. These students' success will determine the quality of future profession execution. The reliance is also remarkable in a need of searching for definite, step by step instructions or topics.
3. *Generality* – The latter also follows the category of Generality, describing the tendencies of teacher trainees to stay within broad, all-around borders in their thinking and argumentation. Often there is a lack of deep analysis and synthesis in their work. Statements stay at a general surface level not giving any insight on real, formulated view of the situation described or processed. Our research project recorded the generality strategy for example included only generalized learning benefits of their topic instead of formulating measurable outcomes, or staying with the general argument that pupils' imagination would be sufficient to guarantee originality.
4. *Subjectivity* – It is difficult for teacher trainees to see the phenomenon without a subjective perspective, which is natural and part of professional development. It was much easier for them to formulate motivations for a chosen project rather than to define main concepts and ideas. The subjective approach was significant when making choices. When considering which big idea to employ in a lesson, the students chose a big idea based on their own personal preference rather than its potential for instructional benefit. Their personal artwork was often used as the motivation for the hands on activity of prepared lesson. Reliance on subjectivity may result in the threat of teaching from personal preferences rather than pupils' needs. On the other hand, it accentuates the value of personal involvement and experience.
5. *Incongruency* – a difficult time synthesizing all the information required to design a highly successful arts integrated lesson plan that considered the needs of the pupil in alignment with larger educational goals. Individual sections of the lesson plan were not always congruent with the concept of the selected big idea. The teacher trainees seemed to have difficulty in bringing the depth of their understanding of the big idea seen in the brainstorming unpacking phase to the actual lesson plan. Visual exemplars used to illustrate concepts were not always consistent or clear in their communication of its meaning. This reveals the teacher trainees' own superficial comprehension of the big idea. The consequence of this shallow comprehension were art making activities, though somewhat opened in nature, resulted in prescriptive products.

Acknowledgements

Thanks to Key Action 1 Erasmus + program and Principal Daniel Johnson, faculty, staff, and students at Edith Bowen Laboratory School, Logan, UT, USA.

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COMPARATIVE STUDY OF DIGITAL LITERACY FRAMEWORKS FOR SCHOOLS IN INDONESIA, TURKEY, AND CANADA

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Abstract

This study aims to examine and compare digital literacy frameworks for schools (K-12) in Indonesia, Turkey, and Canada within the context of 21st-century learning framework key points and digital literacy framework elements. Key points of the 21st-century learning framework used for analysis are a mission statement, program principles, and systemic factors. Media literacy, information literacy, learning skills, ICT literacy, as well as communication and collaboration were used for analysis within the context of digital literacy framework elements. This study employed a qualitative method. The data was analyzed by using document review method, in which the documents were selected based on the officiality, originality, and up-to-dateness. The findings indicate that the three countries show several different and equal signs. It is concluded that governments understand the importance of digital literacy in 21st-century learning. All digital literacy framework documents analyzed are generally consistent with each other. However, they have several different terms within the context of 21st-century learning framework key points and digital literacy framework elements. The comparative study of digital literacy frameworks serves as a mirror for other countries to pay more attention to digital literacy through

comprehensive frameworks. The results obtained in the study will contribute to the new studies related to digital literacy framework and view of countries around the world toward digital literacy framework in education.

Keywords: digital literacy, framework, 21st-century skills, Indonesia, Turkey, Canada

Introduction

Digital technologies are now prevalent in many aspects of day-to-day public and private life which make people easy to gain information and knowledge. The ease of information and knowledge retrieval to support the learning process comes with problems to be taken care of such as information overload, negative content, netiquette negligence, and gadget addiction. In order to be literate in today's media-rich environments, young people need to develop knowledge, values and a whole range of critical thinking, communication and information management skills for the digital age through digital literacy (Buckingham, 2006; Rahmah, 2015; Daryanto & Karim, 2017; Handley, 2018). Digital literacy is one of the essential skills of 21st-century learning that will deliver children to mastery of digital skills. A digitally literate person can create, understand and communicate meaning and knowledge. In addition, he or she can use technology strategically to find and evaluate information, connect and collaborate with others, produce and share original content, use the internet and technology tools, and continually developed to be a digitally skilled and critical citizen (Erstad, 2007; Futurelab, 2010; Koltay, 2011).

Digital skills are related to 21st-century skills, and the development of this skill is a part of which required curriculum mapping of digital literacies (Hinrichsen & Coombs, 2013; van Laar et al., 2017). In this regard, many countries in the world are starting to put serious attention to digital literacy matter by developing digital literacy frameworks for schools within 21st-century learning. Each country develops a digital literacy framework, but the structure is different from each other. In this study, various documents of digital literacy frameworks from three different countries have been examined and compared. The three countries were located on a different continent, namely Indonesia in Southeast Asia, Turkey in Eurasia, and Canada in North America. The content of the documents was discussed from the 21st-century learning framework and digital literacy concept for schools.

The present study aims to fill some of the gaps revealed in the literature regarding the limited research about the comparative study of digital literacy frameworks for school. By this comparative study, other countries which do not yet put serious attention to the digital literacy can understand the work criteria in making a framework that is in line with 21st-century learning and the concept of digital literacy itself.

Methods

In this study, a "descriptive approach" and "horizontal approach" from comparative education approaches and descriptive survey model from qualitative research models were used. In the horizontal approach, dimensions of digital literacy frameworks are handled separately. In the descriptive approach, similarities and differences are compared by examining the related literature. Primary sources

in this study were ten documents of digital literacy frameworks for schools in Indonesia, Turkey, and Canada.

Moreover, national and international articles, book chapters and theses were examined, and the information given on the official web pages were used. The data of the study were analyzed with the document analysis method. First of all, the literature was reviewed in order to make an inference regarding under what titles the comparison would be made. It was then checked whether the related documents were official, original and up-to-date sources. Through the data obtained, the content of digital literacy frameworks from the three countries was compared from the perspective of the framework for 21st-century learning and digital literacy concept at the school level.

Digital Literacy Framework in Indonesia

The Republic of Indonesia is a unitary country in the Southeast Asia region which has 262 million people. More than 50% or around 143 million people have been connected to the internet throughout 2017. Of the 143 million Indonesians who have been connected to the internet, there is around 62.5 million middle to lower class people who use the internet, while the upper class is 2.8 million people (APJII, 2018). Mobile social media use is growing faster, with global monthly active users number up 30% year-on-year, reaching more than 2.5 billion. Indonesia boasts the 3rd highest growth in that category, up 39% since January 2016 (Digital Global Overview, 2018). Based on data from January 1 until September 18, 2017, the total complaints from the public and agencies regarding negative content reached 42,821 complaints. Where the first position was occupied by complaints about racial/hate speech (13,829), then followed by pornography complaints (13,120), and hoaxes (6,973 complaints). The total blocking of the site until September 18 has reached 782,316 sites (Indonesian Ministry of Communication and Information, 2017). Therefore, the government released *Gerakan Literasi Nasional* or National Literacy Movement to overcome this problem.

National Literacy Movement has been implemented since 2016 by Ministry of Education and Culture. It focuses on six basic literacies; one of them is digital literacy at schools. There are five points of digital literacy movement strategy at schools: (1) Strengthening the capacity of facilitators; (2) Increasing the amount and variety of quality learning resource; (3) Expansion of access to quality learning resources and coverage of study participants; (4) Increasing public engagement; and (5) Strengthening governance (Indonesian Ministry of Education and Culture, 2017).

Similarly, Indonesian Ministry of Information and Communication also launched *Gerakan Nasional Literasi Digital* or National Digital Literacy Movement with popular hashtag #SiBerkreasi. There are four main programs of the literacy movement commenced by Ministry of Information and Communication: (1) Curriculum development that encourages the introduction of digital literacy content in pre-school, elementary, middle and high school, and for civil servants; (2) Collaboration engagement that seeks massive and broad digital knowledge and ethics in popular and interesting formats; (3) Community empowerment that facilitating the existence and resources of volunteer communities and positive content ambassadors; and (5) Cyber governance that enhances understanding, assessment and policy

advocacy related to internet governance (Indonesian Ministry of Information and Communication, 2018).

In developing digital literacy, Indonesian Government uses the principle of Mayes and Fowler (2006). There are three levels of digital literacy according to Mayes and Fowler. First, digital competencies that include skills, concepts, approaches, and behaviors. Second, the use of digital that refers to the application of digital competencies related to a particular context. Third, digital transformation that requires creativity and innovation in the digital world.

The focus of the digital literacy movement is not mere mastering the technology of society, but more on the ethics of its use (Jatnika, 2017). National Literacy Movement actors are not dominated by the Ministry of Education and Culture, but there is also stakeholders' role, such as literacy activists, academicians, professional organizations, businessmen, and other ministries/ institutions. The involvement of the education ecosystem from concept compilation, policies, provision of supporting materials, to literacy campaigns is significant so that policies are implemented in line with expectations and community needs. In Indonesia, stakeholders of education are called *Tri Pusat Pendidikan*. This term was initiated by Indonesian philosopher and Father of Education, Ki Hajar Dewantara. He explained that the character building, especially among children is effectively through three components, namely family, school and community environment (Kurniawan, 2015). In Indonesia's digital literacy framework, it is clearly explained that digital literacy in Indonesia is applied through those three components. Its goal is to strengthen these three components to support character building through the implementation of digital literacy for children.

Digital Literacy Framework in Turkey

The Republic of Turkey is a unitary country in the Eurasian region with around 80 million inhabitants. In 2017, computer and internet usage was 56.6%, while 66.8% was people in the age of 16-74 year old. Computer and internet usage rates were 65.7% for males and 47.7% for females. Males in 16-74 age group was 75.1% in 16-74 age group, while it was 58.7% in females from the same age group. Eight of every ten households in Turkey have access to the Internet. In Turkey, 67% of the population of 54 billion internet users have been connected to mobile phones. While, 36% of internet users are connected to the internet from desktop computers or laptops, 62% from mobile devices and 3% from tablets (TÜİK, 2018). With the increasingly rapid use of technology devices, to integrate it through education, the Turkish government released *Eğitimde Fatih Projesi* or also known as FATİH Project.

FATİH Project (Movement of Enhancing Opportunities and Improving Technology Project) was started in 2010. In this project, Ministry of National Education (MoNE) in coordination with Ministry of Transportation aimed to equip K-12 schools with ICTs across the country. 'Technology-Enhanced Classrooms' (TEC) or 'Smart Classrooms' (SC) is valued at 8 billion\$ and with tablet computers for every student from grade 5 to 12, interactive white boards and internet connection in every class. Supplementary to this, the Ministry of Education has set up an Educational Informatics Network (in Turkish: *Eğitim Bilişim Ağı* or EBA), a website to be used in the courses. Besides, some schools have game-based block coding courses. (Gök & Yildirim, 2015; Doğan, 2016; Ekşi & Yeşilyurt, 2018; Turkish Government,

2019). FATİH Project has been initiated for effective use of the lectures in order to develop opportunities in education and training. Success factors of this project are based on 5 fundamental principles: (1) Accessibility (to be able to provide services from any place, regardless of time and means); (2) Efficiency (to be able to offer target-oriented, more efficient working environments and development areas); (3) Equality of opportunity (to ensure that all stakeholders have access to the best service); (4) Measurability (to ensure that the process and the results can be measured accurately, to ensure that the development is evaluated correctly, and to give proper feedback accordingly); (5) Quality (measure the quality of all training in a measurable way).

Additionally, to deal with the digital age, on October 23, 2018, Minister of National Education and President announced the 2023 Education Vision to the public. This program was proposed with new programs such as special training designed for parents on digital measurement assessment applications; having partnership with TRT (Turkey Radio and Television Corporation) in creating cartoon animation; enables students to acquire original productions written in a foreign language; education information network; innovative digital resources will be provided from national and international publishers to expand the content pool on EBA; all digital contents will be designed in the context of themes in which students' listening, speaking, reading and writing language skills are fully developed; creating video games, songs, interactive activities, interactive games and stories for grade 4; teachers will have the opportunity to use digital resources; teachers who develop digital learning materials will be supported and encouraged, and so on.

With the participation of different actors and institutions from the Turkish education system, an ecosystem for development of digital education and teaching contents will be created. A National Digital Contents Archive will be created, which will make available digital education and teaching materials at determined quality standards. In the term of developing content and teacher training, there are several points such as: (1) The concepts such as safe internet, cyber security, cyber bullying, and data security will be introduced in primary education courses; (2) Computer-free face-to-face in-service training programs aimed at teaching algorithmic thinking will be organized for class teachers; (3) Coding and 3D design activities will be carried out together with students in order to equip them with IT-based production skills; (4) Readily available content videos will be produced, and workshops will be organized so that the teachers can improve their skills in digital education; and (5) Face-to-face workshop training sessions will be organized for teachers of mathematics, natural sciences, physics, chemistry, biology, Turkish, social sciences, and geography in subjects such as interdisciplinary project development, 3D design, and smart devices (Turkish Government, 2019). By such innovations, Turkish Government commits to prepare the nation's children for today's information-intensive and competitive world. Under the new Presidential System of Government, the approach of the Ministry of National Education is just, human-centered, teacher-based and flexible. It is universal in its concepts and local in its practice. In addition, it is also skill-oriented and mindset-focused, sustainable, and accountable.

Digital Literacy Framework in Canada

Dominion of Canada is a federal parliamentary democracy and a constitutional monarchy that lies in the North American region with a population of 38 million people. The survey shows that 86% of Canadians have a broadband internet connection at home, 74% of Canadians spend at least 3-4 hours online per day, 62% of Canadians prefer making online purchases from Canadian businesses, and 33% of Canadians have experienced or witnessed cyberbullying when using the internet. While 74% of Canadians are concerned about the spread of “fake news” online, among 90% of Canadian parents are concerned about cyberbullying. Besides, there are 29% organizations in Canada that specialize in cyberbullying, one of them is MediaSmarts (Digital Global Overview, 2018).

Media Smarts, Canada’s Centre for Digital and Media Literacy is a website with a wealth of resources on this topic including research, information for parents, teacher tools and a blog. In 2016, they released *“Use, Understand & Create: A Digital Literacy Framework for Canadian Schools (K-12)”* that has links to lessons organized by grade level divisions and address these six key areas of digital literacy: (1) Ethics and empathy; (2) Privacy and security; (3) Community engagement; (3) Digital health; (4) Consumer awareness; (5) Finding and verifying; and (6) Making and remixing.

Canada is a federal country that each province have the authority to create a digital literacy framework. Four provinces that have official documents related to the digital literacy framework for schools are Quebec, British Columbia, Alberta, and Saskatchewan. Other provinces such as New Brunswick are still underway developing a framework with the CyberNB program. Ontario has *“Paying Attention to Literacy K-12”*, and Nova Scotia has *“Nova Scotia Provincial Literacy Strategy”* document, but both are still not focused on digital literacy.

“Plan d’action numérique en éducation et en enseignement supérieur” or *“Digital Action Plan for Education and Higher Education”* was released by Ministry of Education, Recreation, And Sports of Quebec. This framework has three orientations: (1) Supporting the development of the digital skills of young people and adults; (2) Making use of digital technologies to enhance teaching and learning practices; and (3) Creating an environment conducive to the development of digital technologies.

“BC’s Digital Literacy Framework” issued by Ministry of Education of British Columbia was introduced in 2015 for the first time. The framework provides a more definite and detailed sense of what digitally literate students should understand and be able to do at various levels of their development through 6 key points: (1) Research and information literacy; (2) Critical thinking, problem-solving, and decision making; (3) Creativity and innovation; (4) Digital citizenship; (5) Communication and collaboration; and (6) Technology operations and concepts.

In 2013, the Ministry of Education Alberta released *“Learning and Technology Policy Framework”*. This policy framework was co-created through a partnership between Alberta Education and the School Technology Advisory Committee (STAC) as an updated version of the 2004 document. While technology has changed, many of the principles identified in the original policy framework are still valid. The goal in this process was to refine the policy to reflect the current state of technology, yet keep it flexible enough so that it stays current. The key points of the framework

are: (1) Student-centered learning; (2) Research and innovation; (3) Professional learning; (4) Leadership; and (5) Access, infrastructure, and digital learning environments.

Ministry of Education of Saskatchewan issued “*Technology in Education Framework: Teaching and Learning, Administrative Operations, Provincial Infrastructure*” document in 2013. The framework contains four key points: (1) Principles which guided the development of the framework; (2) Expectations which describe stakeholder commitments; (3) Outcomes which are attainable through particular strategies; and (4) Roles and related responsibilities for educational stakeholders. In addition, “*Digital Citizenship Education in Saskatchewan Schools*” document was released by the Ministry of Education of Saskatchewan in 2015. This framework intends to support students at all grade levels and through all subjects to learn appropriate and responsible online behavior through the integration of digital citizenship instruction. It contains Ribble’s nine elements of digital citizenship: (1) Digital etiquette; (2) Digital access; (3) Digital law; (4) Digital communication; (5) Digital literacy; (6) Digital commerce; (7) Digital rights and responsibilities; (8) Digital health and wellness; and (9) Digital security.

One of strategies for keeping people safe online should build on the increasing technological awareness (Tynes, 2007). All existed Canadian digital literacy frameworks are issued to ensure young Canadians being able to make good choices about privacy, ethics, safety, and verifying information when they are using digital media, and to prepare them to be active and engaged digital citizens.

Table 1. Overview of Digital Literacy Frameworks in Indonesia, Turkey, and Canada

Country		Framework
Indonesia		<ul style="list-style-type: none"> • <i>Gerakan Literasi Nasional</i> (National Literacy Movement) • <i>Gerakan Nasional Literasi Digital</i> (Digital Literacy National Movement)
Turkey		<ul style="list-style-type: none"> • <i>Eğitimde Fatih Projesi</i> (Fatih Project) • <i>2023 Eğitim Vizyonu</i> (2023 Education Vision)
Canada	Federal	<ul style="list-style-type: none"> • Use, Understand & Create: A Digital Literacy Framework for Canadian Schools (K-12)
	Quebec	<ul style="list-style-type: none"> • Digital Action Plan for Education and Higher Education
	British Columbia	<ul style="list-style-type: none"> • BC’s Digital Literacy Framework
	Alberta	<ul style="list-style-type: none"> • Learning and Technology Policy Framework
	Saskatchewan	<ul style="list-style-type: none"> • Technology in Education Framework: Teaching and Learning, Administrative Operations, Provincial Infrastructure • Digital Citizenship Education in Saskatchewan Schools

Document Analysis from the Perspective of 21st Century Learning

Dede (2010) compared several well-known frameworks for 21st-century learning frameworks including P21, enGauge, OECD, NLC, LEAP, ISTE, NETS-S, ETS, Jenkins, and resulted in 6 key points of 21st-century learning. Three possible key points were selected to analyze the digital literacy framework for schools in Indonesia, Turkey, and Canada.

Table 2. Digital Literacy Frameworks from the Perspective of 21st Century Learning

Key Point	Elements
Mission Statement	<ul style="list-style-type: none"> • Outcome oriented • Specific focus on 21st-century outcomes and teaching for understanding and transfer • Known by key stakeholders
Learning Principle	<ul style="list-style-type: none"> • The explicit conception of learning based on the latest research and best practices • Cognitive/constructivist view of learning
Systemic Factors	<ul style="list-style-type: none"> • Long term commitment to the implementation • All significant elements of the educational system (mission, learning principles, policies, procedures, resource allocation, curriculum and staff development practices, and so on) aligned in support of the outcomes • Supportive government guidelines, financial incentives, and content standards for implementation of the outcomes and a teaching-for-understanding approach

Key Point 1: Mission Statement

The digital literacy framework analyzed delineates indication of outcome-oriented. All frameworks from the three countries contain goal/outcome/vision to establish a vision for technology-supported at schools. Quebec digital literacy framework includes 33 measures that are more detailed than other frameworks. In the element of specific focus on 21st-century outcomes and teaching for understanding and transfer, they agree that the digital literacy framework is designed to meet the demands of 21st-century learning that was full of technological advancements. This is especially evident in terms of "creativity, "innovation," "critical thinking," "problem-solving," "communication," "collaboration" (P21, 2009). In the element of stakeholders, British Columbia does not appear to affirm the existence of the words "partnership" or "stakeholders" within the document of digital literacy framework.

Key Point 2: Learning Principle

The digital literacy frameworks analyzed show the conception of learning based on the latest research and best practices explicitly. All frameworks refer to the results of most recent research and well-known concepts which are represented in terms

of “21st-century learning/ skills”, “ICT,” “digital,” and “technology-based learning.” In general, cognitive/constructivist view of learning in all frameworks is considered. Since knowledge is actively constructed, learning is presented as a process of active discovery. The role of the instructor is not to drill knowledge into students through consistent repetition or to goad them into learning through carefully employed rewards and punishments. Instead, the role of the teacher is to facilitate discovery by providing the necessary resources and by guiding the learners as they become available to attempt to assimilate new knowledge to old and to modify the former to accommodate the new.

Key Point 3: Systemic Factors

On the points of “long term commitment to the implementation,” the three countries show a strong commitment to implement it seriously. Indonesia prepares to gradually introduce digital literacy through curriculum; Turkey released a new framework called 2023 Education Vision; MediaSmarts is always up-to-date on digital literacy matters; while Quebec, British Columbia, Saskatchewan show long-term commitment with terms of “support,” “supervision,” or “monitoring.” All frameworks show that there are major elements of educational systems aligned in support of the outcomes and the full support of the government in terms of guidelines, financial incentives, and content standards for implementation of results and teaching-understanding approaches, even which MediaSmarts is a non-profit organization also received grants from Canadian Government.

Document Analysis from the Perspective of Digital Literacy Concept

JISC (2014) developed a digital literacy model consisting of 7 key elements. Five of them are possibly used to analyze digital frameworks at the school level, namely: media literacy, information literacy, learning skills, ICT literacy, communication, and collaboration. Some definitions of each element are adopted from ISTE (2016).

Table 3. Digital Literacy Frameworks from the Perspective of Digital Literacy Concept (JISC, 2014; ISTE, 2016)

Key Elements	Definition
Media Literacy	<ul style="list-style-type: none"> Critically read, creatively produce, access, analyze, evaluate, create and participate with messages in a variety of forms — from print to video to the internet
Information Literacy	<ul style="list-style-type: none"> Find, interpret, evaluate, manage, and share information
Learning Skills	<ul style="list-style-type: none"> Study and learn effectively in technology-rich environments
ICT Literacy	<ul style="list-style-type: none"> Adopt, adapt and use digital devices, application, and services
Communication and Collaboration	<ul style="list-style-type: none"> Use digital media and environments to communicate and work collaboratively

Key Element 1: Media Literacy

The world of the 21st-century is controlled by media and technology, where people are more connected with

each other. The purpose of media literacy is to gain an ability of comprehending some of the strange features, needs and problems of media, and to guide students towards independent critical analyses of the media (Kellner & Share, 2007; Bektaş, 2009; Recepoğlu, 2015). In general, all frameworks analyzed contain terms that imply students to critically read, creatively produce, access, analyze, evaluate, create and participate in messages in a variety of forms - from print to video to the internet.

Key Element 2: Information Literacy

Information literacy implies the knowledge of how to find, interpret, evaluate, manage, and share information safely. The most obvious factor necessitating the need for information literacy is the sheer volume of information available and the complexity of its delivery mechanisms (Boekhorst & Britz, 2004; Bradley, 2013). All frameworks analyzed direct students to find and use information independently or with aid of intermediaries, retrieving, evaluating, disseminating information to acquire or extend knowledge safely. The finding shows that the terms such as "internet safety," "digital citizenship," "cyberbullying" are found at all digital literacy documents observed.

Key Element 3: Learning Skills

Technology is an integral part of 21st-century learning which can perform several key functions in the change process, including opening up new opportunities that improve teaching and learning (Groff & Mouza, 2008; Littlejohn et al, 2010; Groff, 2013). All frameworks from the three countries delineate that they support students to study and learn effectively in technology-rich environments, especially in a classroom environment. This is related to 21st-century learning that requires schools to use technology devices in enhancing knowledge.

Key Element 4: ICT Literacy

The acceleration of digital technology development in the 21st-century has required people to be equipped with skills and ICT literacy that points to the ability to adopt, adapt and use digital devices, application, and services (Black, 2009; JISC, 2014; ISTE, 2016). In all frameworks from the three countries, ICT literacy is very visible. In other words, ICT literacy is the dominant element in all frameworks. Students can adopt, adapt and use digital devices, applications, and services are the most critical things in digital literacy outcomes.

Key Element 5: Communication and Collaboration

Communication and collaboration skills have become a 21st-century trend. They suggest away of dealing with people which respects and highlights individual group members' abilities and contributions. There are key elements of these skills, such as: positive interdependence, considerable interaction, individual accountability, social skills and group processing (Laal & Laal, 2012; Johnson et al, 2014). Within digital literacy context, students use digital media and environments to communicate

and work collaboratively. The element of communication and collaboration are the second dominant thing in all frameworks. Communication and collaboration as one of the 21st-century skill skills are important parts of education in this era. All frameworks from the three countries use the terms “communication” and “collaboration,” and some use the term “student-centered.”

Conclusion

In this paper, digital literacy frameworks for schools in Indonesia, Turkey, and Canada from the perspective of a framework for 21st-century learning and digital literacy concept at school level (K-12) has been examined and compared. As a result of the analysis made according to the elements of those two perspectives, the following conclusions and findings regarding digital literacy frameworks for schools in three countries are drawn by the authors as follow:

- The three countries recognize the importance of preparing their people for the challenges of the digital age in 21st-century through digital literacy frameworks for school.
- It is determined that their outcomes are almost the same, but sometimes they use different terms for it.
- All countries include key elements of digital literacy concept in their digital literacy framework.
- Stakeholders in each country involve different parties, but all who include stakeholders in the framework include schools/ teachers, family/ parents, and the government.
- All frameworks from the three countries have their characteristics, tailored to the circumstances of the students in their country. But in developing the framework, there is a country that tends to be detailed and measurable, and some just write the important concepts.
- All digital literacy frameworks documents analyzed are generally consistent with each other.

The research is limited to the analysis of digital literacy frameworks from the perspective of the framework for 21st-century learning and the concept of digital literacy at school level (K-12). The comparative study of digital literacy frameworks serves as a mirror for other countries to pay more attention to digital literacy through comprehensive frameworks. The results obtained in the study will contribute to the new studies related to digital literacy frameworks and view of countries around the world toward digital literacy framework in education.

Acknowledgment

This study was financially supported by *Lembaga Pengelola Dana Pendidikan* (Indonesia Endowment Fund for Education), Ministry of Finance of the Republic of Indonesia. We gratefully acknowledge the support and generosity of them, without which the present study could not have been completed.

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IMPORTANCE OF EDUCATIONAL GAMES IN COMPUTER SCIENCE EDUCATION

SHORENA ABESADZE
DAVID NOZADZE.

Abstract

Nowadays students increasingly demand to use innovative, motivating and engaging methods in teaching and learning process that are relevant to their lifestyles of using computers every day and anywhere. One of the many possible solutions to satisfy their demand is the use of Computer Educational Games in learning process.

Different studies have found that Educational Computer Games provide students' motivation, fun and high level of engagement in learning process. Studies also found that using Educational Games teachers are able to involve all students in learning process and develop 21st century skills to them. According to these results, it is worth studying how games can be adapted into our teaching and learning strategies in order to develop students' motivation and engagement, which is critical in successful learning.

On the other hand, Computer Science becomes a significant part of the school curriculum and many schools are trying to introduce it as a compulsory subject. However, programing, the main part of the Computer Science is considered as a very difficult topic to teach to students. When parents hear "Computer Science", they think that it is a difficult subject for their children, and it is not necessary to teach programming in primary classes. They also think that this is not the subject for all students – only gifted students can straggle with programming task. How to overcome this problem and to convince everyone that learning programming helps students in the development of very important skills? Mathematics is difficult subject as well, but everybody learns it.

By linking these two viewpoints, we started to think about the question: Is it possible to make programming lessons more interesting and understandable for

students using Educational Computer Games?

We investigated that there are at least two different approaches to game-based learning for programming education: in the first one the main idea is that students learn to program by playing tailor-made educational or custom games that are designed for learning programming concepts in one or several programming languages. The second approach is based on the idea that students design and build their own computer games - students want to create the game by themselves with their design, rules and strategies and in the process of creating the game they learn the programming.

We also studied game technology (Gamification in education): how to create an engaging, interesting, challenging educational game? One more issue to take into consideration is an unchangeable content of the game; usually, students love the games, but when they solve all problems, the game becomes boring and not interesting. According to our experience, if the game includes editor section, where teacher can easily add new topics, tasks, and questions and update old database, students continue to play game. Creating such games, using game design technology, allows students to learn coding by playing, reading the learning materials and assess their own performance.

Finally, the design and development of educational games are a comprehensive and complex process. Teach students to design their own games is much more difficult but very interesting and useful experience for student and especially for teachers. In order to prove these opinions, we have adopted both methods in our school and achieved a successful result: students are learning programming and are creating educational games for different users.

Keywords: Computer Science education, Educational Games, PBL, Programming, Game Design

Introduction

"I have always enjoyed playing games. My family regularly plays board games when we get together, I play games with my own children almost every day, and I have used a wide variety of games as instructional tools in my classroom. I have never had a student ask, "Why are we playing games?" Instead, students usually ask, "Can we play this again soon?" (Stathakis, 2013) Do you agree with this idea?

I agree.

Using games in education process is very interesting process and different questions may arise: "Why do students play on the lesson? Is it possible to teach different subjects using games? Is it possible to learn during the play?" I think it is important to highlight the value of educational games for students.

During recent years there has been growing interest in the idea that Computer games can be used to increase students' curiosity, involvement in learning process and motivation. They inspire independence and self-determination of learner. Educational games create innovative thinking abilities, provide diversity in teaching methods and help learners/players to discuss different ideas, strategies how to win game.

For these encouraging and important reasons, we decided to study the role of educational games in the modern subject, such as Computer Science.

Use of Educational Games

The use of games in educational contexts is an old tradition where important skills and knowledge have been demonstrated and practiced for thousands of years by playing well-known board games like Chess and Kalaha (Mancala). If we start the research, we will soon create a list of games that children play in different countries with great pleasure and many of them will be educational. And this list will increase repeatedly.

Discussions on pedagogical and methodological aspects of playing games for teaching and learning started in the 1970s based on ideas by the pedagogues Jean Piaget and Lev Vygotsky. At the beginning of 1980s Thomas Malone analysed and described why it is fun and inspiring to play computer games. Some years later Malone discussed his results with his colleague Mark Lepper and together they defined the components of the taxonomy of essential motivation (Frost, Joe L., Pei-San Brown, John A. Sutterby, Candra D. Thornton, 2014).

“Various cognitive skills are increased by make-believe play: attention, memory, logical reasoning, language and literacy, imagination, creativity, reflecting and taking on experiences. For instance, one-way logic questions would be given to small groups of students to work cooperatively to solve.” (Barbara Blake and Tandra Pope , 2008)

Jean Piaget developed a theory of three levels of cognitive play (McLeod, 2018). He sought the most interesting category of play was games with rules emerging in children between the ages of 7 and 12. Lev Vygotsky, however, believed that much younger children were able to follow rules in game, because they engaged in role play and pretend play. Preschool children are also able to participate in simple games with rules, such as matching games and board games and so on.

When children create their own games, they recognize the need to determine the rules for playing the game as well as the rules for social interaction as they play their game. They can change an existing game and set their own rules, or the game might be a game of competition in a motor skill, such as jumping, with rules to determine a winner etc.

As children develop the concept and content of their game, they need to exchange with each other to make the game enjoyable for all players with various skill levels. Adjusting the rules to make the play fair for everyone makes the game more fun.

We decided to make a survey to find out the reasons why students love to play; here are questions:

- Question 1: Why do you like to play Computer Educational Games?
- Question 2: Do you start playing the game after the first failure? Why?
- Question 3: Do you like very hard games? Simple games?
- Question 4: Do you prefer playing alone or with others?
- Question 5: Let's suppose that you do not have enough knowledge in a specific field to win the game. Would you learn to win the game?

According to their answers (120 students participated in survey, age 9 – 13), we made conclusion:

- All kids like to play Educational Games in the classroom.
- Kids play games because they are fun and interesting, not because they are computer games.

- Students like to win the game. Especially if the game is hard: after they overcame difficulties, they are satisfied and with new energy to continue the game.
- Students are ready to learn, collect data, and improve knowledge to win the game.
- A game shouldn't give a right answer. Students should be allowed to do it wrong way and see what happens. Then do it again and guess how to solve tasks independently.
- Students play games in order to overcome difficulties. Challenges in the game have to be hard enough to keep their attention, but not too easy to get boring. Therefore, the game needs to have different levels of difficulties for diverse players.
- Students like to play alone and with team as well. Both type of game is interesting: they gain new skills, knowledge, and experience and overcame new challenges.

Some Reasons to Use Games in the Classroom

According to teachers' experience we think that educational game playing is a powerful instructional tool:

- The students learn through the game. By playing a game, students can understand a new concept or idea, take on different viewpoints, or experiment with different options.
- Through games, students can gain new knowledge and skills. There are a lot of important skills that students can develop through game playing such as critical thinking skills, creativity, teamwork, communication, leadership etc.
- Games increase student's motivation and actively engage them in learning process. Students really enjoy playing games. Therefore, it is a good way to focus their attention and actively engage them in learning process.
- Using Games teacher can differentiate learning process. During the playing students can choose the level of difficulties according his/her ability of knowledge and skills. They can play on their own speed and choose the style of solving problems they wish.
- Games provide a space for practices and experiments. Students need a lot of practice to accept new knowledge. Through games students freely use the knowledge and skills, repeatedly gaining much-needed practice.

The goal of Games in Computer Science lessons

Programming is a core part in computer science, but several research studies shows that students are facing difficulties even with basic programming techniques.

In my country, as well as in other countries, unfortunately Computer Science is not taught in schools as a mandatory subject. We decided to teach Computer Science in our school from primary classes. When parents hear the name "Computer Science", they think that it is a difficult subject for their children, and it is not necessary to teach programming in primary classes. They also think that this is not the subject for all students – only gifted students can straggle with programming task.

How to overcome this problem and to convince everyone that learning programming helps students in the development of very important and vital

educational skills. Mathematics is difficult subject as well and everybody learns it. Computer Science is the same.

That's why we need to use the games on the lesson.

There are at least two different approaches to game-based learning technology for programming education: In the first one the main idea is that students learn to program by playing specially created educational games that are designed for learning programming concepts in one or several programming languages. The second methodology is based on the idea that students design and build their own computer games and they are learning during the game creation process.

We decided to use both methods in our school.

Developing Gaming Elements to Create Effective Learning Games

Question: how to create an educational game to be engaging, interesting, challenging and funny?

Digital games have the ability to create interesting and engaging learning environments, supporting problem-solving, and learning through practice. This is true for all students. Learners can play, explore, experiment, as well as learn with game-based learning (G-Cube, n.d.). However, using games for learning is not easy to set up learning objectives, create complex structures of the game for support of learners; The use of this methodology need to define new ways of evaluating learners, and technological integration issues that have to be undertaken.

So, how can one create effective learning games?

Let's discuss some game feature that can be used for the design of effective learning games:

Challenge: For a game to be interesting there should be some challenge for the player to overcome. The challenge could be an obstacle, combat with another player, or a puzzle that has to be solved. There are various types of challenges that can be built in game-based learning.

Strategy and chance: Strategy-based games put a lot of control into the players' hands in the form of decisions they can make that affect game play or their odds of achieving the goal. On the other hand, games that are heavily based on chance give the player little control over the outcome. For best learning environment, educational games should combine a bit of both strategy and chance. The problem that they meet within the game can be based on chance while the solution that they come up with can involve the element of strategy.

Aesthetics: Visuals are a powerful tool of engaging players and helping them involve into the game. In video games, aesthetics plays an important role. With learning games, the most important is value of the game and the aesthetics can be reduced. Nevertheless, according to teachers experience (our experience as well), it is necessary to create at least minimum amount of visual appeal in learning games as well.

Theme: A theme can add interest and create engagement within a learning game. The theme can be conveyed with the visuals and with a brief "back story" that is included in the rules.

Rewards: Rewards are gifts that players earn through game play. The best way to engage the learners in games is to give players achievements for accomplishing certain tasks or hitting certain milestones. There is a different way giving lots of

rewards, but game designers have to use them effectively. A popular strategy is to reward learners for completing difficult tasks which are necessary within the game (Majumdar, 2016).

In conclusion, an educational game is considered usable when it provides satisfaction to its players, it is effective in achieving the goals set before playing and it is efficient in allowing consistent and responsive functionalities. Moreover, it is considered important to include different types of content in educational games (e.g. text, audio, videos, animation, graphics etc.) as well as the ability for players to directly interact with this content and receive appropriate feedback.

Game designers are expected to include functionalities that will allow teachers to set clear educational goals and activities that will challenge students during playing, will engage them in navigating through the game's features by increasing their curiosity even though they will not know the outcome and will enhancement their self-esteem (Thomas W. Malone , 1980).

Finally, educational games allow students to teach themselves by playing, reading the learning materials and assess their own performance. In addition, to create perfect educational game, teacher should have possibility to add new tasks, challenges in game. Usually, students love games, but they solve all problems, the games become boring and not interesting. According to my experience, if the game includes editor section, where teacher can easily add new topics, tasks, and questions and update old database, students continue to play game.

Our Experience: The first approach

Students learn to program by playing specially created (custom made) educational games that are designed for learning programming concepts in one or several programming languages.

Scratch is perfect tool to use for this purpose, because Scratch is a programming language, developed by the MIT Media Lab that makes easy to create interactive games, stories, simulations etc. Create game, show to students and ask them to create their own games – they will do!

She (student_1) created the game “Apples”. She was 7th grade student. In 1 week, she created this game.

The content of the game is:

The apples are falling from the top of the playing window on the ground (bottom part of the window). On the ground we have a game character and the character has three lives. If the apple falls into the head of character, it loses one life. With the keyboard arrows you must move the character to survive it alive until the game is finished.

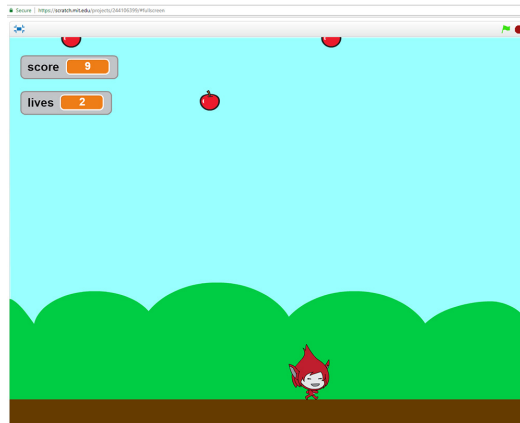


Figure 1.Starting position

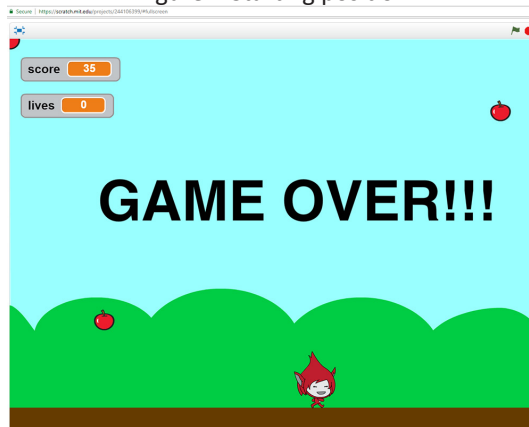


Figure 2.Game is finished



Figure 3.Part of the Code

Student learn the basics of Scratch programming Language and some algorithmic methods. She likes programming now and wants to choose Computer Science in High School. Next year she is going to start Java OOP to create more interesting games and we are sure that she will continue studying Computer Science and improve computational thinking skills. Scratch really helped her to learn programming. Game creation process was fun, interesting and excited for her. This is only one program – how she started and day by day she created more complex, different interesting games.

Our Experience: The second approach

Students design and build their own computer games.

He (student_2) likes to play, especially computer games. Often during the playing games, he wants to change style, characters, strategy etc. in the game. About three years ago when he asked to help him change something in one game I explained, that for this type of work he needs to know programming. And he answered me: "Teacher, what is programming? Can you help me to learn it? Is it difficult? I will learn programming and create my own games...". He started to learn programming by creating simple games. Finally, he created the game "Bombs".

This game is similar to very popular Windows OS game, but quite different from the old version; In the game he (my student) added many new features; His game

requires more logical thinking and little risk.

The game is designed for students of the III-V class. Because children love the computers very much, they will like this program. They will think and have fun during the play. – It's author's words.

In the game player can choose one of two levels: easy and hard. On the window the 12x12 grid / table is given. Each cell represents the button (Appendix B).

Before the game starts, the program "selects" 4 cells and sets them as a bomb by random selection. So, there are 144 cells and 4 cells set up with bombs. By clicking on the button, it will be exploded (opened), and the sound of the explosion is heard. Player has 4 green buttons to disarm bombs during the playing. Table 1 describes the types of cells after clicking on them. If all bombs will be removed without hitting them, the player wins the game. Thus, the goal of player is to detect all bombs and disarm them.

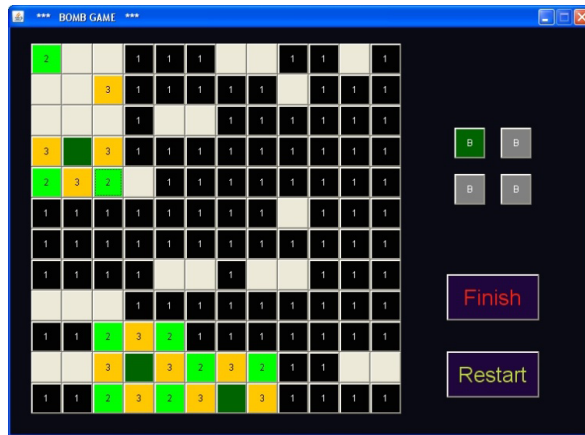


Figure 4. Position when 3 bombs are disarmed

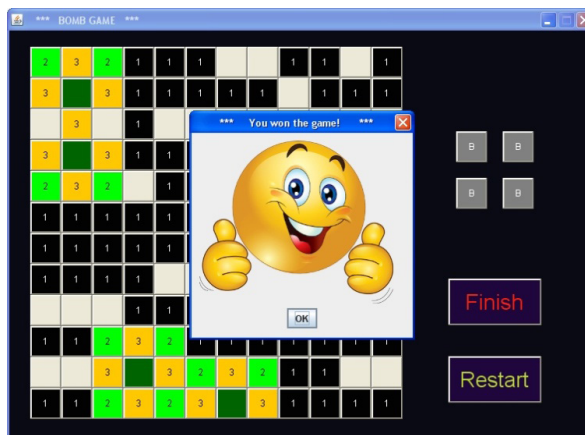


Figure 5. End of Game: all bombs are disarmed and player won the game

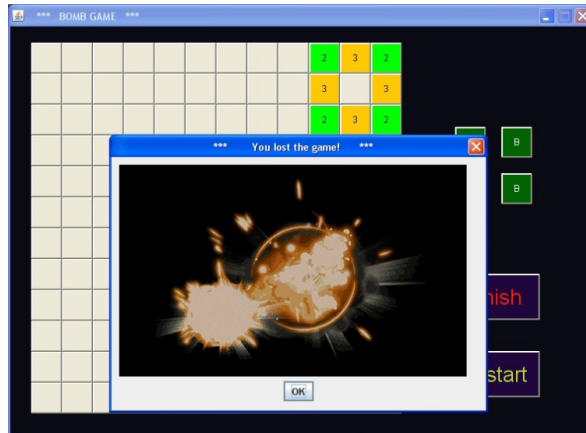


Figure 6. End of Game: player click on the cell where the bomb was set up and lost the game

	<p>This cell is quite distant from a bomb.</p>		<p>This cell is close to the bomb – on the diagonal position</p>
	<p>This cell is close to the bomb - on his side</p>		<p>In the central cell is set up the bomb</p>

Table 1. Types of cells

Hard level is different from the easy level by adding fifth bomb that is floating bomb – this means that during the game bomb can change the position if the place is not correctly detected by the player.

The program is created using Java OOP. Desire to create a game was an important reason for student_2 to learn programming. This year he finishes the school and is going to continue study computer science on the University level.

Conclusion

We agree with the educational games design model that has already been created; it combines three factors: game design, pedagogy and learning content modeling, with emphasis on usability, multimodality, fun, problem solving and syllabus matching (Roslina Ibrahim, Azizah Jaafar, 2009). If game designers follow this model the students will use it not only for fun but also for gaining new knowledge and skills.

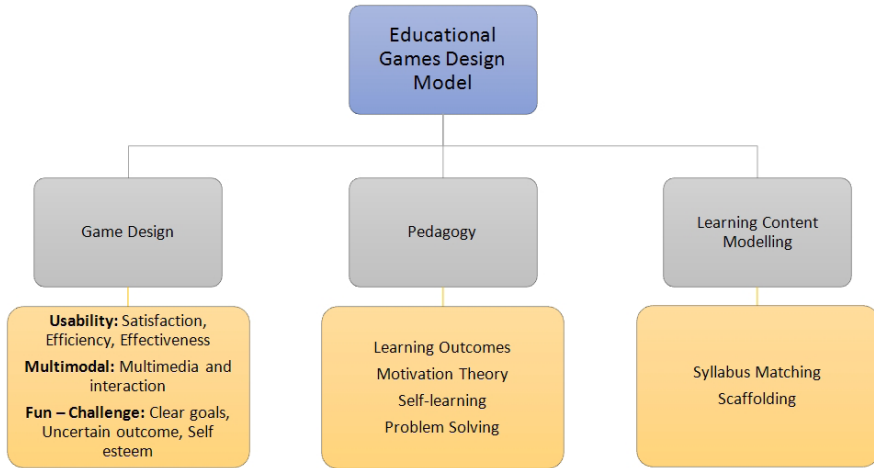


Figure 7. Educational Game Design Model

Learning by doing is perfect method of teaching students. Especially, when they can create real products - computer games. We all agree that children love playing and let's suppose how they will love games that are created by them. They can create games and learn programming simultaneously. Finally, the design and development of educational games are a comprehensive and complex process. Teach students to design their own games is much more difficult but very interesting and useful experience for student and especially for teachers.

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A RESEARCH ON BLADE RUNNER FILM IN TERMS OF ARCHITECTURAL DESIGN AND FILM DESIGN

MERVE DOGAN

MUNEVVER SEN DAGGULU

Cinema and architecture are closely related to each other in terms of techniques they use, in the context of presentation and products. The methods used in film design and editing are quite similar to the process in architectural design education. In addition to developing creativity and imagination in architectural design education, it is aimed to have a basis of design and to advance in fiction depending on this foundation. For this reason, the education process usually starts with conceptual designs. In this way the definitive acceptance of design is demolished, the possibility of different designs for the future is opened in the minds. The design of a space that does not exist is requested from students in the process of advancing education. This design which will be turned into a living place by the students is expected have a relationship with the environment. At this point, the design is shaped according to the present relationship with the current environment and the imagination by making predictions about environmental factors for the future. Because the architectural space is alive, it moves with time. The same fictional process is also involved in film design. The plot in films cannot imagine without motion in spaces. The spatial transformations in the film are very important for us to feel like we are there and to be involved in the editing. In Dystopian films, architectural design elements are becoming more important in terms of creating a perception beyond time. Places that do not exist as architectural design education should go through similar stages in terms of making them feel like a living space. For the purpose of the study, the film Blade Runner, which was released in 1982 as an important example of its kind in science fiction cinema, has been discussed. This cult film in the history of cinema has realistic predictions with reference to past, present, and future in the dystopian world. These realistic projections are largely owed to the design of the spaces that are created in the fiction and to the set designers that created these spaces.

The film begins with the sight of a 2019 Los Angeles skyline from the eyes of a replicant. This city skyline is largely inspired by Hong Kong. Just like the architectural design process, a city model was designed for this scene. The spaces which are important in the silhouette are emphasized with the differences in their designs. Tyrell Building, which is very important for the film, attracts attention with its huge

structure. It is emphasized that it is an important representative of the status quo with its pyramidal structure similar to Maya and Egyptian architecture. In order to design the Tyrell Building, the technical features of the material have been obtained with the help of the material model, which is an important detail in the architectural design. The film fiction, like the expression of a design approach, goes from the upper scale to the details and intertwines with the details to strengthen the narrative. Thus, we are becoming alive in the future that we have not known before.

The existing architectural spaces used in the film have been redesigned and they have gained a cinematic meaning by creating a new form. The spaces created for the film have sometimes redesigned the film and made it an architectural form. The relationship between cinema and architecture is beyond the use of architecture as a film set; for architecture, it is beyond spatialization in a film.

GROUP WORK WORKS: INSIGHT FROM GROUP-BASED LEARNING IN TEACHING ENGLISH LANGUAGE USING INNOVATIVE ASSESSMENT

MOHAMMAD TAMIMI

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Introduction:

Studies show that group-based projects demonstrate positive impact on students' performance, marks, attitudes towards learning, and content retention. Although group-based learning is used in Palestine, it is often avoided by instructors, as it comes with many difficulties and hindrances, most of which stem from using vague instructions, unbalanced assessment of the group members, and hazy feedback, if any. It is the opinion of the researchers of this study that when group work is well thought out and designed, properly monitored with assessment implementation that is specific, detailed and innovative, group work is guaranteed to increase learning, attitude, retention and performance.

Objective:

This study aims to investigate and test the effectiveness of specific methodologies and assessment tools developed by us for successful group work in the classroom.

Material and Methods of the Study:

To quantify this investigation, a preliminary study was conducted during the Fall semester of 2018 and the full study will be conducted during the upcoming Spring semester at Palestine Polytechnic University in Hebro-Palestine with two sections of the 'English in Use' courses, one as an experimental group and other as the control group. The instructor will teach both sections with random distribution of students between the two classes. 50% of the instruction for the experimental group will be based on group-work, using assessment developed specifically for this purpose. The control group will follow the traditional teaching methods and assessment in which less than 10% will be based on group-work. Students performance, questionnaire surveys and personal interviews will be used as data for evaluating the differences,

benefits or lack thereof between the experimental and control group.

Study Results:

The study results will be presented, discussed and evaluated.

Presentation format:

This presentation will briefly describe the study, and will focus on demonstrating methodology and assessment used for group work in the experimental class of the study. It will incorporate hands on workshop for the instructors.

Conclusion:

The aim of this study is to test effective teaching methodologies and as the result improve content retention, critical thinking skills and collaboration among college age students in higher education systems of Palestine