Application Details

Manage Application: ALG Textbook Transformation Grants

Award Cycle:	Round 9
Internal Submission Deadline:	Sunday, April 30, 2017

Application Title:	316
Application ID:	#001762
Submitter First Name:	Shuting
Submitter Last Name:	Xu
Submitter Title:	Associate Professor
Submitter Email Address:	sxu@ggc.edu
Submitter Phone Number:	678-471-1547
Submitter Campus Role:	Proposal Investigator (Primary or additional)
Applicant First Name:	Shuting
Applicant Last Name:	Xu
Co-Applicant Name:	Shuhua Lai
Applicant Email Address:	sxu@ggc.edu
Applicant Phone Number:	678-471-1547
Primary Appointment Title:	Associate Professor
Institution Name(s):	Georgia Gwinnett College
Submission Date:	Monday, May 1, 2017

Proposal Title:	316
Final Semester of Instruction:	Spring 2018

Team Members (Name, Title, Department, Institutions if different, and email address for each):

Shuting Xu, Associate Professor, Information Technology, sxu@ggc.edu

Shuhua Lai, Associate Professor, Information Technology, slai@ggc.edu

Sponsor, (Name, Title, Department, Institution):

Tom Mundie, Dean of School of Science and Technology, Georgia Gwinnett College

Course Names, Course Numbers and Semesters Offered:

Web Technologies, ITEC 2130, offered in Spring, Summer and Fall semesters every year.

Average Number of Students per Course Section:	28
Number of Course Sections Affected by Implementation in Academic Year:	9
Total Number of Students Affected by Implementation in Academic Year:	252
List the original course materials for students (including title, whether optional or required, & cost for each item):	Web Development and Design Foundations with HTML5, 8th Edition; ISBN-13: 978-0134322759, Required, $130.80Adobe® Dreamweaver® CS6, 1st Edition, ISBN-13: 978-1-133-52602-5, Required, $75.95.Adobe® Flash® Professional CS6, 1st Edition, ISBN-13: 978-1-133-52600-1, Required, $75.95.
Proposal Categories:	No-Cost-to-Students Learning Materials
Requested Amount of Funding:	$10,800
Original per Student Cost:	$282.70
Post-Proposal Projected Student Cost:	0
Projected Per Student Savings:	$282.70
Projected Total Annual Student Savings:	$71,240.40

Creation and Hosting Platforms Used ("n/a" if none):

We are planning to use the following 2 hosting platforms to share and distribute the No-Cost-to-Students Course Materials. Students can create accounts and use them for free.

Georgia Gwinnett College Brightspace (D2L) (https://ggc.view.usg.edu/d2l/home). This website will be used to post all the course materials, announcements, assignments, and for students to submit homework and take tests and quizzes.
altervista (https://en.altervista.org/). Students can register free accounts on this web site. This web site will be used for students to post their web pages created for homework and projects and host their client-side and server-side programs (D2L does not provide this

function).

Project Goals:

The goals of the project are:

1. Create more focused, project-based course materials.

The current course uses three required textbooks: "Web Development and Design Foundations with HTML5" [1] has 14 chapters, "Adobe® Dreamweaver® CS6" [2] has 10 learning units, and "Adobe® Flash® Professional CS6" [3] has 7 learning units. The course may cover at most half of all the contents in one semester. Many of the chapters and learning units are never touched. As the textbooks are from different publishers, there is no way to make a customized textbook with only selected chapters from each book. The themes for hands-on exercises also varies. In this project, we propose to create project-based teaching and learning course materials for this course with only needed contents. Using the project-based course materials, students can learn how to design their web sites with professional layouts, for example, using CSS to configure color and text, using visual elements and graphics, adding links, tables, forms, multimedia and interactivity, etc. The learning materials we create will cover all the knowledge and skills they need to design a professional web site.

2. Design project-based course materials to improve student success rate.

The exercises from the current textbook are focused only on the skills covered in each chapter and do not provide students with a systematic view of how web sites are designed and implemented from scratch. By using the project-based course materials mentioned above, students will have the opportunity to design and implement a web site on their own step by step. We hope this pedagogical transformation will fill the gap of textbook knowledge and real-world application and in return improve student success rate.

3. Reduce student expenses in textbook purchases to zero dollars.

The cost of three textbooks at college bookstore is $282.70. As explained above, some of the textbook contents are not covered in the course. ITEC2130 Web Technologies is a general education course at Georgia Gwinnett College which is taken by about 250 students annually. Using the zero cost learning materials we propose will lower the cost of college education for students.

4. Share the learning materials with other USG universities and colleges to benefit more students.

We will make the created learning materials freely available to all the USG faculty. They can be used as replacement to their current textbooks or supplement teaching materials.

Statement of Transformation:

Transformation description:

The textbooks used in ITEC2130 Web Technologies at GGC are expensive, which is $280.70 for the three required textbooks. As a matter of fact, most textbooks on information technology are expensive. In addition, due to the fast evolving nature of the web design field, the textbooks used in the proposed course are updated frequently, which negatively impacts their resale value. For example, HTML 5 [4] was published in October 2014 and HTML 5.1 [5] was published in November 2016. On the other side, the learning resources for web technologies are abundant on the World Wide Web today. Many of these resources are publicly accessible, free, or with an open license to use. The investigators of this proposal will identify, select and adopt/create no-cost materials to replace the costly textbook and achieve the same learning outcomes.

The teaching and learning course materials we propose to create will be project-based. All the knowledge covered by the learning materials will be focused on building students' web site project. Project-based learning (PBL) is a student-centered pedagogy that involves a dynamic classroom approach in which it is believed that students acquire a deeper knowledge through active exploration of real-world challenges and problems [6]. It is a style of active learning and inquiry-based learning. A meta-analysis conducted by Purdue University found that when implemented well, PBL can increase long-term retention of material and replicable skill, as well as improve teachers' and students' attitudes towards learning [7]. By using the proposed project-based course materials we hope students will improve class engagement and learning satisfaction, gain experience in working on real-world applications and improve student success rate.

Stakeholders affected by the transformation:

The direct stakeholders affected by the transformation will be approximately 250 traditional and non-traditional undergraduate students annually who are enrolled in the Web Technologies course at GGC.

All the GGC faculty and other faculty in Georgia and across the country who teach a similar web design course may have free access to the course materials. This will in return benefit students state-wide and nation-wide.

The impact of this transformation on stakeholders and course success:

The transformation process will help remove and eliminate the cost of expensive textbooks for students, and provide students with access to course learning materials on the first day of class.

The project-based pedagogical transformation will better engage students in classes as they

know every skill they learn in class will be used to build their designed web sites. This will help to improve course's attendance and retention. And the experience of working on a real-world application will benefit their future career success.

The transformation will also benefit faculty teaching similar courses by providing a solution to lower textbook cost, improve student engagement and success rate.

The transformative impact on the program, department, institutions, access institution, and/or multiple courses:

ITEC2130 Web Technologies is a required course for Information Technology major with Digital Media concentration and also a general education course for all the students at GGC. The successful transformation with zero textbook cost and better course engagement and satisfaction will attract more students to enroll as IT major.

The proposed project-based course materials also strongly support the mission of GGC "It emphasizes the innovative use of technology and active-learning environments to provide students enhanced learning experiences, practical opportunities to apply knowledge..."

The idea of zero textbook cost and project-based learning may inspire more successful course transformation in other areas and disciplines at GGC and USG at large.

Transformation Action Plan:

The identification, review, selection, and adoption/adaptation/creation of the new course materials

The new course materials will be identified and gathered/created based on course objectives and student learning outcomes of the ITEC 2130 Web Technologies course. While some of the course materials can be created by referring to the currently used textbook, most of them will be produced by using publicly available resources since most of the content taught in this course are standard web design applications maintained by nonprofit organizations and open source foundations.

The course and syllabus instructional design/redesign necessary for the transformation.

The course syllabus will be modified for the transformation, for example, course material information, grade distribution, tentative course schedule, etc. The syllabus will be made available in D2L for this course by the PIs. Since the new course materials will be provided on D2L, each topic covered in the course will have a web link in D2L, which contains all the materials relevant to the topic. Also, each course topic will be designed based on learning-by-doing approach to include many examples, tutorials, and handson features that allow students to practice and improve their own web design skills.

The activities expected from each team member and their role(s): subject matter experts, instructional designer, librarian, instructor of record, et al.

Team member: Shuting Xu, Associate Professor of Information Technology, as a subject matter expert and instructional designer, will identify and create new course materials and oversee the entire transformation process. She will select and determine study material for all quizzes, exams and homework assignments/projects, develop handson activities, lab activities, complete and analyze all grade/survey related data for the course.

Team member: Shuhua Lai, Associate Professor of Information Technology, as a subject matter expert and instructional designer, will create new course materials including developing lecture notes/course PPT slides, identifying online free complementary reading materials/tutorials/video clips for each course topic. Also he will set up and maintain the D2L course material for this project.

The plan for providing open access to the new materials.

The new course materials will be hosted in Georgia Gwinnett College Brightspace (D2L) (https://ggc.view.usg.edu/d2l/home) and all students who take this course will have free access to the materials on the first day of class. This website will be used to post all the course materials, announcements, assignments, and for students to submit homework and take tests and quizzes.

We will also use altervista (https://en.altervista.org/). Students can register free accounts on this web site. This web site will be used for students to post their web pages created for homework and projects and host their client-side and server-side programs (D2L does not provide this function).

Quantitative & Qualitative Measures:	Quantitative Measures: The PIs will collect data from all students who take this course using the developed no-cost-to-student course materials. These data includes but not limited to:demographic datamajor area of study,retention rate in the course,passing and failing rate,drop and withdraw rate,percentage of students getting As, Bs, Cs, Ds, Fspercentage of students achieving student learning outcomesThe above data will be collected at the end of the semester and compared with the sections of the ITEC2130 without using the proposed course materials. The comparison result will be used to evaluate the efficacy of the course materials in improving student success.Qualitative Measures: The PIs will also survey our student to understand their experience using the developed no-cost-to-student course material. For example, students will be asked to evaluate the following statement on a 1-5 scale from strongly disagree to strongly agree.The project-based course materials are fun.I like the class activities designed for this course.I like the homework designed for this course.I learned all the knowledge and skills needed to build my web site project.The students will also be asked the following short answer questions:What were the best aspects of using the No-Cost-to-Students Learning Materials?What were the challenges of using the No-Cost-to-Students Learning Materials?Other comments or suggestions about this course?The survey will be conducted at the end of the semester and the data collected will help the PIs to modify and improve the learning materials to be used in the following semesters.

Timeline:

10/31/2017

Complete course modules redesign for the project-based course materials. These include all reading materials, lecture notes, video clips, exercises, labs, and assignments.

11/30/2017

Complete course level materials redesign. This includes quizzes, tests, and syllabus.

12/15/2017

Develop the survey questionnaire used to evaluate the project-based course materials, and deliver the first report.

04/30/2018

Complete the course using the project-based course materials in the spring semester. Conduct survey at the end of the semester.

05/31/2018

Analyze data collected. Finish quantitative and qualitative data analysis. Compile final report.

Budget:

The funding mainly compensates the investigators' work and activities beyond normal teaching load in order to successfully complete the project. The workload for each person requires at least about 80 hours of development time and 20 hours of assessment.

Compensation for two faculty: $5,000 *2 = $10,000

Travel expense: $800

Total: $10,800

Only open source software will be used in this project thus there is no additional spending on software or equipment purchasing.

Sustainability Plan:

Web Technologies is a general education course at GGC as well as a required course for IT major with Digital Media concentration. There are about 10 sections taught each academic year. We plan to test the no-cost-to-students materials in 4 sections the two PIs teach. It is reasonable to expect that the success of this project will greatly reduce students cost, better prepare and engage students, improve academic performance, and in turn improve retention and success rates in this course. We will then propose to have all sections adopt the no-cost-to-students material approach.

For GGC faculty, all no-cost materials and resources will be made available in D2L and will be shared among all faculty teaching this course. For non-GGC faculty, the materials will be provided freely upon request. In addition, the course materials will be updated periodically by faculty in the Information Technology program reflecting feedback from various sources and newly emerged web design technologies in the industry.

Georgia Gwinnett
COLLEGE

Office of the Dean
School of Science & Technology

1000 University Center Lane
Lawrenceville, GA 30043
Phone: 678-407-5602
www.ggc.edu

To: Grant Review Committee

Affordable Learning Georgia, University System of Georgia

Re: Textbook Transformation Grant

Dear Committee,

I am pleased to write this letter to support Dr. Shuting Xu and Dr. Shuhua Lai's application for the ALG Textbook Transformation Grant.

The proposal focuses on the creation of no-cost-to-students learning materials to replace current textbook for our IT required course Web Technology (ITEC 2130). This will lower costs of students taking this course and will most likely increase our retention and success rates in the course.

Drs. Xu and Lai have been teaching ITEC 2130 for a several semesters. They have the knowledge, skills and experiences needed to successfully perform the action plan and meet the obligations of the grant. If awarded the grant, I will work with them to coordinate the distribution of their award and provide necessary resources to facilitate their activities in developing the proposed learning materials.

Please let me know if you have any questions or need additional information.

Sincerely,

Dr. Thomas G. Mundie
Dean, School of Science and Technology
Georgia Gwinnett College

Affordable Learning Georgia Textbook Transformation Grants

Round Nine

For Implementations beginning Summer Semester 2017

Running Through Spring Semester 2018

Proposal Form and Narrative

- *The proposal form and narrative .docx file is for offline drafting and review. Submitters must use the InfoReady Review online form for proposal submission.*

- ***Note: The only way to submit the proposal is through the online form in Georgia Tech's InfoReady Review at:***

  https://gatech.infoready4.com/#competitionDetail/1757803

- *If you are copying and pasting into InfoReady Review from this form, first convert the file to **plain text** and copy/paste from the plain text file.*

  - *In Word, go to File > Save As… > and change the file format to "Plain Text (.txt)."*

  - *Copy and paste from the .txt file.*

  - *Be sure to save both copies in case you are asked to resubmit.*

- *Microsoft Word Document formatting pasted into InfoReady Review will render the reviewer copy unreadable. **If you paste Word-formatted tables into InfoReady Review, you may be asked to resubmit your application if time permits.***

- *Italicized text is provided for your assistance; please do not keep the italicized text in your submitted proposal. Proposals that do not follow the instructions may be returned.*

Submitter Name	Shuting Xu
Submitter Title	Associate Professor
Submitter Email	sxu@ggc.edu

Submitter Phone Number	678-471-1547
Submitter Campus Role	*Proposal Investigator (Primary)*
Applicant Name	*Shuting Xu*
Applicant Email	sxu@ggc.edu
Applicant Phone Number	678-471-1547
Primary Appointment Title	Associate Professor
Institution Name(s)	Georgia Gwinnett College
Team Members	*Shuting Xu, Associate Professor, Information Technology, sxu@ggc.edu* *Shuhua Lai, Associate Professor, Information Technology, slai@ggc.edu*
Sponsor, Title, Department, Institution	*Tom Mundie, Dean of School of Science and Technology, Georgia Gwinnett College*
Proposal Title	Developing Project Based Course Materials for ITEC 2130 Web Technologies
Course Names, Course Numbers and Semesters Offered	*Web Technologies, ITEC 2130, offered in Spring, Summer and Fall semesters every year.*

Final Semester of Instruction	*Spring 2018*				
Average Number of Students Per Course Section	28	**Number of Course Sections Affected by Implementation in Academic Year**	9	**Total Number of Students Affected by Implementation in Academic Year**	252
Award Category (pick one)	☒ No-or-Low-Cost-to-Students Learning Materials ☐ OpenStax Textbooks ☐ Interactive Course-Authoring Tools and Software ☐ Specific Top 100 Undergraduate Courses				
List the original course materials for students (including title, whether optional or required, & cost for each item)	*Web Development and Design Foundations with HTML5, 8th Edition; ISBN-13: 978-0134322759, Required, $130.80* *Adobe® Dreamweaver® CS6, 1st Edition, ISBN-13: 978-1-133-52602-5, Required, $75.95.* *Adobe® Flash® Professional CS6, 1st Edition, ISBN-13: 978-1-133-52600-1, Required, $75.95.*				
Requested Amount of Funding	$10,800				
Original Per Student Cost	$282.70				
Post-Proposal Projected Per Student Cost	0				

Projected Per Student Savings	$282.70
Projected Total Annual Student Savings	*$71,240.40*
Creation and Hosting Platforms Used	*We are planning to use the following 2 hosting platforms to share and distribute the No-Cost-to-Students Course Materials. Students can create accounts and use them for free.* *1. Georgia Gwinnett College Brightspace (D2L) (https://ggc.view.usg.edu/d2l/home). This website will be used to post all the course materials, announcements, assignments, and for students to submit homework and take tests and quizzes.* *2. faltervista (*https://en.altervista.org/*). Students can register free accounts on this web site. This web site will be used for students to post their web pages created for homework and projects and host their client-side and server-side programs (D2L does not provide this function).*

NARRATIVE

1.1 PROJECT GOALS

The goals of the project are:

1. **Create more focused, project-based course materials.**

   The current course uses three required textbooks: "Web Development and Design Foundations with HTML5" [1] has 14 chapters, "Adobe® Dreamweaver® CS6" [2] has 10 learning units, and "Adobe® Flash® Professional CS6" [3] has 7 learning units. The course may cover at most half of all the contents in one semester. Many of the chapters and learning units are never touched. As the textbooks are from different publishers, there is no way to make a customized textbook with only selected chapters from each book. The themes for hands-on exercises also varies. In this project, we propose to create project-based teaching and learning course materials for this course with only needed contents. Using the project-based course materials, students can learn how to design their web sites with professional layouts, for example, using CSS to configure color and text, using visual elements and graphics, adding links, tables, forms, multimedia and interactivity, etc. The learning materials we create will cover all the knowledge and skills they need to design a professional web site.

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3. **Reduce student expenses in textbook purchases to zero dollars**.

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4. **Share the learning materials with other USG universities and colleges to benefit more students.**

   We will make the created learning materials freely available to all the USG faculty. They can be used as replacement to their current textbooks or supplement teaching materials.

1.2 STATEMENT OF TRANSFORMATION

Transformation description:

The textbooks used in ITEC2130 Web Technologies at GGC are expensive, which is $280.70 for the three required textbooks. As a matter of fact, most textbooks on information technology are expensive. In addition, due to the fast evolving nature of the web design field, the textbooks used in the proposed course are updated frequently, which negatively impacts their resale value. For example, HTML 5 [4] was published in October 2014 and HTML 5.1 [5] was published in November 2016. On the other side, the learning resources for web technologies are abundant on the World Wide Web today. Many of these resources are publicly accessible, free, or with an open license to use. The investigators of this proposal will identify, select and adopt/create no-cost materials to replace the costly textbook and achieve the same learning outcomes.

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Stakeholders affected by the transformation:
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designed web sites. This will help to improve course's attendance and retention. And the experience of working on a real-world application will benefit their future career success.

The transformation will also benefit faculty teaching similar courses by providing a solution to lower textbook cost, improve student engagement and success rate.

The transformative impact on the program, department, institutions, access institution, and/or multiple courses:

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The proposed project-based course materials also strongly support the mission of GGC "It emphasizes the innovative use of technology and active-learning environments to provide students enhanced learning experiences, practical opportunities to apply knowledge..."

The idea of zero textbook cost and project-based learning may inspire more successful course transformation in other areas and disciplines at GGC and USG at large.

1.3   TRANSFORMATION ACTION PLAN

The identification, review, selection, and adoption/adaptation/creation of the new course materials
The new course materials will be identified and gathered/created based on course objectives and student learning outcomes of the ITEC 2130 Web Technologies course. While some of the course materials can be created by referring to the currently used textbook, most of them will be produced by using publicly available resources since most of the content taught in this course are standard web design applications maintained by non-profit organizations and open source foundations.

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Team member: Shuhua Lai, Associate Professor of Information Technology, as a subject matter expert and instructional designer, will create new course materials including developing lecture notes/course PPT slides, identifying online free complementary reading materials/tutorials/video clips for each course topic. Also he will set up and maintain the D2L course material for this project.

The plan for providing open access to the new materials.
The new course materials will be hosted in Georgia Gwinnett College Brightspace (D2L) (https://ggc.view.usg.edu/d2l/home) and all students who take this course will have free access to the materials on the first day of class. This website will be used to post all the course materials, announcements, assignments, and for students to submit homework and take tests and quizzes.

We will also use altervista (https://en.altervista.org/). Students can register free

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[Proposal No.]   **10**   [*Publish Date*]

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1.4 QUANTITATIVE AND QUALITATIVE MEASURES

Quantitative Measures: The PIs will collect data from all students who take this course using the developed no-cost-to-student course materials. These data includes but not limited to:
- demographic data
- major area of study,
- retention rate in the course,
- passing and failing rate,
- drop and withdraw rate,
- percentage of students getting As, Bs, Cs, Ds, Fs
- percentage of students achieving student learning outcomes

The above data will be collected at the end of the semester and compared with the sections of the ITEC2130 without using the proposed course materials. The comparison result will be used to evaluate the efficacy of the course materials in improving student success.

Qualitative Measures: The PIs will also survey our student to understand their experience using the developed no-cost-to-student course material. For example, students will be asked to evaluate the following statement on a 1-5 scale from strongly disagree to strongly agree.
- The project-based course materials are fun.
- I like the class activities designed for this course.
- I like the homework designed for this course.
- I learned all the knowledge and skills needed to build my web site project.

The students will also be asked the following short answer questions:
- What were the best aspects of using the No-Cost-to-Students Learning Materials?
- What were the challenges of using the No-Cost-to-Students Learning Materials?
- Other comments or suggestions about this course?

The survey will be conducted at the end of the semester and the data collected will help the PIs to modify and improve the learning materials to be used in the following semesters.

1.5   TIMELINE

- 10/31/2017
  Complete course modules redesign for the project-based course materials.
  These include all reading materials, lecture notes, video clips, exercises, labs,
  and assignments.

- 11/30/2017
  Complete course level materials redesign. This includes quizzes, tests, and
  syllabus.

- 12/15/2017
  Develop the survey questionnaire used to evaluate the project-based course
  materials, and deliver the first report.

- 04/30/2018
  Complete the course using the project-based course materials in the spring
  semester. Conduct survey at the end of the semester.

- 05/31/2018
  Analyze data collected. Finish quantitative and qualitative data analysis.
  Compile final report.

1.6   BUDGET

The funding mainly compensates the investigators' work and activities beyond normal teaching load in order to successfully complete the project. The workload for each person requires at least about 80 hours of development time and 20 hours of assessment.

Compensation for two faculty: $5,000 *2 = $10,000
Travel expense: $800

Total: $10,800

Only open source software will be used in this project thus there is no additional spending on software or equipment purchasing.

1.7 SUSTAINABILITY PLAN

Web Technologies is a general education course at GGC as well as a required course for IT major with Digital Media concentration. There are about 10 sections taught each academic year. We plan to test the no-cost-to-students materials in 4 sections the two PIs teach. It is reasonable to expect that the success of this project will greatly reduce students cost, better prepare and engage students, improve academic performance, and in turn improve retention and success rates in this course. We will then propose to have all sections adopt the no-cost-to-students material approach.

For GGC faculty, all no-cost materials and resources will be made available in D2L and will be shared among all faculty teaching this course. For non-GGC faculty, the materials will be provided freely upon request. In addition, the course materials will be updated periodically by faculty in the Information Technology program reflecting feedback from various sources and newly emerged web design technologies in the industry.

1.8   REFERENCES & ATTACHMENTS

[1] Felke-Morris, T. A. "Web Development and Design Foundations with HTML5", 8th Edition, published by Pearson, 2017.

[2] Bishop, S. "Adobe® Dreamweaver® CS6", 1st Edition, published by Cengage Learning, 2013.

[3] Waxer, B. "Adobe® Flash® Professional CS6", 1st Edition, published by Cengage Learning, 2013.

[4] *"HTML5: A vocabulary and associated APIs for HTML and XHTML"*. *World Wide Web Consortium. 28 October 2014. Retrieved 31 October 2014.*

[5] *"HTML 5.1"*. *World Wide Web Consortium. 1 November 2016. Retrieved 6 January 2017.*

[6] "*Project-Based Learning", Edutopia, March 14, 2016*. Retrieved 2016-03-15

[7] Strobel, J. Barneveld, A. "When is PBL More Effective? A Meta-synthesis of Meta-analyses Comparing PBL to Conventional Classrooms." Interdisciplinary Journal of Problem-Based Learning. Volume 3, Article 4. 2009.